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Colorado Water Conservation Board
Department of Natural Resources

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John Hickenlooper, Governor

Mike King, DNR Executive Director

James Eklund, CWCB Director

TO: Colorado Water Conservation Board Members

FROM: Tom Browning, P.E.
Deputy Director – Integrated Water Resources

DATE: January 15, 2015

AGENDA ITEM #15: Catlin Canal Fallowing-Leasing Pilot Project

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Background:
The Lower Arkansas Valley Water Conservancy District (Lower Ark) and the Lower Arkansas Valley Super Ditch Company, Inc. (Super Ditch) submitted a formal application to CWCB staff for a fallowing-leasing pilot project. The application followed a selection and approval process by the Board at its September 2014 meeting in Glenwood Springs. The project application falls under the umbrella of House Bill 13-1248 and the CWCB's *Criteria and Guidelines for the Fallowing-Leasing Pilot Program in Colorado*.

The application involves transfers from certain shares of agricultural water from farmland irrigated by the Catlin Canal, within Otero County, for temporary municipal uses by the Town of Fowler, City of Fountain, and the Security Water District. The project proponents would like to begin implementing the pilot project for the 2015 irrigation season.

Lower Ark and Super Ditch have been attempting to launch a pilot project to demonstrate benefits and learn from rotational fallowing practices. Their overall goal is to meet municipal water needs in a way that reduces permanent agricultural dry-up, or "buy and dry." This goal is consistent with strategies included as part of Colorado's Water Plan.

Casey Shpall will facilitate this action item before the Board. An agenda will be posted prior to the meeting.

Staff recommendation:
Staff recommends that the Board approve the Catlin Canal Pilot Project based on the State Engineer's written determination, including terms and conditions necessary for project operation and administration, that the pilot project can operate without causing injury and without impairing compliance with any interstate compact.

Note: All of the materials contained in the comprehensive record for this agenda item are available electronically on CWCB's website, and the digital version of the CWCB Board notebook. Hard copy notebooks include the board memo and State Engineer's written determination.

COLORADO

Colorado Water Conservation Board

Department of Natural Resources

January 26-27, 2015 Board Meeting

Agenda Item 15

Catlin Canal Pilot Project Notebook Materials

A. State Engineer's Determination

B. Conference Committee Report

C. Sign in Sheets for December 18th Conference Committee Meeting

D. Public Comment Letters for the Comment Period Ending December 9, 2014

E. Transmittal Letter and Project Application

F. Supplemental Application Information

G. CWCB Board Memo from September, 2014

H. Public Comment Letters for the Comment Period Ending August 15, 2014

I. Initial Cover Letter and Project Proposal

J. CWCB Criteria and Guidelines for Fallowing-Leasing Pilot Projects

K. HB13-1248

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix A

State Engineer's Determination

COLORADO
Division of Water Resources
Department of Natural Resources

1313 Sherman Street, Room 821
Denver, CO 80203

January 16, 2015

To: Colorado Water Conservation Board Members

From: Dick Wolfe, P.E.
State Engineer/Director, Division of Water Resources

Subject: Written Determination of the State Engineer, HB13-1248 Catlin Fallowing-Leasing Pilot Project

Section 37-60-115(8)(f) allows the Colorado Water Conservation Board (CWCB) to approve a pilot project application if the State Engineer has made a written determination (Determination) that the operation and administration of the pilot project will not cause injury and will not impair compliance with any interstate compact. As the State Engineer, I have worked with my staff (Staff) to complete the Determination for the Catlin Fallowing-Leasing Pilot Project and submit it as an attachment to this letter.

In the attached Determination, I find that the operation and administration of the HB13-1248 Catlin Fallowing-Leasing Pilot Project will meet the standards of Section 37-80-115(8)(f) if operated according to the terms and conditions included in the Determination. Section I of the determination briefly describes the process by which the Staff completed the Determination. One component of that process was a statutorily-required conference and the subsequent submittal of a joint report (Report) by the conference participants. The Report included a listing of agreed-upon terms and conditions for the proposed pilot project. The Report further identified areas of disagreement between the conference participants.

The terms and conditions in the Determination are based upon the agreed-upon terms and conditions from the Report as well as the Staff's imposed terms and conditions in areas where the conference participants did not reach agreement. Those areas of disagreement, along with the Staff's description of how the imposed terms and conditions are intended to resolve the areas of disagreement are described below.

The terms and conditions in the Determination are numbered 1 through 59. The terms and conditions that represent an effort to resolve disagreement are numbers 10, 19, 21, 22, 31, 27, 28, 29, 30, 33, 34, 46, and 48. All other terms and conditions may be regarded as agreed-upon terms and conditions. I believe that through the agreed-upon terms and conditions, along with the terms and conditions used to resolve disagreement, the concerns of all parties have been reasonably addressed, allowing plan operation without injury and no impairment to the interstate compact.

Unresolved Term and Conditions from the Report:

1. **How the revised Lease-Fallow Tool run contained in term and condition 10 of the Determination, should be applied to the total irrigated acreage for each year.**

   The disputed issue was how the average share-per-acre ratio from the historical consumptive use analysis using the Lease-Fallow Tool (LFT) should be applied to Project farms during the project. Staff adopted the recommendation of Tri-State in this instance as applied specifically in term and condition 10-c because the Staff believed this more accurately applied the basis for the historical analysis to farm conditions under the duration of the Project and still met the intent of the other commenting party who offered a comparable change.

2. **Whether the Catlin Pilot Project should be operated using a projection or a "pay as you go" methodology for lagged return flows.**

   A "pay as you go" methodology would require that consumptive use credits could only be taken in a year of operation if all return flow obligations associated with those credits would be met by accretions from water placed into recharge that same year. The proposal by Tri-State that the applicants operate the plan using a "pay as you go" approach was an offered compromise in lieu of stricter terms and conditions related to using a projection tool and firm commitment of replacement sources for any post-Project return flow obligations created by operation of the Project. The Applicants stated that Tri-State's proposal had merit but expressed concerns that the proposal was made too late in the process to allow review by other parties.

   Staff recognized that the "pay as you go" approach had merit, but required some additional work by the Applicants and review by other parties to ensure success. Term and conditions were included that allow the Applicants to choose this approach if desirable as compared to the terms and conditions necessary to operate using a projection and commitment of firm replacement sources. Specific terms and conditions that address this issue are 21 and 31.

3. **What are the appropriate requirements of projecting future return flow obligations and how they will be met, specifically, whether firm sources of supply need to be dedicated prior to any Pilot Project operations to meet only the upcoming Plan Year return flow obligations or to meet return flow obligations for as long as they occur.**

   Staff generally agreed with the Applicants' proposed terms and conditions, but added that the projection should be extended through the end of the lagging period as suggested by Tri-State. These terms and conditions are 27 and 28.

4. **Whether sources of replacement water may be approved for such use through substitute water supply plan ("SWSP") approval pursuant to C.R.S. §37-92-308(5) or are limited to SWSP approval pursuant to C.R.S. § 37-92-308(4), requiring a pending application for such change be filed with the water court.**

   Staff adopted the proposed term and condition by Tri-State in this circumstance as shown in term and condition 29. Staff does not believe that this will cause an undue hardship for the Applicants.

5. **Whether a "firm source" of water requires a binding agreement for the term of that source's inclusion in a future return flow projection, including agreements for use of structures.**

Staff attempted to provide resolution of this issue in term and condition 30. This term and condition requires Applicants, if they choose to not use a "pay as you go" approach, to provide an annual report by January 1st following the end of each Project plan year one through nine that projects any post-Project return flow obligations incurred from operations through the prior year and requires a commitment of specific replacement sources capable of meeting this need. Applicants have the flexibility to update or change the source of replacement for post-Project return flow obligations with each January 1st update until the final report is provided following the last year of operation. At that point the Applicants have a higher burden for firm commitment of a source or sources and a responsibility to document that all necessary agreements are in place to replace post-Project return flow obligations. This term and condition also requires the Applicants to designate the legal method to be used to meet the post-Project return flow obligations. While not meeting all of Tri-State's desired term and condition wording, Staff believes this condition will provide the necessary protection for other water rights.

6. **What is the appropriate timing and method of sources for replacement of tailwater and lagged deep percolation return flows.**

Staff adopted the recommended condition by Tri-State regarding tailwater as term and condition 19. The recommended alteration of this condition by the Applicants was not accepted due to the importance of ensuring the tailwater component is consistently delivered out the augmentation stations and is not retained within the Catlin Canal system to potentially be used by other shareholders.

Staff adopted the recommended condition by Tri-state for deep percolation return flows as term and condition number 22 and believes that this term and condition does not cause the Applicants undue hardship and is protective of other water rights and compact obligations.

7. **Whether or not excess recharge accretions may be used to meet tailwater return flow obligations.**

Staff adopted the Applicants' proposed term and condition as term and condition number 33 and did not agree with Tri-State's recommended alternative because Staff believed that Tri-State's concerns were predominantly addressed as described under issue 6 above.

8. **Whether or not water available pursuant to operations of the Pilot Project may be traded and/or exchanged with Rule 10 and/or 14 Plans.**

Staff disagreed with Tri-State's contention that water could not be traded or exchanged with Rule 10 and/or Rule 14 Plans and adopted Applicant's term and condition as generally modified by Kansas as term and condition number 34. Staff did add the daily accounting provision suggested by Tri-State and did provide a mechanism for providing comments and concerns about trades or exchanges with Rule 10 or Rule 14 Plans in this term and condition.

9. Whether or not it is necessary to require weekly accounting during the first year of Pilot Project operations.

Staff did not fully adopt Tri-State's recommendation that weekly accounting be provided during the first year of operation, but did required in term and condition number 48 that daily accounting elements be provided weekly for the first 75 days of operation in the initial plan year in addition to monthly accounting to ensure that Applicants are not missing any required daily information that will be necessary for successful monthly accounting and to highlight early operation of augmentation station and recharge pond deliveries. Staff does not believe that this represents an undue hardship for the Applicant, rather, this initial weekly accounting allows a good "shake down" period at the start of the plan.

10. Whether or not the following term and condition regarding development of accounting forms should be included in any Pilot Project approval:

Staff crafted term and condition number 46 that includes recommendations by both the Applicants and Tri-State regarding the review and approval of accounting forms.

11. Whether or not the term and condition regarding comparison of historical use analysis with projected operations should be included in any Pilot Project approval:

Tri-State recommended removal of a term and condition originally included in the draft proposal related to the above topic. The Applicants agreed that this term was confusing. Staff determined that the term and condition was not necessary.

12. Whether agreements and approvals necessary to meet return flow obligations must be in place only for the <u>upcoming</u> plan year or whether such agreements and approvals must be in place for all future return flow obligations.

Staff adopted Applicant's proposed term and condition in term and condition number 27 because this term and condition was reasonable for annual operations. The tightened term and condition number 30 is intended to help address most of Tri-State's concerns related to replacement security as described under issue 5 above.

Attachment: Determination of the State Engineer

COLORADO
Division of Water Resources
Department of Natural Resources

1313 Sherman Street, Room 821
Denver, CO 80203

Determination of the State Engineer

HB 13-1248 Catlin (Fallowing-Leasing) Pilot Project

Use of Catlin Canal Shares by Town of Fowler, City of Fountain, and Security Water District

January 16, 2015

I. Introduction

This document serves to fulfill the State Engineer's obligations pursuant to the provisions of HB13-1248, enacted by the signature of the governor on May 13, 2013, specifically related to evaluation and review of the Catlin (Fallowing-Leasing) Pilot Project. A pilot project proposal for the Catlin Pilot Project was submitted to the Colorado Water Conservation Board (CWCB), James Eklund, Director, on September 25, 2014 by the Applicants (Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc.). The CWCB approved the selection of the pilot proposal occurred at the September CWCB Meeting in Glenwood Springs, Colorado.

A 75-day comment period followed project selection and ended on December 9, 2014. A Conference Committee Meeting was conducted on December 18, 2014 in Denver. The Conference Committee Meeting continued with a brief conference call meeting on December 22, 2014 and was concluded at the end of that meeting. A Joint Conference Report was prepared and submitted to the State Engineer and CWCB on January 6, 2015.

This Determination of the State Engineer was prepared following review of all documents from the project application, comments received from the interested parties, and particularly, the Joint Conference Report which identified a large number of agreed upon terms and conditions as well as some terms and conditions where some disagreement remained. This report has also been prepared with recommendations to ensure that the two fundamental objectives identified in C.R.S. 37-60-115 (f)(I) and 37-60-115 (f)(II) have will have been met if the project is approved with the recommended terms and conditions. These two objectives were:

1. The project will effect only a temporary change in the historical consumptive use of the water right in a manner that will not cause injury to other water rights, decreed conditional water rights, or contract rights to water;
2. The project will not impair compliance with the Arkansas River Interstate compact.

II. Project Overview

The intent of the Catlin Pilot Project for 2015 is to utilize water available from approximately 311 Catlin Canal shares from six different participating farms (five owners) to generate an estimated 470 acre-feet of consumable water (based on an average supply) to be used for municipal purposes, either directly or through augmentation of wells, for the Town of Fowler, City of Fountain and Security Water District.

The water from the Catlin Canal shares will be physically available just downstream of Town of Fowler's augmentation needs and will be available for use by City of Fountain and Security Water District to the extent it can be exchanged into Pueblo Reservoir and delivered to those municipalities via the Fountain Valley Conduit or the Southern Delivery System pipeline.

III. Terms and Conditions to Prevent Injury and Compact Impairment

The following terms and conditions are recommended for adoption by the Colorado Water Conservation Board if this project is approved.

1. All water used in the Catlin Pilot Project will be delivered to the headgate of the Catlin Canal, and only lands irrigated under the Catlin Canal will be used in the leasing-fallowing operations of the Pilot Project. A plan year for the Pilot Project extends from March 15 through March 14 of the following year. Project duration is from March 15, 2015 through March 14, 2025.
2. No lands shall be fallowed for more than three years during the ten-year period of the Catlin Pilot Project nor shall more than 30% of the parcels on each participating farm be fallowed during the consecutive ten-year Catlin Pilot Project. For lands located in Otero County, no more than two of the three years of fallowing during the Pilot Project term will be consecutive unless applicable provisions of Otero County Code - Chapter 5 are complied with.
3. All submittals by Applicants to the Division of Water Resources pursuant to these Terms and Conditions shall be posted to the Division of Water Resources website, FTP site or other publically available media within a reasonable time, not to exceed ten days, after submittal and shall remain publically available until all lagged return flow obligations from the Pilot Project have been replaced. The Division of Water Resources shall establish a list of parties participating in the project application to be used to provide notice to the parties when documents have posted.
4. By March 1 of each plan year, Applicants shall notify and provide mapping to the Division Engineer of (a) those parcels to be fallowed and the associated shares for the upcoming plan year, (b) how and where the non-fallowed Catlin Pilot Project Subject Shares will be used for the upcoming plan year (i.e. surface irrigation, dry-up under Rule 14 Plan, etc.) including the location of irrigated lands and (c) the water supplies that will be used on the non-fallowed portions of the Catlin Pilot Project farms. Lands and shares fallowed as part of the Catlin Pilot Project shall be limited to those identified in the September 25, 2014 Application.

5. Fallowed parcels must be at least ten acres in size unless they comprise all of an existing CDSS parcel that is already less than ten acres. Parcels that represent a portion of an existing field shall only be split in the same direction of historic irrigation. A physical separation shall exist between any irrigated portion of a parcel and the dry-up portion. For dry-up fields left fallow or with a dry-land cover crop without permanent root system (that is, not alfalfa or pasture grass for example), the separation shall be a ditch or tilled strip at least ten feet in width that prevents irrigation application from reaching the dry-up parcel. For partial fields containing deep-rooted crops such as alfalfa or pasture grass, a deep tilled separation of at least 25 feet shall be maintained along with any ditches necessary to ensure no irrigation application to the dry-up portion. For any dry-up parcel that is planted with a dry-land crop (haygrazer, milo, millet, etc.), the crop should either be drilled at an angle to normal irrigation direction or a tilled strip maintained at the top of the field that clearly separates the crop from any possible irrigation source (preferably both).
6. Dry-up of the fallowed fields shall comply with the "Operating Procedures for Administration of Parcels Claimed for Augmentation Credits" of the State Engineer's Office, except that signs shall be installed by March 1 of each plan year on all parcels identified in that notice provided pursuant to term and condition 4, above. Re-irrigation of dry-up parcels shall not be allowed by any other source of water including other surface water, Catlin shares, or ground water during the year in which such parcel is fallowed in Pilot Project operations. No partial year dry-up shall be permitted.
7. Applicants shall notify the Division Engineer of the status (dry land crop (must specify type), tilled and fallow, not tilled and fallow, stubble of past crop left on field, etc.) of each fallowed field in the Catlin Pilot Project by May 15 of each year of operations.
8. Applicants shall monitor fallowed parcels on a periodic basis to confirm the adequacy of dry-up in conformance with the terms and conditions of this approval. Should non-compliance with the dry-requirements of this approval be discovered, Applicants shall immediately notify the Division Engineer and take such corrective action as is required by the Division Engineer. These fallowed parcels are also subject to inspection by the Division Engineer who shall inform the Applicants if non-compliance is found.
9. Prior to any Pilot Project operations, Applicants shall ensure that all participating farmers are contractually bound to provide for weed control and erosion protection for the lands removed from irrigation as a part of the Catlin Pilot Project. This will include the acknowledgement of, and agreement to comply with applicable County code noxious weed management requirements, including the Otero County Noxious Weed Management Plan, Otero County Code, Chapter 12 – Vegetation.
10. Prior to February 15, 2015, Applicants shall make the following adjustments to the Leasing-Fallowing Tool (“LFT”) run for the Catlin Pilot Project and the associated historical consumptive use analysis and submit the same to the State and Division Engineer:
    a) The study period used in the LFT analysis shall be revised to exclude years where the Subject Shares were used in a Rule 14 Plan.
    b) To the extent consistent with item (d) below, the irrigated acreage of the Diamond A East farm, in Table 3 shall be corrected to 272.1 acres, as shown on Figure 21 in Appendix A, with a corresponding change in the total if appropriate. The 2010 acreage in the LFT analysis shall also incorporate this correction.

c) The results from the revised LFT run shall be applied to the irrigated acreage for each year. The Applicants shall report the average number of irrigated acres on each farm for the revised LFT run and the average shares per acre ratio for each farm during the revised LFT run shall be applied to the Catlin Pilot Project going forward. The number of fallowed Catlin Canal shares each year shall be equal to the number of fallowed acres on each farm multiplied by the average share per acre ratio for that farm.

d) The LFT run shall be conducted with a limitation on the maximum allowed irrigated acres to be no more than the 1985 irrigated acreage mapped by Colorado and agreed by Kansas as a part of the Kansas v. Colorado litigation.

11. Prior to the commencement of any Pilot Project operations for 2015, Applicants and Colorado Division of Parks and Wildlife ("CPW") shall work cooperatively to determine whether and the extent to which lands included in the Catlin Pilot Project have historically been irrigated with Catlin Canal Company shares that were leased from CPW during the applicable study period. Based on the results of that work, Applicants shall then make such adjustments to the historical consumptive use analysis based on the use of leased water by excluding a prorated amount of acreage, corresponding to acres irrigated by shares leased from CPW in any year, from such years in the historical use analysis, which adjustments shall be mutually agreed to by Applicants and CPW. This revised analysis shall be provided to the State and Division Engineer for approval and incorporated into the LFT run referenced in term and condition 10.

12. The Catlin Pilot Project shall not be operated until the Division Engineer has approved the foregoing adjustments in term and conditions 10 and 11.

13. To the extent it is determined that the Subject Shares and the associated lands available for fallow have been included in a Rule 14 Plan(s) such that they are no longer legally available for use to provide replacement water for Fowler's well depletions via CWPDA's Rule 14 pursuant to the terms of Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado and the Amended Agreement Regarding the Colorado Use Rules, PDF Evaluation, Implementation of Processes, and Related Matters, and Not to Terminate Offset Account Resolution (June 2009), which is Appendix A.4 to the Kansas v. Colorado decree, any use of depletion credits available from the dry-up of those lands shall not be permitted to provide a source of replacement water for Fowler's well depletions. This shall be appropriately reflected in Pilot Project accounting. Applicants shall provide with the March 1 dry-up notice to the Division Engineer, and all commenting parties, whether the fallowed parcels are included in a pending or approved Water Court case adding augmentation as a decreed use.

14. The following monthly factors will be applied to augmentation station deliveries and deliveries at the farm headgate for recharge to determine monthly consumptive use. However, in the event of a current (as opposed to projected) return flow obligation deficit, the Applicant shall replace the return flow obligation deficit prior to receiving further consumptive use credits. These factors shall be modified to reflect changes in the LFT run per term and conditions 10 and 11.

Consumptive Use Factors

Farm	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Schweizer	-	0.000	0.063	0.155	0.377	0.531	0.537	0.538	0.445	0.250	0.179	-

Diamond A West	-	0.000	0.032	0.129	0.314	0.468	0.484	0.460	0.311	0.136	0.032	-
Hirakata Farms	-	0.000	0.062	0.153	0.373	0.528	0.533	0.532	0.425	0.244	0.174	-
Hancock	-	0.000	0.062	0.133	0.329	0.525	0.539	0.545	0.472	0.260	0.209	-
Diamond A East	-	0.000	0.065	0.157	0.380	0.533	0.540	0.541	0.463	0.264	0.162	-
Hanagan	-	0.000	0.030	0.113	0.274	0.408	0.428	0.381	0.259	0.097	0.020	-

15. The portion of all available Pilot Project augmentation station and recharge deliveries that is not credited as consumptive use shall be attributed to be return flow obligations. The following calculations shall be used to determine the return flow obligations where "deliveries" refers to all Pilot Project augmentation station and recharge deliveries:

    Tailwater Return Flow Obligation = 20% x (Deliveries – Consumptive Use);

    Deep Percolation Return Flow Obligations = Deliveries – (Consumptive Use + Tailwater Return Flow Obligations);

    For the first half of November and the second half of March the return flow obligation should equal the daily surface water return flow plus half of the monthly lagged groundwater return flow. For the second half of November and first half of March the return flow obligation should be half of the monthly lagged ground water return flow. An exception to the preceding March and November requirements are that no return flows are required prior to operation of the project. As such, return flows in the first month of the project will be distributed from the project start date through the remainder of the month. Return flow obligation that accrues from November 15 through March 14 shall be replaced to the Pueblo Winter Water Program and Conservation Storage in John Martin Reservoir as determined by the Division Engineer. Return flow obligation that accrues March 15 through November 14 shall be replaced at the time and place of depletion so as to not injure vested water rights.

16. The monthly and annual consumptive use will be limited to the following maximum values which are the averages of the three greatest years of the study period. The values in the table are for all of the shares on each farm. Therefore, the values for each farm must be multiplied by the percentage of share dry-up for each farm to estimate the appropriate limits for each year of the pilot project. These values shall be modified to reflect changes in the LFT run per term and conditions 10 and 11, above.

Farm	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Schweizer	0.0	0.0	3.1	13.7	56.2	80.8	80.3	65.2	51.0	37.3	10.5	0.0	398.0
Diamond A West	0.0	0.0	1.9	9.5	43.3	84.1	70.8	66.5	50.5	49.9	0.4	0.0	377.0
Hirakata	0.0	0.0	2.3	10.7	43.7	62.9	62.5	50.8	39.7	28.8	8.1	0.0	309.3
Hancock	0.0	0.0	1.1	5.4	22.0	30.2	30.6	27.1	15.8	16.9	6.6	0.0	155.6
Diamond A East	0.0	0.0	4.1	19.4	79.1	115.1	115.2	93.7	73.2	49.3	12.0	0.0	561.2
Hanagan	0.0	0.0	1.4	10.7	35.8	59.3	53.8	47.0	28.5	17.8	0.0	0.0	254.4

17. The annual augmentation station and recharge diversions will be further limited by an annual volumetric limit based on the historical diversions. The annual volumetric limit shall be calculated as the average of the three greatest years of farm headgate diversions over the study period. The annual volumetric limit in the table reflects the use of all of the shares on each farm. In any one year, the volumetric limit on farm headgate diversions for delivery of share water in the pilot project will be calculated to be the annual volumetric limit for the farm, presented in the table below, multiplied by the percentage of dry-up for each farm. Values will be based upon the LFT run per term and conditions 10 and 11, above. Deliveries of share water not included in the pilot project for any given plan year shall be limited to delivery and use on that portion of the farm that is not fallowed as a part of pilot project operations for that plan year.

Farm	**Annual Volumetric Limit (a/f)**
Schweizer	
Diamond A West	
Hirakata	
Hancock	
Diamond A East	
Hanagan	

18. Any water attributable to the Subject Shares that would otherwise be available to the Applicants (after accounting for ditch loss) which the Applicants are not able to divert or use because of operation of any volumetric limit shall be returned to the Arkansas River through one or more augmentation stations on the Catlin Canal following diversion at the Catlin Canal headgate and shall not be available for irrigation, augmentation or any other use until such time as use of such water is again allowed in accordance with the volumetric limits of this approval.

19. Tailwater return flow obligations shall be calculated daily and shall be replaced by delivery of the Pilot Project Catlin Canal shares at the augmentation station(s). On a daily basis, Applicants shall endeavor to replace the calculated amount of tailwater return flow obligation. On a monthly basis, Applicants shall demonstrate that all tailwater return flow obligations have been replaced.

20. Deep percolation return flow replacement requirements for the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms will be lagged using the URFs that shall be calculated using the x-distance to the nearest drain for each of the farms included in the December 9, 2014 Bishop Brogden Associates Inc. comment letter ("BBA Letter"). Thus, the URFs set forth in Appendix H of the Application shall be revised to reflect x-distances and corresponding w-distances for the Schweizer and Diamond A West farms to Patterson Hollow and for the Hirakata and Diamond A East farms to Timpas Creek. Deep percolation return flows for the Hanagan Farm shall be replaced by delivering all deep percolation water, plus sufficient water to offset evaporation to the Hanagan Recharge Pond, which is within ¼ mile of said farm, negating the need for lagging per the Criteria and Guidelines. Deep percolation return flows from the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms may be delivered to the Schweizer and/or Hanagan Recharge Ponds, and will be lagged using the applicable URFs.

21. On a daily basis, Applicants shall endeavor to deliver the deep percolation portion of fallowed Hanagan farm Catlin Canal share deliveries to the Hanagan Recharge Pond, as calculated in term and condition 15, plus consumptive use water to replace evaporation. On a monthly basis, Applicants shall demonstrate that the deep percolation portion of fallowed Hanagan farm Catlin Canal share deliveries are delivered to and infiltrate at the Hanagan Recharge Pond. If a “pay as you go” approach is chosen by the Applicants, delivery of the deep percolation portion of fallowed shares for each farm shall be delivered to the appropriate recharge pond consistent with Division Engineer approval of the “pay as you go” proposal and Applicants shall endeavor to deliver each farm’s Catlin Canal share deliveries to the appropriate recharge pond and demonstrate that the deep percolation portion is delivered to and infiltrates at the appropriate recharge pond on a monthly basis.

22. Lagged deep percolation return flow obligations shall be calculated daily and shall be replaced exclusively through: (a) recharge accrual to the river calculated from actual infiltration of Pilot Project Catlin Canal shares delivered to recharge, (b) delivery to the Pilot Project Catlin Canal shares at the augmentation station and/or (c) other source of water decreed for augmentation or replacement or approved for augmentation or replacement by a C.R.S. 37-92-308(4) SWSP. During the irrigation season, on a monthly basis, Applicants shall demonstrate that all lagged deep percolation return flow obligations have been replaced. During November 15 to March 15, replacement of lagged deep percolation return flow obligations may be aggregated as approved by the Division Engineer so long as there is no injury to the Winter Water Storage Program, Colorado water rights, Conservation Storage in John Martin Reservoir or the Kansas-Colorado Arkansas River Compact.

23. The amount of consumptive use credits and return flow obligations and the disposition of consumptive use credit and return flow replacement water shall be calculated on a daily basis. Such consumptive use credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace Catlin Pilot Project return flows as necessary. Water allocated to replace deep percolation return flows and delivered through Catlin Canal augmentation stations that is in excess of the replacement requirement on a given day will be allocated as a stream depletion credit. Such depletion credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace Catlin Pilot Project return flows as necessary.

24. Pilot Project return flows shall be replaced at or above the historical point of accretion to the stream or above the downstream calling right. Points of accretion for tailwater and lagged depletions are as follows:

Farm	**Historical Points of Accretion to Arkansas River**			
	Tailwater		**Deep Percolation**	
Schweizer	**Stream Location**	**UTMs**	**Stream Location**	**UTMs**
Diamond A West	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764
Hirakata, Hancock, Diamond A East	Arkansas River downstream of Patterson Gulch	Easting: 608734 Northing: 4217964	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764

Hanagan	Confluence of Timpas Creek & Arkansas River	Easting: 619547 Northing: 4209161	Confluence of Timpas Creek & Arkansas River	Easting: 619547 Northing: 4209161

No return flow obligation replacement credits shall be granted for water delivered to the Crooked Arroyo augmentation station when there is a call for water at the Fort Lyon Canal headgate.

25. To the extent it is determined by the Division Engineer that the use of the Timpas Creek and/or Crooked Arroyo augmentation stations, or the use of any new or modified augmentation stations or recharge facilities authorized pursuant to term and condition 52, will interfere with the operation of decreed exchanges or decreed alternate points of diversion that are operating in the reach between historical points of accretions to the stream and the point at which augmentation station deliveries reach the river, the Division Engineer may require modifications to Pilot Project operations as may be deemed necessary to prevent material injury to water rights or contract rights to water. Such operational modifications will be identified and described in Applicants' annual report, as required by term and condition 52 and, to the extent such modifications are to take effect immediately, will be noticed pursuant to term and condition 3.

26. Prior to March 1 of each year, Applicant shall prepare and submit to the Division Engineer a monthly projection for the replacement of surface and lagged return flow obligations owed for deliveries to date and projected for the upcoming plan year and for total future monthly obligations over the lagged return flow period. To the extent that this projection shows that lagged and surface return flow obligations that will be owed during the upcoming plan year operation cannot be met through calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares and projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, Applicant shall identify to the Division Engineer such other firm source(s) of water that will be dedicated to the Pilot Project for that plan year and for future monthly obligations, along with a calculation of the dry-year yield of such source(s) and accounting for evaporation, transit, or other losses that may be incurred prior to and/or during delivery. If the Division Engineer determines that such source(s) is(are) inadequate or otherwise unavailable to meet return flow obligations owed for the upcoming plan year, the Division Engineer may deny use of that source for such purpose and require Applicants to dedicate an acceptable firm source of water prior to commencement of operations for that plan year. This shall also include information regarding Applicants' anticipated method(s) and source(s) of water anticipated to be used to meet return flow obligations beyond the upcoming plan year such that the Division Engineer can evaluate the likelihood that Applicants will continue to be able to meet return flow obligations in upcoming years and to take such action(s) as may be necessary to proactively address potential shortfalls in meeting long-term return flow obligations. This projection shall be available to all interested parties through the posting to an FTP site or other accessible web site within a reasonable time of submittal to the Division Engineer.

27. Prior to March 1 of each plan year, Applicants shall have in place all approvals, and/or agreements that are necessary for operation of the Catlin Pilot Project for that plan year. Copies of these approvals/agreements shall be provided to the Division Engineer, which shall be made available to other parties upon request. Any use of intermediate storage locations in the operation of any exchange for the pilot project shall only occur to the extent that Applicants have obtained the necessary approvals and/or complied with applicable bylaw requirements associated with the use of such storage locations.

28. Throughout operation of the Pilot Project, the projection of the firm sources of water that will be used to replace plan year lagged and surface return flow obligations from deliveries to date shall be updated weekly during the irrigation season. This shall include actual infiltration at the recharge facilities. If at any time a plan year monthly lagged return flow obligation exceeds the firm sources of water that will be used for replacement, no water shall be delivered to Lessees until all return flow obligations are made and the projection shows that a firm source of water is available to replace plan year return flow obligations.

29. For the purpose of the projection, firm sources of water shall include, exclusively, (a) calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares, (b) projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, and (c) other fully consumable firm replacement supplies either previously stored and dedicated to the Pilot Project or projected to be available in the upcoming plan year based on the dry-year yield of direct-flow water rights approved for replacement use by water court decree or C.R.S. 37-92-308(4) SWSP approval. The Applicant must account for applicable seepage, evaporation and transit losses associated with the use of such replacement supplies.

30. Prior to January 1 of each year following the initial year of operation, Applicants shall prepare and submit to the State and Division Engineer a report identifying the source(s) of water that will be used to meet post-project lagged depletions that will not be met through accretions from recharge. This report shall include a calculation of the dry-year yield of such sources and provide evidence that Applicants have the right to use such source(s) and shall also include a commitment from Applicants that such source(s) will be dedicated to meet such post-project depletions and will not be used for any other purpose. The identified source of post-project return flow water must be approved by the State and Division Engineer. Source(s) dedicated to post-project depletions may be updated annually with approval of the Division Engineer. Prior to January 1 following the final plan year of pilot project operation, Applicants shall prepare and submit to the State and Division Engineer a report identifying the final firm source(s) of water that will be used to meet post-project lagged depletions that will not have been met through accretions from recharge and shall designate the type of plan to be used to lawfully provide for replacement of the lagged depletions. This source or these sources shall be solely committed for use in each year that a remaining post-project depletion obligation exists by the Applicants, to the extent of the obligation. A replacement water source is considered firm in this context to the extent the water is guaranteed by binding agreement for the term of its inclusion in the post-project projection period and fully executed contracts to use structures not owned by the Applicant that are needed to store or deliver the replacement supply are provided.

31. The obligation to provide the annual March 1 and January 1 projections and commitment of sources of water in Conditions 26, 27 and 30 shall not be required if the Applicants have employed a “pay as you go” approach to return flow maintenance for all farms in the project and the Applicants can demonstrate through accounting that the difference in deep percolation return flow accretion timing does not exceed ten acre-feet in any month following project operations and can demonstrate that the full volume of deep percolation return flow accretion has been successfully recharged. The maximum ten acre-feet limitation on variance of lagged depletions shall be deemed to be reasonable as maintenance of historical flows to protect other water rights taking into consideration the reasonable accuracy of the lagged return flow modeling methods. To utilize the “pay as you go” approach, Applicants shall provide the analysis described in the comments by Tri-State that recommended this approach by February 17, 2015 to the Division Engineer for approval.

32. Unless otherwise replaced via Pilot Project operations (such as recharge), depletion credits may be exchanged to Pueblo Reservoir and stored in Lower Ark’s excess capacity account to provide a replacement supply for winter return flow obligations. Waters that are stored in, and subsequently released from Pueblo Reservoir to replace lagged deep percolation return flow obligations will experience, delivery, storage and transit losses assessed by the Division Engineer between Pueblo Reservoir and the historical return flow accrual locations. Accounting of water within Lower Ark’s excess capacity account shall be maintained by the Applicants to demonstrate the type of water used for historical return flow maintenance is appropriate for that use.

33. There shall be no exchange and re-diversion of any excess recharge accretions resulting from delivery of water to recharge ponds that was diverted pursuant to the Subject Shares. Such excess recharge accretions may be used for the replacement of lagged or tailwater return flow obligations and may also be used for Fowler-CWPDA Municipal Well Replacement, except that the use of such credits to replace tailwater return flow obligations may not otherwise result in the exchange of Catlin Canal headgate deliveries pursuant to the Subject Shares that are made available only as a result of the use of such credits to meet tailwater return flow obligations.

34. Water available or owed to operations of this pilot project shall only be traded or exchanged with water available or owed under a Rule 10 Compact Compliance Plan or Rule 14 Plan with the prior approval of the State Engineer. Such prior approval shall require a determination that such trade/exchange can occur without resulting in material injury to water rights or contract rights to water and is otherwise in conformance with the law. Daily accounting for such trades shall include (a) the amount of Pilot Project water used by reach for Rule 10 or Rule 14 replacement and (b) the source (location and water right) and amount of water traded from Rule 10 or Rule 14 to the Pilot Project and reports of this accounting shall be provided to the Division Engineer and made available pursuant to Condition 3. Interested parties can provide comments to the Division Engineer regarding concerns about individual trades.

35. Exchange into Pueblo Reservoir may occur only when there is at least 100 cfs of outflow (inclusive of hatchery flows) from Pueblo Reservoir. Such diversions/exchanges may not cause the outflow from Pueblo Reservoir to be less than 100 cfs. Pursuant to the terms of the 2011 Memorandum of Agreement between Lower Ark and the Southeastern Colorado Water Conservancy District ("Southeastern"), to the extent that a long-term excess capacity contract is entered into with the Bureau of Reclamation and Lower Ark enters into a sub-contract with Southeastern for use of the excess capacity space, Lower Ark (and operation of this Catlin Pilot Project) shall comply with the requirements of the Arkansas River Flow Management Project to the same extent that Southeastern is obligated to comply, which may result in additional limitations on the exchange of water into Pueblo Reservoir.
36. Pilot Project exchanges to Pueblo Reservoir from points within or downstream of the City of Pueblo's recreational in-channel diversion ("RICD") shall operate as if the Pueblo RICD water right is in effect 24-hours per day.
37. Any exchange of water as a part of this Pilot Project not operated pursuant to a court decree must be approved in advance by the Division Engineer after a determination that there is sufficient exchange potential to accomplish the requested exchange without injury to other water rights and taking into account the timing of river flows between the exchange-from point and exchange-to point.
38. Substitute supplies used for exchange must be delivered at a Catlin Canal augmentation station through a measuring device approved by the Division Engineer. The amount of substitute supply available for exchange shall be assessed transit loss by the Division Engineer between the augmentation station and Arkansas River.
39. Applicants may operate an exchange only if there is a live stream between the downstream exchange-from point and the upstream exchange-to point. The Applicants shall not operate the exchange when it would prevent any intervening water right, including exchange rights, from diverting the full amount of water from the Arkansas River to which such right would otherwise be legally and physically entitled, in the absence of the Pilot Project exchange.
40. Any excess consumptive use credits available from Pilot Project operations shall not be claimed for use as a source of replacement water for agricultural irrigation depletions in any Rule 14 Plan or substitute water supply plan.
41. All recharge ponds shall be surveyed and stage-area-capacity tables shall be approved by the Division Engineer before use.
42. Recharge pond accounting and operations shall, at a minimum, include and/or comply with the following information:
    a) Measured and recorded inflow and measured precipitation as recorded by the nearest CoAgMet weather station. Missing CoAgMet station data shall be replaced by the next closest CoAgMet weather station.
    b) Daily content by staff gage with a documented time recorded if not automated.
    c) Daily evaporation determined by daily evaporation rate by pond surface area for each day water is present in the pond. Daily evaporation will be determined based on the pan evaporation reported by the Corps of Engineers from data collected at John Martin Reservoir.

d) The recharge shall be computed from a mass balance standpoint with no credit for recharge of precipitation, and

e) The area in and around the recharge pond shall be kept clear of vegetation and shall be regularly monitored for any increased vegetative growth and/or pond seepage coming to the surface. To the extent that any vegetation exists while recharge is taking place, there shall be an appropriate reduction applied to recharge credits available at the Arkansas River.

43. Observations shall be made and recorded of any spills, seeps or overtopping of recharge ponds when recharge ponds are near full. No credit for recharge infiltration to ground water shall be allowed when spills, seeps or overtopping are observed unless the amount of such spills seeps and overtopping may be estimated with reasonable accuracy based on existing measurements and calculations and deducted from the amount delivered to recharge as approved by the Division Engineer. Fields between the recharge ponds and the river shall be monitored periodically by Division Engineer staff and Applicants to verify whether any elevated ground water tables are induced by recharge.

44. To the extent that the recharge ponds are used for purposes other than the Catlin Pilot Project, the infiltration of such water to ground water shall be considered to occur based on the percentage of the total delivery to the subject recharge pond. Recharge accounting under term and condition 42 shall similarly be adjusted to reflect the proportion of water placed into recharge for Pilot Project operations and for other purposes.

45. All diversions, deliveries for the Subject Shares, deliveries to recharge, and recharge pond stage shall be measured in a manner acceptable to the Division Engineer. The Applicant shall install and maintain measuring devices as required by the Division Engineer for operation of this Pilot Project.

46. Applicants shall submit to the Division Engineer and all commenting parties proposed accounting forms that are responsive to recommendations made by commenting parties no later than February 6, 2015. A copy of the Excel accounting forms, with formulas shall be posted on the Division of Water Resources website upon receipt from the Applicants. Commenting parties shall submit any comments on the proposed accounting forms to the Division Engineer by February 17, 2015. Operation of the Pilot Project shall not commence until after the Division Engineer has approved accounting forms that are consistent with these terms and conditions and the November 19, 2013 Criteria and Guidelines.

47. The State and Division Engineers and commenting parties may provide additional comment on the accounting forms throughout operation of the Pilot Project. Any accounting errors or deficiencies shall be immediately corrected and disclosed to all commenting parties and reflected in the annual Pilot Project operations report as provided for in term and condition 52.

48. Accounting of water in this Catlin Pilot Project must be provided to the Division Engineer on forms, at a frequency and at times acceptable to him. At a minimum, said accounting must be received by the 10th of the month following the month being reported. The name, mailing address and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms. Accounting will be available for inspection through the posting to an FTP site or other publically accessible web site within ten days of submittal to the Division Engineer. Daily accounting elements shall be provided to the Division Engineer weekly during the first 75 days of operations, in addition to the monthly accounting, on a reporting schedule as designated by the Division Engineer.

49. In addition to daily accounting for each participating farm's contribution there shall be an accounting record that shows the disposition of the water delivered to the Arkansas River. This additional record shall identify the end user of available water, whether the water is used directly for Fowler-CWPDA Municipal Well depletion replacement or exchanged to upstream storage, and the portion of the delivery that is used for replacement of return flow obligations.

50. The Pilot Project shall incorporate (a) daily accounting, one day in arrears, of future lagged return flow obligations resulting from actual deliveries to date to the fallowed Subject Shares and (b) a projection of the firm water supplies dedicated for replacement of the future lagged return flow obligations.

51. Applicants' accounting shall comply with the following:

    a) Daily accounting shall be maintained for the measured amount of water delivered attributable to the fallowed Subject Shares at each of the augmentation stations and recharge facilities.

    b) Consumptive use and return flow factors shall be applied to daily measured deliveries at the locations where Subject Shares are delivered by the Catlin Canal Company.

    c) Daily accounting shall be maintained for the amounts of consumptive use water, tailwater and unlagged deep percolation portions of the measured amount of water delivered at each augmentation station and recharge facility for the fallowed Subject Shares.

    d) Monthly accounting shall be maintained for current and future lagged return flow obligations that have resulted from deliveries attributable to fallowed Subject Shares during the present month and all previous months.

    e) Monthly accounting shall be maintained for calculated recharge accretions to the stream system from actual infiltration at recharge ponds from delivery attributable to the fallowed Subject Shares.

    f) Monthly accounting shall be maintained for lagged return flow obligation not replaced by recharge, distributed on a daily basis.

    g) Daily accounting shall be maintained for measured Pilot Project consumptive use water and unlagged deep percolation water delivered through the augmentation stations for replacement of lagged return flow obligations that are not replaced with recharge.

h) Daily accounting shall be maintained for measured deliveries of other water supplies used to replace lagged return flow obligations that are not replaced with recharge, including location of each supply and transit losses associated with delivery of each supply to the location where the return flow obligation is owed.

i) Daily balance of the Pilot Project's net effect to the Arkansas River.

j) Daily net amount of consumptive use water and unlagged deep percolation return flow water delivered through the augmentation stations and not needed for replacement of return flow obligations.

k) Daily amount of consumptive use water and unlagged deep percolation return flow water stored to replace future lagged return flow obligations.

l) Daily amount of consumptive use water and unlagged deep percolation return flow water delivered to each Lessee.

52. Applicants shall annually prepare a report of Pilot Project operations that will be submitted to the CWCB and the State and Division Engineer on or before January 15 of each year, which shall reflect a reporting year of November 16 of the prior plan year through November 15 of the current plan year for which the report is being prepared. This annual report will present: (a) a summary of plan year accounting, including the total amount of acres and Subject Shares fallowed, plan-year deliveries to the Subject Shares, HCU credits generated, water exchanged for Fowler-CWPDA Municipal Well Replacement, water exchanged to Pueblo Reservoir for Fountain and Security, water exchanged to Pueblo Reservoir for lagged return flow replacement, tail water return flow obligation replaced and unreplaced, lagged return flow obligation replaced and un-replaced, sources of water used to meet lagged return flow obligation, future lagged return flow obligation and firm yield source of water that will be used to meet lagged return flow obligation; (b) any accounting errors or deficiencies discovered during the plan year and any accounting modifications that were made during the plan year or are proposed to be made for the upcoming year; (c) the number of days, if any, when there were un-replaced return flow obligations; (d) efficacy of the LFT, temporary dry-up, prevention of erosion, blowing soils and noxious weeds and re-irrigation of temporarily fallowed lands; (e) information regarding the parcels that have been dried up to date and years of such dry up to demonstrate that the limitations contained in term and condition 2 have not been exceeded; (f) a summary of costs associated with pilot project operations, including lease payments made/received, operational costs, and to the extent available costs of erosion prevention and noxious weed management; (g) identification of any obstacles encountered in pilot project operations; (h) any additional terms and conditions that Applicants believe may be necessary to prevent future material injury to other water rights or contract rights to water; and (i) any proposed minor operational modifications for the upcoming plan year, including and limited to the addition/modification of accounting forms, projection forms, storage locations, recharge facilities, and/or augmentation stations. Any proposed operational modifications shall be accompanied by such information and analysis as is necessary for the State and Division Engineer and any interested parties to evaluate the potential for injury resulting from such proposed changes.

53. Pueblo Reservoir, Twin Lakes Reservoir and Fountain Valley Pipeline (or Conduit) are owned and operated as part of the Fryingpan-Arkansas Project by the United States Department of the Interior, Bureau of Reclamation. This Catlin Pilot Project approval does not give Applicants any rights to use of Fryingpan-Arkansas Project structures, including Pueblo Reservoir, but will not alter any existing rights Applicants may have. Applicants shall store water in Pueblo Reservoir only so long as they have a contract with the owners of that structure, and such storage and use is within the effective time period of such contract. Any use of Fryingpan-Arkansas Project facilities by Applicants, for storage, exchange or otherwise, will occur only with the written permission of the owner of said reservoir, and will be made consistent with such policies, procedures, contracts, charges, and terms as may lawfully be determined by the U.S. Bureau of Reclamation, and, where applicable Southeastern or its successors in interest, in their good faith discretion.

54. This Catlin Pilot Project approval has no effect on the authority of the United States to regulate and/or deny use of federal facilities. Applicants recognize that the consideration of and action on request for any necessary federal contracts and authorizations shall be carried out pursuant to all pertinent statutes, regulations and policies applicable to the occupancy and use of the Bureau of Reclamation facilities, including but not limited to Fryingpan-Arkansas Project authorization legislation, the National Environmental Policy Act, and the Endangered Species Act.

55. Applicants shall store or transport water in Fryingpan-Arkansas Project structures only so long as they have a contract with the owners of that structure(s), and such storage and use is within the effective time period of such contract. This Catlin Pilot Project approval does not give Applicants any rights to ownership or use of any Fryingpan-Arkansas Project structure, or any rights of ownership or rights to purchase or receive allocation of Fryingpan-Arkansas Project water, and does not alter any existing rights (including any right to renew existing contracts) Applicants may have.

56. Applicants shall not operate the Catlin Pilot Project in a manner that would interfere with the lawful operation of the Fryingpan-Arkansas Project. Any water stored in Pueblo Reservoir as a part of this Catlin Pilot Project shall be beneficially used within Southeastern's district boundaries.

57. Unless otherwise authorized by the Bureau of Reclamation and to the extent permitted by law, and consistent with all lawful rules, regulations, policies, and contract obligations of Southeastern, the portion of the water associated with shares used in this Catlin Pilot Project derived from water stored pursuant to the decree dated November 10, 1990 in Case No. 84CW179 ("Winter Storage Water") shall be stored in an excess capacity storage account in Pueblo Reservoir. Applicants shall obtain space in an excess capacity storage account to allow storage of its Winter Storage Water, and such water shall be available to the Catlin Pilot Project operations. If no excess capacity account is available in a given year, Applicants will not take delivery of their Winter Storage water associated with the Catlin Pilot Project during that year. All of Applicants' Winter Storage Water shall be delivered through the Catlin Canal during the period of March 16 through November 14 at the same time as deliveries of Winter Water Storage are made to other Catlin Canal shareholders. If the Winter Storage Program described in the decree in Case No. 84CW179 terminates, the return flows owed on the Catlin Pilot Project lease shall continue to be calculated as set forth herein.

58. Applicants' lease of shares of the Catlin Canal entitle it to a pro rata share of the Winter Water made available to the Catlin Canal that shall be accounted for as released to Applicants' account in Pueblo Reservoir. This Winter Water will be available for release at any time during the year subject to the operating rules of the Winter Water Storage Project and may be carried over until May 1 of the water year (November 1 through October 31) following the water year in which the Winter Water is stored. Any Winter Water unused by that date will be released from Pueblo Reservoir to the system as decreed in Case No. 84CW179. Delivery of that Winter Water is also subject to the rules and regulations of the Catlin Canal Company regarding orders and assessments for such deliveries.

59. To the extent that the Catlin Pilot Project stores the net depletion amount of the participating shares in Pueblo Reservoir, such water may be booked over to replace winter return flow on a monthly or weekly basis, or as otherwise required by the Division Engineer, to participants in the Winter Water Storage Program decreed in Case No. 84CW179, Water Division 2 as necessary to prevent injury to the water rights included in that Program.

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix B

Conference Committee Report

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January 6, 2015

Via e-mail delivery (james.eklund@state.co.us; tom.browning@state.co.us; dick.wolfe@state.co.us)

Colorado Water Conservation Board
James Eklund, Director
Tom Browning, Deputy Director
1313 Sherman Street, Room 721
Denver, CO 80203

Dick Wolfe
State Engineer
1313 Sherman Street, Rm. 818
Denver, CO 80203

Re: HB 13-1248 Catlin Pilot Project Application – Joint Conference Report

Dear Messrs. Eklund, Browning and Wolfe:

In support of its September 25, 2014 Application for the Catlin Pilot Project, the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. (collectively, "Applicants") are transmitting the enclosed Joint Conference Report dated January 6, 2015 on behalf of the Conference Participants in the December 18, 2015 Conference for the Catlin Pilot Project (as continued on December 22, 2015). This Joint Conference Report has been prepared pursuant to paragraph II.I of the Criteria and Guidelines for Fallowing-Leasing Pilot Projects, adopted on November 19, 2013 by the Colorado Water Conservation Board.

The Joint Conference Report (or an earlier draft, as noted) has been signed by the following Conference Participants:

Lower Arkansas Valley Water Conservancy District & Lower Arkansas Valley Super Ditch Company, Inc.
Kansas DWR (12/30/2014 Kansas draft version)
Aurora Water
Pueblo Board of Water Works (with appended comment letter dated 1/6/2015)
Southeastern Colorado Water Conservancy District (12/30/2014 circulated draft version)
Colorado Division of Parks and Wildlife (12/30/2014 circulated draft version)
Tri-State Generation and Transmission
Colorado Beef (with appended comment email dated 1/6/2015)

LAWMA did not participate in preparation of the Joint Conference Report, but provided Applicants redlined comments on January 6. Applicants and other Conference Participants accordingly did not have an opportunity to review or provide any responses to LAWMA's comments, which were therefore not incorporated into the Joint Conference Report but are appended to the Report together with a signature page.

Please let me know if you have any questions. Applicants look forward to the State Engineer's recommendation and the Colorado Water Conservation Board's consideration of the Catlin Pilot Project application at their upcoming meeting.

Sincerely,

Leah K. Martinsson

/tmg
enc: Joint Conference Report with attachments (2)
cc: Conference Participants
Conference Attendees

Joint Conference Report for the Catlin Pilot Project
Submitted to the Colorado Water Conservation Board
and the Colorado State Engineer

January 6, 2015

I. Introduction

This Joint Conference Report has been prepared pursuant to the Criteria and Guidelines for Fallowing-Leasing Pilot Projects II.I, adopted on November 19, 2013 by the Colorado Water Conservation Board (the "Criteria and Guidelines") for the Catlin Pilot Project (or "Pilot Project"). The Catlin Pilot Project proposes to use water available from certain shares in the Catlin Canal Company ("Subject Shares") for temporary municipal uses by the Town of Fowler, the City of Fountain, and the Security Water District. The request is for approval of a pilot project that will operate over the ten-year period of March 15, 2015 through March 14, 2025.

As provided for therein, a Conference Meeting was facilitated by CWCB staff between the Applicants, the State Engineer, and owners of water rights or contract rights to water that filed comments on the Catlin Pilot Project Application. The Conference Meeting was held at 1525 Sherman, Street, Denver, CO 80202 on December 18, 2014 and was continued by conference call on December 22, 2014, at which time the Conference Meeting was adjourned.

The following parties participated in the Conference Meeting:

1. Leah Martinsson for Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.
2. Craig Lis for Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.
3. Randy Hendrix for LAWMA
4. Bill Caile for Colorado Beef
5. Mary Presecan for Colorado Beef
6. Mark McLean for Pueblo Board of Water Works
7. Mason Brown for Pueblo Board of Water Works
8. Alan Ward for Pueblo Board of Water Works
9. Mike Sayler for Tri-Sate
10. Daniel Niemela for Tri-State
11. Kelly Beal for Tri-State
12. Rachel Duran for Kansas DWR
13. Kevin Salter for Kansas DWR
14. Lee Miller for SECWCD
15. Richard Vail for CPW

16. Ed Perkins for CPW
17. Katie Wiktor (AGO) for CPW
18. Gerry Knapp for Aurora Water

The above individuals are referred to as the "Conference Participants". The Fort Lyon Canal Company, the Holbrook Mutual Irrigating Company, and District 67 Irrigation Canals Association provided written comments on the Catlin Pilot Project Application, but did not participate in the December 18, 2014 Conference Meeting.

Other conference attendees included:

1. Susan Schneider, Attorney General's Office
2. Tom Browning, CWCB
3. Kevin Rein, Colo. DWR
4. Bill Tyner, Colo. DWR
5. Tom George, Attorney General's Office
6. Charles DiDomenico, Colo. DWR
7. Cindy Lair, Colorado Department of Agriculture
8. Dan Steuer, Attorney General's Office
9. Kelley Thompson, Colo. DWR
10. Angela Schenk, Spronk Water Engineer's
11. Steve Miller, CWCB
12. Erik Skoc, CWCB
13. Mara Mackillop, CWCB

On December 22, 2014 a redline of the proposed terms and condition and a draft clean copy of this Joint Conference Report was emailed to Conference Participants along with information for an optional telephone conference call. A telephone conference call was initiated on December 22, 2014 at 3pm. The form of responses from commenting parties to the draft Conference Report was discussed.

The Criteria and Guidelines provide that "within fifteen days of the conference, the pilot project applicants and owners of water rights or contract rights to water shall file a joint report with the CWCB and the State Engineer outlining any agreed-upon terms and conditions for the proposed pilot project, and explaining the reasons for failing to agree on any terms and conditions for the pilot project if the applicant and the owners fail to reach a full agreement at the conference." This Joint Conference Report is therefore required to be filed with the CWCB on or before Tuesday, January 6, 2015.

This final version of the Joint Conference Report was circulated to Conference Participants on Monday, January 5, which incorporated all comments provided to Applicants as of that time. Comments were not provided by LAWMA prior to that time. LAWMA provided comments to

Applicants on Tuesday, January 6. These comments (shown in redline form to an earlier version of this report) are attached to this Joint Conference Report. Other comments provided from other parties on January 6, are also attached to this Joint Conference Report.

II. Agreed-Upon Terms and Conditions

At the Conference Meeting, Conference Participants agreed upon the following terms and conditions for the Catlin Pilot Project:

1. All water used in the Catlin Pilot Project will be delivered to the headgate of the Catlin Canal, and only lands irrigated under the Catlin Canal will be used in the leasing-fallowing operations of the Pilot Project. A plan year for the Pilot Project extends from March 15 through March 14 of the following year.

2. No lands shall be fallowed for more than three years during the ten-year period of the Catlin Pilot Project nor shall more than 30% of the parcels on each participating farm be fallowed during the consecutive ten-year Catlin Pilot Project. For lands located in Otero County, no more than two of the three years of fallowing during the Pilot Project term will be consecutive unless applicable provisions of Otero County Code - Chapter 5 are complied with.

3. All submittals by Applicants to the Division of Water Resources pursuant to these Terms and Conditions shall be posted to the Division of Water Resources website, ftp site or other publically available media within a reasonable time, not to exceed ten days, after submittal and shall remain publically available until all lagged return flow obligations from the Pilot Project have been replaced. The Division of Water Resources shall establish a notification list which provides notice to subscribers when documents have posted.

4. By March 1 of each plan year, Applicants shall notify and provide mapping to the Division Engineer and all commenting parties of those parcels to be fallowed and the associated shares for the upcoming plan year. Lands and shares available and approved for fallow through operation of the Catlin Pilot Project are limited to those identified in the Application.

   Tri-State has agreed to this term and condition with the following modifications:

   > *By March 1 of each plan year, Applicants shall notify and provide mapping to the Division Engineer of (a) those parcels to be fallowed and the associated shares for the upcoming plan year, (b) how and where the non-fallowed Catlin Pilot Project Subject Shares will be used for the upcoming plan year (i.e. surface irrigation, dry-up under Rule 14 Plan, etc.) including the location of irrigated lands and (c) the water supplies that will be used on the non-fallowed portions of the Catlin Pilot Project farms. Lands and shares fallowed as part of the Catlin Pilot Project shall be limited to those identified in the September 25, 2014 Application.*

Applicants do not object to this modified term and condition.

5. Fallowed parcels must be at least ten acres in size unless they comprise all of an existing CDSS parcel that is already less than ten acres. Parcels that represent a portion of an existing field shall only be split in the same direction of historic irrigation unless a means of physical separation is approved by the CWCB based on the written determination of the State Engineer. A physical separation shall exist between any irrigated portion of a parcel and the dry-up portion. For dry-up fields left fallow or with a dry-land cover crop without permanent root system (that is, not alfalfa or pasture grass for example), the separation shall be a ditch or tilled strip at least ten feet in width that prevents irrigation application from reaching the dry-up parcel. For partial fields containing deep-rooted crops such as alfalfa or pasture grass, a deep tilled separation of at least 25 feet shall be maintained along with any ditches necessary to ensure no irrigation application to the dry-up portion. For any dry-up parcel that is planted with a dry-land crop (haygrazer, milo, millet, etc.), the crop should either be drilled at an angle to normal irrigation direction or a tilled strip maintained at the top of the field that clearly separates the crop from any possible irrigation source (preferably both).

6. Dry-up of the fallowed fields shall comply with the "Operating Procedures for Administration of Parcels Claimed for Augmentation Credits" of the Colorado State Engineer's Office, except that signs shall be installed by March 1 of each plan year on all parcels identified in that notice provided pursuant to term and condition 4, above. Re-irrigation of dry-up parcels shall not be allowed by any other source of water including other surface water, Catlin shares, or ground water during the year in which such parcel is fallowed in Pilot Project operations. No partial year dry-up shall be permitted.

7. Applicants shall notify the Division Engineer of the status (dry land crop (must specify type), tilled and fallow, not tilled and fallow, stubble of past crop left on field, etc.) of each fallowed field in the Catlin Pilot Project by May 15 of each year of operations.

8. Applicants shall monitor fallowed parcels on a periodic basis to confirm the adequacy of dry-up in conformance with the terms and conditions of this approval. Should non-compliance with the dry-up requirements of this approval be discovered, Applicants shall immediately notify the Division Engineer in writing and take such corrective action as is required by the Division Engineer.

    Kansas has agreed to this term and condition with the following modifications:

    Applicants shall monitor fallowed parcels on a periodic basis to confirm the adequacy of dry-up in conformance with the terms and conditions of this approval. Should non-compliance with the dry-requirements of this approval be discovered, Applicants shall immediately notify the Division Engineer and take such corrective action as is required by the Division Engineer. These fallowed *parcels are also subject to inspection by the Division Engineer who shall inform the Applicants if non-compliance is found.*

Applicants do not object to the modifications requested by Kansas.

9. Prior to any Pilot Project operations, Applicants shall ensure that all participating farmers are contractually bound to provide for weed control and erosion protection for the lands removed from irrigation as a part of the Catlin Pilot Project. This will include the acknowledgement of, and agreement to comply with applicable County code noxious weed management requirements, including the Otero County Noxious Weed Management Plan, Otero County Code, Chapter 12 – Vegetation.

10. Prior to February 15, 2015, Applicants shall make the following adjustments to the Leasing-Fallowing Tool ("LFT") run for the Catlin Pilot Project and the associated historical consumptive use analysis and submit the same to the State and Division Engineer:

    a. The study period used in the LFT analysis shall be revised to exclude years where the Subject Shares were used in a Rule 14 Plan.

    b. To the extent consistent with item (d) below, the irrigated acreage of the Diamond A East farm, in Table 2 will be corrected to 272.1 acres, as shown on Figure 21 in Appendix A, with a corresponding change in the total, if appropriate.

    c. To the extent consistent with item (d) below, the irrigated acreage of the Diamond A East farm, in Table 3 shall be corrected to 272.1 acres, as shown on Figure 21 in Appendix A, with a corresponding change in the total if appropriate. The 2010 acreage in the LFT analysis shall also incorporate this correction.

       Note that a sub-section providing that "*The results from the revised LFT run will be applied to the irrigated acreage for each year. The consumptive use per acre results shall then be averaged to determine a per acre consumptive use for each farm to be applied to the Catlin Pilot Project going forward"* ***was requested by Colorado Beef at the Conference Meeting, but is not agreed to by Tri-State and is therefore addressed in Section III, below.***

    d. The LFT run shall be conducted with a limitation on the maximum allowed irrigated acres to be no more than the 1985 irrigated acreage mapped by Colorado and agreed by Kansas as a part of the *Kansas v. Colorado* litigation.

11. Prior to the commencement of any Pilot Project operations for 2015, Applicants and Colorado Division of Parks and Wildlife ("CPW") shall work cooperatively to determine whether and the extent to which lands included in the Catlin Pilot Project have historically been irrigated with Catlin Canal Company shares that were leased from CPW during the applicable study period. Based on the results of that work, Applicants shall then make such adjustments to the historical consumptive use

analysis based on the use of leased water by excluding a prorated amount of acreage, corresponding to acres irrigated by shares leased from CPW in any year, from such years in the historical use analysis, which adjustments shall be mutually agreed to by Applicants and CPW. This revised analysis shall be provided to the State and Division Engineer for approval and incorporated into the LFT run referenced in paragraph 10.

12. The Catlin Pilot Project shall not be operated until the Division Engineer has approved the foregoing adjustments in term and conditions 10 and 11.

13. To the extent it is determined that the Subject Shares and the associated lands available for fallow have been included in a Rule 14 Plan(s) such that they are no longer legally available for use to provide replacement water for Fowler's well depletions via CWPDA's Rule 14 pursuant to the terms of Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado and the Amended Agreement Regarding the Colorado Use Rules, PDF Evaluation, Implementation of Processes, and Related Matters, and Not to Terminate Offset Account Resolution (June 2009) and are not included in the pending application of the Catlin Augmentation Association in Case No. 12CW94, any use of depletion credits available from the dry-up of those lands shall not be permitted to provide a source of replacement water for Fowler's well depletions. This shall be appropriately reflected in Pilot Project accounting.

Kansas has agreed to this term and condition with the following modifications:

To the extent it is determined that the Subject Shares and the associated lands available for fallow have been included in a Rule 14 Plan(s) such that they are no longer legally available for use to provide replacement water for Fowler's well depletions via CWPDA's Rule 14 pursuant to the terms of Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado and the Amended Agreement Regarding the Colorado Use Rules, PDF Evaluation, Implementation of Processes, and Related Matters, and Not to Terminate Offset Account Resolution (June 2009), which is Appendix A.4 to the Kansas v. Colorado decree, any use of depletion credits available from the dry-up of those lands shall not be permitted to provide a source of replacement water for Fowler's well depletions. This shall be appropriately reflected in Pilot Project accounting. Applicants shall provide with the March 1 dry-up notice to the Division Engineer and all commenting parties whether the followed parcels are included in a pending or approved Water Court case adding augmentation as a decreed use.

Applicants do not object to this modification, and Pueblo Board of Water Works has indicated that they do not object to this modification. Tri-State can agree to the modified term and condition proposed by Kansas, so long as "depletion

credits" is clarified by the definition proposed in paragraph 21 below. Note that Applicants do not agree with the definition of "depletion credits" proposed by Tri-State.

14. The following monthly factors will be applied to augmentation station deliveries and deliveries at the farm headgate for recharge to determine monthly consumptive use. However, in the event of a current (as opposed to projected) return flow obligation deficit the Applicant shall replace the return flow obligation deficit prior to receiving further consumptive use credits. These factors shall be modified to reflect changes in the LFT run per term and conditions 10 and 11, above.

Consumptive Use Factors

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Schweizer	-	0.000	0.063	0.155	0.377	0.531	0.537	0.538	0.445	0.250	0.179	-
Diamond A West	-	0.000	0.032	0.129	0.314	0.468	0.484	0.460	0.311	0.136	0.032	-
Hirakata Farms	-	0.000	0.062	0.153	0.373	0.528	0.533	0.532	0.425	0.244	0.174	-
Hancock	-	0.000	0.062	0.133	0.329	0.525	0.539	0.545	0.472	0.260	0.209	-
Diamond A East	-	0.000	0.065	0.157	0.380	0.533	0.540	0.541	0.463	0.264	0.162	-
Hanagan	-	0.000	0.030	0.113	0.274	0.408	0.428	0.381	0.259	0.097	0.020	-

15. The portion of all available pilot project augmentation station and headgate deliveries that is not credited as consumptive use will be attributed to all return flow obligations with an amount equal to 20% of the farm delivery headgate diversions minus consumptive use attributed to tail water surface return flow obligations and all remaining water will be attributed to lagged deep percolation return flow obligations. For the first half of November and the second half of March the return flow obligation should equal the monthly surface water return flow plus half of the groundwater return flow. For the second half of November and first half of March the return flow obligation should be half of the monthly ground water return flow. An exception to the preceding March and November requirements are that no return flows are required prior to operation of the project. As such, return flows in the first month of the project will be distributed from the project start date through the remainder of the month.

Tri-State has agreed to this term and condition only with the following modifications (underline shows differences from above term and condition):

The portion of all available Pilot Project augmentation station and <u>recharge</u> deliveries that is not credited as consumptive use <u>shall</u> be attributed to return flow *obligations with an amount equal to 20% of such deliveries minus consumptive use attributed to tail water surface return flow obligations and all remaining water will be attributed to deep percolation return flow obligations. For the first half of November and the second half of March the return flow obligation should equal the daily surface water return flow plus half of the monthly lagged groundwater return flow. For the second half of November and first half of March the return flow obligation should be half of the monthly lagged ground water return flow. An exception to the preceding March and November requirements are that no return flows are required prior to operation of the project. As such, return flows in the first month of the project will be distributed from the project start date through the remainder of the month.*

Applicants do not object to these proposed modifications, but suggest the inclusion of clarifying equations to reflect that: *Tailwater Return Flow Obligation = 20% x (Deliveries – Consumptive Use); Deep Percolation Return Flow Obligations = Deliveries – (Consumptive Use + Tailwater Return Flow Obligations); and that deliveries are all Pilot Project augmentation station and recharge deliveries.*

Pueblo Board of Water Works has agreed to this term and condition as modified below:

The portion of all available Pilot Project augmentation station and farm headgate deliveries that is not credited as consumptive use will be considered to be return flow obligations. An amount equal to 20% of the farm headgate deliveries minus the consumptive use credit will be the tail water surface return flow obligation, and all remaining water will be deep percolation return flow obligation subject to lagging. Return flow obligation that accrues from November 15 through March 14 shall be replaced to Pueblo Reservoir and return flow obligation that accrues March 15 through November 14 shall be replaced at the time and place of depletion so as to not injure vested water rights.

Applicants do not object to the version proposed by Pueblo Board of Water Works, as it does appear to more accurately characterize WWSP operations and timing. However, Applicants note that these revisions do result in a modification from the term and condition that has been agreed to by other Conference Participants.

16. The monthly and annual consumptive use will be limited to the following maximum values which are the averages of the three greatest years of the study period. The values in the table are for all of the shares on each farm. Therefore, the values for each farm must be multiplied by the percentage of share dry-up for each farm to estimate the appropriate limits for each year of the pilot project. These values shall be modified to reflect changes in the LFT run per term and conditions 10 and 11, above.

Monthly and Annual Maximum Consumptive Use Credits

(All Values in Acre-Feet)

Farm	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Schweizer	0.0	0.0	3.1	13.7	56.2	80.8	80.3	65.2	51.0	37.3	10.5	0.0	398.0
Diamond A West	0.0	0.0	1.9	9.5	43.3	84.1	70.8	66.5	50.5	49.9	0.4	0.0	377.0
Hirakata	0.0	0.0	2.3	10.7	43.7	62.9	62.5	50.8	39.7	28.8	8.1	0.0	309.3
Hancock	0.0	0.0	1.1	5.4	22.0	30.2	30.6	27.1	15.8	16.9	6.6	0.0	155.6
Diamond A East	0.0	0.0	4.1	19.4	79.1	115.1	115.2	93.7	73.2	49.3	12.0	0.0	561.2
Hanagan	0.0	0.0	1.4	10.7	35.8	59.3	53.8	47.0	28.5	17.8	0.0	0.0	254.4

17. The annual farm headgate diversions shall be limited to the maximum values and set forth in the table below, which shall be calculated as the average of the three greatest years of the study period. The values in the table shall reflect all of the shares on each farm. Therefore, the values for each farm must be multiplied by the percentage of share dry-up for each farm to estimate the appropriate limits for each year of the Pilot Project. Values shall be based upon the LFT run per term and conditions 10 and 11, above.

Farm	Annual Volumetric Limit (a/f)
Schweizer	
Diamond A West	
Hirakata	
Hancock	
Diamond A East	
Hanagan	

Deliveries of water to shares that are not included in the Pilot Project for any given plan year shall be limited to delivery and use on lands that are not fallowed as a part of Pilot Project operations for that plan year.

Colorado Beef agrees to this term and condition with the following modifications to the text:

The annual farm headgate diversions will be further limited by an annual volumetric limit based on the historical diversions. The annual volumetric limit shall be calculated as the average of the three greatest years of farm headgate diversions over the study period. The annual volumetric limit in the table reflects the use of all of the shares on each farm. In any one year, the volumetric limit on farm headgate diversions for delivery of share water in the pilot project will be calculated to be the annual volumetric limit for the farm, presented in the table below, multiplied by the percentage of dry-up for each farm. Values will be based upon the LFT run per term and conditions 10 and 11, above.

Deliveries of share water not included in the pilot project for any given plan year shall be limited to delivery and use on that portion of the farm that is not fallowed as a part of pilot project operations for that plan year.

Tri-State has proposed replacing "farm headgate diversions" in the first sentence with "augmentation station and recharge deliveries." Applicants do not object to either of these proposed modifications.

18. Any water attributable to the Subject Shares that would otherwise be available to the Applicants (after accounting for ditch loss) which the Applicants are not able to divert or use because of operation of any volumetric limit shall be returned to the Arkansas River through one or more augmentation stations on the Catlin Canal following diversion at the Catlin Canal headgate and shall not be available for irrigation, augmentation or any other use until such time as use of such water is again allowed in accordance with the volumetric limits of this approval.

19. Deep percolation return flow replacement requirements for the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms will be lagged using the URFs that shall be calculated using the x-distance to the nearest drain for each of the farms included in the December 9, 2014 Bishop Brogden Associates Inc. comment letter ("BBA Letter"). Thus, the URFs set forth in Appendix H of the Application shall be revised to reflect x-distances and corresponding w-distances for the Schweizer and Diamond A West farms to Patterson Hollow and for the Hirakata and Diamond A East farms to Timpas Creek. Deep percolation return flows for the Hanagan Farm shall be replaced by delivering all deep percolation water, plus sufficient water to offset evaporation to the Hanagan Recharge Pond, which is within ¼ mile of said farm, negating the need for lagging per the Criteria and Guidelines. . Deep percolation return flows from the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms may be delivered to the Schweizer and/or Hanagan Recharge Ponds, and will be lagged using the applicable URFs.

    Pueblo Board of Water Works has requested inclusion of the following sentence in this term and condition:

However, as provided in term and condition 42.f below, any Hanagan Farm deep percolation return flow replacement obligations not met by recharge will be lagged using the applicable URF.

Applicants and Tri-State note that the sentence requested by Pueblo Board of Water Works is not needed with term and condition 20 below, and is not consistent with the method proposed in the Application for replacing return flows from the Hanagan Farm. Tri-State believes that deletion of this clause would improve the clarity of the terms and conditions.

20. On a daily basis, Applicants shall endeavor to deliver the deep percolation portion of fallowed Hanagan farm Catlin Canal share deliveries to the Hanagan Recharge Pond, as calculated in term and condition 19, plus consumptive use water to replace evaporation. On a monthly basis, Applicants shall demonstrate that the deep percolation portion of fallowed Hanagan farm Catlin Canal share deliveries are delivered to and infiltrate at the Hanagan Recharge Pond.

21. Consumptive use credits and return flow obligations and use of consumptive use credit and return flow obligations shall be calculated on a daily basis. Water allocated to deep percolation return flows that is not required to replace return flows on a given day may be allocated as a stream depletion credit and returned directly to the river, <u>however such use of deep percolation return flow water as a stream credit will result in a future replacement obligation that will require dedication of a firm source of return flow replacement water in the projection of lagged deep percolation return flow obligations.</u> Such stream credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace return flows as necessary.

Pueblo Board of Water Works does not agree to the underlined language, which was added at the request f Tri-State and not specifically discussed and agreed to by Conference Participants at the Conference Meeting. Pueblo Board of Water Works has agreed to this term and condition with the following clarifying modifications:

The amount of consumptive use credits and return flow obligations and the disposition of consumptive use credit and return flow replacement water shall be calculated on a daily basis. Such consumptive use credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace Catlin Pilot Project return flows as necessary. Water allocated to replace deep percolation return flows and delivered through Catlin Canal augmentation stations that is in excess of the replacement requirement on a given day will be allocated as a stream depletion credit. Such depletion credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace Catlin Pilot Project return flows as necessary.

Applicants do not object to this modification. Tri-State does not object to Pueblo Board of Water Works modification so long as the following is added at the end of the term and condition, to which Pueblo Board of Water Works does not agree:

> *Use of deep percolation return flow water as a stream depletion credit will result in a future replacement obligation that will require dedication of a firm source of return flow replacement water in the projection of lagged deep percolation return flow obligations.*

Also, as noted above, Tri-State suggests that "depletion credit" be defined as follows early in the terms and conditions:

> *Collectively, the daily amount of consumptive use credits and water allocated to deep percolation return flows delivered through the Catlin Canal augmentation stations that is in excess of daily replacement requirements are referred to as "depletion credits" herein.*

Applicants would agree with this definition if it is modified to reflect that "depletion credits" include excess deep percolation return flows and tailwater deliveries.

22. Pilot Project return flows shall be replaced at or above the historical point of accretion to the stream or above the downstream calling right. Points of accretion for tailwater and lagged depletions are as follows:

Farm	**Historical Points of Accretion to Arkansas River**			
	Tailwater		**Deep Percolation**	
	Stream Location	**UTMs**	**Stream Location**	**UTMs**
Schweizer	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764
Diamond A West	Arkansas River downstream of Patterson Gulch	Easting: 608734 Northing: 4217964	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764
Hirakata, Hancock, Diamond A East	Confluence of Timpas Creek & Arkansas River	Easting: 619547 Northing: 4209161	Confluence of Timpas Creek & Arkansas River	Easting: 619547 Northing: 4209161
Hanagan	Arkansas River downstream of Timpas Creek	Easting: 622384 Northing: 4208419	Arkansas River downstream of Timpas Creek	Easting: 622384 Northing: 4208419

No return flow obligation replacement credits shall be granted for water delivered to the Crooked Arroyo augmentation station when there is a call for water at the Fort Lyon Canal headgate.

23. To the extent it is determined by the Division Engineer that the use of the Timpas Creek and/or Crooked Arroyo augmentation stations, or the use of any new or modified augmentation stations or recharge facilities authorized pursuant to paragraph 43, will interfere with the operation of decreed exchanges or decreed alternate points of diversion that are operating in the reach between historical points of accretions to the stream and the point at which augmentation station deliveries reach the river, the Division Engineer may require modifications to Pilot Project operations as may be deemed necessary to prevent material injury to water rights or contract rights to water. Such operational modifications will be identified and described in Applicants' annual report, as required by paragraph 43 and, to the extent such modifications are to take effect immediately, will be noticed to all subscribers to the notification list established in term and condition no. 3.

The City of Aurora agrees to this term and condition if it is modified to include language providing that if modifications to the plan result in new augmentation stations or recharge facilities, which supply recharge or augmentation replacement water at locations downstream of the currently described locations, or if as a result of modifications to the plan, return flow depletions begin accruing at locations upstream of the currently identified locations, then a comment period be provided to the commenting parties to inform the Division Engineer of the potential injury of such modifications.

Applicants do not object to inclusion of language requested by Aurora in the terms and conditions for the Pilot Project.

Note that terms and conditions addressing the projection of future return flow obligations and allowable sources to meet return flow obligations were not agreed to by Tri-State and are therefore included in Section III below.

24. Prior to January 1 preceding the final plan year of pilot project operation, Applicants shall prepare and submit to the State and Division Engineer a report identifying the source(s) of water that will be used to meet post-project lagged depletions that will not be met through accretions from recharge, which report shall be updated annually or at such other time interval required by the State and Division Engineer. This report shall include a calculation of the dry-year yield of such sources and provide evidence that Applicants have the right to use such source(s) and shall also include a commitment from Applicants that such source(s) will be dedicated to meet such post-project depletions and will not be used for any other purpose. The identified source of post-project return flow water must be approved by the State and Division Engineer.

As to this term and condition 24, Tri-State asserts that commitment of firm replacement supplies at the conclusion of the Catlin Pilot Project is not a substitute for identifying the committed, firm replacement supplies that will be used to replace lagged return flow obligations during operation of the pilot project. Tri-State asserts its water rights will be injured if the Applicants were to operate for successive years and generate ongoing return flow depletions only to reveal that they did not have firm replacement supplies to commit to replace those depletions at the conclusion of the Catlin Pilot Project. Applicants disagree with this position, as further discussed in Section III, below.

25. Unless otherwise replaced via Pilot Project operations (such as recharge) or CWPDA's Rule 14 Plan, depletion credits may be exchanged to Pueblo Reservoir and stored in Lower Ark's excess capacity account to provide a replacement supply for winter return flow obligations.

Kansas has agreed to this term and condition with the following modification:

> *Unless winter return flow obligations are otherwise replaced via Pilot Project operations (such as recharge) or CWPDA's Rule 14 Plan, depletion credits may be exchanged to Pueblo Reservoir and stored in Lower Ark's excess capacity account to provide a replacement supply for winter return flow obligations.*

Tri-State has agreed to replacing this term and condition with the following because it excludes use of a Rule 14 Plan to replace Pilot Project return flow obligations:

> *Depletion credits may be exchanged into Pueblo Reservoir and stored in Lower Ark's excess capacity storage account to provide a replacement supply for winter return flow obligations.*

Applicants do not object to either iteration of this term and condition, but disagree to the extent Tri-State's position is that CWPDA's Rule 14 Plan may not be used to replace return flow obligations associated with the Town of Fowler.

26. Exchange into Pueblo Reservoir may occur only when there is at least 100 cfs of outflow (inclusive of hatchery flows) from Pueblo Reservoir. Such diversions/exchanges may not cause the outflow from Pueblo Reservoir to be less than 100 cfs. Pursuant to the terms of the 2011 Memorandum of Agreement between Lower Ark and the Southeastern Colorado Water Conservancy District ("Southeastern"), to the extent that a long-term excess capacity contract is entered into with the Bureau of Reclamation and Lower Ark enters into a sub-contract with Southeastern for use of the excess capacity space, Lower Ark (and operation of this Catlin Pilot Project) shall comply with the requirements of the Arkansas River Flow Management Project to the same extent that Southeastern is obligated to comply, which may result in additional limitations on the exchange of water into Pueblo Reservoir.

27. Pilot Project exchanges to Pueblo Reservoir from points within or downstream of the City of Pueblo's recreational in-channel diversion ("RICD") shall operate as if the Pueblo RICD water right is in effect 24-hours per day.

28. Any exchange of water as a part of this Pilot Project not operated pursuant to a court decree must be approved in advance by the Division Engineer after a determination that there is sufficient exchange potential to accomplish the requested exchange without injury to other water rights and taking into account the timing of river flows between the exchange-from point and exchange-to point.

29. Substitute supplies used for exchange must be delivered at a Catlin Canal augmentation station through a measuring device approved by the Division Engineer. The amount of substitute supply available for exchange shall be assessed transit loss by the Division Engineer between the augmentation station and Arkansas River.

30. Applicants may operate an exchange only if there is a live stream between the downstream exchange-from point and the upstream exchange-to point. The Applicants shall not operate the exchange when it would prevent an intervening water right from diverting water from the Arkansas River if such a diversion would have been legally and physically possible in the absence of the exchange.

Pueblo Board of Water Works has agreed to this term and condition with the following clarifying modifications:

> *Applicants may operate an exchange only if there is a live stream between the downstream exchange-from point and the upstream exchange-to point. The Applicants shall not operate the exchange when it would prevent any intervening water right, including exchange rights, from diverting the full amount of water from the Arkansas River to which such right would otherwise be legally and physically entitled, in the absence of the Pilot Project exchange.*

Applicants do not object to this modification.

31. Waters that are exchanged to, stored in, and subsequently released from Pueblo Reservoir will experience, delivery, storage and transit losses that will have to be made up from other sources. Absent prior approval by the Division Engineer of some other source, it will be assumed those losses will be made up from the consumptive yield of the shares included in the Pilot Project.

Tri-State has agreed to this term and condition, as modified below, with the following explanation: If water stored in Pueblo Reservoir is used as the committed firm supply to replace lagged return flow obligations, then the Applicants must be required to account for such losses in their projection. This term and condition will not be needed if the Applicants adopt ""Pay As You Go"," as described in Section III.1, below.

> *Waters that are stored in, and subsequently released from Pueblo Reservoir to replace lagged deep percolation return flow obligations will experience,*

delivery, storage and transit losses assessed by the Division Engineer between Pueblo Reservoir and the historical return flow accrual locations.

Applicants do not object to this revised language, but note it does somewhat modify the substance of the original term and condition.

An otherwise agreed-to term and condition regarding replacement sources for return flows not met by farm headgate deliveries was not agreed to by Tri-State and is addressed in Section III, below.

An otherwise agreed-to term and condition addressing use of excess recharge accretions was not agreed to by Tri-State and is addressed in Section III, below.

32. Any excess consumptive use credits available from Pilot Project operations shall not be claimed for use as a source of replacement water for agricultural irrigation depletions in any Rule 14 Plan or substitute water supply plan.

An otherwise agreed-to term and condition allowing for trades of water available from Pilot Project operations with Rule 10 and/or Rule 14 Plans with the approval of the Division Engineer was not agreed to by Tri-State and is addressed in Section III, below.

33. All recharge ponds shall be surveyed and stage-area-capacity tables shall be approved by the Division Engineer before use.

34. Recharge pond accounting and operations shall, at a minimum, include and/or comply with the following information:

    a. Measured and recorded inflow and measured precipitation as recorded by the nearest CoAgMet weather station. Missing CoAgMet station data shall be replaced by the next closest CoAgMet weather station,

    b. Daily content by staff gage with a documented time recorded if not automated,

    c. Daily evaporation determined by daily evaporation rate by pond surface area for each day water is present in pond. Recharge site annual evaporation was derived from the NOAA, "Evaporation Atlas for the Contiguous 48 United States", 1982, Technical Report NWS 33, as illustrated in AquaMap, State of Colorado factors as set forth in State Engineer's Policy 2003-2 for sites below 6,500 feet elevation will be used to distribute the NWS 33 annual evaporation monthly.

    Kansas has agreed to this subparagraph with the following modification:

    Daily evaporation determined by daily evaporation rate by pond surface area for each day water is present in pond. <u>Daily evaporation will be determined</u>

<u>*based on the pan evaporation reported by the Corps of Engineers from data collected at John Martin Reservoir.*</u>

d. The recharge shall be computed from a mass balance standpoint with no credit for recharge of precipitation, and

e. The area in and around the recharge pond shall be kept clear of vegetation and shall be regularly monitored for any increased vegetative growth and/or pond seepage coming to the surface. To the extent that any vegetation exists while recharge is taking place, there shall be an appropriate reduction applied to recharge credits available at the Arkansas River.

35. Observations shall be made and recorded of any spills, seeps or overtopping of recharge ponds when recharge ponds are near full. No credit for recharge infiltration to ground water shall be allowed when spills, seeps or overtopping are observed unless the amount of such spills seeps and overtopping may be reasonably estimated and deducted from the amount delivered to recharge and if approved by the Division Engineer.

Tri-State has agreed to this term and condition with the following modification:

> *Observations shall be made and recorded of any spills, seeps or overtopping of recharge ponds when recharge ponds are near full. No credit for recharge infiltration to ground water shall be allowed when spills, seeps or overtopping are observed unless the amount of such spills seeps and overtopping may be <u>estimated with reasonable accuracy based on existing measurements and calculations</u> and deducted from the amount delivered to recharge as approved by the Division Engineer.*

Pueblo Board of Water Works has affirmatively stated that they do not object to this modification.

36. To the extent that the recharge ponds are used for purposes other than the Catlin Pilot Project, the infiltration of such water to ground water shall be considered to occur based on the percentage of the total delivery to the subject recharge pond. Recharge accounting under term and condition 32 shall similarly be adjusted to reflect the proportion of water placed into recharge for Pilot Project operations and for other purposes.

37. All diversions, deliveries for the Subject Shares, deliveries to recharge, and recharge pond stage shall be measured in a manner acceptable to the Division Engineer. The Applicant shall install and maintain measuring devices as required by the Division Engineer for operation of this Pilot Project.

38. Applicants shall submit to the Division Engineer and all commenting parties proposed accounting forms that are responsive to recommendations made by commenting parties no later than February 1, 2015. Commenting parties shall submit any comments on the proposed accounting forms to the Division Engineer by

February 17, 2015. Pilot project operations may not commence unless and until accounting forms have been approved by the Division Engineer, which shall not be approved until after the February 17, 2015 deadline set forth herein.

Tri-State has since proposed the following alternative term and condition:

Operation of the Pilot Project shall not commence until after the Division Engineer has approved accounting forms that are consistent with these terms and conditions and the November 19, 2013 Criteria and Guidelines. A copy of the Excel accounting forms, with formulas shall be posted on the Division of Water Resources website upon receipt from the Applicants. The accounting forms may be revised from time-to-time with written approval by or at the written direction of the Division Engineer. Any such revisions shall be posted on the Division of Water Resources website.

Applicants do not object to Tri-State's version of this term and condition, but note that this term and condition was not discussed and agreed to by all Conference Participants at the Conference Meeting.

39. Accounting of water in this Catlin Pilot Project must be provided to the Division Engineer on forms, at a frequency and at times acceptable to him. At a minimum, said accounting must be received by the 10th of the month following the month being reported. The name, mailing address and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms. Accounting will be available for inspection through the posting to an FTP site or other accessible web site within a reasonable time of submittal to the Division Engineer.

Tri-State has proposed additional language requiring weekly accounting during the first year of operations. Applicants do not agree with this language and it is addressed in Section III, below.

Pueblo Board of Water Works has requested a new term and condition that would provide as follows:

> *The State and Division Engineers and commenting parties may provide additional comment on the accounting forms throughout operation of the Pilot Project. Any accounting errors or deficiencies shall be immediately corrected and disclosed to all commenting parties and reflected in the annual Pilot Project operations report as provided for in paragraph 43.*

Applicants do not object to this additional term and condition, but note that it was not discussed at the Conference Meeting and agreed to by all Conference Participants.

Kansas has agreed to this term and condition with the following modifications:

> *Accounting of water in this Catlin Pilot Project must be provided to the Division Engineer on forms and at times acceptable to him. Said accounting must be*

received by the 10th of the month following the month being reported. The name, mailing address and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms. Accounting will be available for inspection through the posting to an FTP site or other publically accessible web site within a week of submittal to the Division Engineer.

40. In addition to daily accounting for each participating farm's contribution there shall be an accounting record that shows the disposition of the water delivered to the Arkansas River. This additional record shall identify the end user of available water, whether the water is used directly for Fowler-CWPDA Municipal Well depletion replacement or exchanged to upstream storage, and the portion of the delivery that is used for replacement of return flow obligations.

41. The Pilot Project shall incorporate (a) daily accounting, one day in arrears, of future lagged return flow obligations resulting from actual deliveries to date to the fallowed Subject Shares and (b) a projection of the firm water supplies dedicated for replacement of the future lagged return flow obligations.

42. Applicants' accounting shall comply with the following:

    a. Daily accounting shall be maintained for the measured amount of water delivered attributable to the fallowed Subject Shares at each of the augmentation stations and recharge facilities.

    b. Consumptive use and return flow factors shall be applied to daily measured deliveries at the locations where Subject Shares are delivered by the Catlin Canal Company.

    c. Daily accounting shall be maintained for the amounts of consumptive use water, tailwater and unlagged deep percolation portions of the measured amount of water delivered at each augmentation station and recharge facility for the fallowed Subject Shares.

    d. Monthly accounting shall be maintained for current and future lagged return flow obligations that have resulted from deliveries attributable to fallowed Subject Shares during the present month and all previous months.

    e. Monthly accounting shall be maintained for calculated recharge accretions to the stream system from actual infiltration at recharge ponds from delivery attributable to the fallowed Subject Shares.

    f. Monthly accounting shall be maintained for lagged return flow obligation not replaced by recharge, distributed on a daily basis.

    g. Daily accounting shall be maintained for measured Pilot Project consumptive use water and unlagged deep percolation water delivered through the augmentation stations for replacement of lagged return flow obligations that are not replaced with recharge.

h. Daily accounting shall be maintained for measured deliveries of other water supplies used to replace lagged return flow obligations that are not replaced with recharge, including location of each supply and transit losses associated with delivery of each supply to the location where the return flow obligation is owed.

i. Daily balance of the Pilot Project's net effect to the Arkansas River.

j. Daily net amount of consumptive use water and unlagged deep percolation return flow water delivered through the augmentation stations and not needed for replacement of return flow obligations.

k. Daily amount of consumptive use water and unlagged deep percolation return flow water stored to replace future lagged return flow obligations.

l. Daily amount of consumptive use water and unlagged deep percolation return flow water delivered to each Lessee.

43. Applicants shall annually prepare a report of Pilot Project operations that will be submitted to the CWCB and the State and Division Engineer on or before January 15 of each year, which shall reflect a reporting year of November 16 of the prior plan year through November 15 of the current plan year for which the report is being prepared. This annual report shall be made publically available on an FTP site or other appropriate website. This annual report will present: (a) a summary of plan year accounting, including the total amount of acres and Subject Shares fallowed, plan-year deliveries to the Subject Shares, HCU credits generated, water exchanged for Fowler-CWPDA Municipal Well Replacement, water exchanged to Pueblo Reservoir for Fountain and Security, water exchanged to Pueblo Reservoir for lagged return flow replacement, tail water return flow obligation replaced and unreplaced, lagged return flow obligation replaced and un-replaced, sources of water used to meet lagged return flow obligation, future lagged return flow obligation and firm yield source of water that will be used to meet lagged return flow obligation; (b) any accounting errors or deficiencies discovered during the plan year and any accounting modifications that were made during the plan year or are proposed to be made for the upcoming year; (c) the number of days, if any, when there were un-replaced return flow obligations; (d) efficacy of the LFT, temporary dry-up, prevention of erosion, blowing soils and noxious weeds and re-irrigation of temporarily fallowed lands; (e) information regarding the parcels that have been dried up to date and years of such dry up to demonstrate that the limitations contained in term and condition 2 have not been exceeded; (f) a summary of costs associated with pilot project operations, including lease payments made/received, operational costs, and to the extent available costs of erosion prevention and noxious weed management; (g) identification of any obstacles encountered in pilot project operations; (h) any additional terms and conditions that Applicants believe may be necessary to prevent future material injury

to other water rights or contract rights to water; and (i) any proposed minor operational modifications for the upcoming plan year, including and limited to the addition/modification of accounting forms, projection forms, storage locations, recharge facilities, and/or augmentation stations. Any proposed operational modifications shall be accompanied by such information and analysis as is necessary for the State and Division Engineer and any interested parties to evaluate the potential for injury resulting from such proposed changes.

Kansas has agreed to this term and condition with the following modification to the second sentence:

This annual report shall be made publicly available on an FTP site or other appropriate website, with email notice to commenting parties when posted.

Applicants do not object to this additional language, but note that notice would now be covered by paragraph 3, making this addition redundant.

Tri-State has agreed to this term and condition with the removal of the second sentence "This annual report shall be made publically available on an FTP site or other appropriate website" because this would be covered by proposed term and condition 3, above.

44. Pueblo Reservoir, Twin Lakes Reservoir and Fountain Valley Pipeline (or Conduit) are owned and operated as part of the Fryingpan-Arkansas Project by the United States Department of the Interior, Bureau of Reclamation. This Catlin Pilot Project approval does not give Applicants any rights to use of Fryingpan-Arkansas Project structures, including Pueblo Reservoir, but will not alter any existing rights Applicants may have. Applicants shall store water in Pueblo Reservoir only so long as they have a contract with the owners of that structure, and such storage and use is within the effective time period of such contract. Any use of Fryingpan-Arkansas Project facilities by Applicants, for storage, exchange or otherwise, will occur only with the written permission of the owner of said reservoir, and will be made consistent with such policies, procedures, contracts, charges, and terms as may lawfully be determined by the U.S. Bureau of Reclamation, and, where applicable Southeastern or its successors in interest, in their good faith discretion.

45. This Catlin Pilot Project approval has no effect on the authority of the United States to regulate and/or deny use of federal facilities. Applicants recognize that the consideration of and action on request for any necessary federal contracts and authorizations shall be carried out pursuant to all pertinent statutes, regulations and policies applicable to the occupancy and use of the Bureau of Reclamation facilities, including but not limited to Fryingpan-Arkansas Project authorization legislation, the National Environmental Policy Act, and the Endangered Species Act.

46. Applicants shall store or transport water in Fryingpan-Arkansas Project structures only so long as they have a contract with the owners of that structure(s), and such storage and use is within the effective time period of such contract. This Catlin Pilot

Project approval does not give Applicants any rights to ownership or use of any Fryingpan-Arkansas Project structure, or any rights of ownership or rights to purchase or receive allocation of Fryingpan-Arkansas Project water, and does not alter any existing rights (including any right to renew existing contracts) Applicants may have.

47. Applicants shall not operate the Catlin Pilot Project in a manner that would interfere with the lawful operation of the Fryingpan-Arkansas Project. Any water stored in Pueblo Reservoir as a part of this Catlin Pilot Project shall be beneficially used within Southeastern's district boundaries.

48. Unless otherwise authorized by the Bureau of Reclamation and to the extent permitted by law, and consistent with all lawful rules, regulations, policies, and contract obligations of Southeastern, the portion of the water associated with shares used in this Catlin Pilot Project derived from water stored pursuant to the decree dated November 10, 1990 in Case No. 84CW179 ("Winter Storage Water") shall be stored in an excess capacity storage account in Pueblo Reservoir. Applicants shall obtain space in an excess capacity storage account to allow storage of its Winter Storage Water, and such water shall be available to the Catlin Pilot Project operations. If no excess capacity account is available in a given year, Applicants will not take delivery of their Winter Storage water associated with the Catlin Pilot Project during that year. All of Applicants' Winter Storage Water shall be delivered through the Catlin Canal during the period of March 16 through November 14 at the same time as deliveries of Winter Water Storage are made to other Catlin Canal shareholders. If the Winter Storage Program described in the decree in Case No. 84CW179 terminates, the return flows owed on the Catlin Pilot Project lease shall continue to be calculated as set forth herein.

49. Applicants' lease of shares of the Catlin Canal entitle it to a pro rata share of the Winter Water made available to the Catlin Canal that shall be accounted for as released to Applicants' account in Pueblo Reservoir. This Winter Water will be available for release at any time during the year subject to the operating rules of the Winter Water Storage Project and may be carried over until May 1 of the water year (November 1 through October 31) following the water year in which the Winter Water is stored. Any Winter Water unused by that date will be released from Pueblo Reservoir to the system as decreed in Case No. 84CW179. Delivery of that Winter Water is also subject to the rules and regulations of the Catlin Canal Company regarding orders and assessments for such deliveries.

50. To the extent that the Catlin Pilot Project stores the net depletion amount of the participating shares in Pueblo Reservoir, such water may be booked over to replace winter return flow on a monthly or weekly basis, or as otherwise required by the Division Engineer, to participants in the Winter Water Storage Program decreed in Case No. 84CW179, Water Division 2 as necessary to prevent injury to the water rights included in that Program.

Tri-State has proposed the following modifications to this term and condition (modification in underline):

To the extent that the Catlin Pilot Project stores the net depletion amount of the participating shares in Pueblo Reservoir, with the approval of the Division Engineer, such water may be booked over to replace winter return flow on a monthly or weekly basis, or as otherwise required by the Division Engineer, to participants in the Winter Water Storage Program decreed in Case No. 84CW179, Water Division 2 as necessary to prevent injury to the water rights included in that Program. <u>The Division Engineer may require replacement of winter return flows above the Fort Lyon Canal or to John Martin Reservoir, if needed to prevent water rights injury</u>.

The originally proposed version was provided by and required by SECWD as a standard term and condition. Therefore, Applicants do not believe it appropriate to make this modification without SECWCD's approval. Moreover, Applicants believe that the language requested by Tri-State is adequately covered by term and condition 21, above.

Tri-State notes that term and condition 21 does not specifically address operations under the Winter Water Storage Program, and that winter return flows from the Catlin Pilot farms historically accrued above the Fort Lyon Canal headgate and were stored in the Great Plains Reservoirs and/or John Martin Reservoir by Colorado rater rights and/or pursuant to the Kansas-Colorado Arkansas River Compact, in addition to Case No. 84CW179. The Division Engineer should be given the authority to require return flow replacement at its historical location if needed to prevent water rights injury or for Compact compliance.

III. <u>Unresolved Terms and Conditions</u>

The parties to the Conference Meeting did not reach agreement on following terms and conditions and/or on terms and conditions addressing the following subject areas:

1. **How the revised LFT run contained in term and condition 10 above, should be applied to the total irrigated acreage for each year.**

   At the Conference Meeting, consensus was generally reached by the Conference Participants that a sub-section (d) of term and condition 10 would be included as follows:

   The results from the revised LFT run will be applied to the irrigated acreage for each year. The consumptive use per acre results shall then be averaged to determine a per acre consumptive use for each farm to be applied to the Catlin Pilot Project going forward"

   Tri-State has indicated that it does not agree to this provision and has provided that subsection (d) should read as follows:

The results from the revised LFT run shall be applied to the irrigated acreage for each year. The Applicants shall report the average number of irrigated acres on each farm for the revised LFT run and the average shares per acre ratio for each farm during the revised LFT run shall be applied to the Catlin Pilot Project going forward. The number of fallowed Catlin Canal shares each year shall be equal to the number of fallowed acres on each farm multiplied by the average share per acre ratio for that farm.

A. Applicants' Position: Applicants believe the methodology originally proposed is reasonable and was adopted at the request of another commenting party. Use of Tri-State's methodology to estimate fallowed shares may result in a disproportionate number of shares being allocated to dry-up (i.e., if 100 shares are currently used on 100 acres, but the average share per acre ratio is 1.1, then fallowing of 30 acres, which is 30% of the farm would be allocated 33 shares, leaving only 67 shares for the remaining 70 acres. As such, Tri-State's methodology would needlessly limit the water use on the remaining irrigated acreage.

B. Tri-State's Position: It is not appropriate to use an average consumptive use per acre ratio from a study period that includes varying acreage for future dry-up requirements. Instead, dry-up should be determined by the share per acre ratio.

2. Whether the Catlin Pilot Project should be operated using a projection or a "Pay As You Go" methodology for lagged return flows.

A. Applicants' Position: At the Conference Meeting and in response to various comments, Applicants proposed the following terms and conditions to address replacement of lagged and post-pilot project return flows:

(1) Prior to March 1 of each year, Applicant shall prepare and submit to the Division Engineer a monthly projection for the replacement of surface and lagged return flow obligations owed for deliveries to date and projected for the upcoming plan year and for total future monthly obligations. To the extent that this projection shows that lagged and surface return flow obligations that will be owed during the upcoming plan year operation cannot be met through calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares and projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, Applicant shall identify to the Division Engineer such other firm source(s) of water that will be dedicated to the Pilot Project for that plan year, along with a calculation of the dry-year yield of such source(s) and accounting for evaporation, transit, or other losses that may be incurred prior to and/or during delivery. If the Division Engineer determines that such source(s) is(are) inadequate or otherwise unavailable

to meet return flow obligations owed for the upcoming plan year, the Division Engineer may deny use of that source for such purpose and require Applicants to dedicate an acceptable firm source of water prior to commencement of operations for that plan year. This shall also include information regarding Applicants' anticipated method(s) and source(s) of water anticipated to be used to meet return flow obligations beyond the upcoming plan year such that the Division Engineer can evaluate the likelihood that Applicants will continue to be able to meet return flow obligations in upcoming years and to take such action(s) as may be necessary to proactively address potential shortfalls in meeting long-term return flow obligations. This project shall be available to all interested parties through the posting to an FTP site or other accessible web site within a reasonable time of submittal to the Division Engineer

(2) Throughout operation of the Pilot Project, the projection of the firm sources of water that will be used to replace plan year lagged and surface return flow obligations from deliveries to date shall be updated weekly during the irrigation season. This shall include actual infiltration at the recharge facilities. If at any time a plan year monthly lagged return flow obligation exceeds the firm sources of water that will be used for replacement, no water shall be delivered to Lessees until all return flow obligations are made and the projection shows that a firm source of water is available to replace plan year return flow obligations.

(3) For the purpose of the projection, firm sources of water shall include, exclusively, (a) calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares, (b) projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, and (c) other fully consumable firm replacement supplies either previously stored and dedicated to the Pilot Project or projected to be available in the upcoming plan year based on the dry-year yield of direct-flow water rights approved for replacement use by water court decree or SWSP approval. The Applicant must account for applicable seepage, evaporation and transit losses associated with the use of such replacement supplies.

This methodology, and these terms and conditions, were discussed at length during the Conference Meeting and were generally agreed to by many of the Conference Participants. Tri-State agreed to the methodology for projecting return flow obligations (except that they should be projected for the lagged return flow period), but did not agree to the lack of firm and committed replacement supplies. After the conclusion of the Conference Meeting, Tri-State proposed that Applicants utilize a new methodology for the replacement of lagged deep percolation return flow obligations. This methodology was not raised in any detail in Tri-State's comment letters or discussed at the Conference Meeting. Therefore, it has not been considered or agreed to by other Conference Participants. This methodology is referred to as a "Pay As You Go" and is discussed in Tri-State's position, below.

Applicants recognize that the "Pay As You Go" alternative provides the advantage of assuring that the amount of water needed to replace deep percolation return flow obligations is delivered to the recharge ponds, and is thereafter part of the ground water system until returning to the stream system, negating the need to further track and assure that suitable replacement water is available and delivered in a timely fashion. Furthermore, due to the conservative nature of the historical use analysis as implemented in the LFT, it is apparent that the historical return flow obligations estimated therein are likely in excess of historical return flow obligations as estimated using less conservative, though accepted, approaches. This supports Tri-States suggested flexibility regarding the volume of return flow obligations as described below. Applicants do not object to use of the "Pay As You Go" methodology as an alternative methodology for replacing lagged return flows if the State Engineer determines that this methodology will prevent material injury to other water rights and contract rights to water.

B. Tri-State's Position: Unresolved terms and conditions 2 through 5 address projection of return flow replacement. It does not appear that the Applicants have a sufficient decreed replacement supply available. Tri-State and other commenters noted that the replacement supplies listed in the Pilot Project Application are not decreed for augmentation/replacement. The projection would be less important if the Applicants had demonstrated that they own a substantial amount of decreed augmentation/replacement water supplies that are available during a dry-year. The Lower Arkansas Valley Water Conservancy District has existing replacement obligations, including Rule 10 Plans that require nearly 2,000 af/yr of replacement water. Tri-State is concerned that there is not an adequate replacement supply for the Pilot Project return flow obligations and that unreplaced Catlin Pilot Project return flow obligations will injure Tri-State's water rights.

Adopting "Pay As You Go" return flow replacement on all farms, instead of just the Hanagan Farm, would eliminate the need for a projection of firm and committed return flow replacement supplies. Compared to the terms and conditions in this document, use of "Pay As You Go" methodology would require several additional and modified terms and conditions, primarily to define the percentage of Pilot Project deliveries that will be delivered to each augmentation station or recharge pond each month and to provide for no consumptive use credit if return flow replacement is not successful. As part of these modifications, "Pay As You Go" would also eliminate most (6 out of 12) of the disputed terms and conditions in this report because they would no longer be applicable to the Pilot Project. The terms that would no longer be applicable with "Pay As You Go" are noted in Tri-State's comments below.

For five of the six pilot project farms, operation of the Catlin Pilot Project involves calculating the lagged deep percolation return flow obligation and accounting for replacement through recharge accretions and use of other water supplies. Lagged deep percolation return flows from one farm, the Hanagan farm, are replaced by delivering the deep percolation water to recharge on that farm. This latter type of operation was termed "Pay As You Go" in the *June 30, 2013*

FLEX Market Model Project Completion Report prepared for the Colorado Water Conservation Board. Through "Pay As You Go" return flow replacement, the deep percolation portion of deliveries returns to the river through recharge with nearly the same timing as the historical deep percolation return flow. "Pay As You Go" return flow replacement does not require a projection, because the deep percolation water is used exclusively for return flow replacement, instead of being claimed as a stream credit (see Term and Condition 20 above). The Criteria and Guidelines limit use of "Pay As You Go" return flow replacement to recharge ponds within ¼ mile of the dried up land.

Notwithstanding the ¼-mile limit in the Criteria and Guidelines and as a matter of settlement, "Pay As You Go" return flow replacement could be used for the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms if the Applicants were able demonstrate the stream accretions from use of the Schweizer and Hanagan Recharge Ponds (and delivery at the augmentation station, if needed) closely mimic deep percolation return flows from these farms. For the purposes of compromise, Tri-State will agree that recharge closely mimics historical deep percolation return flows if the Applicants can provide an analysis that shows that deep percolation return flows will be replaced within 10 af/month using "Pay As You Go" replacement assuming a 10-year Catlin Pilot Project and average-year deliveries. Ten (10) af/month was assumed to be a reasonable change in deep percolation return flow accretion timing that may occur when Catlin Canal when shares have historically been moved from one farm headgate to another or individual fields were fallowed from year-to-year.

Use of "Pay As You Go" deep percolation return flow replacement will eliminate the need to maintain a projection of the firm and committed sources of water that will be used for future return flow replacement. It will also greatly simplify operations for the Pilot Project. For "Pay As You Go" deep percolation return flow replacement, Term and Condition 20 (or a variant thereof that was agreed upon through discussions with Applicants, Tri-State and the Division Engineer) would apply to all farms for the Catlin Pilot Project. In "Pay As You Go" deep percolation return flow replacement, deep percolation deliveries would never count as a "stream credit" because 100-percent of the deep percolation delivery would be used for return flow replacement. The Applicants would not need to store water for winter return flow replacement because winter deep percolation return flow obligations would be replaced by recharge accretions. As a result, Applicants would not need to rely on the limited exchange potential between the Catlin Canal and Pueblo Reservoir to replace winter return flows. Pending confirmation of a lagging analysis, we believe that "Pay As You Go" is more likely to result in a viable Pilot Project and prevent injury.

3. **What are the appropriate requirements of projecting future return flow obligations, including whether firm sources of supply need to be dedicated prior to any Pilot Project operations to the extent of the upcoming Plan Year obligations or for the entirety of the Pilot Project and for and post-Pilot Project operations.**

Applicant's proposed the terms and conditions identified in Section III.2.A, above to provide a means for addressing the replacement future lagged return flow obligations. Tri-State provided revised terms and conditions regarding future return flow obligations:

(1) *Prior to March 1 of each year, Applicant shall prepare and submit to the Division Engineer a monthly projection for the replacement of surface and lagged return flow obligations owed for deliveries to date and projected for the upcoming plan year and for future monthly obligations. To the extent that this projection shows that lagged and surface return flow obligations that cannot be met through calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares and projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, Applicant shall identify to the Division Engineer such other firm source(s) of water that are dedicated to the Pilot Project for that plan year, along with a calculation of the monthly dry-year yield of such source(s) and accounting for evaporation, transit, or other losses that may be incurred prior to and/or during delivery. If the Division Engineer determines that such source(s) is(are) inadequate or otherwise unavailable to meet return flow obligations owed for the upcoming plan year, the Division Engineer may deny use of that source for such purpose and require Applicants to dedicate an acceptable firm source of water prior to commencement of operations for that plan year.*

(2) *Throughout operation of the pilot project, the projection of the firm sources of water that will be used to replace all current and future monthly lagged and surface return flow obligations from deliveries to date shall be updated weekly during the irrigation season. This shall include actual infiltration at the recharge facilities. If at any time a projected current or future monthly lagged return flow obligation exceeds the firm sources of water that will be used for replacement, no water shall be delivered to Lessees until all return flow obligations are made and the projection shows that a firm source of water is available to replace all future return flow obligations. This projection shall be submitted to the Division Engineer along with each water use accounting submittal.*

A. <u>Applicants' Position</u>: Neither C.R.S. § 37-60-115(8) nor the Criteria and Guidelines require dedication of a firm source of water to replace all return flow obligations as a perquisite for obtaining approval of a pilot project. Rather, Applicants are required to provide "a description of the source of water to be used to replace all historical return flow obligations, with evidence that a source will provide a firm yield of water to meet historical return flow obligations, during the pilot project and after completion of the pilot project." The Application included this description and evidence and no dedication is required, since the identified sources are sufficient to provide replacement water. Annual dedication to address the upcoming plan year, including a forecasting component to address potential future shortfalls that can be addressed in advance of any actual shortfall, is sufficient to prevent material injury. Moreover, Applicants continue to acquire additional water supplies that may be used to meet these obligations, including Lower Ark's recent purchase of nearly 600 shares in the Colorado Canal Company. Applicants agree that sources should be required to be dedicated in sufficient amounts to meet upcoming plan year obligations and such sources may not be dedicated for other uses during that time. However, it is unduly restrictive to prematurely require Applicants tie up water supplies to meet distant return flow obligations so long as sources available to Applicants and identified in the projections are sufficient to meet those future return flow obligations.

B. Tri-State's Position*:* This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms.

Firm sources of water must be dedicated prior to March 1 for all future return flow obligations to demonstrate that the Pilot Project will not injure other water rights. Yield of sources of replacement water is needed on a monthly basis to show that water is available at the time it is needed. *See* White and Jankowski December 9, 2014 Letter ("W&J Letter") at pp. 4-5 and BBA Letter pp. 4-10

Without an ongoing projection of all monthly lagged return flow obligations and the firm source of water that will be used to replace such return flows, the Applicants cannot demonstrate that the pilot project will prevent injury by replacing all lagged return flow obligations. The projection must be provided to the Division Engineer along with accounting to demonstrate compliance with this term and condition. *See* BBA Letter pp 8-10.

C. Pueblo Board of Water Works' Position: Pueblo Water agrees that the terms and conditions proposed by Applicants in Section III.2, above are sufficient to prevent injury and that annual dedication to address the upcoming plan year, including a forecasting component to address potential future shortfalls that can be addressed in advance of any actual shortfall, is sufficient to prevent material injury.

4. Whether sources of replacement water may be approved for such use through substitute water supply plan ("SWSP") approval pursuant to C.R.S. §37-92-308(5) or are limited to SWSP approval pursuant to C.R.S. § 37-92-308(4), requiring a pending application for such change be filed with the water court.

Tri-State has proposed the following modification and addition (underlined) to term and condition 25 (above), as follows:

For the purpose of the projection, firm sources of water shall include, exclusively, (a) calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares, (b) projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, and (c) other fully consumable firm *replacement supplies either previously stored and dedicated to the Pilot Project or projected to be available in the upcoming plan year based on the dry-year yield of direct-flow water rights approved for replacement use by water court decree or C.R.S. 37-92-308(4) SWSP approval. A replacement water source is considered firm in this context to the extent the water is guaranteed by binding agreement for the term of its inclusion in the projection and fully executed contracts to use structures not owned by the Applicant that are needed to store or deliver the replacement supply are provided. The Applicant must account for applicable seepage, evaporation and transit losses associated with the use of such replacement supplies.*

Tri-State has also proposed deletion of the following term and condition that was agreed to by remaining Conference Participants:

Any return flows not met by the available farm headgate diversions shall be made up from some other source of water decreed for this use or approved for this use by a substitute water supply plan.

A. Applicants' Position: Neither C.R.S. § 37-60-115(8) nor the Criteria and Guidelines prohibit use of an SWSP to allow for use of water sources to meet return flow obligations. Rather, the statute was drafted to include a prohibition on including the shares authorized for use to provide municipal supplies through pilot project operations from being included in a separate SWSP to avoid a situation whereby an SWSP would be used to circumvent the limitation that the CWCB shall not select a pilot project that involves "the fallowing of the same land for more than three years in a ten-year period or the fallowing of more than thirty percent of a single irrigated farm for more than ten consecutive years." *Id.* This provision was not intended to restrict use of water not used to meet the municipal needs being supplied through lease-fallowing operations and should not be read as such. Such a reading would place an unintended legislative limitation on the legal use of otherwise decreed water rights.

B. Tri-State's Position: This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms. Otherwise, Applicants' position is contrary to the plain language of C.R.S. § 37-60-115(8), which requires that "during the term of the pilot project, land and water included in a pilot project is not also included in a substitute water supply plan pursuant to section 37-92-305(5) or (7)…" Deep percolation return flow replacement is water included in a pilot project and cannot also be included in a SWSP. *See* W&J Letter pp. 2-5 and BBA Letter pp. 3 and 10.

5. Whether a "firm source" of water requires a binding agreement for the term of that source's inclusion in a future return flow projection, including agreements for use of structures.

> *For the purpose of the projection, firm sources of water shall include, exclusively, (a) calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares, (b) projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, and (c) other fully consumable firm replacement supplies either previously stored and dedicated to the Pilot Project or projected to be available in the upcoming plan year based on the dry-year yield of direct-flow water rights approved for replacement use by water court decree or C.R.S. 37-92-308(4) SWSP approval.* <u>*A replacement water source is considered firm in this context to the extent the water is guaranteed by binding agreement for the term of its inclusion in the projection and fully executed contracts to use structures not owned by the Applicant that are needed to store or deliver the replacement supply are provided.*</u> *The Applicant must account for applicable seepage, evaporation and transit losses associated with the use of such replacement supplies.*

A. <u>Applicants' Position</u>. Applicants agree that upon dedication of a firm source of water for replacement supplies, a binding agreement is required. However, Applicants disagree as to the extent of dedication of firm sources of water, and also disagree that agreements for structures need to be in place "for the term of its inclusion in the projection." C.R.S. § 37-60-115(8) and the Criteria and Guidelines, II.F.c, require Applicants to provide "evidence that all necessary agreements and approvals between ditch companies, ditch members, municipalities, and other parties have been obtained or will be reasonably obtained." Applicants agree that an appropriate requirement would be for Applicants demonstrate that such agreements are in place for the upcoming Plan Year. However, as to future Plan Years, the appropriate standard should be whether such agreements can be reasonably obtained. Moreover, this added language appears to have the effect of eliminating use of Pueblo Reservoir in meeting future return flow obligations because excess storage capacity contracts are only available on a single year basis. This would render the Catlin Pilot Project inoperable. Pueblo Board of Water Works has indicated that they agree with Applicants' position on this issue.

B. <u>Tri-State's Position</u>: This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms. However, renewal of recharge pond leases would still be needed prior to first year of operations after the Applicants' existing leases expire.

   To the extent "Pay As You Go" is not adopted, Applicants position is contrary to the plain language of the Criteria and Guidelines. The "reasonably available" language cited by applicants only applies at the selection stage, and is only discussed in the selection stage of the Criteria and Guidelines. At the application stage, the Criteria and Guidelines require at page 9: "a description of the source of water to be used to replace <u>*all*</u> historical return flow obligations, with evidence that the source will provide a *firm yield of water to replace all* return flow obligations, during the pilot project *and after completion of the pilot project*.

(emphasis added). A firm and contractually committed source of water is needed to guarantee that all return flow obligations will be replaced. If a water supply is identified for replacement of Pilot Project return flow obligations, but also committed for other uses, it may not be available when it is needed, thus leaving return flow obligations un-replaced and resulting in injury to Tri-State's water rights. *See* BBA Letter pp 7-8; W&J Letter at 4-5.

6. What is the appropriate timing and method of sources for replacement of tailwater and lagged deep percolation return flows.

Tri-State has proposed the following terms and conditions that were not discussed with all Conference Participants at the Conference Meeting (these updated terms have been slightly modified from Tri-State's December 29 comments in order to attempt to provide some additional flexibility for the Applicants' in response to concerns they expressed to Tri-State):

(1) Tailwater return flow obligations shall be calculated daily and shall be replaced exclusively by delivery to the Pilot Project Catlin Canal shares at the augmentation station(s). On a daily basis, Applicants shall endeavor to replace the calculated amount of tailwater return flow obligation. On a monthly basis, Applicants shall demonstrate that all tailwater return flow obligations have been replaced.

(2) Lagged deep percolation return flow obligations shall be calculated daily and shall be replaced exclusively through: (a) recharge accrual to the river calculated from actual infiltration of Pilot Project Catlin Canal shares delivered to recharge, (b) delivery to the Pilot Project Catlin Canal shares at the augmentation station and/or (c) other source of water decreed for augmentation or replacement or approved for augmentation or replacement by a C.R.S. 37-92-308(4) SWSP. During the irrigation season, on a monthly basis, Applicants shall demonstrate that all lagged deep percolation return flow obligations have been replaced. During November 15 to March 15, replacement of lagged deep percolation return flow obligations may be aggregated as approved by the Division Engineer so long as there is no injury to the Winter Water Storage Program, Colorado water rights, Conservation Storage in John Martin Reservoir or the Kansas-Colorado Arkansas River Compact.

A. <u>Applicants' Position</u>: The Pilot Project will be operated to provide replacement as timely as possible. However, noting that deliveries to the augmentation stations and recharge ponds may be more or less than anticipated on any given day, it should be acknowledged that the potential exists for over- or under-replacement of return flows on any given day, and provisions should be included to replace deficits, and utilize other sources to replace tailwater return flows as needed. Applicants appreciate language proposed by Tri-State to reflect the possibility that daily deliveries may not always be possible and would be amenable to the first of these terms and conditions with the following modification:

Tailwater return flow obligations shall be calculated daily and shall be replaced by delivery to the Pilot Project Catlin Canal shares at the augmentation station(s), <u>or with other supplies as needed</u>. On a daily basis, Applicants shall endeavor to replace the calculated amount of tailwater return flow obligation. On a monthly basis, Applicants shall demonstrate that all tailwater return flow obligations have been replaced.

Applicants do not agree that the sources of replacement of return flow obligations should be limited to those identified in the proposed terms and conditions (specifically "*other source of water decreed for augmentation or replacement or approved for augmentation or replacement by a C.R.S. 37-92-308(4) SWSP"*), as addressed in Section III.4.A, above.

B. <u>Tri-State's Position</u>: The current terms and conditions do not define a time-step for return flow replacement. The time-step for return flow replacement must be defined. Based upon the Applicants' historical use analysis and the Criteria and Guidelines, 20-percent of the return flow water delivered each day historically returned to the stream and is a tailwater return flow obligation. Use of the tailwater delivery for anything other than tailwater replacement will result in an expansion of use and unreplaced return flow obligations that will injure Tri-State's water rights. In addition, a term and condition is needed clarifying that the Applicants shall endeavor to replace return flows on the day they are owed. The Pilot Project Application requested that unreplaced return flow obligations be "made-up" in the subsequent month and this type of operation will result in injury to Tri-State's water rights. See BBA Letter p. 17. During the Winter Storage Season, direct flow water rights are (generally) not diverting water and it may be appropriate to aggregate replacement of lagged return flow obligations during that time. Tri-State acknowledges the operational difficulty in making precise daily return flow replacements while Pilot Project water is delivered at up to four Catlin Canal farm headgates (two augmentation stations and two recharge ponds), and has proposed revised language above to provide for "endeavoring" to make daily replacement, with monthly reconciliation of the full amounts.

7. Whether or not excess recharge accretions may be used to meet tailwater return flow obligations.

Based on the Conference Meeting, Applicants proposed the following term and condition:

There shall be no exchange and re-diversion of any excess recharge accretions resulting from delivery of water to recharge ponds that was diverted pursuant to the Subject Shares. Such excess recharge accretions may be used for the replacement of lagged or tailwater return flow obligations and may also be used for Fowler-CWPDA Municipal Well Replacement, except that the use of such credits to replace tailwater return flow obligations may not otherwise result in the exchange of Catlin Canal headgate deliveries pursuant to the Subject Shares that *are made available only as a result of the use of such credits to meet tailwater return flow obligations.*

Pueblo Board of Water Works has indicated that they do not believe the limitation contained in the final clause is necessary and such water should be available for exchange. Applicants agree that this limitation is unnecessarily restrictive and believes it should be able to make such exchanges, but had added the final clause in the spirit of compromise to try and resolve the concerns raised by Tri-State at the Conference Meeting.

Tri State has not agreed to this term and condition and has instead proposed the following terms and conditions:

(1) Tailwater return flow obligations shall be replaced on the day they are owed exclusively by delivery to the Pilot Project Catlin Canal shares at the augmentation station(s).

(2) There shall be no exchange and re-diversion of any excess recharge accretions resulting from delivery of water to recharge ponds that was diverted pursuant to the Subject Shares. Such excess recharge accretions may be used for the replacement of lagged return flow obligations and may also be used for Fowler-CWPDA Municipal Well Replacement.

A. Applicants' Position: As stated previously, the potential exists for over- or under-replacement of return flows on any given day. In the event that excess recharge accretions are available, and tailwater return flow obligations are under-replaced, Applicants' should be provided the operational flexibility to replace the tailwater return flow obligations with excess recharge accretions. There is no injury or other expansion of use if the return flow obligations are replaced. Moreover, such operations will ensure that water made available through Pilot Project operations is maximally utilized**.**

B. Tri-State's Position: This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms.

Based upon the Applicants' historical use analysis and the Criteria and Guidelines, 20-percent of the return flow water delivered each day historically returned to the stream and is a tailwater return flow obligation. Use of the tailwater delivery for anything other than tailwater replacement will result in an expansion of use and unreplaced return flow obligations that will injure Tri-State's water rights. Since tailwater is replaced by a portion of delivery to the Subject Shares, there is no circumstance where used of excess recharge accretions could be used for tailwater return flow replacement. *See* BBA Letter pp 12 and 14.

8. Whether or not water available pursuant to operations of the Pilot Project may be traded and/or exchanged with Rule 10 and/or 14 Plans.

Applicants proposed the following term and condition, which was agreed to by many Conference Participants but not agreed to by Tri-State:

> *Water available or owed pursuant to operations of this pilot project shall only be traded or exchanged with water available or owed under a Rule 10 Compact Compliance Plan or Rule 14 Plan with the prior approval of the Division Engineer, which shall be based on a determination that such trade/exchange can occur without resulting in material injury to water rights or contract rights to water and is otherwise in conformance with the law.*

Kansas has agreed to this term and condition with the following modifications:

> *Water available or owed to operations of this pilot project shall only be traded or exchanged with water available or owed under a Rule 10 Compact Compliance Plan or Rule 14 Plan with the prior approval of the Division Engineer. Such prior approval shall require a determination that such trade/exchange can occur without resulting in material injury to water rights or contract rights to water and is otherwise in conformance with the law.*

Tri-State has proposed the following term and condition:

> *Delivery of Pilot Project water via a Rule 14 Plan shall be limited to Fowler-CWPDA Municipal Well Replacement approved pursuant to the Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado. Pilot Project water shall not be included in any plan approved pursuant to the Compact Rules Governing Improvements to Surface Water Irrigation Systems in the Arkansas River Basin in Colorado.*

A. <u>Applicants' Position</u>: Trades and exchanges of water made available from Pilot Project operations with water owed at downstream locations to Rule 10 and/or Rule 14 Plans serves maximum utilization of water resources. Trades such as these are key water management techniques that reduce transit losses by making water available at the location where replacements are required. The proposed term and condition unnecessarily limits full utilization of Colorado's water supplies and would make unavailable an existing and generally accepted water management practice designed to reduce transit losses and increase efficiency. So long as such trades/exchanges can be operated without injury, Applicants believe it is unduly restrictive to prohibit such trades/exchanges. Applicants do not object to inclusion of language, as suggested by Tri-State below, to address reporting and accounting for such trades.

B. <u>Tri-State's Position</u>: *See* W&J letter pp 3-4 and BBA letter pp 2-3. As raised by Tri-State at the Conference Meeting, to the extent that the Pilot Project water is traded with Rule 10 and Rule 14 plans a Term and Condition is needed that requires daily accounting for such trades, including (a) the amount of Pilot Project water used by-reach for Rule 10 or Rule 14 replacement and (b) the source (location and water right) and amount of water traded from Rule 10 or Rule 14 to the Pilot Project.

9. Whether or not it is necessary to require weekly accounting during the first year of Pilot Project operations.

Tri-State has proposed the following language for inclusion in term and condition no. 39, above:

> *Accounting of water in this Catlin Canal Pilot Project must be provided to the Division Engineer on forms, at a frequency and at times acceptable to him. At a minimum, said accounting must be received by the 10th of the month following the month being reported, <u>except that during the first year of operation accounting must be submitted weekly.</u> The name, mailing address and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms. Accounting for return flow replacement shall continue until all lagged return flow obligations have been replaced.*

A. <u>Applicants' Position</u>: Weekly accounting is unnecessarily burdensome as a baseline for pilot project operations during the first year. This high frequency of accounting is not standard practice for SWSPs or IWSAs, many of which involve more complex projects with significantly greater amounts of water. Applicants agree to provide accounting at such frequency required by the Division Engineer, but are not willing to agree before any operations commence that weekly accounting is needed to prevent material injury, particularly given the conservative nature of all assumptions contained in the LFT.

B. <u>Tri-State's Position</u>: The Arkansas River call changes daily and daily accounting is the standard in much of Division 2. Reporting intervals in Division 2 range from daily to weekly or monthly. During the first year of operation, weekly reporting of daily accounting is needed to provide transparency in operation of the novel leasing-fallowing pilot project. Weekly accounting was required by the May 1, 2012 SWSP conditional approval of the Super Ditch Catlin Pilot Project by Term and Condition 26. *See* p. 14 May 1, 2012 letter from Dick Wolfe to Heath Kuntz and Jay Winner.

10. Whether or not the following term and condition regarding development of accounting forms should be included in any Pilot Project approval:

The following term and condition was drafted by Applicants:

> *Applicants shall submit to the Division Engineer and all commenting parties proposed accounting forms that are responsive to recommendations made by commenting parties no later than February 1, 2015. Commenting parties shall submit any comments on the proposed accounting forms to the Division Engineer by February 17, 2015. Pilot project operations may not commence unless and*

until accounting forms have been approved by the Division Engineer, which shall not be approved until after the February 17, 2015 deadline set forth herein.

Tri-State has proposed the following alternative term and condition:

Operation of the Pilot Project shall not commence until after the Division Engineer has approved accounting forms that are consistent with these terms and conditions and the November 19, 2013 Criteria and Guidelines. A copy of the Excel accounting forms, with formulas shall be posted on the Division of Water Resources website upon receipt from the Applicants. The accounting forms may be revised from time-to-time with written approval by or at the written direction of the Division Engineer. Any such revisions shall be posted on the Division of Water Resources website.

A. Applicants' Position: At the Conference Meeting, Tri-State indicated that a process needed be established whereby they would have an opportunity to review and comment on the accounting forms. Other Conference Participants agreed to inclusion of this term. Since that time, has changed their position on this term and condition. Applicants are agreeable to either version of this term and condition and appreciate the efforts all Conference Participants have made to assist in crafting terms and conditions and reaching agreement on various aspects of the Pilot Project. Applicants do note that Tri-State's version has not been agreed to by all Conference Participants.

B. Tri-State's Position: Tri-State has been working in good faith with Applicants and other parties to attempt to agree on terms and conditions for the Pilot Project. The compressed schedule for preparation of this report on all parties has illustrated the difficulty of reaching consensus on complex operations in a short time frame. Based on this experience, Tri-State has concluded that the burden for review and approval of accounting forms should not fall on commenters with only 17 days to review and comment on accounting forms. This will not permit adequate time for communication with the Applicants' engineers if the accounting forms are found to be in error. The example of accounting included in the September 25, 2014 Pilot Project Application only addressed accounting for one farm and was found to include numerous errors identified in the BBA Letter. The example of accounting presented at the December 18 Conference Meeting was provided to commenters only the night before the meeting and the version of the accounting presented at the meeting was found to be inaccurate. Accordingly, Tri-State is concerned that 17 days will not provide adequate time for review. If a review and comment period is included in the Pilot Project approval, it should be 30 days, minimum, and include a meeting with the Applicants approximately 15 days after the accounting is provided to resolve discrepancies.

11. Whether or not the following term and condition regarding comparison of historical use analysis with projected operations should be included in any Pilot Project approval:

The accounting will use the tables listed in Appendices B through G of the Catlin Pilot Project Application as the tool for comparing historical use analyses with projected operations as a pilot project.

A. Applicants' Position: This term and condition was originally included in the September 25, 2014 Pilot Project Application as provided for in the Criteria and Guidelines. When discussed at the Conference Meeting, this term and condition was not the subject of significant discussion and it appeared to have been agreeable to all parties. Since that time, Tri-State has indicated that they would like it removed. Applicants agree that is confusing and do not object to removal. Note that this removal has not been agreed to by other Conference Participants.

B. Tri-State's Position: Appendices B through G do not include an accounting of return flow replacement and are not adequate to compare historical use with Pilot Project operations. See BBA Letter p. 17. Tri-State does not object to inclusion of this term and condition, but the proposed term and condition is not a substitute for the other accounting provisions should not be used as the basis to evaluate efficacy of the Pilot Project in replacing historical return flows.

12. Whether agreements and approvals must be in place for the upcoming plan year or if such agreements and approvals must be in place that cover all future lagged return flow obligations.

Applicants' proposed the following term and condition that was agreed to by all Conference Participants except Tri-State:

Prior to March 1 of each plan year, Applicants shall have in place all approvals, and/or agreements that are necessary for operation of the Catlin Pilot Project for that plan year. Copies of these approvals/agreements shall be provided to the Division Engineer, which shall be made available to other parties upon request. Any use of intermediate storage locations in the operation of any exchange for the pilot project shall only occur to the extent that Applicants have obtained the necessary approvals and/or complied with applicable bylaw requirements associated with the use of such storage locations.

Tri-State has proposed the following modifications to this term and condition:

Prior to March 1 of each plan year, Applicants shall have in place all approvals, and/or agreements that are necessary for operation and return flow replacement of the Catlin Pilot Project for that plan year and all future lagged return flow obligations. Copies of these approvals/agreements shall be provided to the Division Engineer, which shall be made available to other parties upon request. Any use of intermediate storage locations in the operation of any exchange for the pilot project shall only occur to the extent that Applicants have obtained the *necessary approvals and/or complied with applicable bylaw requirements associated with the use of such storage locations.*

A. Applicants' Position: It is neither required nor necessary to prevent material injury to other water rights to have all agreements in place for future years' lagged return flow obligations. Individuals, municipalities, ditch companies and other entities typically are not willing to enter into binding commitments that do not take effect until many years in the future and may extend for over 20 years. A requirement that an applicant for a rotational leasing-fallowing pilot project must have such long-term agreements in place will prevent any such pilot project from operating. It is precisely this reason that neither C.R.S. § 37-92-115(8) nor the Criteria and Guidelines require that all such agreements be in place, but rather require evidence that *necessary* agreements and approvals may *reasonably be obtained.* Applicants note that the recharge pond leases have been extended through March 2017.

B. Tri-State's Position: This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms. Renewal of recharge pond leases would still be needed prior to first year of operations before those leases expire. Without necessary approvals and/or agreements for facilities and/or sources for return flow replacement, return flow replacement cannot be assured. See Tri-State's comments on items 4 and 5, above.

The terms and conditions set forth in this Joint Conference Report as either "agreed to" or "unresolved" are based on the parties' current understanding of the Catlin Pilot Project and information presented to date. All of these terms and conditions are the subject of negotiation and compromise and shall not be relied on as establishing any precedent in any other proceeding. In submitting this Joint Conference Report, no party is waiving its right to litigate or provide expert testimony or evidence on any issue as a part of any water court appeal taken to any CWCB approval of the Catlin Pilot Project, subject to the right of other parties to object to such testimony or evidence.

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RESPECTFULLY SUBMITTED THIS 6th DAY OF JANUARY, 2014 BY THE UNDERSIGNED CONFERENCE PARTICIPANTS:

Leah Martinsson or Craig Lis for Applicants, Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.

Lee Miller for Southeastern Colorado Water Conservancy District

Kelly Beal for Tri-State Generation and Transmission Association, Inc.

Gerry Knapp for Aurora Water

Alan Ward or Mason Brown for Pueblo Board of Water Works

Randy Hendrix for LAWMA

Kevin Salter or Rachel Duran for Kansas Division of Water Resources

Bill Caile or Mary Presecan for Colorado Beef

Richard Vail, Ed Perkins, or Katie Wiktor for Colorado Division of Parks and Wildlife right to litigate or provide expert testimony or evidence on any issue as a part of any water court appeal taken to any CWCB approval of the Catlin Pilot Project, subject to the right of other parties to object to such testimony or evidence.

RESPECTFULLY SUBMITTED THIS____ DAY OF JANUARY, 2014 BY THE UNDERSIGNED CONFERENCE PARTICIPANTS:

Leah Martinsson and Craig Lis for Applicants, Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.

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Lee Miller for Southeastern Colorado Water Conservancy District

Lee E Miller
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Kelly Beal, Mike Saylor, and Dan Niemela for Tri-State Generation and Transmission Association, Inc.

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Gerry Knapp for Aurora Water

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Alan Ward and Mason Brown for Pueblo Board of Water Works

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Randy Hendrix for LAWMA

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Kevin Salter and Rachel Duran for Kansas Division of Water Resources

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Bill Caile and Mary Presecan for Coloraod Beef

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Richard Vail, Ed Perkins, and Katie Wiktor for Colorado Division of Parks and Wildlife

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RESPECTFULLY SUBMITTED THIS 5 DAY OF JANUARY, 2015 BY THE UNDERSIGNED CONFERENCE PARTICIPANTS:

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Lee Miller for Southeastern Colorado Water Conservancy District

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Kelly Beal for Tri-State Generation and Transmission Association, Inc.

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Joint Conference Report for the Catlin Pilot Project
Submitted to the Colorado Water Conservation Board
and the Colorado State Engineer

Kansas Submittal
December 30, 2014

I. Introduction

This Joint Conference Report has been prepared pursuant to the Criteria and Guidelines for Fallowing-Leasing Pilot Projects II.I, adopted on November 19, 2013 by the Colorado Water Conservation Board (the "Criteria and Guidelines") for the Catlin Pilot Project. The Catlin Pilot Project proposes to use water available from certain shares in the Catlin Canal Company for temporary municipal uses by the Town of Fowler, the City of Fountain, and the Security Water District. The request is for approval of a pilot project that will operate over the ten-year period of March 15, 2015 through March 14, 2025.

As provided for therein, a conference meeting was facilitated by CWCB staff between the Applicants, the State Engineer, and owners of water rights or contract rights to water that filed comments on the Catlin Pilot Project Application. The conference meeting was held at 1525 Sherman, Street, Denver, CO 80202 on December 18, 2014 and was continued by conference call on December 22, 2014, at which time the conference was adjourned.

The following parties participated in the conference meeting on December 18, 2014:

1. Leah Martinsson for Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.
2. Craig Lis for Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.
3. Randy Hendrix for LAWMA
4. Bill Caile for Colorado Beef
5. Mary Presecan for Colorado Beef
6. Mark McLean for Pueblo Board of Water Works
7. Mason Brown for Pueblo Board of Water Works
8. Alan Ward for Pueblo Water
9. Mike Saylor for Tri-Sate
10. Daniel Niemela for Tri-State
11. Kelly Beal for Tri-State
12. Rachel Duran for Kansas DWR
13. Kevin Salter for Kansas DWR
14. Lee Miller for SECWCD

15. Richard Vail for CPW
16. Ed Perkins for CPW
17. Katie Wiktor (AGO) for CPW
18. Gerry Knapp for Aurora Water

The Fort Lyon Canal Company, the Holbrook Mutual Irrigating Company, and District 67 Irrigation Canals Association provided written comments on the Catlin Pilot Project Application, but did not participate in the December 18, 2014 Conference Meeting.

Other conference attendees on December 18, 2014 included:

1. Susan Schneider, Attorney General's Office
2. Tom Browning, CWCB
3. Kevin Rein, Colo. DWR
4. Bill Tyner, Colo. DWR
5. Tom George, Attorney General's Office
6. Charles DiDomenico, Colo. DWR
7. Cindy Lair, Colorado Department of Agriculture
8. Dan Steuer, Attorney General's Office
9. Kelley Thompson, Colo. DWR
10. Angela Schenk, Spronk Water Engineer's
11. Steve Miller, CWCB
12. Erik Skoc, CWCB
13. Mara Mackillop, CWCB

On December 22, 2014, a redline of the proposed terms and conditions and a draft clean copy of the joint conference report was emailed to participants along with information for a telephone conference call. A telephone conference call was initiated December 22nd at 3 pm Mountain. The form of responses from the commenting parties to the draft conference report was discussed.

The Criteria and Guidelines provide that "within fifteen days of the conference, the pilot project applicants and owners of water rights or contract rights to water shall file a joint report with the CWCB and the State Engineer outlining any agreed-upon terms and conditions for the proposed pilot project, and explaining the reasons for failing to agree on any terms and conditions for the pilot project if the applicant and the owners fail to reach a full agreement at the conference." This Joint Conference Report is therefore required to be filed with the CWCB on or before Tuesday, January 6, 2015.

II. Agreed-Upon Terms and Conditions

At the conference, conference participants agreed upon the following terms and conditions for the Catlin Pilot Project:

1. All water used in the Catlin Pilot Project will be delivered to the headgate of the Catlin Canal, and only lands irrigated under the Catlin Canal will be used in the leasing-fallowing operations of the Pilot Project. A plan year for the pilot project extends from March 15 through March 14 of the following year.

2. No lands shall be fallowed for more than three years during the ten-year period of the Catlin Pilot Project nor shall more than 30% of the parcels on each participating farm be fallowed during the consecutive ten-year Catlin Pilot Project. For lands located in Otero County, no more than two of the three years of fallowing during the pilot project term will be consecutive unless 1041 permitting requirements are complied with.

3. By March 1 of each plan year, Applicants shall notify and provide mapping to the Division Engineer and all commenting parties of those parcels to be fallowed and the associated shares for the upcoming plan year. Lands and shares available and approved for fallow through operation of the Catlin Pilot Project are limited to those identified in the Application.

4. Fallowed parcels must be at least ten acres in size unless they comprise all of an existing CDSS parcel that is already less than ten acres. Parcels that represent a portion of an existing field can only be split in the same direction of historic irrigation unless a means of physical separation is approved by the CWCB based on the written determination of the State Engineer. A physical separation must exist between any irrigated portion of a parcel and the dry-up portion. For dry-up fields left fallow or with a dry-land cover crop without permanent root system (that is, not alfalfa or pasture grass for example), the separation can be a ditch or tilled strip at least ten feet in width that prevents irrigation application from reaching the dry-up parcel. For partial fields containing deep-rooted crops such as alfalfa or pasture grass, a deep tilled separation of at least 25 feet must be maintained along with any ditches necessary to ensure no irrigation application to the dry-up portion. For any dry-up parcel that is planted with a dry-land crop (haygrazer, milo, millet, etc.), the crop should either be drilled at an angle to normal irrigation direction or a tilled strip maintained at the top of the field that clearly separates the crop from any possible irrigation source or both.

5. Dry-up of the fallowed fields will comply with the "Operating Procedures for Administration of Parcels Claimed for Augmentation Credits" of the Colorado State Engineer's Office, except that signs shall be installed by March 1 of each plan year on all parcels identified in that notice provided pursuant to term and condition 3, above. Re-irrigation of dry-up parcels shall not be allowed by any other source of water include other surface water, Catlin shares, or ground water during the year in which

such parcel is fallowed in pilot project operations. No partial year dry-up shall be permitted.

6. Applicants will notify the Division Engineer of the status (dry land crop (must specify type), tilled and fallow, not tilled and fallow, stubble of past crop left on field, etc.) of each fallowed field in the Catlin Canal Pilot Project by May 15 of each year of operations.

7. Applicants shall monitor fallowed parcels on a periodic basis to confirm the adequacy of dry-up in conformance with the terms and conditions of this approval. Should non-compliance with the dry-requirements of this approval be discovered, Applicants shall immediately notify the Division Engineer and take such corrective action as is required by the Division Engineer.

   Kansas has agreed to this term and condition with the following modifications:

   Applicants shall monitor fallowed parcels on a periodic basis to confirm the adequacy of dry-up in conformance with the terms and conditions of this approval. Should non-compliance with the dry-requirements of this approval be discovered, Applicants shall immediately notify the Division Engineer and take such corrective action as is required by the Division Engineer. These fallowed parcels are also subject to inspection by the Division Engineer who shall inform the applicants if non-compliance is found.

8. Applicants will ensure that all participating farmers are contractually bound to provide for weed control and erosion protection for the lands removed from irrigation as a part of the Catlin Canal Pilot Project. This will include the acknowledgement of, and agreement to comply with applicable County code noxious weed management requirements, including the Otero County Noxious Weed Management Plan, Otero County Code, Chapter 12 – Vegetation.

9. Prior to February 15, 2015, Applicants shall make the following adjustments to Leasing-Fallowing Tool ("LFT") run for the Catlin Pilot Project and the associated historical consumptive use analysis and submit the same to the State and Division Engineer:

   a. The study period used in the LFT analysis will be revised to exclude years where the Subject Shares were used in a Rule 14 Plan.

   b. To the extent consistent with item (e) below, the irrigated acreage of the Diamond A East farm, in Table 2 will be corrected to 272.1 acres, as shown on Figure 21 in Appendix A, with a corresponding change in the total, if appropriate.

   c. To the extent consistent with item (e) below, the irrigated acreage of the Diamond A East farm, in Table will be corrected to 272.1 acres, as shown on Figure 21 in Appendix A, with a corresponding change in the total if appropriate. The 2010 acreage in the LFT analysis will also incorporate this correction.

d. The results from the revised LFT run will be applied to the irrigated acreage for each year. The consumptive use per acre results will then be averaged to determine a per acre consumptive use for each farm to be applied to the Catlin Pilot Project going forward.

e. The LFT run shall be conducted with a limitation on the maximum allowed irrigated acres to be no more than the 1985 irrigated acreage mapped by Colorado and agreed by Kansas as a part of the *Kansas v. Colorado* litigation.

10. Prior to the commencement of any pilot project operations for 2015, Applicants and Colorado Division of Parks and Wildlife ("CPW") shall work cooperatively to determine whether and the extent to which lands included in the Catlin Pilot Project have historically been irrigated with Catlin Canal Company shares that were leased from CPW during the applicable study period. Based on the results of that work, Applicants shall then make such adjustments to the historical consumptive use analysis based on the use of leased water by excluding a prorated amount of acreage, corresponding to acres irrigated by shares leased from CPW in any year, from such years in the historical use analysis, which adjustments shall be mutually agreed to by Applicants and CPW. This revised analysis shall be provided to the State and Division Engineer for approval.

11. To the extent it is determined that the Subject Shares and the associated lands available for fallow have been included in a Rule 14 Plan(s) such that they are no longer legally available for use to provide replacement water for Fowler's well depletions via CWPDA's Rule 14 pursuant to the terms of Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado and the Amended Agreement Regarding the Colorado Use Rules, PDF Evaluation, Implementation of Processes, and Related Matters, and Not to Terminate Offset Account Resolution (June 2009) and are not included in the pending application of the Catlin Augmentation Association in Case No. 12CW94, any use of depletion credits available from the dry-up of those lands shall not permitted to provide a source of replacement water for Fowler's well depletions. This shall be appropriately reflected in pilot project accounting.

Kansas has agreed to this term and condition with the following modifications:

To the extent it is determined that the Subject Shares and the associated lands available for fallow have been included in a Rule 14 Plan(s) such that they are no longer legally available for use to provide replacement water for Fowler's well depletions via CWPDA's Rule 14 pursuant to the terms of Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado and the Amended Agreement Regarding the

Colorado Use Rules, PDF Evaluation, Implementation of Processes, and Related Matters, and Not to Terminate Offset Account Resolution (June 2009), which is Appendix A.4 to the Kansas v. Colorado decree, ~~and are not included in the pending application of the Catlin Augmentation Association in Case No. 12CW94~~, any use of depletion credits available from the dry-up of those lands shall not permitted to provide a source of replacement water for Fowler's well depletions. This shall be appropriately reflected in pilot project accounting. Applicants shall provide with the March 1 dry-up notice to the Division Engineer and all commenting parties whether the followed parcels are included in a pending or approved Water Court case adding augmentation as a decreed use.

12. The following monthly factors will be applied to augmentation station deliveries and deliveries at the farm headgate for recharge to determine monthly consumptive use. However, in the event of a return flow obligation deficit the Applicant shall replace the current, and/or provide sources sufficient to replace projected, return flow obligation deficit prior to receiving further consumptive use credits. Note that these factors will be modified to reflect changes in the LFT run per term and conditions 9 and 10, above.

Consumptive Use Factors

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Schweizer	-	0.000	0.063	0.155	0.377	0.531	0.537	0.538	0.445	0.250	0.179	-
Diamond A West	-	0.000	0.032	0.129	0.314	0.468	0.484	0.460	0.311	0.136	0.032	-
Hirakata Farms	-	0.000	0.062	0.153	0.373	0.528	0.533	0.532	0.425	0.244	0.174	-
Hancock	-	0.000	0.062	0.133	0.329	0.525	0.539	0.545	0.472	0.260	0.209	-
Diamond A East	-	0.000	0.065	0.157	0.380	0.533	0.540	0.541	0.463	0.264	0.162	-
Hanagan	-	0.000	0.030	0.113	0.274	0.408	0.428	0.381	0.259	0.097	0.020	-

13. The portion of all available pilot project augmentation station and headgate deliveries that is not credited as consumptive use will be attributed to all return flow obligations with an amount equal to 20% of the farm delivery headgate diversions minus consumptive use attributed to tail water surface return flow obligations and all remaining water will be attributed to lagged deep percolation return flow obligations. For the first half of November and the second half of March the return flow obligation should equal the monthly surface water return flow plus half of the groundwater return flow. For the second half of November and first half of March the return flow obligation should be half of the monthly ground water return flow. An exception to the preceding March and November requirements are that no return flows are required prior to operation of the project. As such, return flows in the first

month of the project will be distributed from the project start date through the remainder of the month.

14. The monthly and annual consumptive use will be further limited by the following maximum values which are the averages of the three greatest years of the study period. The values in the table are for all of the shares on each farm. Therefore, the values for each farm must be multiplied by the percentage of dry-up for each farm to estimate the appropriate limits for each year of the pilot project. Note that these values will be modified to reflect changes in the LFT run per term and conditions 9 and 10, above.

Monthly and Annual Maximum Consumptive Use Credits

(All Values in Acre-Feet)

Farm	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Schweizer	0.0	0.0	3.1	13.7	56.2	80.8	80.3	65.2	51.0	37.3	10.5	0.0	398.0
Diamond A West	0.0	0.0	1.9	9.5	43.3	84.1	70.8	66.5	50.5	49.9	0.4	0.0	377.0
Hirakata	0.0	0.0	2.3	10.7	43.7	62.9	62.5	50.8	39.7	28.8	8.1	0.0	309.3
Hancock	0.0	0.0	1.1	5.4	22.0	30.2	30.6	27.1	15.8	16.9	6.6	0.0	155.6
Diamond A East	0.0	0.0	4.1	19.4	79.1	115.1	115.2	93.7	73.2	49.3	12.0	0.0	561.2
Hanagan	0.0	0.0	1.4	10.7	35.8	59.3	53.8	47.0	28.5	17.8	0.0	0.0	254.4

15. The annual farm headgate diversions will be further limited by the maximum values and set forth in the table below, which shall be calculated as the average of the three greatest years of the study period. The values in the table shall reflect all of the shares on each farm. Therefore, the values for each farm must be multiplied by the percentage of dry-up for each farm to estimate the appropriate limits for each year of the pilot project. Values will be based upon the LFT run per term and conditions 9 and 10, above.

Farm	Annual Volumetric Limit (a/f)
Schweizer	
Diamond A West	
Hirakata	
Hancock	
Diamond A East	
Hanagan	

Deliveries of water to shares that are not included in the pilot project for any given plan year shall be limited to delivery and use on lands that are not fallowed as a part of pilot project operations for that plan year.

16. Any water attributable to the Subject Shares that would otherwise be available to the Applicants (after accounting for ditch loss) which the Applicants are not able to divert or use because of operation of any volumetric limit shall be returned to the Arkansas River through one or more augmentation stations on the Catlin Canal following diversion at the Catlin Canal headgate and shall not be available for irrigation, augmentation or any other use until such time as use of such water is again allowed in accordance with the volumetric limits of this approval.

17. Deep percolation return flows for the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms will be lagged using the URFs that shall be calculated using the x-distance to the nearest drain for each of the farms included in the. Thus, the URFs set forth in Appendix H of the Application shall be revised to reflect x-distances for the Schweizer and Diamond A West farms to Patterson Hollow and for the Hirakata and Diamond A East farms to Timpas Creek. Deep percolation return flows for the Hanagan Farm will be maintained by returning water to the Hanagan Recharge Pond within ¼ mile of said farm, negating the need for lagging per the Criteria and Guidelines. Deep percolation return flows from the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms may be delivered to the Schweizer and/or Hanagan Recharge Ponds, and will be lagged using the applicable URFs.

18. Consumptive use credits and return flow obligations and use of consumptive use credit and return flow obligations shall be calculated on a daily basis. Water allocated to deep percolation return flows that is not required to replace return flows on a given day will be allocated as a stream depletion credit and returned directly to the river. Such depletion credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace return flows as necessary.

19. Pilot Project return flows shall be replaced at or above the historical point of accretion to the stream or above the downstream calling right. Points of accretion for tailwater and lagged depletions are as follows:

Farm	Historical Points of Accretion to Arkansas River			
	Tailwater		Deep Percolation	
	Stream Location	UTMs	Stream Location	UTMs
Schweizer	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764
Diamond A West	Arkansas River downstream of Patterson Gulch	Easting: 608734 Northing: 4217964	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764
Hirakata, Hancock, Diamond A East	Confluence of Timpas Creek & Arkansas River	Easting: 619547 Northing: 4209161	Confluence of Timpas Creek & Arkansas River	Easting: 619547 Northing: 4209161
Hanagan	Arkansas River downstream of Timpas Creek	Easting: 622384 Northing: 4208419	Arkansas River downstream of Timpas Creek	Easting: 622384 Northing: 4208419

Return flow obligations shall not be replaced at the Crooked Arroyo augmentation station when there is a call for water at the Fort Lyon Canal headgate.

20. To the extent it is determined by the Division Engineer that the use of the Timpas Creek and/or Crooked Arroyo augmentation stations will interfere with the operation of the decreed exchanges or decreed alternate points of diversion that are operating in the reach between historical accretions to the stream and the point at which augmentation station deliveries reach the river, the Division Engineer may require modifications to pilot project operations as may be deemed necessary to prevent material injury to water rights or contract rights to water. Such operational modifications will be identified and described in Applicants' annual report, a required by paragraph 47 and, to the extent such modifications are to take effect immediately, will be noticed to all commenting parties.

21. Prior to March 1 of each year, Applicant shall prepare and submit to the Division Engineer a monthly projection for the replacement of surface and lagged return flow obligations owed for deliveries to date and projected for the upcoming plan year and for total future monthly obligations. To the extent that this projection shows that lagged and surface return flow obligations that will be owed during the upcoming plan year operation cannot be met through calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares and projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, Applicant shall identify to the Division Engineer such other firm source(s) of water that will be dedicated to the pilot project for that plan year, along with a calculation of the dry-year yield of such source(s) and accounting for evaporation, transit, or other losses that may be incurred prior to and/or during delivery. If the Division Engineer

determines that such source(s) is(are) inadequate or otherwise unavailable to meet return flow obligations owed for the upcoming plan year, the Division Engineer may deny use of that source for such purpose and require Applicants to dedicate an acceptable firm source of water prior to commencement of operations for that plan year. This shall also include information regarding Applicants' anticipated method(s) and source(s) of water anticipated to be used to meet return flow obligations beyond the upcoming plan year such that the Division Engineer can evaluate the likelihood that Applicants will continue to be able to meet return flow obligations in upcoming years and to take such action(s) as may be necessary to proactively address potential shortfalls in meeting long-term return flow obligations. This project shall be available to all interested parties through the posting to an FTP site or other accessible web site within a reasonable time of submittal to the Division Engineer.

22. Throughout operation of the pilot project, the projection of the firm sources of water that will be used to replace plan year lagged and surface return flow obligations from deliveries to date shall be updated weekly during the irrigation season. This shall include actual infiltration at the recharge facilities. If at any time a plan year monthly lagged return flow obligation exceeds the firm sources of water that will be used for replacement, no water shall be delivered to Lessees until all return flow obligations are made and the projection shows that a firm source of water is available to replace plan year return flow obligations.

23. For the purpose of the projection, firm sources of water shall include, exclusively, (a) calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares, (b) projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, and (c) other fully consumable firm replacement supplies either previously stored and dedicated to the Pilot Project or projected to be available in the upcoming plan year based on the dry-year yield of direct-flow water rights approved for replacement use by water court decree or SWSP approval. The Applicant must account for applicable seepage, evaporation and transit losses associated with the use of such replacement supplies.

24. Prior to January 1 preceding the final plan year of pilot project operation, Applicants shall prepare and submit to the State and Division Engineer and all commenting parties a report identifying the source(s) of water that will be used to meet post-project lagged depletions that will not be met through accretions from recharge, which report shall be updated annually or at such other time interval required by the State and Division Engineer. This report shall include a calculation of the dry-year yield of such sources and provide evidence that Applicants have the right to use such source(s) and shall also include a commitment from Applicants that such source(s) will be dedicated to meet such post-project depletions and will not be used for any other purpose. The identified source of post-project return flow water must be approved by the State and Division Engineer.

25. Unless otherwise replaced via pilot project operations (such as recharge) or CWPDA's Rule 14 plan, depletions credits will be exchanged to Pueblo Reservoir and stored in Lower Ark's excess capacity storage account to provide a replacement supply for winter return flow obligations.

    Kansas has agreed to this term and condition with the following modifications:

    Unless winter return flow obligations are *otherwise replaced via pilot project operations (such as recharge) or CWPDA's Rule 14 plan, depletions credits will be exchanged to Pueblo Reservoir and stored in Lower Ark's excess capacity storage account to provide a replacement supply for winter return flow obligations.*

26. Exchange into Pueblo Reservoir may occur only when there is at least 100 cfs of outflow (inclusive of hatchery flows) from Pueblo Reservoir. Such diversions/exchanges may not cause the outflow from Pueblo Reservoir to be less than 100 cfs. Pursuant to the terms of the 2011 Memorandum of Agreement between Lower Ark and the Southeastern Colorado Water Conservancy District ("Southeastern"), to the extent that a long-term excess capacity contract is entered into with the Bureau of Reclamation and Lower Ark enters into a sub-contract with Southeastern for use of the excess capacity space, Lower Ark (and operation of this Catlin Pilot Project) shall comply with the requirements of the Arkansas River Flow Management Project to the same extent that Southeastern is obligated to comply, which may result in additional limitations on the exchange of water into Pueblo Reservoir.

27. Pilot Project exchanges to Pueblo Reservoir from points within or downstream of the City of Pueblo's recreational in-channel diversion (RICD) shall operate as if the Pueblo RICD water right is in effect 24-hours per day.

28. Any exchange of water as a part of this pilot project not operated pursuant to a court decree must be approved in advance by the Division Engineer after a determination that there is sufficient exchange potential to accomplish the requested exchange without injury to other water rights and taking into account the timing of river flows between the exchange from point and exchange to point.

29. Substitute supplies used for exchange must be delivered at a Catlin augmentation station through a measuring device approved by the Division Engineer. The amount of substitute supply available for exchange shall be assessed transit loss by the Division Engineer between the augmentation station and Arkansas River.

30. Applicants may operate an exchange only if there is a live stream between the downstream exchange-from point and the upstream exchange-to point. The Applicants shall not operate the exchange when it would prevent an intervening water right from diverting water from the Arkansas River if such a diversion would have been legally and physically possible in the absence of the exchange.

31. Waters that are exchanged to, stored in, and subsequently released from Pueblo Reservoir will experience, delivery, storage and transit losses that will have to be made up from other sources. Absent prior approval by the Division Engineer of some other source, it will be assumed those losses will be made up from the consumptive yield of the shares included in the pilot project.

32. Any return flows not met by the available farm headgate diversions shall be made up from some other source of water decreed for this use or approved for this use by a substitute water supply plan.

33. There shall be no exchange and re-diversion of any excess recharge accretions resulting from delivery of water to recharge ponds that was diverted pursuant to the Subject Shares. Such excess recharge accretions may be used for the replacement of lagged or tailwater return flow obligations and may also be used for Fowler-CWPDA Municipal Well Replacement, except that the use of such credits to replace tailwater return flow obligations may not otherwise result in the exchange of Catlin Canal headgate deliveries pursuant to the Subject Shares that are made available only as a result of the use of such credits to meet tailwater return flow obligations.

34. Any excess credits available from pilot project operations are prohibited from being claimed for use as a source of replacement water for agricultural well depletions in any Rule 14 Plan or substitute water supply plan.

    Kansas has agreed to this term and condition with the following modifications:

    Any excess credits available from pilot project operations are prohibited from being claimed for use as a source of replacement water for agricultural irrigation ~~well~~ depletions in any Rule 14 Plan or substitute water supply plan.

35. Water available or owed pursuant to operations of this pilot project shall only be traded or exchanged with water available or owed under a Rule 10 Compact Compliance Plan or Rule 14 Plan with the prior approval of the Division Engineer, which shall be based on a determination that such trade/exchange can occur without resulting in material injury to water rights or contract rights to water and is otherwise in conformance with the law.

    Kansas has agreed to this term and condition with the following modifications:

    Water available or owed ~~pursuant~~ to operations of this pilot project shall only be traded or exchanged with water available or owed under a Rule 10 Compact Compliance Plan or Rule 14 Plan with the prior approval of the Division Engineer. Such prior approval ~~, which~~ shall ~~be based on~~require a determination that such trade/exchange can occur without resulting in material injury to water rights or contract rights to water and is otherwise in conformance with the law.

36. All recharge ponds shall be surveyed and stage-area-capacity tables shall be approved by the Division Engineer before use.

37. Recharge pond accounting and operations shall, at a minimum, include and/or comply with the following information:

    a. Measured and recorded inflow, taking into account measured precipitation,

    b. Daily content by staff gage with a documented time recorded if not automated,

    c. Daily evaporation determined by daily evaporation rate by pond surface area for each day water is present in pond. Recharge site annual evaporation was derived from the NOAA, "Evaporation Atlas for the Contiguous 48 United States", 1982, Technical Report NWS 33, as illustrated in AquaMap.

    d. The recharge shall be computed from a mass balance standpoint, and

    e. The area in and around the recharge pond shall be kept clear of vegetation and shall be regularly monitored for any increased vegetative growth and/or pond seepage coming to the surface. To the extent that any vegetation exists while recharge is taking place, there shall be an appropriate reduction applied to recharge credits available at the Arkansas River.

Kansas has agreed to this term and condition with the following modifications:

Recharge pond accounting and operations shall~~, at a minimum,~~ include and/or comply with the following information:

a. Measured and recorded inflow, taking into account daily measured precipitation as recorded by the nearest CoAgMet weather station. Missing CoAgMet station data shall be replaced by the next closest CoAgMet weather station.~~,~~

b. Daily content by staff gage with a documented time recorded if not automated,

c. Daily evaporation determined by daily evaporation rate by pond surface area for each day water is present in pond. Daily evaporation will be determined based on the pan evaporation reported by the Corps of Engineers from data collected at John Martin Reservoir.~~Recharge site annual evaporation was derived from the NOAA, "Evaporation Atlas for the Contiguous 48 United States", 1982, Technical Report NWS 33, as illustrated in AquaMap.~~

d. The recharge shall be computed from a mass balance standpoint, and

e. The area in and around the recharge pond shall be kept clear of vegetation and shall be regularly monitored for any increased vegetative growth and/or pond seepage coming to the surface. To the extent that any vegetation exists while recharge is taking place, there shall be an appropriate reduction applied to recharge credits available at the Arkansas River.

38. Observations shall be made and recorded of any spills, seeps or overtopping of recharge ponds when recharge ponds are near full. No credit for recharge infiltration to ground water shall be allowed when spills, seeps or overtopping are observed unless the amount of such spills seeps and overtopping may be reasonably estimated and deducted from the amount delivered to recharge as approved by the Division Engineer.

39. To the extent that the recharge ponds are used for purposes other than the Catlin Pilot Project, the infiltration of such water to ground water shall be considered to occur based on the percentage of the total delivery to the subject recharge pond. Recharge accounting under term and condition 37 shall similarly be adjusted to reflect the proportion of water placed into recharge for pilot project operations and for other purposes.

40. All diversions shall be measured in a manner acceptable to the Division Engineer. The Applicant shall install and maintain measuring devices as required by the Division Engineer for operation of this pilot project.

41. Applicants shall submit to the Division Engineer and all commenting parties proposed accounting forms that are responsive to recommendations made by commenting parties no later than February 1, 2015. Commenting parties shall submit any comments on the proposed accounting forms to the Division Engineer by February 17, 2015. Pilot project operations may not commence unless and until accounting forms have been approved by the Division Engineer, which shall not be approved until after the February 17, 2015 deadline set forth herein.

42. Accounting of water in this Catlin Canal Pilot Project must be provided to the Division Engineer on forms and at times acceptable to him. Said accounting must be received by the 10th of the month following the month being reported. The name, mailing address and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms. Accounting will be available for inspection through the posting to an FTP site or other accessible web site within a reasonable time of submittal to the Division Engineer.

Kansas has agreed to this term and condition with the following modifications:

Accounting of water in this Catlin Canal Pilot Project must be provided to the Division Engineer on forms and at times acceptable to him. Said accounting must be received by the 10th of the month following the month being reported. The name, mailing address and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms. Accounting will be available for inspection through the posting to an FTP site or other publically accessible web site within a week ~~reasonable time~~ of submittal to the Division Engineer.

43. In addition to daily accounting for each participating farm's contribution there shall be an accounting record that shows the disposition of the water delivered to the Arkansas River. This additional record shall identify the end user of available water, whether the water is used directly for augmentation or exchanged to upstream storage, and the portion of the delivery that is used for replacement of return flow obligations.

44. The Pilot Project will incorporate (a) daily accounting, one day in arrears, of future lagged return flow obligations resulting from actual deliveries to date to the fallowed Subject Shares and (b) a projection of the firm water supplies dedicated for replacement of the future lagged return flow obligations.

45. Applicants' accounting shall comply with the following:

    a. Daily accounting shall be maintained for the measured amount of water delivered attributable to the fallowed Subject Shares at each of the augmentation stations and recharge facilities.

    b. Consumptive use and return flow factors shall be applied to daily measured deliveries at the locations where Subject Shares are delivered by the Catlin Canal Company.

    c. Daily accounting shall be maintained for the amounts of HCU water, tailwater and unlagged deep percolation portions of the measured amount of water delivered at each augmentation station and recharge facility for the fallowed Subject Shares.

    d. Monthly accounting shall be maintained for current and future lagged return flow obligations that have resulted from deliveries attributable to fallowed Subject Shares during the present month and all previous months.

    e. Monthly accounting shall be maintained for calculated recharge accretions to the stream system from actual infiltration at recharge ponds from delivery attributable to the fallowed Subject Shares.

    f. Monthly accounting shall be maintained for lagged return flow obligation not replaced by recharge, distributed on a daily basis.

    g. Daily accounting shall be maintained for measured Pilot Project HCU water and unlagged deep percolation water delivered through the augmentation stations for replacement of lagged return flow obligations that are not replaced with recharge.

    h. Daily accounting shall be maintained for measured deliveries of other water supplies used to replace lagged return flow obligations that are not replaced with recharge, including location of each supply and transit losses associated with delivery of each supply to the location where the return flow obligation is owed.

i. Daily balance of the Pilot Project's net effect to the Arkansas River.

j. Daily net amount of HCU water and unlagged deep percolation return flow water delivered through the augmentation stations and not needed for replacement of return flow obligations.

k. Daily amount of HCU water and unlagged deep percolation return flow water stored to replace future lagged return flow obligations.

l. Daily amount of HCU water and unlagged deep percolation return flow water delivered to each Lessee.

46. The accounting will use the tables listed in Appendices B through G of the Catlin Pilot Project Application as the tool for comparing historical use analyses with projected operations as a pilot project.

47. Applicants shall annually prepare a report of Pilot Project operations that will be submitted to the CWCB and the State and Division Engineer on or before January 15 of each year, which shall reflect a reporting year of November 16 of the prior plan year through November 15 of the current plan year for which the report is being prepared. This annual report shall be made publicly available on an FTP site or other appropriate website. This annual report will present: (a) a summary of plan year accounting, including the total amount of acres and Subject Shares fallowed, plan-year deliveries to the Subject Shares, HCU credits generated, water exchanged for Fowler-CWPDA Municipal Well Replacement, water exchanged to Pueblo Reservoir for Fountain and Security, water exchanged to Pueblo Reservoir for lagged return flow replacement, tail water return flow obligation replaced and unreplaced, lagged return flow obligation replaced and un-replaced, sources of water used to meet lagged return flow obligation, future lagged return flow obligation and firm yield source of water that will be used to meet lagged return flow obligation; (b) the number of days, if any, when there were un-replaced return flow obligations; (c) efficacy of the LFT, temporary dry-up, prevention of erosion, blowing soils and noxious weeds and re-irrigation of temporarily fallowed lands; (d) information regarding the parcels that have been dried up to date and years of such dry up to demonstrate that the limitations contained in term and condition 2 have not been exceeded(e) a summary of costs associated with pilot project operations, including lease payments made/received, operational costs, and to the extent available costs of erosion prevention and noxious weed management; (f) identification of any obstacles encountered in pilot project operations; (g) any additional terms and conditions that Applicants believe may be necessary to prevent future material injury to other water rights or contract rights to water; and (h) any proposed operational modifications for the upcoming plan year, including but not limited to the addition/modification of storage locations, recharge facilities, and/or augmentation stations. Any proposed operational modifications

shall be accompanied by such information and analysis as is necessary for the State and Division Engineer and any interested parties to evaluate the potential for injury resulting from such proposed changes.

Kansas has agreed to this term and condition with the following modification to the second sentence:

This annual report shall be made publicly available on an FTP site or other appropriate website, with email notice to commenting parties when posted.

48. Pueblo Reservoir, Twin Lakes Reservoir and Fountain Valley Pipeline (or Conduit) are owned and operated as part of the Fryingpan-Arkansas Project by the United States Department of the Interior, Bureau of Reclamation. This Catlin Pilot Project approval does not give Applicants any rights to use of Fryingpan-Arkansas Project structures, including Pueblo Reservoir, but will not alter any existing rights Applicants may have. Applicants shall store water in Pueblo Reservoir only so long as they have a contract with the owners of that structure, and such storage and use is within the effective time period of such contract. Any use of Fryingpan-Arkansas Project facilities by Applicants, for storage, exchange or otherwise, will occur only with the written permission of the owner of said reservoir, and will be made consistent with such policies, procedures, contracts, charges, and terms as may lawfully be determined by the U.S. Bureau of Reclamation, and, where applicable Southeastern or its successors in interest, in their good faith discretion.

49. This Catlin Pilot Project approval has no effect on the authority of the United States to regulate and/or deny use of federal facilities. Applicants recognize that the consideration of and action on request for any necessary federal contracts and authorizations shall be carried out pursuant to all pertinent statutes, regulations and policies applicable to the occupancy and use of the Bureau of Reclamation facilities, including but not limited to Fryingpan-Arkansas Project authorization legislation, the National Environmental Policy Act, and the Endangered Species Act.

50. Applicants shall store or transport water in Fryingpan-Arkansas Project structures only so long as they have a contract with the owners of that structure(s), and such storage and use is within the effective time period of such contract. This Catlin Pilot Project approval does not give Applicants any rights to ownership or use of any Fryingpan-Arkansas Project structure, or any rights of ownership or rights to purchase or receive allocation of Fryingpan-Arkansas Project water, and does not alter any existing rights (including any right to renew existing contracts) Applicants may have.

51. Applicants shall not operate the Catlin Pilot Project in a manner that would interfere with the lawful operation of the Fryingpan-Arkansas Project. Any water stored in Pueblo Reservoir as a part of this Catlin Pilot Project shall be beneficially used within Southeastern's district boundaries.

52. Unless otherwise authorized by the Bureau of Reclamation and to the extent permitted by law, and consistent with all lawful rules, regulations, policies, and

contract obligations of Southeastern, the portion of the water associated with shares used in this Catlin Pilot Project derived from water stored pursuant to the decree dated November 10, 1990 in Case No. 84CW179 ("Winter Storage Water") shall be stored in an excess capacity storage account in Pueblo Reservoir. Applicants shall obtain space in an excess capacity storage account to allow storage of its Winter Storage Water, and such water shall be available to the Catlin Pilot Project operations. If no excess capacity account is available in a given year, Applicants will not take delivery of their Winter Storage water associated with the Catlin Pilot Project during that year. All of Applicants' Winter Storage Water shall be delivered through the Catlin Canal during the period of March 16 through November 14 at the same time as deliveries of Winter Water Storage are made to other Catlin Canal shareholders. If the Winter Storage Program described in the decree in Case No. 84CW179 terminates, the return flows owed on the Catlin Pilot Project lease shall continue to be calculated as set forth herein.

53. Applicants' lease of shares of the Catlin Canal entitle it to a pro rata share of the Winter Water made available to the Catlin Canal that shall be accounted for as released to Applicants' account in Pueblo Reservoir. This Winter Water will be available for release at any time during the year subject to the operating rules of the Winter Water Storage Project and may be carried over until May 1 of the water year (November 1 through October 31) following the water year in which the Winter Water is stored. Any Winter Water unused by that date will be released from Pueblo Reservoir to the system as decreed in Case No. 84CW179. Delivery of that Winter Water is also subject to the rules and regulations of the Catlin Canal regarding orders and assessments for such deliveries.

54. To the extent that the Catlin Pilot Project stores the net depletion amount of the participating shares in Pueblo Reservoir, such water may be booked over to replace winter return flow on a monthly or weekly basis, or as otherwise required by the Division Engineer, to participants in the Winter Water Storage Program decreed in Case No. 84CW179, Water Division 2 as necessary to prevent injury to the water rights included in that Program.

55. Prior to March 1 of each plan year, Applicants shall have in place all approvals, and/or agreements that are necessary for operation of the Catlin Pilot Project for that plan year. Copies of these approvals/agreements shall be provided to the Division Engineer, which shall be made available to other parties upon request. Any use of intermediate storage locations in the operation of any exchange for the pilot project shall only occur to the extent that Applicants have obtained the necessary approvals and/or complied with applicable bylaw requirements associated with the use of such storage locations.

III. Unresolved Terms and Conditions

This submittal represents Kansas modifications that would make the terms and conditions above acceptable. These modifications are based on our current understanding of the Catlin Pilot Project and information presented to date. This has been done independently of the other commenting parties. It is undetermined as of this date if there are any terms and conditions that will be unresolved. In submitting these modifications, Kansas reserves the right to address any objections in an appropriate forum.

RESPECTFULLY SUBMITTED THIS 30 DAY OF DECEMBER, 2014 BY THE UNDERSIGNED CONFERENCE PARTICIPANTS:

Kevin Salter, P.E.
Division of Water Resources
Kansas Department of Agriculture

Rachel Duran
Division of Water Resources
Kansas Department of Agriculture

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January 6, 2015

Via Email
Leah K. Martinsson
Berg, Hill, Greenleaf & Ruscitti, LLP
1712 Pearl Street
Boulder, CO 80302

Re: Board of Water Works of Pueblo, Colorado's, Additional Comments to be Attached as an Appendix to the Catlin Pilot Project Joint Conference Report

Dear Leah:

I am writing on behalf of the Board of Water Works of Pueblo, Colorado ("Pueblo Water" or "Pueblo Board of Water Works"), to provide you with additional comments on the Catlin Pilot Project Joint Conference Report. Because these comments are being provided after you circulated the final version of the Joint Conference Report, this letter should be attached as an appendix to the Joint Conference Report. For context, I have included the entire Term and Condition from the Joint Conference Report for which Pueblo Water's comment applies. Pueblo Water's comments are in red.

Agreed-Upon Terms and Conditions

19. Deep percolation return flow replacement requirements for the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms will be lagged using the URFs that shall be calculated using the x-distance to the nearest drain for each of the farms included in the December 9, 2014 Bishop Brogden Associates Inc. comment letter ("BBA Letter"). Thus, the URFs set forth in Appendix H of the Application shall be revised to reflect x-distances and corresponding w-distances for the Schweizer and Diamond A West farms to Patterson Hollow and for the Hirakata and Diamond A East farms to Timpas Creek. Deep percolation return flows for the Hanagan Farm shall be replaced by delivering all deep percolation water, plus sufficient water to offset evaporation to the Hanagan Recharge Pond, which is within ¼ mile of said farm, negating the need for lagging per the Criteria and Guidelines. . Deep percolation return flows from the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms may be delivered to the Schweizer and/or Hanagan Recharge Ponds, and will be lagged using the applicable URFs.

Pueblo Board of Water Works has requested inclusion of the following sentence in this term and condition:

> *However, as provided in term and condition 42.f below, any Hanagan Farm deep percolation return flow replacement obligations not met by recharge will be lagged using the applicable URF.*

Applicants and Tri-State note that the ~~highlighted~~ sentence above is not needed with term and condition 20 below, and is not consistent with the method proposed in the Application for replacing return flows from the Hanagan Farm. Tri-State believes that deletion of this clause would improve the clarity of the terms and conditions.

20. On a daily basis, Applicants shall endeavor to deliver the deep percolation portion of fallowed Hanagan farm Catlin Canal share deliveries to the Hanagan Recharge Pond, as calculated in term and condition 19, plus consumptive use water to replace evaporation. On a monthly basis, Applicants shall demonstrate that the deep percolation portion of fallowed Hanagan farm Catlin Canal share deliveries are delivered to and infiltrate at the Hanagan Recharge Pond.

Discussion

Pueblo Water understands that the Application proposes that deep percolation return flows for the Hanagan Farm will be maintained by recharging water at the Hanagan Recharge Pond, and because the Hanagan Recharge Pond is within ¼ mile of the Hanagan Farm, lagging is not needed. Pueblo Water agrees that recharge at the Hanagan Recharge Pond is a suitable method for providing deep percolation return flow replacement for the fallowed Hanagan Farm shares. However, there is no contingency in the Application or suggested Terms and Conditions to address a situation where the Hanagan Recharge Pond is unable to deliver adequate deep percolation return flow replacement supplies to satisfy obligations (Catlin delivery interruption, farm headgate washout, recharge pond siltation, etc.). Additionally, Term and Condition 20 does not *require* Applicants to deliver the deep percolation portion of fallowed Hanagan farm Catlin Canal share deliveries to the Hanagan Recharge Pond, Term and Condition 20 states that Applicants "shall endeavor" to do so. Pueblo Water's suggested language addresses such a situation by requiring Applicants to lag deep percolation replacement obligations not recharged at the Hanagan Recharge Pond and to provide replacement from other recharge, or delivery to the river.

21. Consumptive use credits and return flow obligations and use of consumptive use credit and return flow obligations shall be calculated on a daily basis. Water

allocated to deep percolation return flows that is not required to replace return flows on a given day may be allocated as a stream depletion credit and returned directly to the river, <u>however such use of deep percolation return flow water as a stream credit will result in a future replacement obligation that will require dedication of a firm source of return flow replacement water in the projection of lagged deep percolation return flow obligations.</u> Such stream credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace return flows as necessary.

Pueblo Board of Water Works does not agree to the underlined language, which was added at the request of Tri-State and not specifically discussed and agreed to by Conference Participants at the Conference Meeting. Pueblo Board of Water Works has agreed to this term and condition with the following clarifying modifications:

The amount of consumptive use credits and return flow obligations and the disposition of consumptive use credit and return flow replacement water shall be calculated on a daily basis. Such consumptive use credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace Catlin Pilot Project return flows as necessary. Water allocated to replace deep percolation return flows and delivered through Catlin Canal augmentation stations that is in excess of the replacement requirement on a given day will be allocated as a stream depletion credit. Such depletion credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace Catlin Pilot Project return flows as necessary.

Applicants do not object to this modification. Tri-State does not object to Pueblo Board of Water Works modification so long as the following is added at the end of the term and condition:

> *<u>Use of deep percolation return flow water as a stream depletion credit will result in a future replacement obligation that will require dedication of a firm source of return flow replacement water in the projection</u> of lagged deep percolation return flow obligations.*

Discussion

Regarding the underlined language above, Pueblo Water notes that it is not the "*use of deep percolation return flow water as a stream credit*" that results in a future replacement obligation. Future replacement obligations are determined solely upon daily deliveries for recharge and to augmentation stations, not on whether water at the river is in excess of replacement obligations. The issue of whether firm sources of return flow replacement supply are required is independent of the uses of water delivered to the Arkansas River.

Unresolved Terms and Conditions

7. **Whether or not excess recharge accretions may be used to meet tailwater return flow obligations.**

Based on the Conference Meeting, Applicants proposed the following term and condition:

There shall be no exchange and re-diversion of any excess recharge accretions resulting from delivery of water to recharge ponds that was diverted pursuant to the Subject Shares. Such excess recharge accretions may be used for the replacement of lagged or tailwater return flow obligations and may also be used for Fowler-CWPDA Municipal Well Replacement, except that the use of such credits to replace tailwater return flow obligations may not otherwise result in the exchange of Catlin Canal headgate deliveries pursuant to the Subject Shares that are made available only as a result of the use of such credits to meet tailwater return flow obligations.

Pueblo Board of Water Works has indicated that they do not believe the limitation contained in the final clause is necessary ~~and such water should be available for exchange~~ as Term and Condition No. 29 requires substitute supplies used for exchange to be delivered at a Catlin Canal augmentation station. Applicants agree that this limitation is unnecessarily restrictive and believes it should be able to make such exchanges, but had added the final clause in the spirit of compromise to try and resolve the concerns raised by Tri-State at the Conference Meeting.

Tri State has not agreed to this term and condition and has instead proposed the following terms and conditions:

(1) Tailwater return flow obligations shall be replaced on the day they are owed exclusively by delivery to the Pilot Project Catlin Canal shares at the augmentation station(s).

(2) There shall be no exchange and re-diversion of any excess recharge accretions resulting from delivery of water to recharge ponds that was diverted pursuant to the Subject Shares. Such excess recharge accretions may

be used for the replacement of lagged return flow obligations and may also be used for Fowler-CWPDA Municipal Well Replacement.

A. Applicants' Position: As stated previously, the potential exists for over- or under-replacement of return flows on any given day. In the event that excess recharge accretions are available, and tailwater return flow obligations are under-replaced, Applicants' should be provided the operational flexibility to replace the tailwater return flow obligations with excess recharge accretions. There is no injury or other expansion of use if the return flow obligations are replaced. Moreover, such operations will ensure that water made available through Pilot Project operations is maximally utilized.

B. Tri-State's Position: This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms.

Based upon the Applicants' historical use analysis and the Criteria and Guidelines, 20-percent of the return flow water delivered each day historically returned to the stream and is a tailwater return flow obligation. Use of the tailwater delivery for anything other than tailwater replacement will result in an expansion of use and unreplaced return flow obligations that will injure Tri-State's water rights. Since tailwater is replaced by a portion of delivery to the Subject Shares, there is no circumstance where used of excess recharge accretions could be used for tailwater return flow replacement. *See* BBA Letter pp 12 and 14.

Thank you for the opportunity to provide additional comments on the Catlin Pilot Project Joint Conference Report.

Sincerely,

Mason H. Brown

cc: Alan Ward
Mark McLean, P.E.

RESPECTFULLY SUBMITTED THIS____ DAY OF JANUARY, 2014 BY THE UNDERSIGNED CONFERENCE PARTICIPANTS:

Leah Martinsson or Craig Lis for Applicants, Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.

____

Lee Miller for Southeastern Colorado Water Conservancy District

____

Kelly Beal for Tri-State Generation and Transmission Association, Inc.

____

Gerry Knapp for Aurora Water

____

Alan Ward or Mason Brown for Pueblo Board of Water Works

____

Randy Hendrix for LAWMA

____

Kevin Salter or Rachel Duran for Kansas Division of Water Resources

____

Bill Caile or Mary Presecan for Colorado Beef

____

Richard Vail, Ed Perkins, or Katie Wiktor for Colorado Division of Parks and Wildlife

____

From: Bill Caile
To: Leah K. Martinsson
Cc: Mary Presecan; Morris, Doug; Debby Malandra; "Craig Lis"; Peter D. Nichols; Tia M. Gerung
Subject: RE: Catlin Pilot Project - Joint Conference Report
Date: Tuesday, January 06, 2015 10:18:06 AM
Attachments: Sign Conf Report.pdf
Colo Beef Signature.pdf

Leah,

Thank you for your diligence in soliciting input from all parties. I understand that this is a novel process and that under the compressed schedule it is difficult to incorporate comments from all. On behalf of Colorado Beef, Mary Presecan and I have both reviewed the draft version of the Joint Conference Report that you sent on December 30. Copied below are a few additional comments from Mary regarding specific terms and conditions. I understand that you will append this email to the joint conference report, which is acceptable.

There is one further comment that I have regarding the Joint Conference Report, and that has to do with preserving arguments for any further proceedings—either before the CWCB, the State Engineer, or potentially, the court. There are a number of proposed terms and conditions that are identified in the Joint Conference Report as unresolved, or subject to modifications proposed by other parties. Colorado Beef generally supports many of these suggested modifications, including but not limited to the “pay as you go” methodology proposed by Tri-State. As such, Colorado Beef reserves the right to advocate for the positions expressed by Tri-State and others, either in further proceedings before the CWCB, the State Engineer, or in any action for judicial review. I believe that the last paragraph of the Joint Conference Report is intended to preserve this right, at least with respect to any water court appeal of the Catlin Pilot Project. However, I want to make clear that Colorado Beef reserves all rights to continue to make arguments in support of modified terms and conditions in any forum, including in any further comments to the CWCB prior to its decision on the pilot project. In other words, although Colorado Beef has not formally joined in the positions expressed by Tri-State and others for purposes of the truncated proceedings on the Joint Conference Report, Colorado Beef is not conceding at this time that the positions/modifications supported by those parties are either unnecessary or inappropriate.

With that understanding, and Mary Presecan’s additional comments copied below, the signed Joint Conference Report is attached (two files: the whole document, and just Colorado Beef’s signature page). Thank you again for your consideration of Colorado Beef’s comments, and please do not hesitate to contact me if you have questions or wish to discuss. –Bill

* * * *

Minor Edit: 19. 13 line down. "...percolation return flow replacement obligations **not** met by recharge will be lagged..."

38. Last line of the alternative t & c proposed by Tri-State. "Any such revisions shall be posted on the Division of Water Resources website **in accordance with term and condition 3**."

Comment: There are a number of places that similar language about posting on the DWR website is included. For consistency and clarity, it would be helpful to add this language to each of those terms.

42. I recommend the following two items be included in the accounting requirements:

x. Daily accounting of the Subject Shares included in the pilot project against annual volumetric limits.

x. Daily accounting of consumptive use credit by farm against monthly and annual consumptive use credit volumetric limits.

43. Unreplaced is also written as un-replaced in this paragraph.

RESPECTFULLY SUBMITTED THIS____ DAY OF JANUARY, 2014 BY THE UNDERSIGNED CONFERENCE PARTICIPANTS:

Leah Martinsson or Craig Lis for Applicants, Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.

____

Lee Miller for Southeastern Colorado Water Conservancy District

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Kelly Beal for Tri-State Generation and Transmission Association, Inc.

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Gerry Knapp for Aurora Water

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Alan Ward or Mason Brown for Pueblo Board of Water Works

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Randy Hendrix for LAWMA

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Kevin Salter or Rachel Duran for Kansas Division of Water Resources

____

Bill Caile or Mary Presecan for Colorado Beef

Bill Caile 1.6.15
____

Richard Vail, Ed Perkins, or Katie Wiktor for Colorado Division of Parks and Wildlife

____

LAWMA's comments on Joint Conference Report

Joint Conference Report for the Catlin Pilot Project
Submitted to the Colorado Water Conservation Board
and the Colorado State Engineer

January 6, 2015

I. Introduction

This Joint Conference Report has been prepared pursuant to the Criteria and Guidelines for Fallowing-Leasing Pilot Projects II.I, adopted on November 19, 2013 by the Colorado Water Conservation Board (the "Criteria and Guidelines") for the Catlin Pilot Project (or "Pilot Project"). The Catlin Pilot Project proposes to use water available from certain shares in the Catlin Canal Company ("Subject Shares") for temporary municipal uses by the Town of Fowler, the City of Fountain, and the Security Water District. The request is for approval of a pilot project that will operate over the ten-year period of March 15, 2015 through March 14, 2025.

As provided for therein, a Conference Meeting was facilitated by CWCB staff between the Applicants, the State Engineer, and owners of water rights or contract rights to water that filed comments on the Catlin Pilot Project Application. The Conference Meeting was held at 1525 Sherman, Street, Denver, CO 80202 on December 18, 2014 and was continued by conference call on December 22, 2014, at which time the Conference Meeting was adjourned.

The following parties participated in the Conference Meeting:

1. Leah Martinsson for Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.
2. Craig Lis for Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.
3. Randy Hendrix for LAWMA
4. Bill Caile for Colorado Beef
5. Mary Presecan for Colorado Beef
6. Mark McLean for Pueblo Board of Water Works
7. Mason Brown for Pueblo Board of Water Works
8. Alan Ward for Pueblo Board of Water Works
9. Mike Sayler for Tri-Sate
10. Daniel Niemela for Tri-State
11. Kelly Beal for Tri-State
12. Rachel Duran for Kansas DWR
13. Kevin Salter for Kansas DWR
14. Lee Miller for SECWCD
15. Richard Vail for CPW

16. Ed Perkins for CPW
17. Katie Wiktor (AGO) for CPW
18. Gerry Knapp for Aurora Water

The above individuals are referred to as the "Conference Participants". The Fort Lyon Canal Company, the Holbrook Mutual Irrigating Company, and District 67 Irrigation Canals Association provided written comments on the Catlin Pilot Project Application, but did not participate in the December 18, 2014 Conference Meeting.

Other conference attendees included:

1. Susan Schneider, Attorney General's Office
2. Tom Browning, CWCB
3. Kevin Rein, Colo. DWR
4. Bill Tyner, Colo. DWR
5. Tom George, Attorney General's Office
6. Charles DiDomenico, Colo. DWR
7. Cindy Lair, Colorado Department of Agriculture
8. Dan Steuer, Attorney General's Office
9. Kelley Thompson, Colo. DWR
10. Angela Schenk, Spronk Water Engineer's
11. Steve Miller, CWCB
12. Erik Skoc, CWCB
13. Mara Mackillop, CWCB

On December 22, 2014 a redline of the proposed terms and condition and a draft clean copy of this Joint Conference Report was emailed to Conference Participants along with information for an optional telephone conference call. A telephone conference call was initiated on December 22, 2014 at 3pm. The form of responses from commenting parties to the draft Conference Report was discussed.

The Criteria and Guidelines provide that "within fifteen days of the conference, the pilot project applicants and owners of water rights or contract rights to water shall file a joint report with the CWCB and the State Engineer outlining any agreed-upon terms and conditions for the proposed pilot project, and explaining the reasons for failing to agree on any terms and conditions for the pilot project if the applicant and the owners fail to reach a full agreement at the conference." This Joint Conference Report is therefore required to be filed with the CWCB on or before Tuesday, January 6, 2015.

This final version of the Joint Conference Report was circulated to Conference Participants on Monday, January 5, which incorporated all comments provided to Applicants as of that time. Comments were not provided by LAWMA prior to that time. ~~To the extent that comments are~~

~~received from LAWMA or if additional comments are provided from other Conference Participants prior to filing of this Joint Conference Report, they will be appended to this Joint Conference Report.~~This redline provides LAWMA's comments on the Joint Conference Report.

II. Agreed-Upon Terms and Conditions

At the Conference Meeting, Conference Participants agreed upon the following terms and conditions for the Catlin Pilot Project:

1. All water used in the Catlin Pilot Project will be delivered to the headgate of the Catlin Canal, and only lands irrigated under the Catlin Canal will be used in the leasing-fallowing operations of the Pilot Project. A plan year for the Pilot Project extends from March 15 through March 14 of the following year.

2. No lands shall be fallowed for more than three years during the ten-year period of the Catlin Pilot Project nor shall more than 30% of the parcels on each participating farm be fallowed during the consecutive ten-year Catlin Pilot Project. For lands located in Otero County, no more than two of the three years of fallowing during the Pilot Project term will be consecutive unless applicable provisions of Otero County Code - Chapter 5 are complied with.

3. All submittals by Applicants to the Division of Water Resources pursuant to these Terms and Conditions shall be posted to the Division of Water Resources website, ftp site or other publically available media within a reasonable time, not to exceed ten days, after submittal and shall remain publically available until all lagged return flow obligations from the Pilot Project have been replaced. The Division of Water Resources shall establish a notification list which provides notice to subscribers when documents have posted.

4. By March 1 of each plan year, Applicants shall notify and provide mapping to the Division Engineer and all commenting parties of those parcels to be fallowed and the associated shares for the upcoming plan year. Lands and shares available and approved for fallow through operation of the Catlin Pilot Project are limited to those identified in the Application.

   Tri-State has agreed to this term and condition with the following modifications:

   > *By March 1 of each plan year, Applicants shall notify and provide mapping to the Division Engineer of (a) those parcels to be fallowed and the associated shares for the upcoming plan year, (b) how and where the non-fallowed Catlin Pilot Project Subject Shares will be used for the upcoming plan year (i.e. surface irrigation, dry-up under Rule 14 Plan, etc.) including the location of irrigated lands and (c) the water supplies that will be used on the non-fallowed portions of the Catlin Pilot Project farms. Lands and shares fallowed as part of the Catlin Pilot Project shall be limited to those identified in the September 25, 2014 Application.*

Applicants do not object to this modified term and condition.

5. Fallowed parcels must be at least ten acres in size unless they comprise all of an existing CDSS parcel that is already less than ten acres. Parcels that represent a portion of an existing field shall only be split in the same direction of historic irrigation unless a means of physical separation is approved by the CWCB based on the written determination of the State Engineer. A physical separation shall exist between any irrigated portion of a parcel and the dry-up portion. For dry-up fields left fallow or with a dry-land cover crop without permanent root system (that is, not alfalfa or pasture grass for example), the separation shall be a ditch or tilled strip at least ten feet in width that prevents irrigation application from reaching the dry-up parcel. For partial fields containing deep-rooted crops such as alfalfa or pasture grass, a deep tilled separation of at least 25 feet shall be maintained along with any ditches necessary to ensure no irrigation application to the dry-up portion. For any dry-up parcel that is planted with a dry-land crop (haygrazer, milo, millet, etc.), the crop should either be drilled at an angle to normal irrigation direction or a tilled strip maintained at the top of the field that clearly separates the crop from any possible irrigation source (preferably both).

6. Dry-up of the fallowed fields shall comply with the "Operating Procedures for Administration of Parcels Claimed for Augmentation Credits" of the Colorado State Engineer's Office, except that signs shall be installed by March 1 of each plan year on all parcels identified in that notice provided pursuant to term and condition 4, above. Re-irrigation of dry-up parcels shall not be allowed by any other source of water including other surface water, Catlin shares, or ground water during the year in which such parcel is fallowed in Pilot Project operations. No partial year dry-up shall be permitted.

7. Applicants shall notify the Division Engineer of the status (dry land crop (must specify type), tilled and fallow, not tilled and fallow, stubble of past crop left on field, etc.) of each fallowed field in the Catlin Pilot Project by May 15 of each year of operations.

8. Applicants shall monitor fallowed parcels on a periodic basis to confirm the adequacy of dry-up in conformance with the terms and conditions of this approval. Should non-compliance with the dry-up requirements of this approval be discovered, Applicants shall immediately notify the Division Engineer in writing and take such corrective action as is required by the Division Engineer.

Kansas has agreed to this term and condition with the following modifications:

Applicants shall monitor fallowed parcels on a periodic basis to confirm the adequacy of dry-up in conformance with the terms and conditions of this approval. Should non-compliance with the dry-requirements of this approval be discovered, Applicants shall immediately notify the Division Engineer and take such corrective action as is required by the Division Engineer. These fallowed *parcels are also subject to inspection by the Division Engineer who shall inform the Applicants if non-compliance is found.*

Applicants do not object to the modifications requested by Kansas.

9. Prior to any Pilot Project operations, Applicants shall ensure that all participating farmers are contractually bound to provide for weed control and erosion protection for the lands removed from irrigation as a part of the Catlin Pilot Project. This will include the acknowledgement of, and agreement to comply with applicable County code noxious weed management requirements, including the Otero County Noxious Weed Management Plan, Otero County Code, Chapter 12 – Vegetation.

10. Prior to February 15, 2015, Applicants shall make the following adjustments to the Leasing-Fallowing Tool ("LFT") run for the Catlin Pilot Project and the associated historical consumptive use analysis and submit the same to the State and Division Engineer:

    a. The study period used in the LFT analysis shall be revised to exclude years where the Subject Shares were used in a Rule 14 Plan.

    b. To the extent consistent with item (d) below, the irrigated acreage of the Diamond A East farm, in Table 2 will be corrected to 272.1 acres, as shown on Figure 21 in Appendix A, with a corresponding change in the total, if appropriate.

    c. To the extent consistent with item (d) below, the irrigated acreage of the Diamond A East farm, in Table 3 shall be corrected to 272.1 acres, as shown on Figure 21 in Appendix A, with a corresponding change in the total if appropriate. The 2010 acreage in the LFT analysis shall also incorporate this correction.

    Note that a sub-section providing that "*The results from the revised LFT run will be applied to the irrigated acreage for each year. The consumptive use per acre results shall then be averaged to determine a per acre consumptive use for each farm to be applied to the Catlin Pilot Project going forward"* ***was requested by Colorado Beef at the Conference Meeting, but is not agreed to by Tri-State and is therefore addressed in Section III, below.***

    d. The LFT run shall be conducted with a limitation on the maximum allowed irrigated acres to be no more than the 1985 irrigated acreage mapped by Colorado and agreed by Kansas as a part of the *Kansas v. Colorado* litigation.

11. Prior to the commencement of any Pilot Project operations for 2015, Applicants and Colorado Division of Parks and Wildlife ("CPW") shall work cooperatively to determine whether and the extent to which lands included in the Catlin Pilot Project have historically been irrigated with Catlin Canal Company shares that were leased from CPW during the applicable study period. Based on the results of that work, Applicants shall then make such adjustments to the historical consumptive use

analysis based on the use of leased water by excluding a prorated amount of acreage, corresponding to acres irrigated by shares leased from CPW in any year, from such years in the historical use analysis, which adjustments shall be mutually agreed to by Applicants and CPW. This revised analysis shall be provided to the State and Division Engineer for approval and incorporated into the LFT run referenced in paragraph 10.

12. The Catlin Pilot Project shall not be operated until the Division Engineer has approved the foregoing adjustments in term and conditions 10 and 11.

13. To the extent it is determined that the Subject Shares and the associated lands available for fallow (i) have been included in a Rule 14 Plan(s) such that they are no longer legally available for use to provide replacement water for Fowler's well depletions via CWPDA's Rule 14 Plan pursuant to the terms of Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado and the Amended Agreement Regarding the Colorado Use Rules, PDF Evaluation, Implementation of Processes, and Related Matters, and Not to Terminate Offset Account Resolution (June 2009~~) and~~), **or** (ii) are ~~not included in the pending application of~~being used within the Catlin Augmentation ~~Association~~Association's plan for augmentation pending approval in Case No. 12CW94, any use of depletion credits available from the dry-up of those lands shall not be permitted to provide a source of replacement water for Fowler's well depletions. This limitation shall be appropriately reflected in Pilot Project accounting.

Kansas has agreed to this term and condition with the following modifications:

To the extent it is determined that the Subject Shares and the associated lands available for fallow have been included in a Rule 14 Plan(s) such that they are no longer legally available for use to provide replacement water for Fowler's well depletions via CWPDA's Rule 14 pursuant to the terms of Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado and the Amended Agreement Regarding the Colorado Use Rules, PDF Evaluation, Implementation of Processes, and Related Matters, and Not to Terminate Offset Account Resolution (June 2009), which is Appendix A.4 to the Kansas v. Colorado decree, any use of depletion credits available from the dry-up of those lands shall not be permitted to provide a source of replacement water for Fowler's well depletions. This shall be appropriately reflected in Pilot Project accounting. Applicants shall provide with the March 1 dry-up notice to the Division Engineer and all commenting parties whether the followed parcels are included in a pending or approved Water Court case adding augmentation as a decreed use.

Applicants do not object to this modification, and Pueblo Board of Water Works has indicated that they do not object to this modification. Tri-State can agree to the modified term and condition proposed by Kansas, so long as "depletion credits" is clarified by the definition proposed in paragraph 21 below. Note that Applicants do not agree with the definition of "depletion credits" proposed by Tri-State.

LAWMA agrees to the version of the term and condition proposed by Kansas if it is modified to include language indicating that if shares are being used within the Catlin Augmentation Association's plan for augmentation pending in Case No. 12CW94, any use of depletion credits available from the dry-up of the lands associated with those shares will not be permitted to provide a source of replacement water for Fowler's well depletions.

14. The following monthly factors will be applied to augmentation station deliveries and deliveries at the farm headgate for recharge to determine monthly consumptive use. However, in the event of a current (as opposed to projected) return flow obligation deficit the Applicant shall replace the return flow obligation deficit prior to receiving further consumptive use credits. These factors shall be modified to reflect changes in the LFT run per term and conditions 10 and 11, above.

Consumptive Use Factors

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Schweizer	-	0.000	0.063	0.155	0.377	0.531	0.537	0.538	0.445	0.250	0.179	-
Diamond A West	-	0.000	0.032	0.129	0.314	0.468	0.484	0.460	0.311	0.136	0.032	-
Hirakata Farms	-	0.000	0.062	0.153	0.373	0.528	0.533	0.532	0.425	0.244	0.174	-
Hancock	-	0.000	0.062	0.133	0.329	0.525	0.539	0.545	0.472	0.260	0.209	-
Diamond A East	-	0.000	0.065	0.157	0.380	0.533	0.540	0.541	0.463	0.264	0.162	-
Hanagan	-	0.000	0.030	0.113	0.274	0.408	0.428	0.381	0.259	0.097	0.020	-

LAWMA does not agree to the inclusion of these consumptive use factors within the Joint Conference Report, because they will change based on the re-running of the LFT per terms and conditions 10 and 11. LAWMA acknowledges that this term and condition provides for modification of the factors based on the re-run of the LFT but disagrees that incorrect factors should be included in the Joint Conference Report.

15. The portion of all available pilot project augmentation station and headgate deliveries that is not credited as consumptive use will be attributed to all return flow obligations with an amount equal to 20% of the farm delivery headgate diversions minus consumptive use attributed to tail water surface return flow obligations and all remaining water will be attributed to lagged deep percolation return flow obligations. For the first half of November and the second half of March the return flow obligation should equal the monthly surface water return flow plus half of the groundwater return flow. For the second half of November and first half of March the return flow obligation should be half of the monthly ground water return flow. An exception to the preceding March and November requirements are that no return flows are required prior to operation of the project. As such, return flows in the first month of the project will be distributed from the project start date through the remainder of the month.

Tri-State has agreed to this term and condition only with the following modifications (underline shows differences from above term and condition):

The portion of all available Pilot Project augmentation station and <u>recharge</u> deliveries that is not credited as consumptive use <u>shall</u> be attributed to return flow obligations with an amount equal to 20% of <u>such deliveries</u> minus consumptive use attributed to tail water surface return flow obligations and all remaining water will be attributed to deep percolation return flow obligations. For the first half of November and the second half of March the return flow obligation should equal the <u>daily</u> surface water return flow plus half of the <u>monthly lagged</u> groundwater return flow. For the second half of November and first half of March the return flow obligation should be half of the monthly <u>lagged</u> ground water return flow. An exception to the preceding March and November requirements are that no return flows are required prior to operation of the project. As such, return flows in the first month of the project will be distributed from the project start date through the remainder of the month.

Applicants do not object to these proposed modifications, but suggest the inclusion of clarifying equations to reflect that: *Tailwater Return Flow Obligation = 20% x (Deliveries – Consumptive Use); Deep Percolation Return Flow Obligations = Deliveries – (Consumptive Use + Tailwater Return Flow Obligations); and that deliveries are all Pilot Project augmentation station and recharge deliveries.*

Pueblo Board of Water Works has agreed to this term and condition as modified below:

The portion of all available Pilot Project augmentation station and farm headgate deliveries that is not credited as consumptive use will be considered to be return flow obligations. An amount equal to 20% of the farm headgate deliveries minus the consumptive use credit will be the tail water surface return flow obligation, and all remaining water will be deep percolation return flow obligation subject to lagging. Return flow obligation that accrues from November 15 through March 14 shall be replaced to Pueblo Reservoir and return flow obligation that accrues March 15 *through November 14 shall be replaced at the time and place of depletion so as to not injure vested water rights.*

Applicants do not object to the version proposed by Pueblo Board of Water Works, as it does appear to more accurately characterize WWSP operations and timing. However, Applicants note that these revisions do result in a modification from the term and condition that has been agreed to by other Conference Participants.

16. The monthly and annual consumptive use will be limited to the following maximum values which are the averages of the three greatest years of the study period. The values in the table are for all of the shares on each farm. Therefore, the values for each farm must be multiplied by the percentage of share dry-up for each farm to estimate the appropriate limits for each year of the pilot project. These values shall be modified to reflect changes in the LFT run per term and conditions 10 and 11, above.

Monthly and Annual Maximum Consumptive Use Credits

(All Values in Acre-Feet)

Farm	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Schweizer	0.0	0.0	3.1	13.7	56.2	80.8	80.3	65.2	51.0	37.3	10.5	0.0	398.0
Diamond A West	0.0	0.0	1.9	9.5	43.3	84.1	70.8	66.5	50.5	49.9	0.4	0.0	377.0
Hirakata	0.0	0.0	2.3	10.7	43.7	62.9	62.5	50.8	39.7	28.8	8.1	0.0	309.3
Hancock	0.0	0.0	1.1	5.4	22.0	30.2	30.6	27.1	15.8	16.9	6.6	0.0	155.6
Diamond A East	0.0	0.0	4.1	19.4	79.1	115.1	115.2	93.7	73.2	49.3	12.0	0.0	561.2
Hanagan	0.0	0.0	1.4	10.7	35.8	59.3	53.8	47.0	28.5	17.8	0.0	0.0	254.4

LAWMA does not agree to the inclusion of these consumptive use credit limits within the Joint Conference Report, because they will change based on the re-running of the LFT per terms and conditions 10 and 11. LAWMA acknowledges that this term and condition provides for modification of the factors based on the re-run of the LFT but disagrees that incorrect limits should be included in the Joint Conference Report.

17. The annual farm headgate diversions shall be limited to the maximum values and set forth in the table below, which shall be calculated as the average of the three greatest years of the study period. The values in the table shall reflect all of the shares on each farm. Therefore, the values for each farm must be multiplied by the percentage of share dry-up for each farm to estimate the appropriate limits for each year of the Pilot Project. Values shall be based upon the LFT run per term and conditions 10 and 11, above.

Farm	Annual Volumetric Limit (a/f)
Schweizer	
Diamond A West	
Hirakata	
Hancock	
Diamond A East	
Hanagan	

Deliveries of water to shares that are not included in the Pilot Project for any given plan year shall be limited to delivery and use on lands that are not fallowed as a part of Pilot Project operations for that plan year.

Colorado Beef agrees to this term and condition with the following modifications to the text:

The annual farm headgate diversions will be further limited by an annual volumetric limit based on the historical diversions. The annual volumetric limit shall be calculated as the average of the three greatest years of farm headgate diversions over the study period. The annual volumetric limit in the table reflects the use of all of the shares on each farm. In any one year, the volumetric limit on farm headgate diversions for delivery of share water in the pilot project will be calculated to be the annual volumetric limit for the farm, presented in the table below, multiplied by the percentage of dry-up for each farm. Values will be based upon the LFT run per term and conditions 10 and 11, above.

Deliveries of share water not included in the pilot project for any given plan year shall be limited to delivery and use on that portion of the farm that is not fallowed as a part of pilot project operations for that plan year.

Tri-State has proposed replacing "farm headgate diversions" in the first sentence with "augmentation station and recharge deliveries." Applicants do not object to either of these proposed modifications.

18. Any water attributable to the Subject Shares that would otherwise be available to the Applicants (after accounting for ditch loss) which the Applicants are not able to divert or use because of operation of any volumetric limit shall be returned to the Arkansas River through one or more augmentation stations on the Catlin Canal following diversion at the Catlin Canal headgate and shall not be available for irrigation, augmentation or any other use until such time as use of such water is again allowed in accordance with the volumetric limits of this approval.

19. Deep percolation return flow replacement requirements for the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms will be lagged using the URFs that shall be calculated using the x-distance to the nearest drain for each of the farms included in the December 9, 2014 Bishop Brogden Associates Inc. comment letter ("BBA Letter"). Thus, the URFs set forth in Appendix H of the Application shall be revised to reflect x-distances and corresponding w-distances for the Schweizer and Diamond A West farms to Patterson Hollow and for the Hirakata and Diamond A East farms to Timpas Creek. Deep percolation return flows for the Hanagan Farm shall be replaced by delivering all deep percolation water, plus sufficient water to offset evaporation to the Hanagan Recharge Pond, which is within ¼ mile of said farm, negating the need for lagging per the Criteria and Guidelines. .

Deep percolation return flows from the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms may be delivered to the Schweizer and/or Hanagan Recharge Ponds, and will be lagged using the applicable URFs.

Pueblo Board of Water Works has requested inclusion of the following sentence in this term and condition:

> *However, as provided in term and condition 42.f below, any Hanagan Farm deep percolation return flow replacement obligations not met by recharge will be lagged using the applicable URF.*

Applicants and Tri-State note that the highlighted sentence above is not needed with term and condition 20 below, and is not consistent with the method proposed in the Application for replacing return flows from the Hanagan Farm. Tri-State believes that deletion of this clause would improve the clarity of the terms and conditions.

20. On a daily basis, Applicants shall endeavor to deliver the deep percolation portion of fallowed Hanagan farm Catlin Canal share deliveries to the Hanagan Recharge Pond, as calculated in term and condition 19, plus consumptive use water to replace evaporation. On a monthly basis, Applicants shall demonstrate that the deep percolation portion of fallowed Hanagan farm Catlin Canal share deliveries are delivered to and infiltrate at the Hanagan Recharge Pond.

21. Consumptive use credits and return flow obligations and use of consumptive use credit and return flow obligations shall be calculated on a daily basis. Water allocated to deep percolation return flows that is not required to replace return flows on a given day may be allocated as a stream depletion credit and returned directly to the river, however such use of deep percolation return flow water as a stream credit will result in a future replacement obligation that will require dedication of a firm source of return flow replacement water in the projection of lagged deep percolation return flow obligations. Such stream credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace return flows as necessary.

Pueblo Board of Water Works has agreed to this term and condition with the following clarifying modifications:

The amount of consumptive use credits and return flow obligations and the disposition of consumptive use credit and return flow replacement water shall be calculated on a daily basis. Such consumptive use credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace Catlin Pilot Project return flows as necessary. Water allocated to replace deep percolation return flows and delivered through Catlin Canal augmentation stations that is in excess of the replacement requirement on a given day will be *allocated as a stream depletion credit. Such depletion credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace Catlin Pilot Project return flows as necessary.*

Applicants do not object to this modification. Tri-State does not object to Pueblo Board of Water Works modification so long as the following is added at the end of the term and condition:

> *Use of deep percolation return flow water as a stream depletion credit will result in a future replacement obligation that will require dedication of a firm source of return flow replacement water in the projection of lagged deep percolation return flow obligations.*

Also, as noted above, Tri-State suggests that "depletion credit" be defined as follows early in the terms and conditions:

> *Collectively, the daily amount of consumptive use credits and water allocated to deep percolation return flows delivered through the Catlin Canal augmentation stations that is in excess of daily replacement requirements are referred to as "depletion credits" herein.*

Applicants would agree with this definition if it is modified to reflect that "depletion credits" include excess deep percolation return flows and tailwater deliveries.

22. Pilot Project return flows shall be replaced at or above the historical point of accretion to the stream or above the downstream calling right. Points of accretion for tailwater and lagged depletions are as follows:

Farm	Historical Points of Accretion to Arkansas River			
	Tailwater		Deep Percolation	
	Stream Location	UTMs	Stream Location	UTMs
Schweizer	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764
Diamond A West	Arkansas River downstream of Patterson Gulch	Easting: 608734 Northing: 4217964	Confluence of Patterson Gulch & Arkansas River	Easting: 606604 Northing: 4217764
Hirakata, Hancock, Diamond A East	Confluence of Timpas Creek & Arkansas River	Easting: 619547 Northing: 4209161	Confluence of Timpas Creek & Arkansas River	Easting: 619547 Northing: 4209161

Hanagan	Arkansas River downstream of Timpas Creek	Easting: 622384 Northing: 4208419	Arkansas River downstream of Timpas Creek	Easting: 622384 Northing: 4208419

No return flow obligation replacement credits shall be granted for water delivered to the Crooked Arroyo augmentation station when there is a call for water at the Fort Lyon Canal headgate.

23. To the extent it is determined by the Division Engineer that the use of the Timpas Creek and/or Crooked Arroyo augmentation stations, or the use of any new or modified augmentation stations or recharge facilities authorized pursuant to paragraph 43, will interfere with the operation of decreed exchanges or decreed alternate points of diversion that are operating in the reach between historical points of accretions to the stream and the point at which augmentation station deliveries reach the river, the Division Engineer may require modifications to Pilot Project operations as may be deemed necessary to prevent material injury to water rights or contract rights to water. Such operational modifications will be identified and described in Applicants' annual report, as required by paragraph 43 and, to the extent such modifications are to take effect immediately, will be noticed to all subscribers to the notification list established in term and condition no. 3.

The City of Aurora agrees to this term and condition if it is modified to include language providing that if modifications to the plan result in new augmentation stations or recharge facilities, which supply recharge or augmentation replacement water at locations downstream of the currently described locations, or if as a result of modifications to the plan, return flow depletions begin accruing at locations upstream of the currently identified locations, then a comment period be provided to the commenting parties to inform the Division Engineer of the potential injury of such modifications.

Applicants do not object to inclusion of language requested by Aurora in the terms and conditions for the Pilot Project.

LAWMA does not agree to this term and condition because any operational modification made by the Division Engineer's Office will not have been reviewed, commented on, and approved pursuant to the statutory process before the modification is made.

Note that terms and conditions addressing the projection of future return flow obligations and allowable sources to meet return flow obligations were not agreed to by Tri-State and are therefore included in Section III below.

24. Prior to January 1 preceding the final plan year of pilot project operation, Applicants shall prepare and submit to the State and Division Engineer a report identifying the

source(s) of water that will be used to meet post-project lagged depletions that will not be met through accretions from recharge, which report shall be updated annually or at such other time interval required by the State and Division Engineer. This report shall include a calculation of the dry-year yield of such sources and provide evidence that Applicants have the right to use such source(s) and shall also include a commitment from Applicants that such source(s) will be dedicated to meet such post-project depletions and will not be used for any other purpose. The identified source of post-project return flow water must be approved by the State and Division Engineer.

As to this term and condition 24, Tri-State asserts that commitment of firm replacement supplies at the conclusion of the Catlin Pilot Project is not a substitute for identifying the committed, firm replacement supplies that will be used to replace lagged return flow obligations during operation of the pilot project. Tri-State asserts its water rights will be injured if the Applicants were to operate for successive years and generate ongoing return flow depletions only to reveal that they did not have firm replacement supplies to commit to replace those depletions at the conclusion of the Catlin Pilot Project. Applicants disagree with this position, as further discussed in Section III, below.

LAWMA agrees with Tri-State's position on this issue.

25. Unless otherwise replaced via Pilot Project operations (such as recharge) or CWPDA's Rule 14 Plan, depletion credits may be exchanged to Pueblo Reservoir and stored in Lower Ark's excess capacity account to provide a replacement supply for winter return flow obligations.

Kansas has agreed to this term and condition with the following modification:

> *Unless winter return flow obligations are otherwise replaced via Pilot Project operations (such as recharge) or CWPDA's Rule 14 Plan, depletion credits may be exchanged to Pueblo Reservoir and stored in Lower Ark's excess capacity account to provide a replacement supply for winter return flow obligations.*

Tri-State has agreed to replacing this term and condition with the following because it excludes use of a Rule 14 Plan to replace Pilot Project return flow obligations:

> *Depletion credits may be exchanged into Pueblo Reservoir and stored in Lower Ark's excess capacity storage account to provide a replacement supply for winter return flow obligations.*

Applicants do not object to either iteration of this term and condition, but disagree to the extent Tri-State's position is that CWPDA's Rule 14 Plan may not be used to replace return flow obligations associated with the Town of Fowler.

26. Exchange into Pueblo Reservoir may occur only when there is at least 100 cfs of outflow (inclusive of hatchery flows) from Pueblo Reservoir. Such diversions/exchanges may not cause the outflow from Pueblo Reservoir to be less

than 100 cfs. Pursuant to the terms of the 2011 Memorandum of Agreement between Lower Ark and the Southeastern Colorado Water Conservancy District ("Southeastern"), to the extent that a long-term excess capacity contract is entered into with the Bureau of Reclamation and Lower Ark enters into a sub-contract with Southeastern for use of the excess capacity space, Lower Ark (and operation of this Catlin Pilot Project) shall comply with the requirements of the Arkansas River Flow Management Project to the same extent that Southeastern is obligated to comply, which may result in additional limitations on the exchange of water into Pueblo Reservoir.

27. Pilot Project exchanges to Pueblo Reservoir from points within or downstream of the City of Pueblo's recreational in-channel diversion ("RICD") shall operate as if the Pueblo RICD water right is in effect 24-hours per day.

28. Any exchange of water as a part of this Pilot Project not operated pursuant to a court decree must be approved in advance by the Division Engineer after a determination that there is sufficient exchange potential to accomplish the requested exchange without injury to other water rights and taking into account the timing of river flows between the exchange-from point and exchange-to point.

29. Substitute supplies used for exchange must be delivered at a Catlin Canal augmentation station through a measuring device approved by the Division Engineer. The amount of substitute supply available for exchange shall be assessed transit loss by the Division Engineer between the augmentation station and Arkansas River.

30. Applicants may operate an exchange only if there is a live stream between the downstream exchange-from point and the upstream exchange-to point. The Applicants shall not operate the exchange when it would prevent an intervening water right from diverting water from the Arkansas River if such a diversion would have been legally and physically possible in the absence of the exchange.

Pueblo Board of Water Works has agreed to this term and condition with the following clarifying modifications:

> *Applicants may operate an exchange only if there is a live stream between the downstream exchange-from point and the upstream exchange-to point. The Applicants shall not operate the exchange when it would prevent any intervening water right, including exchange rights, from diverting the full amount of water from the Arkansas River to which such right would otherwise be legally and physically entitled, in the absence of the Pilot Project exchange.*

Applicants do not object to this modification.

31. Waters that are exchanged to, stored in, and subsequently released from Pueblo Reservoir will experience, delivery, storage and transit losses that will have to be made up from other sources. Absent prior approval by the Division Engineer of some other source, it will be assumed those losses will be made up from the consumptive yield of the shares included in the Pilot Project.

Tri-State has agreed to this term and condition, as modified below, with the following explanation: If water stored in Pueblo Reservoir is used as the committed firm supply to replace lagged return flow obligations, then the Applicants must be required to account for such losses in their projection. This term and condition will not be needed if the Applicants adopt ""Pay As You Go"," as described in Section III.1, below.

> *Waters that are stored in, and subsequently released from Pueblo Reservoir to replace lagged deep percolation return flow obligations will experience, delivery, storage and transit losses assessed by the Division Engineer between Pueblo Reservoir and the historical return flow accrual locations.*

> ***Applicants do not object to this revised language, but note it does somewhat modify the substance of the original term and condition.***

An otherwise agreed-to term and condition regarding replacement sources for return flows not met by farm headgate deliveries was not agreed to by Tri-State and is addressed in Section III, below.

An otherwise agreed-to term and condition addressing use of excess recharge accretions was not agreed to by Tri-State and is addressed in Section III, below.

32. Any excess consumptive use credits available from Pilot Project operations shall not be claimed for use as a source of replacement water for agricultural irrigation depletions in any Rule 14 Plan or substitute water supply plan.

An otherwise agreed-to term and condition allowing for trades of water available from Pilot Project operations with Rule 10 and/or Rule 14 Plans with the approval of the Division Engineer was not agreed to by Tri-State and is addressed in Section III, below.

33. All recharge ponds shall be surveyed and stage-area-capacity tables shall be approved by the Division Engineer before use.

34. Recharge pond accounting and operations shall, at a minimum, include and/or comply with the following information:

    a. Measured and recorded inflow and measured precipitation as recorded by the nearest CoAgMet weather station. Missing CoAgMet station data shall be replaced by the next closest CoAgMet weather station,

    b. Daily content by staff gage with a documented time recorded if not automated,

    c. Daily evaporation determined by daily evaporation rate by pond surface area for each day water is present in pond. Recharge site annual evaporation was derived from the NOAA, "Evaporation Atlas for the Contiguous 48 United

States", 1982, Technical Report NWS 33, as illustrated in AquaMap, State of Colorado factors as set forth in State Engineer's Policy 2003-2 for sites below 6,500 feet elevation will be used to distribute the NWS 33 annual evaporation monthly.

Kansas has agreed to this subparagraph with the following modification:

Daily evaporation determined by daily evaporation rate by pond surface area for each day water is present in pond. Daily evaporation will be determined based on the pan evaporation reported by the Corps of Engineers from data collected at John Martin Reservoir.

d. The recharge shall be computed from a mass balance standpoint with no credit for recharge of precipitation, and

e. The area in and around the recharge pond shall be kept clear of vegetation and shall be regularly monitored for any increased vegetative growth and/or pond seepage coming to the surface. To the extent that any vegetation exists while recharge is taking place, there shall be an appropriate reduction applied to recharge credits available at the Arkansas River.

35. Observations shall be made and recorded of any spills, seeps or overtopping of recharge ponds when recharge ponds are near full. No credit for recharge infiltration to ground water shall be allowed when spills, seeps or overtopping are observed unless the amount of such spills seeps and overtopping may be reasonably estimated and deducted from the amount delivered to recharge and if approved by the Division Engineer.

Tri-State has agreed to this term and condition with the following modification:

Observations shall be made and recorded of any spills, seeps or overtopping of recharge ponds when recharge ponds are near full. No credit for recharge infiltration to ground water shall be allowed when spills, seeps or overtopping are observed unless the amount of such spills seeps and overtopping may be estimated with reasonable accuracy based on existing measurements and calculations and deducted from the amount delivered to recharge as approved by the Division Engineer.

Pueblo Board of Water Works has affirmatively stated that they do not object to this modification.

36. To the extent that the recharge ponds are used for purposes other than the Catlin Pilot Project, the infiltration of such water to ground water shall be considered to occur based on the percentage of the total delivery to the subject recharge pond. Recharge accounting under term and condition 32 shall similarly be adjusted to reflect the proportion of water placed into recharge for Pilot Project operations and for other purposes.

37. All diversions, deliveries for the Subject Shares, deliveries to recharge, and recharge pond stage shall be measured in a manner acceptable to the Division Engineer. The Applicant shall install and maintain measuring devices as required by the Division Engineer for operation of this Pilot Project.

38. Applicants shall submit to the Division Engineer and all commenting parties proposed accounting forms that are responsive to recommendations made by commenting parties no later than February 1, 2015. Commenting parties shall submit any comments on the proposed accounting forms to the Division Engineer by February 17, 2015. Pilot project operations may not commence unless and until accounting forms have been approved by the Division Engineer, which shall not be approved until after the February 17, 2015 deadline set forth herein.

Tri-State has since proposed the following alternative term and condition:

Operation of the Pilot Project shall not commence until after the Division Engineer has approved accounting forms that are consistent with these terms and conditions and the November 19, 2013 Criteria and Guidelines. A copy of the Excel accounting forms, with formulas shall be posted on the Division of Water Resources website upon receipt from the Applicants. The accounting forms may be revised from time-to-time with written approval by or at the written direction of the Division Engineer. Any such revisions shall be posted on the Division of Water Resources website.

Applicants do not object to Tri-State's version of this term and condition, but note that this term and condition was not discussed and agreed to by all Conference Participants at the Conference Meeting.

39. Accounting of water in this Catlin Pilot Project must be provided to the Division Engineer on forms, at a frequency and at times acceptable to him. At a minimum, said accounting must be received by the 10th of the month following the month being reported. The name, mailing address and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms. Accounting will be available for inspection through the posting to an FTP site or other accessible web site within a reasonable time of submittal to the Division Engineer.

Tri-State has proposed additional language requiring weekly accounting during the first year of operations. Applicants do not agree with this language and it is addressed in Section III, below.

Pueblo Board of Water Works has requested a new term and condition that would provide as follows:

The State and Division Engineers and commenting parties may provide additional comment on the accounting forms throughout operation of the Pilot Project. Any accounting errors or deficiencies shall be immediately corrected and disclosed to all commenting parties and reflected in the annual Pilot Project operations report as provided for in paragraph 43.

Applicants do not object to this additional term and condition, but note that it was not discussed at the Conference Meeting and agreed to by all Conference Participants.

Kansas has agreed to this term and condition with the following modifications:

Accounting of water in this Catlin Pilot Project must be provided to the Division Engineer on forms and at times acceptable to him. Said accounting must be received by the 10th of the month following the month being reported. The name, mailing address and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms. Accounting will be available for inspection through the posting to an FTP site or other publically accessible web site within a week of submittal to the Division Engineer.

40. In addition to daily accounting for each participating farm's contribution there shall be an accounting record that shows the disposition of the water delivered to the Arkansas River. This additional record shall identify the end user of available water, whether the water is used directly for Fowler-CWPDA Municipal Well depletion replacement or exchanged to upstream storage, and the portion of the delivery that is used for replacement of return flow obligations.

41. The Pilot Project shall incorporate (a) daily accounting, one day in arrears, of future lagged return flow obligations resulting from actual deliveries to date to the fallowed Subject Shares and (b) a projection of the firm water supplies dedicated for replacement of the future lagged return flow obligations.

42. Applicants' accounting shall comply with the following:

    a. Daily accounting shall be maintained for the measured amount of water delivered attributable to the fallowed Subject Shares at each of the augmentation stations and recharge facilities.

    b. Consumptive use and return flow factors shall be applied to daily measured deliveries at the locations where Subject Shares are delivered by the Catlin Canal Company.

    c. Daily accounting shall be maintained for the amounts of consumptive use water, tailwater and unlagged deep percolation portions of the measured amount of water delivered at each augmentation station and recharge facility for the fallowed Subject Shares.

    d. Monthly accounting shall be maintained for current and future lagged return flow obligations that have resulted from deliveries attributable to fallowed Subject Shares during the present month and all previous months.

e. Monthly accounting shall be maintained for calculated recharge accretions to the stream system from actual infiltration at recharge ponds from delivery attributable to the fallowed Subject Shares.

f. Monthly accounting shall be maintained for lagged return flow obligation not replaced by recharge, distributed on a daily basis.

g. Daily accounting shall be maintained for measured Pilot Project consumptive use water and unlagged deep percolation water delivered through the augmentation stations for replacement of lagged return flow obligations that are not replaced with recharge.

h. Daily accounting shall be maintained for measured deliveries of other water supplies used to replace lagged return flow obligations that are not replaced with recharge, including location of each supply and transit losses associated with delivery of each supply to the location where the return flow obligation is owed.

i. Daily balance of the Pilot Project's net effect to the Arkansas River.

j. Daily net amount of consumptive use water and unlagged deep percolation return flow water delivered through the augmentation stations and not needed for replacement of return flow obligations.

k. Daily amount of consumptive use water and unlagged deep percolation return flow water stored to replace future lagged return flow obligations.

l. Daily amount of consumptive use water and unlagged deep percolation return flow water delivered to each Lessee.

43. Applicants shall annually prepare a report of Pilot Project operations that will be submitted to the CWCB and the State and Division Engineer on or before January 15 of each year, which shall reflect a reporting year of November 16 of the prior plan year through November 15 of the current plan year for which the report is being prepared. This annual report shall be made publically available on an FTP site or other appropriate website. This annual report will present: (a) a summary of plan year accounting, including the total amount of acres and Subject Shares fallowed, plan-year deliveries to the Subject Shares, HCU credits generated, water exchanged for Fowler-CWPDA Municipal Well Replacement, water exchanged to Pueblo Reservoir for Fountain and Security, water exchanged to Pueblo Reservoir for lagged return flow replacement, tail water return flow obligation replaced and unreplaced, lagged return flow obligation replaced and un-replaced, sources of water used to meet lagged return flow obligation, future lagged return flow obligation and firm yield source of water that will be used to meet lagged return flow obligation; (b) any accounting errors or deficiencies discovered during the plan year and any accounting modifications that were made during the plan year or are proposed to be made for the upcoming year; (c) the number of days, if any, when there were un-replaced return flow obligations; (d) efficacy of the LFT, temporary dry-up, prevention of erosion,

blowing soils and noxious weeds and re-irrigation of temporarily fallowed lands; (e) information regarding the parcels that have been dried up to date and years of such dry up to demonstrate that the limitations contained in term and condition 2 have not been exceeded; (f) a summary of costs associated with pilot project operations, including lease payments made/received, operational costs, and to the extent available costs of erosion prevention and noxious weed management; (g) identification of any obstacles encountered in pilot project operations; (h) any additional terms and conditions that Applicants believe may be necessary to prevent future material injury to other water rights or contract rights to water; and (i) any proposed minor operational modifications for the upcoming plan year, including and limited to the addition/modification of accounting forms, projection forms, storage locations, recharge facilities, and/or augmentation stations. Any proposed operational modifications shall be accompanied by such information and analysis as is necessary for the State and Division Engineer and any interested parties to evaluate the potential for injury resulting from such proposed changes.

Kansas has agreed to this term and condition with the following modification to the second sentence:

This annual report shall be made publicly available on an FTP site or other appropriate website, with email notice to commenting parties when posted.

Applicants do not object to this additional language, but note that notice would now be covered by paragraph 3, making this addition redundant.

Tri-State has agreed to this term and condition with the removal of the second sentence "This annual report shall be made publically available on an FTP site or other appropriate website" because this would be covered by proposed term and condition 3, above.

44. Pueblo Reservoir, Twin Lakes Reservoir and Fountain Valley Pipeline (or Conduit) are owned and operated as part of the Fryingpan-Arkansas Project by the United States Department of the Interior, Bureau of Reclamation. This Catlin Pilot Project approval does not give Applicants any rights to use of Fryingpan-Arkansas Project structures, including Pueblo Reservoir, but will not alter any existing rights Applicants may have. Applicants shall store water in Pueblo Reservoir only so long as they have a contract with the owners of that structure, and such storage and use is within the effective time period of such contract. Any use of Fryingpan-Arkansas Project facilities by Applicants, for storage, exchange or otherwise, will occur only with the written permission of the owner of said reservoir, and will be made consistent with such policies, procedures, contracts, charges, and terms as may lawfully be determined by the U.S. Bureau of Reclamation, and, where applicable Southeastern or its successors in interest, in their good faith discretion.

45. This Catlin Pilot Project approval has no effect on the authority of the United States to regulate and/or deny use of federal facilities. Applicants recognize that the consideration of and action on request for any necessary federal contracts and

authorizations shall be carried out pursuant to all pertinent statutes, regulations and policies applicable to the occupancy and use of the Bureau of Reclamation facilities, including but not limited to Fryingpan-Arkansas Project authorization legislation, the National Environmental Policy Act, and the Endangered Species Act.

46. Applicants shall store or transport water in Fryingpan-Arkansas Project structures only so long as they have a contract with the owners of that structure(s), and such storage and use is within the effective time period of such contract. This Catlin Pilot Project approval does not give Applicants any rights to ownership or use of any Fryingpan-Arkansas Project structure, or any rights of ownership or rights to purchase or receive allocation of Fryingpan-Arkansas Project water, and does not alter any existing rights (including any right to renew existing contracts) Applicants may have.

47. Applicants shall not operate the Catlin Pilot Project in a manner that would interfere with the lawful operation of the Fryingpan-Arkansas Project. Any water stored in Pueblo Reservoir as a part of this Catlin Pilot Project shall be beneficially used within Southeastern's district boundaries.

48. Unless otherwise authorized by the Bureau of Reclamation and to the extent permitted by law**,** and consistent with all lawful rules, regulations, policies, and contract obligations of Southeastern, the portion of the water associated with shares used in this Catlin Pilot Project derived from water stored pursuant to the decree dated November 10, 1990 in Case No. 84CW179 ("Winter Storage Water") shall be stored in an excess capacity storage account in Pueblo Reservoir. Applicants shall obtain space in an excess capacity storage account to allow storage of its Winter Storage Water, and such water shall be available to the Catlin Pilot Project operations. If no excess capacity account is available in a given year, Applicants will not take delivery of their Winter Storage water associated with the Catlin Pilot Project during that year. All of Applicants' Winter Storage Water shall be delivered through the Catlin Canal during the period of March 16 through November 14 at the same time as deliveries of Winter Water Storage are made to other Catlin Canal shareholders. If the Winter Storage Program described in the decree in Case No. 84CW179 terminates, the return flows owed on the Catlin Pilot Project lease shall continue to be calculated as set forth herein.

49. Applicants' lease of shares of the Catlin Canal entitle it to a pro rata share of the Winter Water made available to the Catlin Canal that shall be accounted for as released to Applicants' account in Pueblo Reservoir. This Winter Water will be available for release at any time during the year subject to the operating rules of the Winter Water Storage Project and may be carried over until May 1 of the water year (November 1 through October 31) following the water year in which the Winter Water is stored. Any Winter Water unused by that date will be released from Pueblo Reservoir to the system as decreed in Case No. 84CW179. Delivery of that Winter Water is also subject to the rules and regulations of the Catlin Canal Company regarding orders and assessments for such deliveries.

50. To the extent that the Catlin Pilot Project stores the net depletion amount of the participating shares in Pueblo Reservoir, such water may be booked over to replace winter return flow on a monthly or weekly basis, or as otherwise required by the Division Engineer, to participants in the Winter Water Storage Program decreed in Case No. 84CW179, Water Division 2 as necessary to prevent injury to the water rights included in that Program.

Tri-State has proposed the following modifications to this term and condition (modification in underline):

To the extent that the Catlin Pilot Project stores the net depletion amount of the participating shares in Pueblo Reservoir, with the approval of the Division Engineer, such water may be booked over to replace winter return flow on a monthly or weekly basis, or as otherwise required by the Division Engineer, to participants in the Winter Water Storage Program decreed in Case No. 84CW179, Water Division 2 as necessary to prevent injury to the water rights included in that Program. <u>The Division Engineer may require replacement of winter return flows above the Fort Lyon Canal or to John Martin Reservoir, if needed to prevent water rights injury</u>.

The originally proposed version was provided by and required by SECWD as a standard term and condition. Therefore, Applicants do not believe it appropriate to make this modification without SECWCD's approval. Moreover, Applicants believe that the language requested by Tri-State is adequately covered by term and condition 21, above.

Tri-State notes that term and condition 21 does not specifically address operations under the Winter Water Storage Program, and that winter return flows from the Catlin Pilot farms historically accrued above the Fort Lyon Canal headgate and were stored in the Great Plains Reservoirs and/or John Martin Reservoir by Colorado rater rights and/or pursuant to the Kansas-Colorado Arkansas River Compact, in addition to Case No. 84CW179. The Division Engineer should be given the authority to require return flow replacement at its historical location if needed to prevent water rights injury or for Compact compliance.

III. <u>Unresolved Terms and Conditions</u>

The parties to the Conference Meeting did not reach agreement on following terms and conditions and/or on terms and conditions addressing the following subject areas:

1. How the revised LFT run contained in term and condition 10 above, should be applied to the total irrigated acreage for each year.

At the Conference Meeting, consensus was generally reached by the Conference Participants that a sub-section (d) of term and condition 10 would be included as follows:

The results from the revised LFT run will be applied to the irrigated acreage for each year. The consumptive use per acre results shall then be averaged to determine a per acre consumptive use for each farm to be applied to the Catlin Pilot Project going forward"

Tri-State has indicated that it does not agree to this provision and has provided that subsection (d) should read as follows:

The results from the revised LFT run shall be applied to the irrigated acreage for each year. The Applicants shall report the average number of irrigated acres on each farm for the revised LFT run and the average shares per acre ratio for each farm during the revised LFT run shall be applied to the Catlin Pilot Project going forward. The number of fallowed Catlin Canal shares each year shall be equal to the number of fallowed acres on each farm multiplied by the average share per acre ratio for that farm.

A. Applicants' Position: Applicants believe the methodology originally proposed is reasonable and was adopted at the request of another commenting party. Use of Tri-State's methodology to estimate fallowed shares may result in a disproportionate number of shares being allocated to dry-up (i.e., if 100 shares are currently used on 100 acres, but the average share per acre ratio is 1.1, then fallowing of 30 acres, which is 30% of the farm would be allocated 33 shares, leaving only 67 shares for the remaining 70 acres. As such, Tri-State's methodology would needlessly limit the water use on the remaining irrigated acreage.

B. Tri-State's Position: It is not appropriate to use an average consumptive use per acre ratio from a study period that includes varying acreage for future dry-up requirements. Instead, dry-up should be determined by the share per acre ratio.

2. Whether the Catlin Pilot Project should be operated using a projection or a "Pay As You Go" methodology for lagged return flows.

A. Applicants' Position: At the Conference Meeting and in response to various comments, Applicants proposed the following terms and conditions to address replacement of lagged and post-pilot project return flows:

(1) Prior to March 1 of each year, Applicant shall prepare and submit to the Division Engineer a monthly projection for the replacement of surface and lagged return flow obligations owed for deliveries to date and projected for the upcoming plan year and for total future monthly obligations. To the extent that this projection shows that

lagged and surface return flow obligations that will be owed during the upcoming plan year operation cannot be met through calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares and projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, Applicant shall identify to the Division Engineer such other firm source(s) of water that will be dedicated to the Pilot Project for that plan year, along with a calculation of the dry-year yield of such source(s) and accounting for evaporation, transit, or other losses that may be incurred prior to and/or during delivery. If the Division Engineer determines that such source(s) is(are) inadequate or otherwise unavailable to meet return flow obligations owed for the upcoming plan year, the Division Engineer may deny use of that source for such purpose and require Applicants to dedicate an acceptable firm source of water prior to commencement of operations for that plan year. This shall also include information regarding Applicants' anticipated method(s) and source(s) of water anticipated to be used to meet return flow obligations beyond the upcoming plan year such that the Division Engineer can evaluate the likelihood that Applicants will continue to be able to meet return flow obligations in upcoming years and to take such action(s) as may be necessary to proactively address potential shortfalls in meeting long-term return flow obligations. This project shall be available to all interested parties through the posting to an FTP site or other accessible web site within a reasonable time of submittal to the Division Engineer

(2) Throughout operation of the Pilot Project, the projection of the firm sources of water that will be used to replace plan year lagged and surface return flow obligations from deliveries to date shall be updated weekly during the irrigation season. This shall include actual infiltration at the recharge facilities. If at any time a plan year monthly lagged return flow obligation exceeds the firm sources of water that will be used for replacement, no water shall be delivered to Lessees until all return flow obligations are made and the projection shows that a firm source of water is available to replace plan year return flow obligations.

(3) For the purpose of the projection, firm sources of water shall include, exclusively, (a) calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares, (b) projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, and (c) other fully consumable firm replacement supplies either previously stored and dedicated to the Pilot Project or projected to be available in the upcoming plan year based on the dry-year yield of direct-flow water rights approved for replacement use by water court decree or SWSP approval. The Applicant must account for applicable seepage, evaporation and transit losses associated with the use of such replacement supplies.

This methodology, and these terms and conditions, were discussed at length during the Conference Meeting and were generally agreed to by many of the Conference Participants. Tri-State agreed to the methodology for projecting return flow obligations (except that they should be projected for the lagged return flow period), but did not agree to the lack of firm and committed replacement supplies. After the conclusion of the Conference Meeting, Tri-State proposed that Applicants utilize a new methodology for the replacement of lagged deep percolation return flow obligations. This methodology was not raised in any detail in Tri-State's comment letters or discussed at the Conference Meeting. Therefore, it has not been considered or agreed to by other Conference Participants. This methodology is referred to as a "Pay As You Go", and is discussed in Tri-State's position, below.

Applicants recognize that the "Pay As You Go" alternative provides the advantage of assuring that the amount of water needed to replace deep percolation return flow obligations is delivered to the recharge ponds, and is thereafter part of the ground water system until returning to the stream system, negating the need to further track and assure that suitable replacement water is available and delivered in a timely fashion. Furthermore, due to the conservative nature of the historical use analysis as implemented in the LFT, it is apparent that the historical return flow obligations estimated therein are likely in excess of historical return flow obligations as estimated using less conservative, though accepted, approaches. This supports Tri-States suggested flexibility regarding the volume of return flow obligations as described below. Applicants do not object to use of the "Pay As You Go" methodology as an alternative methodology for replacing lagged return flows if the State Engineer determines that this methodology will prevent material injury to other water rights and contract rights to water.

B. Tri-State's Position: Unresolved terms and conditions 2 through 5 address projection of return flow replacement. It does not appear that the Applicants have a sufficient decreed replacement supply available. Tri-State and other commenters noted that the replacement supplies listed in the Pilot Project Application are not decreed for augmentation/replacement. The projection would be less important if the Applicants had demonstrated that they own a substantial amount of decreed augmentation/replacement water supplies that are available during a dry-year. The Lower Arkansas Valley Water Conservancy District has existing replacement obligations, including Rule 10 Plans that require nearly 2,000 af/yr of replacement water. Tri-State is concerned that there is not an adequate replacement supply for the Pilot Project return flow obligations and that unreplaced Catlin Pilot Project return flow obligations will injure Tri-State's water rights.

Adopting "Pay As You Go" return flow replacement on all farms, instead of just the Hanagan Farm, would eliminate the need for a projection of firm and committed return flow replacement supplies. Compared to the terms and conditions in this document, use of "Pay As You Go" methodology would require several additional and modified terms and conditions, primarily to define the percentage of Pilot Project deliveries that will be delivered to each augmentation station or recharge pond each month and to provide for no consumptive use credit if return flow replacement is not successful. As part of these modifications, "Pay As You Go" would also eliminate most (8 out of 15) of the disputed terms and conditions in this report because they would no longer be applicable to the Pilot

Project. The terms that would no longer be applicable with "Pay As You Go" are noted in Tri-State's comments below.

For five of the six pilot project farms, operation of the Catlin Pilot Project involves calculating the lagged deep percolation return flow obligation and accounting for replacement through recharge accretions and use of other water supplies. Lagged deep percolation return flows from one farm, the Hanagan farm, are replaced by delivering the deep percolation water to recharge on that farm. This latter type of operation was termed "Pay As You Go" in the *June 30, 2013 FLEX Market Model Project Completion Report prepared for the Colorado Water Conservation Board*. Through "Pay As You Go" return flow replacement, the deep percolation portion of deliveries returns to the river through recharge with nearly the same timing as the historical deep percolation return flow. "Pay As You Go" return flow replacement does not require a projection, because the deep percolation water is used exclusively for return flow replacement, instead of being claimed as a stream credit (see Term and Condition 20 above). The Criteria and Guidelines limit use of "Pay As You Go" return flow replacement to recharge ponds within ¼ mile of the dried up land.

Notwithstanding the ¼-mile limit in the Criteria and Guidelines and as a matter of settlement, "Pay As You Go" return flow replacement could be used for the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms if the Applicants were able demonstrate the stream accretions from use of the Schweizer and Hanagan Recharge Ponds (and delivery at the augmentation station, if needed) closely mimic deep percolation return flows from these farms. For the purposes of compromise, Tri-State will agree that recharge closely mimics historical deep percolation return flows if the Applicants can provide an analysis that shows that deep percolation return flows will be replaced within 10 af/month using "Pay As You Go" replacement assuming a 10-year Catlin Pilot Project and average-year deliveries. Ten (10) af/month was assumed to be a reasonable change in deep percolation return flow accretion timing that may occur when Catlin Canal when shares have historically been moved from one farm headgate to another or individual fields were fallowed from year-to-year.

Use of "Pay As You Go" deep percolation return flow replacement will eliminate the need to maintain a projection of the firm and committed sources of water that will be used for future return flow replacement. It will also greatly simplify operations for the Pilot Project. For "Pay As You Go" deep percolation return flow replacement, Term and Condition 20 (or a variant thereof that was agreed upon through discussions with Applicants, Tri-State and the Division Engineer) would apply to all farms for the Catlin Pilot Project. In "Pay As You Go" deep percolation return flow replacement, deep percolation deliveries would never count as a "stream credit" because 100-percent of the deep percolation delivery would be used for return flow replacement. The Applicants would not need to store water for winter return flow replacement because winter deep percolation return flow obligations would be replaced by recharge accretions. As a result, Applicants would not need to rely on the limited exchange potential between the

Catlin Canal and Pueblo Reservoir to replace winter return flows. Pending confirmation of a lagging analysis, we believe that "Pay As You Go" is more likely to result in a viable Pilot Project and prevent injury.

LAWMA is interested in exploring the option of a "pay as you go" system for replacement of historical return flows under the Catlin Pilot Project.

LAWMA does not agree to the term and condition included in subsection (A)(3) above to the extent that it would allow Applicants to project water included in a substitute water supply plan (SWSP) as a firm source of water. Applicants may not project water from a temporary SWSP as a firm source for replacement of historical return flows, and therefore may only project water that is part of an SWSP if the SWSP is associated with a water court application.

3. **What are the appropriate requirements of projecting future return flow obligations, including whether firm sources of supply need to be dedicated prior to any Pilot Project operations to the extent of the upcoming Plan Year obligations or for the entirety of the Pilot Project and for and post-Pilot Project operations.**

Applicant's proposed the terms and conditions identified in Section III.3.A, above to provide a means for addressing the replacement future lagged return flow obligations. Tri-State provided revised terms and conditions regarding future return flow obligations:

(1) *Prior to March 1 of each year, Applicant shall prepare and submit to the Division Engineer a monthly projection for the replacement of surface and lagged return flow obligations owed for deliveries to date and projected for the upcoming plan year and for future monthly obligations. To the extent that this projection shows that lagged and surface return flow obligations that cannot be met through calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares and projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, Applicant shall identify to the Division Engineer such other firm source(s) of water that are dedicated to the Pilot Project for that plan year, along with a calculation of the monthly dry-year yield of such source(s) and accounting for evaporation, transit, or other losses that may be incurred prior to and/or during delivery. If the Division Engineer determines that such source(s) is(are) inadequate or otherwise unavailable to meet return flow obligations owed for the upcoming plan year, the Division Engineer may deny use of that source for such purpose and require Applicants to dedicate an acceptable firm source of water prior to commencement of operations for that plan year.*

(2) *Throughout operation of the pilot project, the projection of the firm sources of water that will be used to replace all current and future monthly lagged and surface return flow obligations from deliveries to date shall be updated weekly during the irrigation season. This shall include actual infiltration at the recharge facilities. If at any time a projected current or future monthly lagged return flow*

obligation exceeds the firm sources of water that will be used for replacement, no water shall be delivered to Lessees until all return flow obligations are made and the projection shows that a firm source of water is available to replace all future return flow obligations. This projection shall be submitted to the Division Engineer along with each water use accounting submittal.

A. Applicants' Position: Neither C.R.S. § 37-60-115(8) nor the Criteria and Guidelines require dedication of a firm source of water to replace all return flow obligations as a perquisite for obtaining approval of a pilot project. Rather, Applicants are required to provide "a description of the source of water to be used to replace all historical return flow obligations, with evidence that a source will provide a firm yield of water to meet historical return flow obligations, during the pilot project and after completion of the pilot project." The Application included this description and evidence and no dedication is required, since the identified sources are sufficient to provide replacement water. Annual dedication to address the upcoming plan year, including a forecasting component to address potential future shortfalls that can be addressed in advance of any actual shortfall, is sufficient to prevent material injury. Moreover, Applicants continue to acquire additional water supplies that may be used to meet these obligations, including Lower Ark's recent purchase of nearly 600 shares in the Colorado Canal Company. Applicants agree that sources should be required to be dedicated in sufficient amounts to meet upcoming plan year obligations and such sources may not be dedicated for other uses during that time. However, it is unduly restrictive to prematurely require Applicants tie up water supplies to meet distant return flow obligations so long as sources available to Applicants and identified in the projections are sufficient to meet those future return flow obligations.

B. Tri-State's Position*:* This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms.

   Firm sources of water must be dedicated prior to March 1 for all future return flow obligations to demonstrate that the Pilot Project will not injure other water rights. Yield of sources of replacement water is needed on a monthly basis to show that water is available at the time it is needed. *See* White and Jankowski December 9, 2014 Letter ("W&J Letter") at pp. 4-5 and BBA Letter pp. 4-10

   Without an ongoing projection of all monthly lagged return flow obligations and the firm source of water that will be used to replace such return flows, the Applicants cannot demonstrate that the pilot project will prevent injury by replacing all lagged return flow obligations. The projection must be provided to the Division Engineer along with accounting to demonstrate compliance with this term and condition. *See* BBA Letter pp 8-10.

C. Pueblo Board of Water Works' Position: Pueblo Water agrees that the terms and conditions proposed by Applicants in Section III.2, above are sufficient to prevent injury and that annual dedication to address the upcoming plan year, including a forecasting component to address potential future shortfalls that can be addressed in advance of any actual shortfall, is sufficient to prevent material injury.

LAWMA agrees with Tri-State's position on this issue.

4. Whether sources of replacement water may be approved for such use through substitute water supply plan ("SWSP") approval pursuant to C.R.S. §37-92-308(5) or are limited to SWSP approval pursuant to C.R.S. § 37-92-308(4), requiring a pending application for such change be filed with the water court.

Tri-State has proposed the following modification and addition (underlined) to term and condition 25 (above), as follows:

> *For the purpose of the projection, firm sources of water shall include, exclusively, (a) calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares, (b) projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, and (c) other fully consumable firm replacement supplies either previously stored and dedicated to the Pilot Project or projected to be available in the upcoming plan year based on the dry-year yield of direct-flow water rights approved for replacement use by water court decree or C.R.S. 37-92-308(4) SWSP approval. A replacement water source is considered firm in this context to the extent the water is guaranteed by binding agreement for the term of its inclusion in the projection and fully executed contracts to use structures not owned by the Applicant that are needed to store or deliver the replacement supply are provided. The Applicant must account for applicable seepage, evaporation and transit losses associated with the use of such replacement supplies.*

Tri-State has also proposed deletion of the following term and condition that was agreed to by remaining Conference Participants:

> *Any return flows not met by the available farm headgate diversions shall be made up from some other source of water decreed for this use or approved for this use by a substitute water supply plan.*

A. Applicants' Position: Neither C.R.S. § 37-60-115(8) nor the Criteria and Guidelines prohibit use of an SWSP to allow for use of water sources to meet return flow obligations. Rather, the statute was drafted to include a prohibition on including the shares authorized for use to provide municipal supplies through pilot project operations from being included in a separate SWSP to avoid a situation whereby an SWSP would be used to circumvent the limitation that the CWCB shall not select a pilot project that involves "the fallowing of the same land for more than three years in a ten-year period or the fallowing of more than thirty percent of a single irrigated farm for more than ten consecutive years." *Id.* This provision was not intended to restrict use of water not used to meet the municipal needs being supplied through lease-fallowing operations and should not be read as such. Such a reading would place an unintended legislative limitation on the legal use of otherwise decreed water rights.

B. Tri-State's Position: This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms. Otherwise, Applicants' position is contrary to the plain language of C.R.S. § 37-60-115(8), which requires that "during the term of the pilot project, land and water included in a pilot project is not also included in a substitute water supply plan pursuant to section 37-92-305(5) or (7)…" Deep percolation return flow replacement is water included in a pilot project and cannot also be included in a SWSP. *See* W&J Letter pp. 2-5 and BBA Letter pp. 3 and 10.

LAWMA agrees with Tri-State's position on this issue. Applicants may not project water from a temporary SWSP as a firm source for replacement of historical return flows, and therefore may only project water that is part of an SWSP if the SWSP is associated with a water court application under C.R.S. § 37-92-308(4).

5. Whether a "firm source" of water requires a binding agreement for the term of that source's inclusion in a future return flow projection, including agreements for use of structures.

For the purpose of the projection, firm sources of water shall include, exclusively, (a) calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares, (b) projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, and (c) other fully consumable firm replacement supplies either previously stored and dedicated to the Pilot Project or projected to be available in the upcoming plan year based on the dry-year yield of direct-flow water rights approved for replacement use by water court decree or C.R.S. 37-92-308(4) SWSP approval. A replacement water source is considered firm in this context to the extent the water is guaranteed by binding agreement for the term of its inclusion in the projection and fully executed contracts to use structures not owned by the Applicant that are needed to store or deliver the replacement supply are provided. The Applicant must account for applicable seepage, evaporation and transit losses associated with the use of such replacement supplies.

A. Applicants' Position. Applicants agree that upon dedication of a firm source of water for replacement supplies, a binding agreement is required. However, Applicants disagree as to the extent of dedication of firm sources of water, and also disagree that agreements for structures need to be in place "for the term of its inclusion in the projection." C.R.S. § 37-60-115(8) and the Criteria and Guidelines, II.F.c, require Applicants to provide "evidence that all necessary agreements and approvals between ditch companies, ditch members, municipalities, and other parties have been obtained or will be reasonably obtained." Applicants agree that an appropriate requirement would be for Applicants demonstrate that such agreements are in place for the upcoming Plan Year. However, as to future Plan Years, the appropriate standard should be whether such agreements can be reasonably obtained. Moreover, this added language appears to have the effect of eliminating use of Pueblo Reservoir in meeting future return flow obligations because excess storage capacity contracts are only available on a single year basis. This would render the Catlin Pilot Project inoperable. Pueblo Board of Water Works has indicated that they agree with Applicants' position on this issue.

B. Tri-State's Position: This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms. However, renewal of recharge pond leases would still be needed prior to first year of operations after the Applicants' existing leases expire.

To the extent "Pay As You Go" is not adopted, Applicants position is contrary to the plain language of the Criteria and Guidelines. The "reasonably available" language cited by applicants only applies at the selection stage, and is only discussed in the selection stage of the Criteria and Guidelines. At the application stage, the Criteria and Guidelines require at page 9: "a description of the source of water to be used to replace *all* historical return flow obligations, with evidence that the source will provide a *firm yield of water to replace all* return flow obligations, during the pilot project *and after completion of the pilot project*. (emphasis added). A firm and contractually committed source of water is needed to guarantee that all return flow obligations will be replaced. If a water supply is identified for replacement of Pilot Project return flow obligations, but also committed for other uses, it may not be available when it is needed, thus leaving return flow obligations un-replaced and resulting in injury to Tri-State's water rights. *See* BBA Letter pp 7-8; W&J Letter at 4-5.

LAWMA agrees with Tri-State's position on this issue.

6. What is the appropriate timing and method of sources for replacement of tailwater and lagged deep percolation return flows.

Tri-State has proposed the following terms and conditions that were not discussed with all Conference Participants at the Conference Meeting (these updated terms have been slightly modified from Tri-State's December 29 comments in order to attempt to provide some additional flexibility for the Applicants' in response to concerns they expressed to Tri-State):

(1) Tailwater return flow obligations shall be calculated daily and shall be replaced exclusively by delivery to the Pilot Project Catlin Canal shares at the augmentation station(s). On a daily basis, Applicants shall endeavor to replace the calculated amount of tailwater return flow obligation. On a monthly basis, Applicants shall demonstrate that all tailwater return flow obligations have been replaced.

(2) Lagged deep percolation return flow obligations shall be calculated daily and shall be replaced exclusively through: (a) recharge accrual to the river calculated from actual infiltration of Pilot Project Catlin Canal shares delivered to recharge, (b) delivery to the Pilot Project Catlin Canal shares at the augmentation station and/or (c) other source of water decreed for augmentation or replacement or approved for augmentation or replacement by a C.R.S. 37-92-308(4) SWSP. During the irrigation season, on a monthly basis, Applicants shall demonstrate that all lagged deep percolation return flow obligations have been replaced. During November 15 to March 15, replacement of lagged deep percolation return flow obligations may be aggregated as approved by the Division Engineer so long as there is no injury to the Winter Water Storage Program, Colorado water rights, Conservation Storage in John Martin Reservoir or the Kansas-Colorado Arkansas River Compact.

A. <u>Applicants' Position</u>: The Pilot Project will be operated to provide replacement as timely as possible. However, noting that deliveries to the augmentation stations and recharge ponds may be more or less than anticipated on any given day, it should be acknowledged that the potential exists for over- or under-replacement of return flows on any given day, and provisions should be included to replace deficits, and utilize other sources to replace tailwater return flows as needed. Applicants appreciate language proposed by Tri-State to reflect the possibility that daily deliveries may not always be possible and would be amenable to the first of these terms and conditions with the following modification:

   Tailwater return flow obligations shall be calculated daily and shall be replaced by delivery to the Pilot Project Catlin Canal shares at the augmentation station(s), <u>or with other supplies as needed</u>. On a daily basis, Applicants shall endeavor to replace the calculated amount of tailwater return flow obligation. On a monthly basis, Applicants shall demonstrate that all tailwater return flow obligations have been replaced.

Applicants do not agree that the sources of replacement of return flow obligations should be limited to those identified in the proposed terms and conditions (specifically "*other source of water decreed for augmentation or replacement or approved for augmentation or replacement by a C.R.S. 37-92-308(4) SWSP*"), as addressed in Section III.4.A, above.

B. <u>Tri-State's Position</u>: The current terms and conditions do not define a time-step for return flow replacement. The time-step for return flow replacement must be defined. Based upon the Applicants' historical use analysis and the Criteria and

Guidelines, 20-percent of the return flow water delivered each day historically returned to the stream and is a tailwater return flow obligation. Use of the tailwater delivery for anything other than tailwater replacement will result in an expansion of use and unreplaced return flow obligations that will injure Tri-State's water rights. In addition, a term and condition is needed clarifying that the Applicants shall endeavor to replace return flows on the day they are owed. The Pilot Project Application requested that unreplaced return flow obligations be "made-up" in the subsequent month and this type of operation will result in injury to Tri-State's water rights. See BBA Letter p. 17. During the Winter Storage Season, direct flow water rights are (generally) not diverting water and it may be appropriate to aggregate replacement of lagged return flow obligations during that time. Tri-State acknowledges the operational difficulty in making precise daily return flow replacements while Pilot Project water is delivered at up to four Catlin Canal farm headgates (two augmentation stations and two recharge ponds), and has proposed revised language above to provide for "endeavoring" to make daily replacement, with monthly reconciliation of the full amounts.

7. Whether or not excess recharge accretions may be used to meet tailwater return flow obligations.

Based on the Conference Meeting, Applicants proposed the following term and condition:

> *There shall be no exchange and re-diversion of any excess recharge accretions resulting from delivery of water to recharge ponds that was diverted pursuant to the Subject Shares. Such excess recharge accretions may be used for the replacement of lagged or tailwater return flow obligations and may also be used for Fowler-CWPDA Municipal Well Replacement, except that the use of such credits to replace tailwater return flow obligations may not otherwise result in the exchange of Catlin Canal headgate deliveries pursuant to the Subject Shares that are made available only as a result of the use of such credits to meet tailwater return flow obligations.*

Pueblo Board of Water Works has indicated that they do not believe the limitation contained in the final clause is necessary and such water should be available for exchange. Applicants agree that this limitation is unnecessarily restrictive and believes it should be able to make such exchanges, but had added the final clause in the spirit of compromise to try and resolve the concerns raised by Tri-State at the Conference Meeting.

Tri State has not agreed to this term and condition and has instead proposed the following terms and conditions:

> *(1) Tailwater return flow obligations shall be replaced on the day they are owed exclusively by delivery to the Pilot Project Catlin Canal shares at the augmentation station(s).*

(2) There shall be no exchange and re-diversion of any excess recharge accretions resulting from delivery of water to recharge ponds that was diverted pursuant to the Subject Shares. Such excess recharge accretions may be used for the replacement of lagged return flow obligations and may also be used for Fowler-CWPDA Municipal Well Replacement.

A. Applicants' Position: As stated previously, the potential exists for over- or under-replacement of return flows on any given day. In the event that excess recharge accretions are available, and tailwater return flow obligations are under-replaced, Applicants' should be provided the operational flexibility to replace the tailwater return flow obligations with excess recharge accretions. There is no injury or other expansion of use if the return flow obligations are replaced. Moreover, such operations will ensure that water made available through Pilot Project operations is maximally utilized**.**

B. Tri-State's Position: This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms.

Based upon the Applicants' historical use analysis and the Criteria and Guidelines, 20-percent of the return flow water delivered each day historically returned to the stream and is a tailwater return flow obligation. Use of the tailwater delivery for anything other than tailwater replacement will result in an expansion of use and unreplaced return flow obligations that will injure Tri-State's water rights. Since tailwater is replaced by a portion of delivery to the Subject Shares, there is no circumstance where used of excess recharge accretions could be used for tailwater return flow replacement. *See* BBA Letter pp 12 and 14.

8. Whether or not water available pursuant to operations of the Pilot Project may be traded and/or exchanged with Rule 10 and/or 14 Plans.

Applicants proposed the following term and condition, which was agreed to by many Conference Participants but not agreed to by Tri-State:

Water available or owed pursuant to operations of this pilot project shall only be traded or exchanged with water available or owed under a Rule 10 Compact Compliance Plan or Rule 14 Plan with the prior approval of the Division Engineer, which shall be based on a determination that such trade/exchange can occur without resulting in material injury to water rights or contract rights to water and is otherwise in conformance with the law.

Kansas has agreed to this term and condition with the following modifications:

Water available or owed to operations of this pilot project shall only be traded or exchanged with water available or owed under a Rule 10 Compact Compliance Plan or Rule 14 Plan with the prior approval of the Division Engineer. Such prior approval shall require a determination that such trade/exchange can occur *without resulting in material injury to water rights or contract rights to water and is otherwise in conformance with the law.*

Tri-State has proposed the following term and condition:

Delivery of Pilot Project water via a Rule 14 Plan shall be limited to Fowler-CWPDA Municipal Well Replacement approved pursuant to the Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado. Pilot Project water shall not be included in any plan approved pursuant to the Compact Rules Governing Improvements to Surface Water Irrigation Systems in the Arkansas River Basin in Colorado.

A. Applicants' Position: Trades and exchanges of water made available from Pilot Project operations with water owed at downstream locations to Rule 10 and/or Rule 14 Plans serves maximum utilization of water resources. Trades such as these are key water management techniques that reduce transit losses by making water available at the location where replacements are required. The proposed term and condition unnecessarily limits full utilization of Colorado's water supplies and would make unavailable an existing and generally accepted water management practice designed to reduce transit losses and increase efficiency. So long as such trades/exchanges can be operated without injury, Applicants believe it is unduly restrictive to prohibit such trades/exchanges. Applicants do not object to inclusion of language, as suggested by Tri-State below, to address reporting and accounting for such trades.

B. Tri-State's Position: *See* W&J letter pp 3-4 and BBA letter pp 2-3. As raised by Tri-State at the Conference Meeting, to the extent that the Pilot Project water is traded with Rule 10 and Rule 14 plans a Term and Condition is needed that requires daily accounting for such trades, including (a) the amount of Pilot Project water used by-reach for Rule 10 or Rule 14 replacement and (b) the source (location and water right) and amount of water traded from Rule 10 or Rule 14 to the Pilot Project.

9. Whether or not it is necessary to require weekly accounting during the first year of Pilot Project operations.

Tri-State has proposed the following language for inclusion in term and condition no. 39, above:

Accounting of water in this Catlin Canal Pilot Project must be provided to the Division Engineer on forms, at a frequency and at times acceptable to him. At a minimum, said accounting must be received by the 10th of the month following the month being reported, except that during the first year of operation accounting must be submitted weekly. The name, mailing address and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms. Accounting for return flow replacement shall continue until all lagged return flow obligations have been replaced.

A. Applicants' Position: Weekly accounting is unnecessarily burdensome as a baseline for pilot project operations during the first year. This high frequency of accounting is not standard practice for SWSPs or IWSAs, many of which involve more complex projects with significantly greater amounts of water. Applicants agree to provide accounting at such frequency required by the Division Engineer, but are not willing to agree before any operations commence that weekly accounting is needed to prevent material injury, particularly given the conservative nature of all assumptions contained in the LFT.

B. Tri-State's Position: The Arkansas River call changes daily and daily accounting is the standard in much of Division 2. Reporting intervals in Division 2 range from daily to weekly or monthly. During the first year of operation, weekly reporting of daily accounting is needed to provide transparency in operation of the novel leasing-fallowing pilot project. Weekly accounting was required by the May 1, 2012 SWSP conditional approval of the Super Ditch Catlin Pilot Project by Term and Condition 26. *See* p. 14 May 1, 2012 letter from Dick Wolfe to Heath Kuntz and Jay Winner.

10. Whether or not the following term and condition regarding development of accounting forms should be included in any Pilot Project approval:

The following term and condition was drafted by Applicants:

> *Applicants shall submit to the Division Engineer and all commenting parties proposed accounting forms that are responsive to recommendations made by commenting parties no later than February 1, 2015. Commenting parties shall submit any comments on the proposed accounting forms to the Division Engineer by February 17, 2015. Pilot project operations may not commence unless and until accounting forms have been approved by the Division Engineer, which shall not be approved until after the February 17, 2015 deadline set forth herein.*

Tri-State has proposed the following alternative term and condition:

> *Operation of the Pilot Project shall not commence until after the Division Engineer has approved accounting forms that are consistent with these terms and conditions and the November 19, 2013 Criteria and Guidelines. A copy of the Excel accounting forms, with formulas shall be posted on the Division of Water Resources website upon receipt from the Applicants. The accounting forms may be revised from time-to-time with written approval by or at the written direction of the Division Engineer. Any such revisions shall be posted on the Division of Water Resources website.*

A. Applicants' Position: At the Conference Meeting, Tri-State indicated that a process needed be established whereby they would have an opportunity to review and comment on the accounting forms. Other Conference Participants agreed to inclusion of this term. Since that time, [?] has changed their position on this term and condition. Applicants are agreeable to either version of this term and condition and appreciate the efforts all Conference Participants have made to assist in crafting terms and conditions and reaching agreement on various aspects of the Pilot Project. Applicants do note that Tri-State's version has not been agreed to by all Conference Participants.

B. Tri-State's Position: Tri-State has been working in good faith with Applicants and other parties to attempt to agree on terms and conditions for the Pilot Project. The compressed schedule for preparation of this report on all parties has illustrated the difficulty of reaching consensus on complex operations in a short time frame. Based on this experience, Tri-State has concluded that the burden for review and approval of accounting forms should not fall on commenters with only 17 days to review and comment on accounting forms. This will not permit adequate time for communication with the Applicants' engineers if the accounting forms are found to be in error. The example of accounting included in the September 25, 2014 Pilot Project Application only addressed accounting for one farm and was found to include numerous errors identified in the BBA Letter. The example of accounting presented at the December 18 Conference Meeting was provided to commenters only the night before the meeting and the version of the accounting presented at the meeting was found to be inaccurate. Accordingly, Tri-State is concerned that 17 days will not provide adequate time for review. If a review and comment period is included in the Pilot Project approval, it should be 30 days, minimum, and include a meeting with the Applicants approximately 15 days after the accounting is provided to resolve discrepancies.

11. Whether or not the following term and condition regarding comparison of historical use analysis with projected operations should be included in any Pilot Project approval:

The accounting will use the tables listed in Appendices B through G of the Catlin Pilot Project Application as the tool for comparing historical use analyses with projected operations as a pilot project.

A. Applicants' Position: This term and condition was originally included in the September 25, 2014 Pilot Project Application as provided for in the Criteria and Guidelines. When discussed at the Conference Meeting, this term and condition was not the subject of significant discussion and it appeared to have been agreeable to all parties. Since that time, Tri-State has indicated that they would like it removed. Applicants agree that is confusing and do not object to removal. Note that this removal has not been agreed to by other Conference Participants.

B. Tri-State's Position: Appendices B through G do not include an accounting of return flow replacement and are not adequate to compare historical use with Pilot Project operations. See BBA Letter p. 17. Tri-State does not object to inclusion of this term and condition, but the proposed term and condition is not a substitute for the other accounting provisions should not be used as the basis to evaluate efficacy of the Pilot Project in replacing historical return flows.

C. Whether agreements and approvals must be in place for the upcoming plan year or if such agreements and approvals must be in place that cover all future lagged return flow obligations.

Applicants' proposed the following term and condition that was agreed to by all Conference Participants except Tri-State:

Prior to March 1 of each plan year, Applicants shall have in place all approvals, and/or agreements that are necessary for operation of the Catlin Pilot Project for that plan year. Copies of these approvals/agreements shall be provided to the Division Engineer, which shall be made available to other parties upon request. Any use of intermediate storage locations in the operation of any exchange for the pilot project shall only occur to the extent that Applicants have obtained the necessary approvals and/or complied with applicable bylaw requirements associated with the use of such storage locations.

Tri-State has proposed the following modifications to this term and condition:

Prior to March 1 of each plan year, Applicants shall have in place all approvals, and/or agreements that are necessary for operation <u>and return flow replacement</u> of the Catlin Pilot Project for that plan year <u>and all future lagged return flow obligations</u>. Copies of these approvals/agreements shall be provided to the Division Engineer, which shall be made available to other parties upon request. Any use of intermediate storage locations in the operation of any exchange for the pilot project shall only occur to the extent that Applicants have obtained the necessary approvals and/or complied with applicable bylaw requirements associated with the use of such storage locations.

A. <u>Applicants' Position</u>: It is neither required nor necessary to prevent material injury to other water rights to have all agreements in place for future years' lagged return flow obligations. Individuals, municipalities, ditch companies and other entities typically are not willing to enter into binding commitments that do not take effect until many years in the future and may extend for over 20 years. A requirement that an applicant for a rotational leasing-fallowing pilot project must have such long-term agreements in place will prevent any such pilot project from operating. It is precisely this reason that neither C.R.S. § 37-92-115(8) nor the Criteria and Guidelines require that all such agreements be in place, but rather require evidence that *necessary* agreements and approvals may *reasonably be obtained.* Applicants note that the recharge pond leases have been extended through March 2017.

B. <u>Tri-State's Position</u>: This issue will not be applicable to the Pilot Project if "Pay As You Go" return flow replacement is used for all Pilot Project farms. Renewal of recharge pond leases would still be needed prior to first year of operations before those leases expire. Without necessary approvals and/or agreements for facilities and/or sources for return flow replacement, return flow replacement cannot be assured. See Tri-State's comments on items 4 and 5, above.

LAWMA agrees with Tri-State's position on this issue.

The terms and conditions set forth in this Joint Conference Report as either "agreed to" or "unresolved" are based on the parties' current understanding of the Catlin Pilot Project and information presented to date. All of these terms and conditions are the subject of negotiation and compromise and shall not be relied on as establishing any precedent in any other proceeding. In submitting this Joint Conference Report, no party is waiving its right to challenge on appeal any approval of the Catlin Pilot Project, in whole or in part, or to litigate or provide evidence or expert testimony ~~or evidence~~ on any issue as a part of any water court appeal taken ~~to~~from any CWCB or State Engineer's Office approval of the Catlin Pilot Project, subject to the right of other parties to object to such testimony or evidence. Likewise, by signing this Joint Conference Report, the commenting parties do not waive any objections they have raised or comments they have submitted regarding the Catlin Pilot Project, including without limitation any such objections or comments not addressed herein.

Remainder of page intentionally left blank – signature page follows.

RESPECTFULLY SUBMITTED THIS____ DAY OF JANUARY, 2014 BY THE UNDERSIGNED CONFERENCE PARTICIPANTS:

Leah Martinsson or Craig Lis for Applicants, Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.

____

Lee Miller for Southeastern Colorado Water Conservancy District

____

Kelly Beal for Tri-State Generation and Transmission Association, Inc.

____

Gerry Knapp for Aurora Water

____

Alan Ward or Mason Brown for Pueblo Board of Water Works

____

Randy Hendrix for LAWMA

____

Kevin Salter or Rachel Duran for Kansas Division of Water Resources

____

Bill Caile or Mary Presecan for Colorado Beef

____

Richard Vail, Ed Perkins, or Katie Wiktor for Colorado Division of Parks and Wildlife

____

RESPECTFULLY SUBMITTED THIS 6th DAY OF JANUARY, 2014 BY THE UNDERSIGNED CONFERENCE PARTICIPANTS:

Leah Martinsson or Craig Lis for Applicants, Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.

____

Lee Miller for Southeastern Colorado Water Conservancy District

____

Kelly Beal for Tri-State Generation and Transmission Association, Inc.

____

Gerry Knapp for Aurora Water

____

Alan Ward or Mason Brown for Pueblo Board of Water Works

____

Randy Hendrix for LAWMA

Randy Hendrix

____

Kevin Salter or Rachel Duran for Kansas Division of Water Resources

____

Bill Caile or Mary Presecan for Colorado Beef

____

Richard Vail, Ed Perkins, or Katie Wiktor for Colorado Division of Parks and Wildlife

____

RESPECTFULLY SUBMITTED THIS____ DAY OF JANUARY, 2014 BY THE UNDERSIGNED CONFERENCE PARTICIPANTS:

Leah Martinsson or Craig Lis for Applicants, Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.

____

Lee Miller for Southeastern Colorado Water Conservancy District

____

Michael Sorensen for Tri-State Generation and Transmission Association, Inc.

Michael G. Sorensen
____

Gerry Knapp for Aurora Water

____

Alan Ward or Mason Brown for Pueblo Board of Water Works

____

Randy Hendrix for LAWMA

____

Kevin Salter or Rachel Duran for Kansas Division of Water Resources

____

Bill Caile or Mary Presecan for Colorado Beef

____

Richard Vail, Ed Perkins, or Katie Wiktor for Colorado Division of Parks and Wildlife

____

COLORADO

Colorado Water Conservation Board

Department of Natural Resources

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix C

Sign in Sheets for December 18th

Conference Committee Meeting

Catlin Canal Pilot Project – Conference Committee Meeting

December 18, 2014

Name	Affiliation	Email	Phone
Leah Martinssen	BHGR - Applicant	~~leah~~ lKM@bhgrlaw.com	303-345-2647
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Erik Skeie	CWCB	erik.skeie@state.co.us	303-956-1298
Mara MacKillop	CWCB	mara.mackillop@state.co.us	303-866-3441
Tom Browning	CWCB	tom.browning@state.co.us	303 866-3441
Randy Hendrix	LAWMA	randy@slatteryhendrix.com	303-309-0061
Richard Vail	CPW	Richard.Vail@state.co.us	303 291 7273
Cindy Lair	CDA	cindy.lair@state.co.us	303-869-9039
Bill Tyner	CDWR	bill.tyner@state.co.us	719 542 3368 x2110
Charles DiDomenico	CDWR	charles.didomenico@state.co.us	719 5423368
Bill Caile	Holland & Hart	whcaile@hollandhart.com	303-295-8403
Mark McLean	Deere & Ault Consultants Pueblo Board of Water Works	mark.mclean@deereault.com	303-651-1468

Catlin Canal Pilot Project – Conference Committee Meeting

December 18, 2014

Name	Affiliation	Email	Phone
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Daniel Niemela	BBA - Tri State	dniemela@bbawater.com	3/806-8952
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Kevin Salter	"	Kevin.Salter@KDA.ks.gov	"
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Ed Perkins	Parks & Wildlife	~~[illegible]~~ ed.perkins@state.co.us	3/291/7466
Kelley Thompson	CO DWR	kelley.thompson@state.co.us	3
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Gerry Knapp	Aurora Water	gknapp@auroragov.org	719-254-7984
Katie Wiktor	AG's office - CPW	katie.wiktor@state.co.us	720 508 6761
Steve Miller	Colo Water Cons Bd	steve.miller@state.co.us	303 866 3441 x 3228

Catlin Canal Pilot Project – Conference Committee Meeting

December 18, 2014

Name	Affiliation	Email	Phone
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Mason Brown	CHP – [illegible] Water Users	MBrown@CHPLAW.com	303-861-9000

COLORADO

Colorado Water Conservation Board

Department of Natural Resources

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix D

Public Comment Letters for the Comment Period Ending December 9, 2014

BEFORE THE COLORADO WATER CONSERVATION BOARD
STATE OF COLORADO

HB 13-1248 CATLIN PILOT PROJECT PROPOSAL

COMMENTS BY THE SOUTHEASTERN COLORADO WATER CONSERVANCY DISTRICT

The Southeastern Colorado Water Conservancy District ("Southeastern") submits the following comments consistent with the Criteria and Guidelines for Fallowing-Leasing Pilot Projects adopted by the Colorado Water Conservation Board (CWCB) and Colorado Division of Water Resources (DWR) on November 19, 2013, regarding the HB13-1248 Catlin Pilot Project Proposal (CPP).

1. Southeastern is a statutory water conservancy district (*see* C.R.S. §§ 37-45-101, *et seq.*), which includes within its boundaries most of the municipalities and irrigated land in the Arkansas River Valley in Colorado. Southeastern administers and repays reimbursable costs for the Fryingpan-Arkansas Project, a $550 million multi-purpose reclamation project authorized by Congress and built by the U.S. Bureau of Reclamation, and holds all water rights for the Project, except certain rights in Ruedi Reservoir. The Project diverts water underneath the Continental Divide, from the Fryingpan and Roaring Fork River drainages, which are tributaries to the Colorado River, into the Arkansas River drainage, where Project water is stored in reservoirs. Southeastern provides Project water and return flows to supplement the decreed water rights of water users throughout the District, which extends across parts of nine counties. Southeastern repays a large part of the Project's construction costs (estimated at $127 million over a minimum 40 year period), as well as annual operation and maintenance costs, in accordance with its repayment contract with the United States. Payments are made primarily from property tax revenues available to Southeastern, supplemented by revenue from Project water sales.

2. Southeastern is interested in this matter as an owner of water rights within the Arkansas and Colorado River Basins and as the repayment entity for the Fryingpan-Arkansas Project. In addition, as administrator of the Fryingpan-Arkansas Project water rights, Southeastern is party to numerous agreements with the Bureau of Reclamation, the Colorado Department of Natural Resources, local governments, quasi-municipal entities and private entities. These agreements relate to operation and use of the Fryingpan-Arkansas Project facilities, distribution and sale of Project water and voluntary maintenance of Arkansas River stream flows for recreational purposes. While generally supportive of the CPP, Southeastern is concerned about the potential impact of the CPP on its operations and existing agreements.

3. Southeastern provided comments on the CPP proposal in August 2014. Southeastern recognizes that many of the concepts included in its August 2014 comment, and in some cases the terms and conditions suggested, are reflected in Applicants' September 25, 2014 proposal. Southeastern appreciates the inclusion of these within the updated proposal. In some cases, Applicants' proposed terms and conditions are less than requested by Southeastern. For

example, Southeastern has a long history of addressing impacts to the Winter Water Storage Program by water rights change cases. Through this experience, Southeastern has developed standard language that addresses the many issues faced in these temporary and permanent changes. Failure to include all of Southeastern's standard language in the CPP approval may cause confusion for Arkansas Basin water users, or at worst, allow the CPP to injure this important agricultural water program. Southeastern looks forward to working with CWCB and Applicants to assure that this is addressed. A second issue relates to the Intergovernmental Agreement (IGA) among the City of Pueblo, the City of Aurora, the Southeastern Colorado Water Conservancy District, the City of Fountain, the City of Colorado Springs, and the Board of Water Works of Pueblo, Colorado ("IGA") executed by the parties on various dates in May 2004, including Exhibit 1 to the IGA that outlines the "Arkansas River Flow Management Program" that contemplates certain river operations by the parties. While applicants acknowledge a limitation on exchanges into Pueblo Reservoir, which is a significant operational limitation of the Program, there are additional operative provisions of the Arkansas River Flow Management Program that are also operative. As previously noted, Lower Ark has a 2011 MOA with Southeastern that obligates Lower Ark to comply with the requirements of the Arkansas River Flow Management Program to the same extent that Southeastern is obligated to comply in the event that a long-term excess capacity contract is entered into with Reclamation and Lower Ark enters into a sub-contract with Southeastern for use of the excess capacity space. Approval of the CPP should recognize the full extent of the obligations that may serve as a limitation on the CPP's ability to exchange water to Pueblo Reservoir. Again, Southeastern, with the help of other parties of the IGA, looks forward to working with the CWCB to assure that the Arkansas River Flow Management Program is appropriately acknowledged and protected in the CPP approval.

4. Southeastern reserves the right to raise objections previously raised in its August 2014 comments and by other parties in their comments but not repeated here.

5. Additional grounds of objection may be identified as Southeastern learns more about the CPP proposal.

Respectfully submitted this 5th day of December, 2014.

Southeastern Colorado Water
Conservancy District

By:_____/s/____________________

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December 5, 2014

Mr. Tom Browning
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Subject: Comments concerning the application for a fallowing-leasing pilot project by the Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc. – Water Division 2

Dear Mr. Browning:

This letter presents comments concerning the fallowing-leasing pilot project application by the Lower Arkansas Valley Water Conservancy District (Lower Ark) and the Lower Arkansas Valley Super Ditch Company, Inc. (Super Ditch) involving certain farms under the Catlin Canal in Water Division 2. The September 25, 2014 application and supporting engineering report by Martin & Wood Water Consultants, Inc. presents the manner of operation, proposed limitations, and terms and conditions for operating the pilot project.

My clients are the Fort Lyon Canal Company, the Holbrook Mutual Irrigating Company, and District 67 Irrigation Canals Association. These entities hold numerous direct flow and storage water rights on the Arkansas River downstream of the Catlin Canal in Otero, Bent and Prowers Counties. My comments follow.

1. The pilot project would provide the opportunity to document the costs and time expended by the farmers in operating the project and in particular those actions and costs associated with preventing soil erosion and noxious weeds and establishing a new crop on a field that had been fallowed. An annual report describing the actions performed by the farmers and associated costs would document those actions and be very helpful to those wishing to participate in fallowing-leasing projects in the future.

2. The Winter Water Storage Program operates from November 15 through March 14. During this period the participating ditches, including the Catlin Canal, cease diverting water for irrigation so that water will accrue to storage. Return flow obligations in November and March should reflect the change in river administration. Accordingly, for the first half of November and the second half of March the return flow obligation should equal the monthly surface water return flow plus half of the groundwater return flow. For the second half of November and first

half of March the return flow obligation should be half of the monthly ground water return flow.

3. The engineering report describes "step exchanges" involving the Holbrook Canal, Dye Reservoir, and Holbrook Reservoir. The Holbrook Mutual Irrigating Company has bylaw provisions that must be followed before the company could grant a use agreement or lease of canal and storage space. Lower Ark and Super Ditch have not contacted the Holbrook about a use agreement or lease.

4. The step exchange process will not be very practical much of the time. When Super Ditch is unable to exchange excess water to Pueblo Reservoir due to stream flow conditions the Colorado and Holbrook Canals normally will be out of priority and dry. Conveyance of relatively small rates of flow down a big dry canal will not produce the desired result of temporary storage in Lake Meredith or Holbrook Reservoir.

5. Does Lower Ark and Super Ditch have all of the leases and agreements necessary to operate the pilot project? The application and the engineering report did not provide any written agreements and the proposal submitted on July 14 provided some but not all of the agreements the applicants believe are necessary.

6. Lower Ark and Super Ditch propose to use two existing augmentation stations on the Catlin Canal. The Timpas augmentation station delivers water to Timpas Creek which joins the Arkansas River upstream of the Fort Lyon Canal diversion dam. The Crooked Arroyo augmentation station delivers water to Crooked Arroyo which joins the Arkansas River downstream from the Fort Lyon Canal diversion. Figure 1 of the engineering report shows that the locations of the participating farms are upstream from the Fort Lyon Canal diversion. Accordingly all water delivered from the Catlin Canal to the Arkansas River for the pilot project should be delivered through the Timpas augmentation station. When the Fort Lyon Canal is sweeping the river the deliveries through the Crooked Arroyo augmentation station may not be credited to the Town of Fowler's use, against return flow obligations, or exchange to Pueblo Reservoir.

7. The engineering report shows that post-pilot project return flow obligations exceed the lagged accretions from the two recharge sites. The application and the engineering report identify several water sources currently available to Lower Ark that could be used to replace the post-pilot project return flow obligations. To assure that Lower Ark does not commit all of their water supply sources to other projects prior to completion of the pilot project we recommend that the approval identify and reserve one or more of Lower Ark's replacement sources for replacement of post-pilot project return flow obligations.

8. The intent of the pilot project is to show the feasibility of fallowing-leasing projects. Accordingly, augmentation station delivery records and water accounting

spreadsheets should be available for inspection through CDSS or other accessible web site.

9. The accounting sheets presented in the engineering report are inadequate. In addition to daily accounting for each participating farm's contribution there should be an accounting record that shows the disposition of the water delivered to the Arkansas River. This additional record should identify the end user, whether the water is used directly for augmentation or exchanged to upstream storage, and the portion of the delivery that is used for replacement of return flow obligations. This record also should be available for inspection through CDSS or other accessible web site.

Thank you for allowing us to comment on the pilot project application. Please provide us notification of the final decision concerning approval. Let me know if you have any questions about these comments.

Sincerely yours,

HELTON & WILLIAMSEN, P.C.

Tom Williamsen

Thomas A. Williamsen

TAW/mlc

cc: Fort Lyon Canal Company
Holbrook Mutual Irrigating Company
District 67 Irrigation Canals Association

C:\2014-12-05 Ltr to TBrowning re fallowing-leasing pilot project.doc

COLORADO
Parks and Wildlife
Department of Natural Resources

Water Section
6060 Broadway
Denver, CO 80027
P 303-291-7466

(Via email)

Colorado Water Conservation Board
ATTN: Tom Browning, Deputy Director
1313 Sherman St.
Denver, CO 80203

December 9, 2014

RE: Catlin Pilot Project Application

Dear Mr. Browning:

Pursuant to C.R.S § 37-60-115 and the Criteria and Guidelines for Fallowing-Leasing Pilot Projects ("Criteria and Guidelines"), the Colorado Division of Parks and Wildlife ("CPW") provides the following comments on the Catlin Pilot Project application ("Application") submitted by the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. CPW may have additional comments as more information becomes available.

Historical Use

The Application proposes to use water available from certain shares in the Catlin Canal Company for temporary municipal uses by the Town of Fowler, the City of Fountain, and the Security Water District. The Criteria and Guidelines require that the applicant provide an analysis of the historical use, the historical consumptive use, and the historical return flows of the water rights to be used for temporary municipal uses. After preliminary review of the historical use analysis, CPW believes that there might be inaccuracies in the locations of historical use, over the study period, of some of the shares included in the application and requests additional information in order to further evaluate its concerns.

CPW owns 2,102.58 shares of stock in the Catlin Canal Company and has leased its shares to multiple irrigators under the Catlin Canal. According to its records, it appears CPW's shares were used during the study period on some of the parcels described on Table 2 of the Application. Therefore, in these instances, proportional historical use should be attributed to CPW's shares as opposed to the corresponding shares included in the Application. CPW requests that the historical use analysis be revised so that use of its shares on the historically irrigated lands is accurately represented. Moreover, changes resulting from further evaluation of and allocation to the locations of historical use may also affect the timing and locations of return flows. In addition, as part of the applicant's historical use analysis, CPW requests additional information regarding the Catlin Canal headgate numbers to which the pilot project shares were delivered and, to the extent available, any information regarding ownership history of the subject parcels so that CPW can further evaluate the extent of the overlapping historical use as between other shares and CPW's shares. CPW is willing to meet with the applicants and the Division Engineer's office to provide information regarding the location of historical use of CPW's shares.

No Precedent

Finally, if the Board approves the Catlin Pilot Project Application, CPW requests that the approval include a provision that the historical use analysis and corresponding information provided in the application shall not establish precedent for other administrative or Water Court proceedings involving changes of other Catlin Canal Company shares.

Thank you for the opportunity to comment on the Catlin Pilot Project Application. Please contact me or Richard Vail at (303) 291-7273 or richard.vail@state.co.us with comments or questions or to set up a meeting with CPW. CPW plans to attend the proposed conference committee meeting scheduled for December 18th.

Ed Perkins

Water Rights Coordinator
Water Resources Section
P: 303.291.7466
6060 Broadway, Denver, CO 80216
ed.perkins@state.co.us | www.cpw.state.co.us

Cc: Richard Vail, P.E.

Garden City Field Office
2508 Johns Street
Garden City, Kansas 67846-2804

Kansas
Department of Agriculture
Division of Water Resources

Phone: (620) 276-2901
Fax: (620) 276-9315
http://agriculture.ks.gov/dwr

Jackie McClaskey, Acting Secretary
David W. Barfield, Chief Engineer
Michael A. Meyer, Water Commissioner

Sam Brownback, Governor

via email only

December 9, 2014

Tom Browning
Colorado Water Conservation Board
1313 Sherman St.
Denver, CO 80203

RE: HB 13-1248 Catlin (Fallowing-Leasing) Pilot Project
Use of Catlin Canal Shares by Town of Fowler, the
City of Fountain, and the Security Water District

Dear Mr. Browning:

We have reviewed the proposed terms and conditions for the "*HB 13-1248 Catlin (Fallowing-Leasing) Pilot Project – Use of Catlin Canal Shares by Town of Fowler, the City of Fountain, and the Security Water District*" (hereafter referred to as *pilot project*) and the following is provided on behalf of the state of Kansas. The following terms and conditions must be applied to protect the decree in *Kansas v Colorado,* No. 126 Orig., and to prevent any impairment of Colorado's compliance with the Arkansas River Compact.

1. There should be no replacement of Rule 14 or SWSP irrigation depletions via this pilot project.
2. The dryup parcels associated with this pilot project shall not be input into the annual H-I Model update as dryup.
3. Rule 6 of the *Amended Rules and Regulations Governing the Diversions and Use of Tributary Ground Water in the Arkansas River Basin, Colorado (Filed June 4, 1996)* should not be circumvented by use of this lease-fallow pilot project. The requirements of Item 11 of Appendix A.4 of the *Kansas v. Colorado decree* must also be applied. See Attached. The proposed dryup lands in this pilot project include various parcels that have been included previously in Rule 14 plans. Some of the proposed dryup tracts are approaching or have reached the Rule 6 and Appendix A.4 limitations.
4. The plan year should be clearly identified. With varying annual dryup, the plan year should be appropriate for cropping practices.
5. All return flows should be made to the river at specific, time, location, and quantity with no allowance for exchanging of winter return flows for summer replacement of same.
6. The proposed V.8 term and condition provides for the prorated reduction in consumptive use credit based on underlying groundwater table depth, while the V.9 term and condition appears to require the total dry-up of fallowed fields. As a result, these terms are in conflict with each other. To resolve this conflict, term and condition V.8 should be removed and term and condition V.9. should be applied in this pilot project. Furthermore, in our yearly reviews of dryup parcels within the Arkansas River Basin, we have seen significant alfalfa growth even when groundwater tables are below nine feet. A document

review finds that both pasture grass and alfalfa can develop roots to depths much greater than nine feet to reach groundwater.

7. Recharge pond terms and conditions are not sufficient. A term and condition which includes at the minimum the following requirements:
   a. Measured and recorded inflow,
   b. Daily content by staff gage with a documented time recorded if not automated,
   c. Daily evaporation determined by daily evaporation rate by pond surface area for each day water is present in pond,
   d. The recharge needs to be computed from a mass balance standpoint, and
   e. The area around the recharge pond needs to be monitored for increased vegetative growth and/or pond seepage coming to the surface.
8. A term and condition should provide the posting of all relevant accounting and operations to provide transparency. This will also allow for appropriate review by all interested parties.

Please contact me if you need any clarification. Thank you for this opportunity.

Sincerely,

Kevin L. Salter, PE
Interstate Water Issues
Arkansas River Team

KLS:kls

Attachment: Appendix A.4 of the *Kansas v. Colorado decree*

pc: David Barfield, Kansas Chief Engineer & Kansas Compact Representative
Randy Hayzlett, Kansas Compact Representative
Hal Scheuerman, Kansas Compact Representative

APPENDIX A.4

AMENDED AGREEMENT REGARDING THE COLORADO USE RULES, PDF EVALUATION, IMPLEMENTATION PROCESSES, AND RELATED MATTERS, AND NOT TO TERMINATE THE OFFSET ACCOUNT RESOLUTION

As amended June 2009

This amended agreement ("Agreement") is entered into by the State of Colorado and the State of Kansas (referred to herein individually as "State" and collectively as "States").

Recitals

WHEREAS, in 1995, the Colorado State Engineer adopted Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado ("Use Rules") to prohibit diversions of tributary ground water for irrigation use within the Hydrologic Institutional (H-I) Model domain (with the exception of the 15,000 acre-feet precompact allowance) unless replacement water is provided to offset depletions to usable Stateline flows, which were approved by the Colorado Water Judge effective on June 1, 1996; and

WHEREAS, Rule 4.2 of the Use Rules also establishes presumptive stream depletion percentages to determine stream depletions for certain irrigation uses of ground water to be used by the Colorado State Engineer and Division Engineer for Water Division No. 2 ("State and Division Engineers") in approving and administering plans to replace out-of-priority depletions to senior surface water rights in Colorado; and

WHEREAS, Section IV.A of the Judgment and Decree in *Kansas v. Colorado*, No. 105, Original, U.S. Supreme Court ("Decree"), provides that the Court retains jurisdiction for a limited period of time after the end of the initial ten-year startup period (which ended in 2006) for the purpose of evaluating the sufficiency of the Use Rules and their administration and whether changes to the Decree are needed to ensure Compact compliance ("Retained Jurisdiction"); and

WHEREAS, in accordance with procedures set out in Part VII of Appendix B.1 to the Decree, the States exchanged reports on their evaluations of the sufficiency of the Use Rules and their administration on October 3, 2008, and November 7, 2008; and

WHEREAS, experts for the States met on October 21, 2008, and conducted a telephone conference on December 15, 2008, to discuss their respective reports and to work together informally to try to resolve the differences regarding the evaluations; and

WHEREAS, Kansas gave notice to Colorado and the Special Master on December 16, 2008, that there was a dispute concerning the sufficiency and the administration of the Use Rules that was being submitted to the Dispute Resolution Procedure in the Decree as a Non-Fast Track Issue and designated the Kansas experts; and

WHEREAS, the Colorado State Engineer designated the Colorado experts to participate in discussions to attempt to resolve the disputed issues in accordance with the Dispute Resolution Procedure; and

WHEREAS, the States and their experts have reached an agreement to resolve the differences regarding the sufficiency of the Use Rules and their administration; and

WHEREAS, the Arkansas River Compact Administration ("Administration") adopted a *Resolution Concerning an Offset Account in John Martin Reservoir for Colorado Pumping* dated March 17, 1997, as amended twice on March 30, 1998 ("Offset Account Resolution") (Appendix L to the Decree), establishing an Offset Account in John Martin Reservoir for Colorado Pumping ("Offset Account"); and

WHEREAS, paragraph 17.A of the Offset Account Resolution provides that either State, through its Compact delegation, may terminate the Offset Account Resolution effective March 31 by giving written notice to the Administration by February 1 of the same Compact year; and

WHEREAS, the States have entered into a *Stipulation Re Offset Account in John Martin Reservoir* filed April 3, 1997, and approved by Special Master Arthur L. Littleworth (Appendix F.1 to the Decree) and have entered into agreements concerning the determination of credits, transit losses, and evaporation credits for water stored and released from the Offset Account; and

WHEREAS, both States derive benefits from the Offset Account; and

WHEREAS, the States entered an *Agreement Not To Terminate The Offset Account Resolution For A Specified Period And Related Matters* jointly approved on October 31, 2007, which is included as Appendix A.4 to the Decree; and

WHEREAS, the States have agreed that this Agreement shall replace the October 31, 2007 version of Appendix A.4 to the Decree.

Agreement

NOW, THEREFORE, during the term of this Agreement, the States agree as follows:

1. Right to Terminate the Offset Account Resolution.

Neither State will exercise its right to terminate the Offset Account Resolution pursuant to paragraph 17.A of the Offset Account Resolution unless this Agreement has terminated in accordance with paragraph 14 of this Agreement.

2. Use of the Offset Account.

The State and Division Engineers will require well users subject to Rules 3 and 4 of the Use Rules, except for well users subject to Rule 4.1.b, and ground water users with post-

1985 structures or uses located downstream of John Martin Reservoir that are included in the Lower Arkansas Water Management Association ("LAWMA") plan for augmentation decreed in Case No. 02CW181 ("LAWMA Decree") to deliver replacement water to the Offset Account to replace their depletions to usable Stateline flow, to the extent LAWMA can do so legally and physically, as a condition of approval of the annual replacement plans in accordance with the Use Rules; provided, however, that:

a. Delivery of replacement water to the Offset Account shall not be required if the Offset Account is full;

b. If the Offset Account is full, Colorado will be given credit for the consumptive portion of the direct-flow yield of the Highland Canal water rights as input to the H-I Model as a special water at John Martin Reservoir; and

c. Delivery of replacement water to the Offset Account shall not be required for sources that are not approved to be delivered to the Offset Account pursuant to the terms and conditions of a Water Court decree or when downstream sources cannot be stored by exchange in the Offset Account because no exchange potential exists to allow upstream storage. The Keesee and Highland water rights will be used primarily to replace depletions to usable Stateline flow, but may be used to replace depletions to senior surface water rights in Colorado and shall not be used to make physical deliveries to Kansas outside of the Offset Account except as provided in subparagraphs (a) and (b) of this paragraph. Accordingly, to the extent Keesee and/or Highland water rights are not needed to replace depletions to usable Stateline flow, LAWMA shall not be required to deliver these water rights to the Offset Account. Should LAWMA receive Administration approval to allow water available under the Keesee water rights to be delivered to the John Martin Reservoir Permanent Pool ("Permanent Pool"), that portion of the Keesee water rights used to deliver water to the Permanent Pool would be exempt from this Agreement during times when such water is being delivered to the Permanent Pool under the Keesee water rights.

Replacement for depletions below the Buffalo Canal headgate during the months of April through October and replacement for depletions downstream of John Martin Reservoir during the months of November through March, to the extent not generated by direct-flow sources, or portions of direct-flow sources, specifically approved by the LAWMA Decree or replacements generated by the Sisson water right operated in a manner consistent with the Stubbs portion of the LAWMA Decree, shall be delivered to the Offset Account, subject to the conditions stated above.

3. Presumptive Stream Depletion Percentage to be Used through December 31, 2012.

The State and Division Engineers will determine stream depletions for plans required by Rules 3 and 4 of the Use Rules, except for diversions subject to Rule 4.1.b, using a presumptive stream depletion percentage ("PDF value") of thirty-nine percent (39%) of the amount diverted for supplemental flood and furrow irrigation ("supplemental irrigation") unless the use of a PDF value of 39% is prohibited by a final Water Court order. If the use of a PDF value of 39% for supplemental irrigation for such plans is prohibited by a final Water Court order, (a) stream depletions shall be determined using the PDF value specified in the Use Rules for supplemental irrigation and (b) well users shall be required to deliver an additional amount of water to the Offset Account equal to the difference between a PDF value of 39% for supplemental irrigation and the PDF value specified in the Use Rules for supplemental irrigation. In addition, if a final Water Court order requires the use of a PDF value of more than 39% for diversions of ground water used for supplemental irrigation for some, but not all, diversions of ground water used for supplemental irrigation by users in any such plan, then the State and Division Engineers shall determine the PDF value for supplemental irrigation for all users in the plan using a weighted average and shall then require well users in the plan to deliver an additional amount of water to the Offset Account equal to the difference between a PDF value of 39% and the weighted average, if the weighted average for the PDF value is less than 39%.

4. Presumptive Stream Depletion Percentages to be Used after December 31, 2012.

Beginning in 2012, Colorado will conduct an annual evaluation ("Evaluation" and collectively "Evaluations") of the PDF values to be used to determine stream depletions for plans required by Rules 3 and 4 of the Use Rules, except for diversions subject to Rule 4.1.b. The Evaluations will be conducted according to the process described below. The annual Evaluations will occur after June 1, 2012, and after June 1st of each year thereafter. Colorado shall provide a written report and supporting documentation of the annual Evaluation to Kansas by September 1, 2012, and by September 1st of each year thereafter.

a. <u>Evaluation Review Period</u>: For Evaluations conducted before 2017, the Evaluation Review Period will be from 1997 through the year for which the H-I Model has most recently been updated. For example, the Evaluation Review Period for the Evaluation in 2012 will be from 1997 through 2011.

For Evaluations conducted in 2017 and in years thereafter, the Evaluation Review Period will include the previous 20 years, consisting of the year for which the H-I Model has most recently been updated and the previous nineteen years. For example, the Evaluation Review Period for the Evaluation conducted in 2017 will be from 1997 through 2016. This will result in the evaluation of eleven ten-year Compact compliance periods.

b. Coordination between the States: Experts for the States will coordinate their review of the Colorado Evaluation and attempt to agree on the PDF values by December 1, 2012, and by December 1st of subsequent years for implementation in the next replacement plan year in the manner described in paragraph 5 below. If the experts are unable to agree on the PDF values, the interim PDF values will be the average of both States' PDF values as determined by the process provided for herein. Disagreement on the PDF values may be submitted to the Dispute Resolution Procedure as set out in Appendix H to the Decree.

c. Determination of PDF value(s) by Colorado Water Court: If a final Water Court order requires the use of a PDF value less than the PDF value determined in accordance with the Evaluation ("Evaluation PDF") to determine stream depletions for plans required by Rules 3 and 4 of the Use Rules, except for diversions subject to Rule 4.1.b., then the State and Division Engineers shall require well users subject to that order to deliver an additional amount of water to the Offset Account equal to the difference between the amount of replacement water required using the PDF value ordered by the Water Court and the amount required using the Evaluation PDF. If a final Water Court order requires the use of a PDF value greater than the

Evaluation PDF value to determine stream depletions for plans required by Rules 3 and 4 of the Use Rules, except for diversions subject to Rule 4.1.b., then no further adjustments will be made.

d. Use of Ground Water Accounting Model (GWAM): Unless the States agree otherwise, the Evaluations will be based on the replacement requirements that are determined by Colorado using the Ground Water Accounting Model (GWAM) that is used by the State and Division Engineers in their monthly administration of replacement plans. The GWAM is included as Exhibit 1 on the attached compact disk. The same monthly historical supplemental and sole source pumping that was used as an input for the H-I Model will be used as an input for the GWAM in order to determine the replacement requirements. The GWAM will use the same unit response functions for each ditch service area that are used in the H-I Model, including any subsequent changes to the unit response functions agreed to by the States or implemented pursuant to the procedures in Appendix B to the Decree.

A Replacement Input File for the H-I Model will be created using the monthly depletions determined using the GWAM for supplemental and sole source pumping using the various PDF values being examined. The replacement requirements determined using the GWAM will be modified for appropriate reaches and months using the Durbin usable flow method with the Larson coefficients for reaches below John Martin Reservoir.

e. Use of the H-I Model: A "no replacement" version of the update.dat file will be used. In the "no replacement" version of update.dat, all special waters will be removed, dried-up acreage will be redistributed to surface water only and supplemental acreage, all spill factors will be set to zero, transmountain deliveries will be removed, any unexchanged transmountain return flows from Fountain Creek will be removed, and fractions of consumable water placed in the Winter Water undistributed pool will be set to zero. The Evaluation is intended to determine the sufficiency of replacement water required by the PDF values by substituting the Replacement Input File for actual replacement operations and transmountain return flows.

Using the Replacement Input File and the "no replacement" version of the update.dat file, runs of the H-I Model (including any changes to the H-I Model agreed to by the States or implemented pursuant to the procedures in Appendix B to the Decree) will be made for both the Historical run and the Compact run. Depletions or accretions to usable Stateline flows will be determined for each year in the Evaluation Review Period. Using these annual depletions or accretions to usable Stateline flows, a ten-year Compact compliance accounting will be computed for each ten-year period in the Evaluation Review Period. The ten-year accounting for each ten-year period in the Evaluation Review Period will not include any separate delivery credits from the Offset Account. This process will be repeated, adjusting only the supplement PDF value, unless otherwise agreed to by the States, until PDF values are determined that result in Compact compliance (i.e., no Shortfall) for each of the ten-year Compact compliance periods in the Evaluation Review Period. See Exhibit 2 attached hereto as hardcopy and included in the attached compact disk. Colorado will report these PDF values to Kansas in accordance with the first paragraph of this paragraph 4, together with the annual results for each year in the Evaluation Review Period.

5. Implementation of PDF values.

For the replacement plan year beginning in April 2013 and for each replacement plan year thereafter, the State and the Division Engineers will determine stream depletions for plans required by Rules 3 and 4 of the Use Rules, except for diversions subject to Rule 4.1.b, using the PDF values determined by the Evaluation in the previous year as provided in this Agreement.

a. The State and Division Engineers will not use new PDF values lower than the PDF values provided in Rule 4.2 of the Use Rules (supplemental = 30%; sole source = 50%; sprinkler = 75%) to determine stream depletions .

b. Nothing in this Agreement prevents the State and Division Engineers from increasing the PDF values or requiring additional replacement water in excess of the amount necessary to replace stream depletions pursuant to this Agreement if the State and Division Engineers determine that such increases are required to prevent a Shortfall.

6. Dispute Resolution regarding Inflows or Credits to the Offset Account.

Unless the States agree otherwise, disputes between the States regarding inflows or credits to the Offset Account delivered pursuant to paragraph 4 of the Offset Account Resolution will be resolved in accordance with the Fast Track Issue Resolution Procedure in the Dispute Resolution Procedure set forth in Appendix H of the Decree.

7. Five-Year Review.

The review of the operations of the Offset Account Resolution and the Agreement Concerning the Offset Account in John Martin Reservoir for Colorado Pumping, Determination of Credits for Delivery of Water Released for Colorado Pumping, and Related Matters dated September 29, 2005, ("Offset Account Crediting Agreement") (Appendix F.2 to the Decree), as well as the provisions of the October 31, 2007 version of Appendix A.4, required by paragraph 5 of the October 31, 2007 version of Appendix A.4 and paragraph 11 of the Offset Account Crediting Agreement is hereby modified and replaced as follows: The States will conduct a review of the operations of the: (a) Offset Account Resolution; and (b) the Offset Account

Crediting Agreement beginning no later than September 30, 2010. The review by the States shall be completed and a joint report presented to the Administration at its December 2012 annual meeting. Notwithstanding anything in the Offset Account Crediting Agreement to the contrary, this review shall satisfy the requirements for the first five-year review required by paragraph 11 of the Offset Account Crediting Agreement. Thereafter, the five-year review required by paragraph 11 of the Offset Account Crediting Agreement shall be presented to the Administration every five years starting in 2017.

8. Negotiations on Procedures if the Offset Account does not Exist.

Not later than ninety days after the written notice of intent to terminate this Agreement is provided by either State, the States will commence work on an agreement as to how credit for direct deliveries of water to the Stateline for replacement of depletions to usable Stateline flow and credit to make up a Shortfall shall be determined if the Offset Account does not exist. If such an agreement is not completed within the three years of the notice of intent to terminate this Agreement, then each State shall submit a proposal to the other State as to how credit for such deliveries shall be determined if the Offset Account does not exist, and the procedures to determine such credits shall be resolved under the Dispute Resolution Procedure set forth in Appendix H of the Decree as a Non-Fast Track Issue. Nothing in this agreement prevents the States from reaching agreement on how to credit for direct deliveries of water to the Stateline for replacement of depletions to usable Stateline flow and credit to make up a Shortfall if the Offset Account does not exist.

9. Annual Reports to Kansas.

Colorado will prepare an annual calendar-year report summarizing the operation of replacement plans approved under Rule 14 of the Use Rules using the format of the draft report included as Exhibit 3 on the attached compact disc, with any modifications agreed to by the States ("Annual Report"). Colorado will provide the Annual Report to Kansas by March 31st of the following year, beginning in 2010 for the 2009 calendar year.

10. Implementation of Rule 4.2 of the Use Rules.

The State and Division Engineers will implement procedures to increase the PDF value for diversions of ground water used as a supplemental supply for flood and furrow irrigation by well users who do not have a reasonably adequate surface supply for the acreage irrigated in accordance with Rule 4.2 of the Use Rules based on farm-unit interviews to determine if an adjustment of the PDF values for such diversions above the Evaluation PDF determined pursuant to this Agreement is indicated.

11. Implementation of Rule 6 of the Use Rules.

Rule 6 of the Use Rules limits the number of years that certain water rights which have not been decreed for augmentation use can be used as a source of augmentation water in a plan approved by the State and Division Engineers pursuant to the Use Rules. For such water rights, the State and Division Engineers will require that the well user or plan proponent file an application for a change of water right(s) approving the use of the water right for augmentation use if the water right has been included as a source of augmentation water in any plan approved pursuant to the Use Rules ("Rule 14 Plan") for a total of three years. For such water rights that have been included as a source of augmentation water in a Rule 14 Plan approved prior to the date of this Agreement, this requirement will be implemented as provided below in this paragraph. Thereafter, the State and Division Engineers will not approve such sources as augmentation water in a Rule 14 Plan where no decree has been obtained, except that, for a reasonable time after an application for a change of water right has been filed, the State and

Division Engineers may approve such sources as augmentation water in a Rule 14 Plan while such filed application is pending, provided that a reasonable time shall not exceed five years after the filing of such application unless the well user or plan proponent has demonstrated to the State and Division Engineers that the delay in obtaining a decree has been justifiable and that not being able to continue operating under a Rule 14 Plan until a decree is entered will cause undue hardship to the well user or plan proponent; and provided, further, that in no case shall such approval be for more than seven years after the filing of the application.

A well user or plan proponent may not avoid the above requirements and deadlines by substituting mutual ditch company shares used for augmentation in a prior Rule 14 plan with: (1) other shares in the same mutual ditch company that were used as part of the same farm unit, (2) other shares used to irrigate the same acres identified for dry-up or (3) other shares, in the same mutual ditch company, owned or controlled by the same owner or entity of the shares being substituted for, or shares that have been used to augment depletions from other wells in a Rule 14 Plan in three prior years.

To implement the provisions of this paragraph, the State and Division Engineers will notify well associations, either through the Plan Expectations Letter sent to the well associations in January each year or through other correspondence, that certain sources of augmentation water meeting the above criteria will be subject to this requirement and that an application for a change of water right must be filed with the Water Court no later than January 31, 2011, in order to be used in the 2011-2012 Rule 14 Plans or in any subsequent plan. Approval letters for 2010-2011 plans will also include a similar term and condition to enforce the requirement to apply to Water Court.

12. Implementation of Rule 12 of the Use Rules.

When a report of monthly ground water use is not received or is incorrectly or falsely reported by a well user or entity acting on behalf of well users, the Division Engineer will estimate or adjust the pumping amount and then update the pumping data when the correct meter reading is received. The State and Division Engineers will use their enforcement authority pursuant to Rule 12 of the Use Rules or section 37-92-503(6)(b), Colo.Rev.Stat., to minimize the need for such changes to the monthly pumping data supplied to Kansas.

13. Deadline for Nomination of Dry-Up Parcels.

The State and Division Engineers will implement procedures to require replacement plan proponents to select and nominate parcels for dry-up credit and provide other information required to comply with deadlines for nomination of dry-up parcels in accordance with Exhibit A to Appendix B.3 to the Decree to provide notice to Kansas of parcels that will be dried up and any parcels that will be irrigated by a sole source well, and will enforce those deadlines.

14. Termination of this Agreement.

After December 31, 2012, either State may terminate this Agreement by giving notice in writing to the other State of its intent to terminate this Agreement. Such notice shall be sent by registered mail addressed to the chief official of the other State charged with the administration of water rights, with a copy to the Attorney General of that State and a copy to the Administration. Such notice shall be effective on the date of mailing. In the event that either State provides such notice, this Agreement shall terminate five years after December 31 of the year such notice was given, unless the notice is rescinded. If this Agreement has terminated in accordance with the preceding sentence, then either State may thereafter exercise its right to terminate the Offset Account Resolution in accordance with paragraph 17.A of the Offset Account Resolution, and the provisions of this Agreement shall be of no further force and effect.

15. By entering into this Agreement the States have accomplished the purpose of the Retained Jurisdiction. The States will take such further actions, if any, as may be necessary for the U.S. Supreme Court to relinquish the Retained Jurisdiction.

16. This Agreement replaces the October 31, 2007 version of Appendix A.4 to the Decree.

JOINTLY APPROVED AS OF June 26, 2009.

STATE OF COLORADO

David W. Robbins
Special Assistant Attorney General

Dick Wolfe
Colorado State Engineer

STATE OF KANSAS

John B. Draper
Special Assistant Attorney General

David W. Barfield
Kansas Chief Engineer

EXHIBITS

TO

AMENDED AGREEMENT REGARDING THE COLORADO USE RULES, PDF EVALUATION, IMPLEMENTATION PROCESSES, AND RELATED MATTERS, AND NOT TO TERMINATE THE OFFSET ACCOUNT RESOLUTION

As amended June 2009

1. Electronic version of the Ground Water Accounting Model (GWAM) (on attached compact disk).

2. Results of Evaluation of PDF Values, as Described in Paragraph 4.e (attached as hard copy and included on attached compact disk).

3. Draft Annual Report as Described in Paragraph 9 (on attached compact disk).

Exhibit 2

To Amended Appendix A.4

Dated June, 2009

Results of Evaluation of PDF Values, as Described in Paragraph 4.e.

A. Example of Insufficient PDF (i.e., Shortfall)

PDF = 38% supplemental / 50% sole source / 75% sole source sprinkler fails to produce results without depletions in one 10-year total in Evaluation Review Period

Year of Evaluation Review Period	Calendar Year	Usable Stateline Depletions (+) / Accretions (-) (acre-feet)	10-Year Period	10-year Sum of Usable Stateline Depletions (+) / Accretions (-) (accretions required) (acre-feet)
1	1997	-4,551		
2	1998	-269		
3	1999	-467		
4	2000	-189		
5	2001	163		
6	2002	32		
7	2003	1,868		
8	2004	276		
9	2005	-171		
10	2006	-331	1997 - 2006	-3,639
11	2007	-708	1998 - 2007	204
12	2008	____	1999 - 2008	____
13	2009	____	2000 - 2009	____
14	2010	____	2001 - 2010	____
15	2011	____	2002 - 2011	____
16	2012	____	2003 - 2012	____
17	2013	____	2004 - 2013	____
18	2014	____	2005 - 2014	____
19	2015	____	2006 - 2015	____
20	2016	____	2007 - 2016	____

Exhibit 2

To Amended Appendix A.4

Dated June, 2009

Results of Evaluation of PDF Values, as Described in Paragraph 4.e.

B. Example of Sufficient PDF (i.e., no Shortfall)

PDF = 39% supplemental / 50% sole source / 75% sole source sprinkler produces results without depletions in any 10-year total in Evaluation Review Period

Year of Review Period	Calendar Year	Usable Stateline Depletions (+) / Accretions (-)	10-Year Period	10-year Sum of Usable Stateline * Depletions (+) / Accretions (-) (accretions required)
1	1997	-4,743		
2	1998	-380		
3	1999	-549		
4	2000	-265		
5	2001	7		
6	2002	-189		
7	2003	1,735		
8	2004	-128		
9	2005	-289		
10	2006	-466	1997 - 2006	-5,268
11	2007	-791	1998 - 2007	-1,316
12	2008	____	1999 - 2008	____
13	2009	____	2000 - 2009	____
14	2010	____	2001 - 2010	____
15	2011	____	2002 - 2011	____
16	2012	____	2003 - 2012	____
17	2013	____	2004 - 2013	____
18	2014	____	2005 - 2014	____
19	2015	____	2006 - 2015	____
20	2016	____	2007 - 2016	____

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December 9, 2014

Colorado Water Conservation Board
c/o James Eklund, Director
c/o Tom Browning, Deputy Director
1313 Sherman Street, Room 721
Denver, CO 80203

Via E-mail:
To: tom.browning@state.co.us
Hard Copy to Follow

RE: The City of Aurora's comments to the Colorado Water Conservation Board regarding the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc.'s proposed Catlin Canal Lease-Fallowing Pilot Project

Dear Mr. Eklund, and Mr. Browning,

Pursuant to C.R.S. § 37-60-115(8) and Sections II.A. and II.H. of the Colorado Water Conservation Board ("CWCB") *Criteria and Guidelines for Fallowing-Leasing Pilot Projects* ("Criteria and Guidelines"), this letter is submitted on behalf of the City of Aurora, acting by and through its Utility Enterprise ("Aurora") with the purpose of commenting on Lower Arkansas Valley Water Conservancy District's ("Lower") and Lower Arkansas Valley Super Ditch Company, Inc.'s proposed Catlin Canal Lease-Fallowing Pilot Project.

Aurora supports the commitment to develop and implement programs to advance various agricultural transfer methods that are alternatives to permanent agricultural dry-up, including lease-fallowing projects like Lower's proposed Catlin Canal Lease-Fallowing Project.

The comments included herein are intended to facilitate and improve the project by ensuring that it complies with all legal requirements, that the plan is fully identified and complete, that the proposal accurately reflects the underlying technical analysis, and that the proposed project will provide adequate information for the CWCB to meet its statutory requirements of determining whether such lease-fallowing projects are feasible.

I. City of Aurora and Lower Arkansas Valley Conservancy District Intergovernmental Agreement

On September 28, 2011, the City of Aurora and Lower Arkansas Valley Water Conservancy District entered into an Intergovernmental Agreement ("IGA").

Pursuant to V.A. of that agreement, Aurora and Lower "agree to support the development of a Water Leasing Program . . . to facilitate the lease of agricultural water for other uses."

In Section X of the IGA, Aurora and Lower "agree to negotiate in good faith the stipulated resolution of the following pending or future cases based on the sharing of all relevant information concerning the existence or absence of injury to the respective decreed water rights of each party."

Aurora's support of this pilot project, and the above-mentioned supportive agreements between Lower and Aurora notwithstanding, Aurora and Lower agreed in section XI.C. of the IGA, "the Parties do not waive their right to protect their own water rights and other interests by all lawful means."

II. Replacement of Historical Return Flows and Evidence of Firm Yield

All applications must include "an analysis of the historical use, the historical consumptive use, and the historical return flows of the water rights" which are fallowed. *Criteria and Guidelines*, II.G.2. The application must also include a "description of the source of water to be used to replace all historical return flow obligations, with evidence that the source will provide a firm yield . . . ." *Criteria and Guidelines*, II.G.5. Aurora has the following concerns with Applicant's proposed plans for replacing historical irrigation return flow.

A. Availability of Firm Yield to Replace Historical Irrigation Return Flows.

During periods of fallowing, Applicants only state that return flow obligations will "generally be met" through depletion credits derived from the fallowing of farms. *Martin & Wood September 25, 2014 Report* p.15. Although Lower proposes to use several alternative sources of supply[1], when depletion credits are not available to meet their return flow obligations,

[1] Lower has proposed 7 different sources to meet its return flow obligations: (1) Depletion credits derived from the fallowing of farms; (2) Excess depletion credits exchanged to and released from Pueblo Reservoir; (3) Certain shares owned by Lower in the Catlin Canal Co., LAWMA, Colorado Canal Co., Lake Meredith Reservoir Co., Bessemer Irrigation Ditch Co., Holbrook Mutual Irrigation Co., Rocky Ford Ditch Co., Consolidated Extension Canal Co., and the Highline Canal Co.; (4) Certain shares owned by Lower in the Twin Lakes Reservoir Co. and the Larkspur Ditch; (5) Unknown source(s) of water stored in Lower's "if and when" storage accounts in Pueblo Reservoir; (6) Unknown source(s) of water stored in Southeastern Colorado Water Conservancy District's proposed Long Term Excess Capacity Master Contract in Pueblo Reservoir; and (7) Unidentified future acquired sources of water. *Martin & Wood September 25, 2014 Report* p.16.

they have provided no "evidence" as required under the statute to prove that any of these other sources are able to provide a firm yield sufficient to replace return flow obligations. Aurora's concerns regarding availability of these sources include the following:

- Lower's application has substantiated a firm yield of depletion credits which should be available to replace a portion of the historical return flow obligations. However, Lower's application also indicates that such source will not be adequate to make <u>all</u> historical return flow obligations. Specifically, it indicates that after 2026 there will be insufficient accretions to replace return flow obligations. *Martin & Wood September 25, 2014 Report* p.14. Moreover, Lower anticipates a 25 year period – until 2051 -- during which time this source cannot replace Lower's historical return flow obligations. *Martin & Wood September 25, 2014 Report* p.15. Therefore, the successful operation of this project specifically relies on the existence of other sources available to replace historical return flow obligations.

- While excess depletion credits will likely accrue to the Arkansas River, the use of that source is not reliable because the designed operation of the lease-fallowing pilot project seeks to minimize excess depletion credits. Accordingly, Lower has not identified a "firm yield" associated with such excess depletion credits. Moreover, the use of this source is also fully dependent upon the ability to exchange the source up into Pueblo Reservoir. As explained in section II.C. below, Applicant has provided only an opinion that it will be capable of making river exchanges into Pueblo Reservoir. Aurora therefore does not object to the use of excess depletion credits as a source for replacement of historical return flows, but this source cannot be considered as evidence of any firm yield toward that end.

- Lower states it has firm yield associated with certain shares in the following companies: Catlin Canal Co., LAWMA, Colorado Canal Co., Lake Meredith Reservoir Co., Bessemer Irrigation Ditch Co., Holbrook Mutual Irrigation Co., Rocky Ford Ditch Co., Consolidated Extension Canal Co., and the Highline Canal Co. Lower should provide evidence that it owns these shares, and more importantly, it must provide evidence that such shares are decreed and available to be used as augmentation or replacement supply. In addition, Lower must provide evidence of the firm yield of these sources. A careful reading of the application indicates that Applicant has only "preliminarily estimated" the "potential yield" of these sources. The same failure to provide evidence of available firm yield also applies to Lower's claimed interests in the Twin Lakes Reservoir Co. and the Larkspur Ditch.

- Lower states that it will use water stored in its "if and when" storage accounts in Pueblo Reservoir and stored in Southeastern Colorado Water Conservancy District's proposed Long Term Excess Capacity Master Contract in Pueblo Reservoir to replace return flow obligations. However, neither of these identified storage accounts in Pueblo Reservoir is a "source." Lower has not submitted evidence of any storage water right associated with these accounts. Additionally, we note that a storage account is not a storage water right. Accordingly, no firm yield is associated with either of these storage accounts.

- Lower has claimed the ability to utilize unidentified future acquired sources of supply to replace return flow obligations. However, as described in section III, an applicant's future amendment or modification of a pilot project is not permitted by rule, or contemplated by statute. Additionally, the *Criteria and Guidelines* specifically requires applications to describe all sources utilized, with evidence that such sources will provide firm yield to replace all return flow obligations. *Criteria and Guidelines*, II.G.5. Accordingly, such future acquired sources are not available to replace return flow obligations of Applicant.

In sum, the application acknowledges there will be a 26 year period of return flow obligations, which cannot be replaced through use of depletion credits accruing to the river during that time period. For that reason, Lower also acknowledges it must rely upon additional sources to meet its historical return flow obligations. However, the application provides no competent evidence of any source of water which will provide firm yields sufficient to meet those obligations. Without the ability to replace these return flows, vested water right holders will be injured and the application has not met the criteria to be approved.

If this pilot project is granted, Aurora recommends the application of restrictive terms and conditions to making operation of the pilot project in any year contingent upon a showing of sufficient water supply to replace all return flow obligations. Such term and condition should require operation of the pilot project in any given year to be contingent upon the pilot project sponsor successfully demonstrating to the SEO and other concerned parties' satisfaction by no later than March 1st of that year that a firm yield of water supply is available and has been committed to replace all projected return flow obligations attributable to operation of the pilot project in the coming year, as well as all prior years of operation.

B. How and Where Historical Return Flow Obligations will be Replaced.

Lower has not yet proposed an adequate plan for "how and where" replacement sources will be introduced, because it does not intend to replace all return flows at or above the locations of depletions. *Criteria and Guidelines*, II.F. and II.G. Specifically, Lower has not provided adequate analysis that such proposed downstream replacements will not injure existing water rights. C.R.S. § 37-60-115(8)(f).

Applicants intend to rely upon (A) the Schwiezer Recharge Pond, (B) the Hanagan Recharge Pond, (C) the Timpas Creek augmentation station, and (D) the Crooked Arroyo Creek augmentation station to replace historical return flow obligations. However, some of these structures can only replace return flows downstream of the locations of depletions, thus reducing stream flows in reaches of the Arkansas River. For example, any replacement supply delivered by the Crooked Arroyo Augmentation Station will be introduced downstream of all farms in the pilot project, and such structure is unable to replace <u>any</u> depletions at the locations where they accrue. The Hanagan Recharge Pond and the Timpas Creek Augmentation station face similar problems with regard to depletions associated with the Schwiezer Farm, the Diamond A Farm, and the Hirakata Farm. *Martin & Wood September 25, 2014 Report,* Figures 26-33. Furthermore,

Lower acknowledges there will be sections of the Arkansas River and Timpas Creek that will be depleted by operation of this plan, but replies that the proposed operation may proceed nonetheless because "there are no surface diversions located between the points of recharge located between the Schweizer Recharge Pond and the Hanagan Recharge Pond . . . ." *Martin &*

Wood September 25, 2014 Report, p.13. But this position ignores other aspects of injury to vested water rights operating in this reach of the Arkansas River.

Lower has not provided analysis that its proposed stream flow depletions will not injuriously interfere with existing exchange potential. For instance, Aurora operates exchanges pursuant to Case Numbers 99CW170 (A &B), 01CW145, 06CW120, and Consolidated Case Numbers 84CW62, 84CW63, and 84CW64 in this area of the river. Nor has Lower considered or addressed other injurious effects caused by its proposed stream flow depletions. For example, pursuant to the 83CW18 and 99CW169(A) change decrees, Aurora may not divert its Rocky Ford Ditch Company shares at alternate points of diversion if (A) such diversions will interfere with existing exchanges, or (B) if such diversions will exceed the lowest ascertainable flow in certain reaches of the Arkansas River. Lower proposes to reduce stream flows in this stretch of the river, but has not analyzed whether it causes injury.

C. Reliance on Upstream Exchanges in Order to Replace Return Flow Obligations

Lower states it will rely on river exchanges up the Arkansas River to provide depletion credits to the Town of Fowler, Fountain, and Security, and to deliver any excess depletion credits into storage accounts in Pueblo Reservoir for later release. Accordingly, river and contract exchanges are the only available mechanisms available to Lower to provide the fallowed water to its lessees. In Lower's proposal it "recognize[d] that the exchange potential on the Arkansas River does pose a hydrological challenge to the operation of the Catline Pilot Project under certain conditions." *Catlin Canal Lease-Fallowing Pilot Project Proposal.* at .p.6.

Despite the admitted challenges, Lower has not provided evidence regarding the amount of any river exchange potential existing in these reaches. Applicant has provided only an opinion that it will be capable of making the necessary river exchanges. *Martin & Wood September 25, 2014 Report* p.15. It should be noted that Lower's proposal indicated it has determined a detailed plan at the for how exchanges will operate, claiming its "proposal has been thoughtfully designed to include various mechanisms to allow for operation in times of limited exchange potential such as the use of stepped exchanges to intermediate storage locations, use of recharge facilities, and trades of water." *Catlin Canal Lease-Fallowing Pilot Project Proposal*, p.6. However, the application does not describe the plan to operate the exchanges.

All pilot project proposals are required to identify "any administrative or hydrologic obstacles to exchanges or delivery of the replacement water." *Criteria and Guidelines,* Section II.F. A pilot project proposal is also required to identify "any and all structures necessary for the operation of the pilot project." Therefore, this proposal should be required to specifically identify:

- All water rights and senior exchanges within these stream reaches and identify a plan for moving water through the described reaches.
- All structures necessary to operate a stepped exchanges, intermediate storage, use of recharge facilities, and trades of water.
- Contractual commitments allowing the use of the variously identified structures.

This application should not be granted unless and until Applicants can provide credible evidence that sufficient river exchange potential exists to support operation of the pilot project.

III. No Amendments to Any Approved Pilot Project

Lower has previously stated that if the Catlin Pilot Project is approved, it intends to "amend" the Catlin Pilot Project to modify the operation of the plan. *See Catlin Canal Lease-Fallowing Pilot Project Proposal.* at p. 4-5. However, the *Criteria and Guidelines* do not allow for later amendments to an approved lease-fallowing project. Moreover, C.R.S. § 37-60-115(8) outlines the expressly enumerated conditions under which a fallowing-leasing pilot project may be granted, and nowhere does this statute contemplate an applicant's future amendment or modification of the pilot project. Therefore, Lower's intent to add future recharge facilities (*Martin & Wood September 25, 2014 Report* p.15), to add additional farms (*Catlin Canal Lease-Fallowing Pilot Project Proposal.* at .p.4-5), or to add additional return flow supply (*Martin & Wood September 25, 2014 Report* p.16) are not permitted. A term and condition should be included in any approval of this plan disallowing the future amendments of the pilot project.

IV. No Inclusion of Lease-Fallowing Pilot Project Water in a Substitute Water Supply Plan

In the proposal, Lower claimed that "[the Town of] Fowler will use its leased water through depletion credits . . .that will be used through an SWSP . . . ." *Catlin Canal Lease-Fallowing Pilot Project Proposal*, p.3. An SWSP, or substitute water supply plan, is a statutory temporary water replacement plan which may be authorized by the State Engineer's Office pursuant to C.R.S. § 37-92-308. However, C.R.S. 37-60-115(8)(d)(XI) specifically, precludes including water from a lease-fallowing pilot project in a substitute water supply plan. *See also Criteria and Guidelines*, Section I.D.2.k.

It is unclear if Lower is still pursuing this plan, because the application now states that Fowler's leased depletion credits will be included in CWPDA's Rule 14 Plan. The application does not explain whether the SWSP will still be sought, or whether that plan has been abandoned.

Accordingly, a term and condition should be included in any approval of this plan disallowing the inclusion of lease-fallowing pilot project water into a SWSP.

V. All Contracts and Agreements Must be Produced.

Any lease-fallowing proposal must submit "evidence to demonstrate that all necessary approvals and agreements between ditch companies, ditch members, municipalities, and other parties have been obtained" *Criteria and Guidelines,* Section *II.F.c.* While the Applicant submitted several letters of intent with its proposal, it did not submit final contracts with all the necessary parties allowing the successful operation of the pilot project. Without production of the final contracts Applicants cannot show that it has the legal ability to conduct the pilot project operation it is proposing.

The final contacts which should be provided to the CWCB and the SEO before this application may be granted, at a minimum, should include:

- All Contracts between the Applicants (Lower and/or the Super Ditch) and the municipal lessees (Fowler, Fountain, and Security).
- All Contracts between the Applicants (Lower and/or the Super Ditch) and the farm lessors (Hanagan, Hancock, Hirakata Farms, Diamond A, and Schwiezer).
- All Contracts between the Applicants (Lower and/or the Super Ditch), and the Catlin Canal Company.
- The CWPDA Rule 14 Plan which includes the Town of Fowler's additional municipal well depletions and the pilot project depletion credits.
- All contracts / decrees associated with all sources of water to be used to replace return flows
- All contracts / agreements / documentation establishing legal right to the use of all structures associated with the plan (including but not limited to the recharge ponds, augmentation stations, and all storage structures.)

VI. Ongoing Reporting to CWCB Relating to Whether Lease-Fallowing is a Feasible Alternative to Permanent Dry-Up of Agricultural Land.

The Legislative Declaration of House Bill 13-1248, the enabling act for Lease-Fallowing Pilot Projects, declares "The state needs to evaluate whether fallowing-leasing is a practical alternative to permanent agricultural dry-up" and then determined the CWCB "is the appropriate agency to test the efficacy of implementing fallowing-leasing as an alternative to permanent agricultural dry-up." See HB13-1248, ch. 210, sec. I, 2013 Colo. Sess. Laws 879.

Pursuant to C.R.S. § 37-60-115(8)(b), the purpose of the lease fallowing pilot program is to "[e]valuate the feasibility of delivering leased water to the temporary municipal users," and to "[p]rovide sufficient data from which the Board, in consultation with the State Engineer, can evaluate the efficacy of using a streamlined approach," and to "[d]emonstrate how to operate, administer, and account for the practice of fallowing irrigated agricultural land for leasing water for temporary municipal use . . . ." The *Criteria and Guidelines* also require "evidence" that the proposed pilot project will support these same "eligibility requirements." *See Criteria and Guidelines*, Section II.F.b.

Pursuant to C.R.S. § 37-60-115(8)(b) the CWCB promulgated *Criteria and Guidelines*, which pursuant to specific statutory language mandated that applicants provide ongoing reports concerning the feasibility of the projects. See *Criteria and Guidelines*, Section II.N. Also The CWCB is mandated pursuant to C.R.S. 37-60-115(8)(i) to annually report to the Water Resources Review Committee on the reported results of the pilot projects. Accordingly, the CWCB must have sufficient information from these pilot projects for it to "evaluate the feasibility" of lease fallowing, and "evaluate whether fallowing-leasing is a practical alternative to permanent agricultural dry-up."

Applicants must therefore provide information concerning how it will report to the CWCB, or how the CWCB will obtain suitable information such that it is able to make determinations regarding the feasibility of the proposed lease-fallowing pilot projects. Therefore, Aurora suggests that the CWCB select this lease-fallowing pilot project only on the condition that applicants provide, at a minimum, the following information allowing the CWCB to evaluate the feasibility of lease-fallowing:

- Annual Report submitted by Applicants which (A) discloses all information generated during the operation of the pilot project, (B) analyzes whether the pilot project is complying with the statutory requirements of C.R.S. § 37-60-115(8), and the CWCB's *Criteria and Guidelines*, and (C) identifies all obstacles to the operation of a lease-fallowing pilot project, and (if possible) explains how Applicants intend to resolve those issues;
- Accounting of all payments of money, or in-kind transfers related to the proposed pilot project,
- Submission of all contracts or agreements related to pilot project,

VII. Ross Bethel's Review of the Technical Foundation for the Proposed Pilot Project.

Attached to this comment letter, and included herewith, are the comments of Mr. Ross Bethel. Mr. Bethel is frequently retained by Aurora to provide water rights engineering support services related to Aurora's water rights in the Arkansas Basin, including the present request by Aurora to review the technical analysis of the proposed Catlin Canal Lease-Fallowing Pilot Project. *See* Appendix A. Mr. Bethel has reviewed, among other pertinent sources of information, the Martin & Wood September 25, 2014 Report concerning the proposed Pilot Project. Mr. Bethel also has had several discussions over the phone with Mr. Craig Lis of Martin & Wood during the week of November 17, 2014 to further discuss the analysis contained in the Martin & Wood Report. Mr. Bethel's report highlights areas of agreement, and topics of disagreement with the Martin & Wood September 25, 2014 Report

Aurora specifically notes two findings of Mr. Bethel's analysis. First, Mr. Bethel notes the complexity of the proposed operations necessitates integrating accounting forms. *See* Appendix A, p.5. The SEO and the CWCB should require development of such integrated accounting forms to insure that accounting and administration is uniform and not inconsistent, and that it is capable of assessing how well the project has preformed and protected other water rights from injury. Second, Mr. Bethel notes that Lower's admitted reliance upon other sources of supply to replace historic return flow obligations after 2025 necessitates terms and conditions allowing any year's operation of the Pilot Project only upon demonstration of a committed replacement supply adequate to meet the projected return flow obligations attributed to operation of current and prior year's operation of the pilot project. *See* Appendix A, p.5. The SEO and the CWCB should include such a term and condition to prevent any operation of the proposed pilot project when inadequate water exists to meet all necessary return flow obligations.

VIII. Conclusion

Aurora supports the commitment to develop and implement programs to advance various agricultural transfer methods that are alternatives to permanent agricultural dry-up, including lease-fallowing projects similar to the proposed Catlin Canal Lease-Fallowing Project.

The comments included herein are intended to facilitate and improve the project by insuring that it complies with all legal requirements, that it does not cause injury to any vested water rights, that the plan is fully identified and complete, and that the proposed project will provide adequate information for the CWCB to meet its statutory requirements of determining whether such lease-fallowing projects are feasible.

Aurora conditionally supports this pilot project upon further action by Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc. that resolves those issues described in this comment letter.

Please direct future correspondence on this matter, including final determinations by the State Engineer and the Colorado Water Conservation Board, by e-mail to the undersigned counsel listed below.

Respectfully Submitted,

HAMRE, RODRIGUEZ, OSTRANDER & DINGESS, P.C.

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APPENDIX A

Ross Bethel, LLC

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December 3, 2014

Mr. John Dingess
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RE: Review of Technical Foundation for Leasing-Fallowing-Leasing Pilot Project (proposed under HB 13-1248 by Lower Ark and Super Ditch) involving Use of Catlin Canal Shares to Augment Fowler Well Depletions and provide Municipal Supply for Fountain and Security.

Dear Mr. Dingess:

Per your request, we have performed a review of the engineering foundation, described in a September 25, 2014 letter report and appendices prepared by Martin and Wood Water Consultants (M&W) for a HB 13-1248 Fallowing-Leasing Pilot Project Proposal. In this proposal, portions of six farms historically irrigated by the Catlin Canal Company (Catlin) would be used in a Lease-Fallowing Project to augment depletions of Town of Fowler's wells and provide a municipal supply to Security Water District and City of Fountain. Below we discuss the principal components of the Applicant's technical foundation and provide comments based on our professional experience with more formal changes of water rights, augmentation plans and SWSPs in the Lower Arkansas River Basin. One will note similarity of several of the below comments with those offered for the recent Lease-Fallowing Project proposed using the Rocky Ford Highline (which proposal was later withdrawn).

M&W's analysis appears to follow the framework set up for the Fallowing-Leasing Pilot Projects as stated in the CRITERIA AND GUIDELINES FOR FALLOWING-LEASING PILOT PROJECTS (Guidelines) and as adopted by the Colorado Water Conservation Board on November 19, 2013. These guidelines provide simplified engineering assumptions (such as use efficiencies, split between surface and ground water returns, use of Blaney Criddle consumptive use methodology with TR21 crop coefficients, size of soil moisture reservoir, etc.) principally in Section G of the Guidelines. M&W also appears to have employed a Lease-Fallowing Tool (LFT) currently under development by the Lease-Fallowing Technical Committee for the historical use analysis for the lands proposed to be fallowed. Applicant has provided a spreadsheet ("LFT_FarmDataTemplate_v3.xlsm") containing inputs and outputs for the M&W analysis.

We understand the project proposal is for continuous fallowing of not to exceed 30% of a farm in each year of a 10 year period, rather than the fallowing of the full farm in three out of ten years.

Applicant Defined Use Parameters

Though there are a number of key engineering parameters for historical use analysis laid out in the Guidelines, the technical framework requires the Applicant define parameters and data required for the historical use analysis. Below we comment on some of the Applicant's defined parameters and data.

Study Period: M&W adopted a 30 year study period from 1984 through 2013 for the historical use analysis. We believe this is a reasonable study period given the 30 year requirement of the Guidelines.

Ditch Loss: M&W adopted a 10.43% ditch loss parameter for the Catlin Canal as used in the Hydrologic-Institutional Model (H-I Model) developed by the State (and Kansas) for the Arkansas River Basin. Based on experience with other large ditch system in the Lower Arkansas River Basin, this would appear to be unreasonably low ditch loss for a 35 mile long canal with junior water rights. **The Applicant should confirm the 10.43% ditch loss as the operating loss historically and currently employed by the Catlin in water distributions. If that value is to be used, M&W should explain why that value is much lower than other large canal systems in the Lower Arkansas Basin.**

Irrigated Acreage: M&W have used four aerial photographs from each of the three decades (1983 or 1988, 1993 or 1998, 2005 and 2010) to estimate the irrigated acres on the six farms proposed to be included in the lease-fallowing project. The M&W delineation of irrigated acres appears reasonable for the farms to be included in the project.

However, we note that the Schweizer recharge site appears to be on lands which are also claimed for historical use credit. I believe that the land the Schweizer recharge site is on should be excluded from the farm acreage included in the project because those lands, if developed for a recharge site, will not be available for a lease-fallowing operation.

River Water Supply Data: The proposed pilot project anticipates the primary transferrable water sources in the project would be associated with 1) diversions under the Catlin's water rights during the irrigation season and 2) its diversions during the irrigation season of the Catlin's "Winter Water" supply. We believe the derived river headgate diversions of native water (and Winter Water) used in the M&W historical use analysis (and derived by Mr. Bill Tyner) to be properly estimated.

However, we question whether the river headgate diversions of the Winter Water is an appropriate basis from which to estimate river depletions and accretions since the depletion of the stored Winter Water actually occurred predominantly during the winter rather than at the time the Winter Water was delivered to the headgate. It would be more appropriate in a depletion/accretion analysis to define the timing of depletions and accretions of the Winter Water (i.e. storage water) by considering depletions to the stream system during the winter with the year round accretions of return flow from use of that storage water.

Climate Data: The Guidelines call for use of climate data (temperature and precipitation) from the closest climate station, thus I believe it was correct for the Applicant to base their calculation of irrigation water requirements on the Rocky Ford 2SE climate station.

Cropping Pattern: To simplify the historic use analysis, the Guidelines mandate use of county wide statistics for cropping patterns. M&W has used the values of the county crop distribution from the H-I model for Otero and Pueblo Counties in their analysis of farm consumptive use. I believe that crop distribution to be reasonable for use in the M&W analysis.

Ground Water Parameters: The principal ground water parameters used in the definition of lagged return flow (to the stream) are distances from the (centroid of the) farm lands to stream courses, and aquifer transmissivity (i.e. combination of conductivity and saturated depth). The specific yield of the aquifer is defined by the Guidelines as 0.2.

Distances: M&W identified distances to major water courses for use in the definition of lagged return flow. Based on maps provided in Appendix A to the M&W report, the indicated distances from each farm to the major water courses appear reasonable.

Aquifer parameters: M&W used the USGS Ground Water Circular No. 11, Woodrow W. Wilson, United States Geological Survey, 1965 in the definition of conductivities, saturated depths and transmissivities. Though we believe the aquifer parameters used by M&W to be reasonable, we question why the Applicant used a 1965 report rather than the more current investigations on hydrogeologic characteristics of the valley-fill aquifer for Pueblo and Otero Counties as available in U.S. Geological Survey Publication open-file reports 89-0225 and 89-0226.

Applicant Historical Use Analysis

Potential ET: The Potential ET appears to be reasonably calculated for the crops at the Rocky Ford 2SE by the LFT.

Irrigation Water Requirement: Other than reflected in the comment below, on the LFT's calculation of effective precipitation during the irrigation season, I believe the irrigation water requirements were reasonably calculated.

Calculation of Lagged Return Flow Patterns: M&W's application of the Glover methodology, given the aquifer parameters discussed above, appears to be reasonable in developing the lagged return flow patterns.

Lease-Fallowing Tool (LFT) Issues/Suggestions

I understand that M&W is constrained to using the State's Lease-Fallowing Tool for analysis of the proposed project. While generally a valid tool, we have the following issues with the manner in which the tool makes calculations.

1. **Ditch and Off Farm Losses: I believe that the calculation of losses from the river headgate to the farm headgate may not be fully accurate in the Lease-Fallowing tool. I would expect a 10.43% ditch loss to be applied first to the river headgate diversions and the 3.5% off farm loss to then be applied to the remainder after ditch loss. Therefore, I would expect the total losses applied to the river headgate diversions to be 13.565 % (10.43% +(100%-10.43%)*3.5%) instead of the 13.93% (10.43%+3.5%) loss that I understand the LFT uses.**
2. **Effective Precipitation during the irrigation season: As discussed with the previous pilot project application (for use of Rocky Ford Highline Canal shares) that was subsequently withdrawn, I believe the calculation of effective precipitation is performed incorrectly in the LFT. I believe the LFT (which references the effective precipitation calculation of the HI model) calculates effective precipitation without consideration of the active crops and the seasons of use of those crops. By calculating effective precipitation without regard for whether acreage has an actively growing crop on it, one may overstate the amount of effective precipitation for the acreage that does have an active crop on it. This comment is particularly applicable to the start and ending periods of the growing season of some of the shorter duration crops.**

3. ***Effective Precipitation during Non-Irrigation Season:*** **The water sources available in the LFT to serve the irrigation water requirement (either directly or through soil moisture) includes effective precipitation during the non-irrigation season. It is not customary in a change of water rights (especially involving historically irrigated land on the plains) to include almost the full winter precipitation as a water source to refill soil moisture and subsequently serve irrigation demands. There are studies that indicate only a relatively small portion of the winter precipitation is available to the crop (not the 80 or 90% from application of the USBR method). We believe it reasonable, particularly in the Rocky Ford area, to consider no winter or non-irrigation season precipitation as an effective water source for irrigation.**
4. **The LFT output includes tables (i.e. Table 20 of M&W output appendices) of percentages in months of the study period and provides a row at the bottom of the tables for average monthly values. It appears that the bottom line contains averages of percentages, which is not proper. The average line should be based on the raw data from which the percentages were derived.**
5. **Given the number of output tables of the LFT, it would be valuable to express the calculation of an individual table in terms of previously generated table (i.e. Table ? = Table? – Table ?).**

Presentation of M&W Results:

M&W have provided detailed output from the LFT for each farm (in the appendices). According to M&W, though the LFT provides some 30 output tables, they were primarily interested in Table 17 which provided a summary of the historical depletions of available farm headgate diversions and consumptive use factors that were placed into the plan's terms and conditions.

We understand that M&W performed a separate spreadsheet based analysis of how the proposed return flows generated using the Project's recharge ponds may match up with the historical estimates of return flows generated by the farms. Results of this comparative analysis are shown in Appendix I to the M&W report (Tables I-2 through I-7 reflecting two scenarios of project recharge) though it is believed that they should be labeled as differences of projected operations of the plan on the stream from the calculated historical effect.

It is not clear in the discussion of projected results on pages 23 and 24 that many of the values reflect the difference between return flows generated under the proposed project (with use of project recharge facilities) and historical return flows (derived from the LFT). It is also difficult to match the results given in the text (pages 23 and 24) to values in Appendix I. I believe this section needs clarification.

A table of Monthly and Annual Maximum Consumptive Use Limits is given in the 5th term and condition of the M&W report. However, it should be clarified that this table of maximum limits reflects full farm consumptive use and needs to be multiplied by the percent of the farms that will be fallowed to obtain limits for the project. Also, because the calculation of monthly limits is a deviation from that called for in the criteria (average of the three greatest monthly values in the study period rather than an average of months in the three years with the greatest annual volumes as called for by the criteria), this should be clarified in the Applicant's report.

M&W indicates that it may be preferable to not recharge all the available deep percolation supply and instead pass some of that supply through the augmentation station. With this operation, M&W indicates that there will be less shortfall of meeting historical return flow obligations. However, with this suggested operation, it is estimated that, with a continuously operating project for 10 years, after 2026 there will be insufficient accretions from the recharge ponds to replace all post-pilot project deep percolation return flow. Therefore, M&W propose to use other sources of replacement to replace such return flows beginning in 2026 and thereafter (page 14). This conclusion about the return flow replacement shortfall is shown in Table I-7 in Appendix I.

Draft Accounting Issues

Improper formula: It appears that Column 25 in the draft accounting is attempting to calculate the return flow credit/shortage for a current month by subtracting return flows available in a month (current month's tailwater and lagged returns occurring in the current month) from the calculated return flow obligation for the month. However, I believe the Column 25 formula in the draft accounting incorrectly uses the return flow obligation calculated at the farm (before lagging) instead of the return flow obligation calculated at the stream.

Incorrect Notes: The Applicant has provided a draft monthly accounting form with column notes but the column notes sometimes do not match the columns. An example is the notes for columns 17, 17a, 17b, and 17c.

Missing notes: The third provided page of the accounting form appears to be a summary of the monthly accounting for the project year but also contains the lagged return flow obligations for years past the time the Pilot Project is operated. It would be helpful if column notes were added to this page to tie it to other information sources. We also believe that this page should include comparisons of actual depletions to the depletion limits (agreed on in the project plan) such that administrators can verify that the depletion limits are being respected.

Integrated Accounting: With six farms and two recharge areas, it will be necessary for the Applicant to develop accounting forms that integrate the operations on the farms and recharge areas.

Applicant Pilot Project Concept Concerns

Complexity: This project is quite complicated in requiring one to manage and track fallowing on six farms and recharge in two areas, as well certain other water sources that are not fully committed to the project (see next point). We are concerned that this complexity will make it difficult to interpret reports on the operation of the project and assess on how well the project performs and protects other water rights from injury.

Replacement Water Sources: We understand the primary water sources for replacement of return flows are the farm headgate deliveries (tailwater and deep percolation components) occurring during the irrigation season that are associated with the fallowed lands. As discussed above, the M&W results (with a portion of the deep percolation supply being passed through the augmentation station) indicate that the full replacement can be made through 2025 (for a continuously operated project for 10 years that starts in 2015), but that after 2025, additional replacement sources (not associated with the fallowed lands of the project) will be required. While a number of water sources are proposed in the M&W report, these sources have not been fully vetted or committed exclusively to this project. We believe it is appropriate for the Pilot Project to be allowed to operate during a year only if they can demonstrate they have committed replacement water supplies to meet the projected return flow obligations attributed to that operation (based on average flow conditions), as well as meet the return flow obligations from any previous years of project operation.

Proposed Exchanges of Water: The proposed Pilot Project describes exchanges of depletion credits and delayed return flow credits from the Catlin Canal delivery or recharge facilities upstream to the Fowler wells or upstream to Pueblo Reservoir. While we do not question that there are times in which exchange potential will exist, the Applicant has not attempted to define whether the exchange ability is sufficient for operation of the Pilot Project. A term and condition should require that the Applicant petition and receive permission from the Division Engineer for an administrative exchange, such exchange that would be protective of historical levels of diversion of any other water right in the exchange reach. Such exchange should not be allowed unless the Division Engineer makes a determination of sufficient exchange potential to accomplish the requested exchange without injury to other water rights.

Summary

Review was performed of the technical foundation prepared by M&W for a proposed Leasing-Fallowing Pilot Project involving the use of historical consumptive use credits associated with historical irrigation under the Catlin Canal Company.

Our investigation has identified:

1. A concern whether the complex proposed project (six farms, 2 recharge areas, numerous supplemental water rights proposed for use) can be managed and reported on in a manner that would allow the state to evaluate the efficacy of using a streamlined approach for determining historical consumptive use, return flows, and the potential for material injury to other water rights.
2. We have identified several issues with the M&W analysis we believe need resolution/clarification and several areas where we believe the Lease-Fallowing Tool could be improved.
3. Concerns over the monthly accounting with some of the column notes incomplete or incorrect. Column notes should be added on the summary page of the accounting and limits implemented on the consumptive use. A form that integrates the operations of fallowing on six farms and recharge through two facilities is needed.
4. We are concerned over the loose description (and lack of dedication to the pilot project) of replacement water sources for return flow replacement in a post project setting and an incomplete formulation of how an exchange of consumptive use credits or delayed return flow credits to Pueblo Reservoir would work.

We hope the above comments are useful to facilitate a workable Pilot Project. From our initial technical review of the proposed Pilot Project, we believe that, with additional refinement and dedication of additional water sources to the project, the Catlin Canal Lease-Fallowing Project may be a good candidate for testing lease-fallowing concepts.

We would be pleased to discuss any aspect of our investigations with you and the Applicant.

Sincerely,

Ross Bethel, LLC

G. Ross Bethel

GLENN ROSS BETHEL REGISTERED 17135 PROFESSIONAL ENGINEER STATE OF COLORADO

by: Ross Bethel, P.E.

Appendix B

For purposes of compliance with Section II.I of the *Criteria and Guidelines for Fallowing-Leasing Pilot Projects*, Aurora's water rights that may be affected by the proposed Catlin Canal Lease-Fallowing Pilot Project are:

- Rocky Ford I: District Court, Water Division 2, Case No. 83CW18, Decree entered November 3, 1986;

- Rocky Ford II: District Court, Water Division 2, Case No. 99CW169(A), Decree entered January 28, 2004.

- Rocky Ford I Exchange: District Court, Water Division 2, Case No. 87CW63, Decree entered March 22, 1994. Last diligence in District Court, Water Division 2, Case No. 06CW101, Decree entered June 8. 2009.

- Rocky Ford II Exchange: District Court, Water Division 2, Case No. 99CW170(A & B), Decree entered June 27, 2005. Last diligence in District Court, Water Division 2, Case No. Case No.s 11CW40 and 11CW41, Decree entered April 23, 2012.

- Colorado Canal Companies: District Court, Water Division 2, Colorado, Case Nos. 84CW62, 84CW63, and 84CW64, Decree entered October 21, 1985.

- Box Creek Reservoir Exchanges: District Court, Water Division 2, Colorado, Case No. 01CW145, Decree entered October 30, 2012.

- Recovery of Yield ("ROY") Water Rights: District Court, Water Division 2, Colorado, Case No. 06CW120; case currently pending.

- Use of the Holbrook System Facilities: *Agreement For Use of Excess Capacity*, entered between Holbrook Mutual Irrigation Company and the City of Aurora, acting by and through its Utility Enterprise on March 1, 2005, as extended on February 2, 2010; *Agreement Between Aurora and ROY Participants for Use of the Holbrook System Facilities*, entered March 1, 2005.

MOSES, WITTEMYER, HARRISON AND WOODRUFF, P.C.

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December 9, 2014

BY EMAIL AND U.S. MAIL

James Eklund, Director
Tom Browning, Deputy Director
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Re: LAWMA's comments on Catlin Pilot Project Application

Dear Mr. Eklund and Mr. Browning:

In accordance with Section 37-60-115(8)(d)(V), C.R.S., and Section II.A of the Criteria and Guidelines for Fallowing-Leasing Pilot Projects adopted by the Colorado Water Conservation Board on November 19, 2013, Lower Arkansas Water Management Association ("LAWMA") submits the attached comments on the HB 13-1248 Catlin Pilot Project Application ("Proposal") submitted by Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc., on September 25, 2014.

Thank you for your consideration of LAWMA's comments and concerns, and please contact us with any questions about the attached report from Slattery & Hendrix Engineering LLC.

Sincerely,

MOSES, WITTEMYER, HARRISON AND WOODRUFF, P.C.

Richard J. Mehren

Richard J. Mehren
Jennifer M. DiLalla

RJM:JMD/jab
Cc: Donald F. Higbee
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To: Richard Mehren – Moses, Wittemyer, Harrison & Woodruff, P.C.
Jennifer DiLalla – Moses, Wittemyer, Harrison & Woodruff, P.C.

From: Randy L. Hendrix

Date: December 9, 2014

Subject: Comments on HB 13-1248 Catlin Pilot Project Application

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On behalf of the Lower Arkansas Water Management Association (LAWMA), this memorandum provides our comments on the HB 13-1248 Catlin Pilot Project Application (Application) submitted by the Lower Arkansas Valley Water Conservancy District (Lower Ark) and the Lower Arkansas Valley Super Ditch Company (Super Ditch) on September 25, 2014, and supplemented with supporting materials on December 5, 2014, and December 8, 2014. Lower Ark and Super Ditch (Applicants) are requesting approval of a pilot project to use consumptive use credits from shares in the Catlin Canal Company to provide water for temporary municipal uses by the Town of Fowler (Fowler), the City of Fountain (Fountain), and the Security Water District (Security), which are collectively referred to in the Application as "Municipal Participants." This Memorandum describes issues of concern to LAWMA that the State Engineer and the Colorado Water Conservation Board (CWCB) should consider and address in reviewing and acting on the Application.

In preparing this memorandum, we reviewed the following documents:

- HB 13-1248 Catlin Pilot Project Application, dated September 25, 2014 (Application);
- HB 13-1248 Catlin Pilot Project Application – Supporting Materials (lease agreements) dated December 5, 2014;
- HB 13-1248 Catlin Pilot Project Proposal for CWCB Selection, dated July 14, 2014 (Proposal);
- HB 13-1248 Catlin Canal Pilot Project Proposal for CWCB Selection – Exhibit L(2) – dated July 23, 2014, and made available to parties on CWCB website as of December 8, 2014;
- HB 13-1248 Criteria and Guidelines for Fallowing-Leasing Pilot Projects, approved by the Colorado Water Conservation Board (CWCB) on November 19, 2013 (CWCB Guidelines);
- Draft – HB 13-1248 Pilot Projects Submittal Checklist developed by Kevin Rein and sent to Ivan Walter for circulation to and feedback from the parties' experts after the June 5, 2014 informational meeting about the Fowler Pilot Project Application submitted and later withdrawn by the Applicants in 2013 (Checklist);

- Diversion records, streamflow records, geographic information system (GIS) data and other technical reports that relate to typical reviews of engineering analyses.
- Operating Procedures for Administration of Parcels Claimed for Augmentation Credit agreement between Kansas and Colorado dated September 2005.

This memorandum provides comments on the Application in two sections: background and items to consider and address during the review process for this pilot project.

Background

The Applicants are requesting a lease-fallowing pilot project to demonstrate the viability of the lease-fallowing concept on a small scale. Under the Catlin Pilot Project (CPP), Applicants propose to lease to Fowler up to 250 acre-feet, Fountain up to 125 acre-feet, and Security up to 125 acre-feet of historical consumptive use (HCU) credits annually for a total of 500 acre-feet derived from Catlin Canal Company (Catlin) shares owned by six participating farmers who will rotationally fallow their land on seven farms under the Canal. The Application indicates that Fowler has requested up to 250 acre-feet annually, and that Fountain and Security have leases in place for up to 125 acre-feet annually; however, Applicants have not yet provided copies of firm leases with any of the Municipal Participants for the duration of the CPP. At this time, Applicants have a letter of interest from Fowler regarding participation in the CPP but do not have an agreement in place for such participation.

Under the CPP, Fowler would be able to increase pumping of its wells, with the lagged depletions from that increased pumping being augmented by the leased HCU. Fountain and Security would integrate leased HCU exchanged into Pueblo Reservoir into their overall municipal supplies. The five participating farmers are Diamond A, Inc. (owner of two separate farms); K2 Farms Inc.; Ken Schweizer; Eric Hanagan; and Lee Hancock (collectively referred to in the Application as the “Participating Farmers”). William Behm was a farmer identified in the original proposal who is not identified in the Application. We assume that the removal of the Behm farm from the CPP was intentional, and that the Behm Farm will not be part of the CPP for the length of the project operations.

Table 1 attached to this memorandum shows, for each subject farm as mapped by the Applicants, the Super Ditch ID number (from the Applicants’ proposal), ownership, number of shares of Catlin stock (Subject Shares) historically used on the farm, and 2010 irrigated acreage (from Table 2 of the Application). Attached Table 1 also shows the 1985 irrigated acreage agreed upon between Kansas and Colorado in regards to land to be dried up for augmentation credits, the acreage already claimed as dry-up for augmentation credits in a Rule 14 plan for augmentation, the number of consecutive years the first parcel has been used as dry-up for augmentation credits, the study period used in the Application, and a proposed study period to address issues arising from previous dry-up of the parcel for augmentation credits. We obtained the mapped irrigated acreage totals from the Division of Water Resources (DWR) Division 2 Engineer's Office's (DEO) GIS coverages for 1985 and 2013.

Fowler currently has 11 wells identified in Colorado Water Protection and Development Association's (CWPDA) Rule 14 plan. The Applicants propose to dedicate the depletion credits associated with 151.56 of the Subject Shares, which they estimate will yield 235.3 acre-feet of HCU in an average year, to the CWPDA Rule 14 Plan for the 2015 plan year to allow for increased municipal well pumping by Fowler. Neither CWPDA nor Fowler is a co-applicant in the Application.

The Applicants propose to lease the depletion credits associated with 159.60 of the Subject Shares, which they estimate will yield 234.7 acre-feet of HCU in an average year, to Fountain and Security for municipal use after the credits are exchanged to Pueblo Reservoir. Our understanding is that Fountain and Security would split equally the available depletion credits associated with the 159.60 Subject Shares. Fountain and Security are not co-applicants in the Application.

Under the proposed CPP, the Participating Farmers' farms would be temporarily dried-up, or fallowed, on an as-yet undisclosed schedule. When each farm or portion thereof is fallowed, water available to the Subject Shares that historically have been used to irrigate the fallowed land will be delivered through the augmentation stations on the Catlin Canal, placed into recharge ponds, or stored in unidentified upstream storage locations. The HCU water not required for replacement of both tailwater and lagged groundwater return flow obligations (RFO) would be available for exchange upstream on the Arkansas River to the point of stream depletion for the Fowler additional well pumping, and to Pueblo Reservoir for distribution to Fountain and Security. The Applicants have generally identified the stream reaches on the Arkansas River that would be subject to the exchange of the HCU credits. The Applicants also recognize that the exchange potential on the Arkansas River in the identified stream reaches poses a challenge under certain hydrologic conditions. Their Application refers to mechanisms such as a series of stepped exchanges to intermediate storage locations, use of recharge facilities, and trades of water to allow for operation of the CPP during times of limited exchange potential. The Applicants have not yet provided evidence of agreements with owners of the structures identified in the Application for use in such stepped exchanges.

Issues of Concern

The following are issues of concern to LAWMA that the State Engineer and the CWCB should consider and address during their review of and action on the Application for the CPP:

1. **Evidence of Agreements Necessary for Operation of the CPP**

   In their CPP Proposal dated July 14, 2014, the Applicants described a number of agreements that they believe to be "necessary for operation of the Catlin Pilot Project" (Necessary Agreements) and indicated that they "believe that all of the agreements and approvals that may be necessary to operate the Catlin Pilot Project can be reasonably obtained." Those Necessary Agreements were as follows: (a) lease agreement or other appropriate agreement between the Applicants and the Municipal Participants; (b) lease agreements or other appropriate agreements between the Applicants and the Participating Farmers; (c) Catlin Canal Company approval, pursuant to Article IV, Section 2 of the Company Bylaws, of a plan for rotational fallowing of lands historically irrigated by the Canal; (d) Catlin Canal Company approval of Applicants' use of Catlin Canal facilities and Applicants' carriage of non-Catlin water to recharge facilities; (e) agreements for lease of recharge sites; and (f) Bureau of Reclamation annual renewal of Lower Ark's "if and when" storage account. To the Applicants' list, we would add agreements for Applicants' use of any structures needed for the stepped exchanges, and an agreement between Applicants and CWPDA for Fowler to take delivery of HCU credits from the CPP via the CWPDA Rule 14 Plan.

The Proposal attached only two of these Necessary Agreements: Recharge Site Leases, both expiring on March 31, 2015, for Applicants' use of the land upon which the Schweizer and Hanagan recharge facilities are located. The Application, which was submitted to the CWCB on September 25, 2014 (more than two months after the submittal of the Applicants' Proposal), did not include copies or other evidence that any additional Necessary Agreements have been executed.

All Necessary Agreements should be in place before the State Engineer and the CWCB begin their review of the Application, as follows:

(a) Lease agreement or other appropriate agreement between the Applicants and the Municipal Participants.

i. Letters of interest and non-firm lease agreements. The Proposal attached letters of interest from Fountain and Security, as well as copies of Fountain's and Security's previously existing long-term annual water lease agreements with Super Ditch. Those existing long-term agreements allow Fountain and Security to terminate the leases at any time between September 15 and October 31 of any year within the lease term, provided that the lease has not been converted to a term lease. The Applicants also apparently supplied a letter of interest from Fowler dated July 23, 2014, but that letter of interest (marked as Exhibit L(2) to the Proposal) was not made available to the parties for review until December 8, 2014, when it was posted on the CWCB website.

ii. Firm agreements with the Municipal Participants. The Applicants have not yet provided evidence of firm agreements with any of the Municipal Participants for participation in the CPP. The Application gives no indication that the Applicants have entered into an agreement with Fowler for such participation. While the Application indicates that Fountain and Security "have leases in place for up to 125 acre-feet annually," the only agreements with Fountain and Security for which the Applicants have provided evidence are not firm leases for the period of the CPP, because they allow Fountain and Security to terminate their respective leases at their option unless the lease has been converted to a term lease that would expire on October 31, 2051. The Applicants have not provided evidence that the Fountain and Security leases have been converted to such term leases. Therefore, Fountain and Security may terminate the leases at their option, and the agreements are not firm. Applicants must provide copies of their executed agreements with all three Municipal Participants for participation in the CPP at the levels described in the Application (250 acre-feet annually for Fowler, and 125 acre-feet each annually for Security and Fountain).

(b) <u>Lease agreements or other appropriate agreements between the Applicants and the Participating Farmers</u>.

i. <u>Letters of interest</u>. The Proposal attached letters of interest from the Participating Farmers, but did not attach agreements between the Applicants and the Participating Farmers. The Application likewise did not attach copies of agreements with the Participating Farmers.

ii. <u>Agreements with Participating Farmers</u>. In a letter dated December 5, 2014—4 days before the deadline for the parties' comments on the Application, and 71 days after submittal of the Application—Applicants submitted copies of their executed agreements with 4 of the 5 Participating Farmers to the CWCB. The Applicants did not submit a copy of an executed agreement with Ken Schweizer. The lack of an agreement from the Schweizer Farm would indicate that the Applicants do not have the right to use the Schweizer portion of the Subject Shares for the CPP (and likewise do not have the right to change the use of the Subject Shares for temporary use within the CPP), and thus that the Application should be denied with respect to the portion of the Subject Shares associated with the Schweizer farm. The 4 agreements submitted to the CWCB and posted on the CWCB's website on December 5 should have been provided with the Application in order to allow interested parties adequate time to review the agreements; alternatively, notification should have been provided to the notification list on December 5 that these 4 agreements were available for review, and the comment period should have been extended because the Application was not complete until that date.

(c) Catlin Canal Company approval of Applicants' use of Catlin Canal facilities and Applicants' carriage of non-Catlin water to recharge facilities. Applicants should provide evidence of this formal approval by the Catlin Canal Company.

(d) Agreements for lease of recharge sites. Applicants should provide copies of executed agreements for the recharge sites to cover the entire ten-year period of the pilot project. Agreements provided in the Proposal for the recharge sites expire on March 31, 2015. The term of those agreements may be extended for a period of 2 years upon written notice on December 31, 2014; however, such a two-year extension of the current leases is inadequate for the term of the CPP, and the agreements must be extended for the entire length of the CPP operations.

(e) Bureau of Reclamation annual renewal of Lower Ark's "if and when" storage account. Applicants should provide evidence of this renewal.

(f) Additional Necessary Agreements. The Applicants have not yet provided evidence of agreements with the Colorado Canal Company or the Holbrook Mutual Irrigating Company for the use of their facilities in any stepped exchanges. Therefore, the use of these facilities as part of stepped exchanges within the CPP should not be considered in the review process of the Application and should not be part of any approval. Additionally, Applicants should provide evidence of an agreement with CWPDA for Fowler to take delivery of HCU credits from the CPP via the CWPDA Rule 14 Plan.

In the absence of evidence of the Necessary Agreements, the State Engineer cannot make the no-injury finding required by Section 37-60-115(8)(f), C.R.S., and by the CWCB Guidelines. Therefore, the State Engineer and the CWCB should do one of the following: (i) make no review of and take no action on the Application unless and until the Applicants provide evidence of each of these Necessary Agreements; (ii) review the Application based on the assumption that any Necessary Agreements not already provided will not be in place for operation of the CPP, and therefore deny the Application in whole or in part because the State Engineer cannot make a determination that the project can operate without causing injury; or (iii) approve the Application only contingent upon the Applicants' serving satisfactory evidence of the Necessary Agreements upon the State Engineer, the CWCB, and the parties by some date certain before operation of the CPP would begin, with an opportunity for comment by the parties and a response from the State Engineer and the CWCB with respect to such evidence.

2. Historical Consumptive Use Analysis

a. Study Period

The Applicants used the same study period of 1984 to 2013 for all six farms in the CPP Application. This study period is appropriate for the Schweizer and Hancock farms, because neither of those farms previously has been dried up for augmentation credit. However, the 1984 to 2013 study period should not be used for the remaining farms, each of which previously has been dried up, in part, for augmentation credit.

Attached Table 1 illustrates, for each of the subject parcels, the number of acres previously dried up for augmentation credits in a plan approved pursuant to Rule 14 of the Amended Rules Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado (Amended Use Rules). Attached Table 2 shows those parcels identified by the DEO as having been previously dried up within a Rule 14 plan, with comments for each parcel.

To ensure that the HCU analysis accurately determines the historical use of the Subject Shares, the study period for each farm should run for the 30-year period that ends with the last year before a portion of the parcel was first claimed as dry-up within a Rule 14 plan. Based on this principle, Column 10 of Table 1 shows the study period that we think the Applicants should use in the HCU analysis. This more refined analysis would prevent injury from Applicants' potentially claiming HCU for lands that previously were dried up or that used only ground water for a source of irrigation. The Lease-Fallowing Tool (LFT) includes data back to 1950, which would allow for the adjustment of the study period on a farm by farm basis as proposed in attached Table 1.

The purpose of the Applicants' HCU analysis is to quantify the amount of HCU from the use of the Subject Shares on the land the Subject Shares irrigated. If the Applicants claim HCU for lands on which the Subject Shares were not used for irrigation for a portion of the study period, then there is the possibility of expanded use of the Subject Shares. This expanded use would injure downstream water rights.

b. Irrigated acres

The Applicants have conducted the historical irrigated acres analysis as required by Section II.G of the CWCB Guidelines by obtaining aerial photographs from each decade of the 1984 to 2013 study period used in the analysis. The Applicants also obtained the 1980 and 1985 GIS coverages as digitized by Kansas and Colorado as part of the Kansas v. Colorado litigation. However, the information from the GIS coverages was only used for comparison purposes and not as part of the historical irrigated acres analysis.

In acting on the Application, the State Engineer must make a written determination as to whether the CPP can operate without causing injury and without impairing compliance with any interstate compact. The CWCB Guidelines were developed for the entire State of Colorado, but because this project is within the Arkansas River Basin, special consideration has to be given to the agreements reached by Kansas and Colorado in the Kansas v. Colorado litigation. To operate under the proposed CPP, the Applicants will not quantify the HCU and historical irrigated acres through the Division 2 Water Court. Therefore, the maximum allowed acres in the analysis should be the 1985 irrigated acres mapped by Colorado and agreed to by Kansas. This limitation would require the Applicants to comply with the "Operating Procedures for Administration of Parcels Claimed for Augmentation Credits" (Operating Procedures). Section 1.B. of the Operating Procedures provides that "Plan proponents seeking to nominate any lands they believe were historically irrigated that do not lie within the mapped irrigated lands developed by the CDWR must seek a change of water right for the associated shares in Division 2 Water Court prior to approval in any plan approved pursuant to the Amended Use Rules." Because a portion of the Subject Shares will be included in CWPDA's Rule 14 plan and the Applicants are not seeking a change of water rights, the historically irrigated acres therefore should be those acres mapped by SEO as part of the Kansas v. Colorado litigation.

Table 1 of this memorandum quantifies the 1985 irrigated acreage from the GIS coverages obtained from the DEO. The Applicants should be held to the same standard that LAWMA is being held to in regards to dry-up that has yet to be approved in a change case in water court. That standard applies to LAWMA when LAWMA acquires a surface water right for use in its Rule 14 Plan. The DEO allows for consumptive use credits on the dry-up of the 1985 irrigated acreage based on an engineering analysis using factors from the Hydrologic-Institutional Model (H-I Model) until LAWMA has changed the surface water rights in water court. In a water court application LAWMA would identify the irrigated acreage over time, and that acreage may be different from the 1985 irrigated acreage. After a decree is entered changing the surface water rights, then LAWMA would be able to claim dry-up credit on acreage that is different from the 1985 irrigated acres if accepted by the water court. Because the Applicants are not seeking a change of water rights for the Subject Shares, the consumptive use credits available under the CPP likewise should be credits on the dry-up of the 1985 irrigated acreage based on the mapped irrigated lands developed by the DEO as part of the Kansas v. Colorado settlement.

c. Recharge

The Applicants have identified two recharge sites in the Application: the Schweizer Recharge Pond and the Hanagan Recharge Pond. Both of the recharge sites are currently being tested in Lower Ark's Rule 10 plan operations. Based on the Application, our understanding is that the deep percolation component of the Applicants' RFOs would be delivered into the two recharge sites from the farms with the purpose of lagging back the deep percolation to the river. Historical deep percolation from the Schweizer, Diamond A West, Hirakata, and Hancock farms would be delivered to the Schweizer Recharge Pond.

The historical deep percolation for the Hanagan and Diamond A East farms would be delivered to the Hanagan Recharge Pond. All of the lagged deep percolation return flows from all of the farms and from both of the recharge sites accrue above the Fort Lyon Canal headgate.

As mentioned above, it appears that only the historical deep percolation return flows will be delivered to the recharge sites. There will be evaporation from the recharge sites, which will prevent the entire amount of the deep percolation return flows that are delivered to the recharge sites from reaching the river. In fact, as the Applicants acknowledge in their summary of the proposed 2015 operations of the CPP, evaporation from the recharge sites will exceed accretion credits from the recharge sites. In the preliminary accounting provided in Appendix J to the Application, the Applicants have not clearly described how evaporation from the recharge sites will be calculated and deducted from the amount actually recharged back to the river. To avoid injuring downstream water rights due to under-payment of RFOs, Applicants should clearly and separately identify evaporation in the accounting, and should explain how that evaporation is calculated. In order to ensure full repayment of RFOs, Applicants should also deliver HCU water to the recharge sites to offset all evaporative losses from the sites.

In addition, because these two recharge sites are being tested under Lower Ark's Rule 10 plan operation, sources of water other than the historical deep percolation return flows from the Subject Shares will also be delivered to the recharge sites. The Applicants have not demonstrated in their accounting how they will separately account for the different sources of water delivered into the recharge ponds, so as to ensure that they will not claim credit from deliveries of water within Lower Ark's Rule 10 plan operations as stream depletion credits within this pilot project. Downstream water rights will be injured if Applicants do not demonstrate that they are separately accounting for the different colors of water delivered to the recharge sites.

Furthermore, the Application proposes that Applicants may incorporate additional recharge ponds into the CPP in future years. If the CPP is approved, this addition of recharge sites to the plan should not be allowed, as the Guidelines required the Proposal to identify, at minimum, how and where any necessary replacement water will be delivered to the appropriate stream location(s), and any and all structures necessary for operation of the pilot project. Applicants have not identified any recharge structures other than the Schweizer Recharge Pond and the Hanagan Recharge Pond, and therefore have not provided any engineering in this Application for the State Engineer, the CWCB, and the parties to review with respect to proposed additional recharge sites. Both because the Guidelines do not allow for the future addition of recharge sites and because such addition would deprive owners of downstream water rights the opportunity to evaluate injury in this approval process, any approval of the CPP should not allow Applicants to add new recharge sites in the future.

d. Source of Water to Replace Historical Return Flow Obligations

The Applicants have identified 9 different sources of water for replacement of RFOs that result in a dry-year (firm) yield of 180.57 acre-feet annually, as shown in Table 8 of the Application. In addition, the Applicants indicate that Lower Ark has Twin Lakes Reservoir Company and Larkspur Ditch shares.

i. Transmountain water. The Twin Lakes firm yield referenced in the Application was approximately 71.25 acre-feet; no firm yield was provided for the Larkspur Ditch. The Applicants didn't specify if the 71.25 acre-feet of firm yield in Twin Lakes was native water only or a combination of native and transmountain water; it is our understanding that Twin Lakes water is a combination of native water and transmountain water. Larkspur Ditch water is transmountain water. Under the statute and Section II.C of the CWCB Guidelines, the CWCB may not select a pilot project proposal that involves the transfer or facilitation of the transfer of water across the Continental Divide by direct diversion, exchange, or otherwise. Therefore, unless the Applicants provided evidence that the Twin Lakes water was native only, and it is our understanding that they did not, the CWCB selected the Proposal in contravention of the statute and the CWCB Guidelines. The Applicants did not mention the Larkspur Ditch in the Proposal, but the statute and the CWCB Guidelines apply equally to the State Engineer's and CWCB's approval of an application. Because two of Applicants' proposed sources of return flow replacement water include transmountain water, the State Engineer and the CWCB cannot approve the Application as submitted.

ii. LAWMA shares. The Applicants have included 150 LAWMA Common shares as a source of replacement water for RFOs. Under LAWMA's Bylaws, the Applicants are not entitled to include this source of water in the CPP. LAWMA shares, both common and preferred, may be utilized only in a LAWMA-administered augmentation plan, including LAWMA's Rule 14 plan, augmentation plan, Rule 10 plan, and LAWMA-administered substitute water supply plans. LAWMA will not administer the CPP; therefore, LAWMA shares will not be available to the Applicants as a source of replacement water within the plan.

iii. Remaining sources. Of the remaining 8 sources of firm-yield water included in Table 8 of the Application, the Applicants have only identified 3 that have been approved by the water court for augmentation and replacement use. They are the 2 shares of Colorado Canal Company, 2 shares of Lake Meredith Reservoir Company, and 1 share of the Rocky Ford Ditch Company. These 3 sources only yield 2.56 acre-feet of firm-yield replacement water annually.

The remaining 5 sources proposed by Applicant (for which Table 8 includes a firm yield estimated by the DEO) should not be considered as firm-yield consumable water available for use in the CPP because they have not been changed in water court for augmentation uses. Applicants' proposed term and condition 17 requires that "return flows not met by proper delivery of that portion of the available headgate diversions shall be made up from some other source decreed for this use or approved for this use by a substitute water supply plan." The fallowing-leasing pilot project statute provides that during the term of the pilot project, land and water included in a pilot project may not also be included in a substitute water supply plan pursuant to Section 37-92-308(5) or (7) , an interruptible water supply agreement pursuant to Section 37-92-309, or another pilot project. Therefore, any RFOs not met by a portion of the available headgate diversions of the Subject Shares must be met with sources of water that have been decreed for augmentation or replacement use, because water used in a substitute supply plan may not also be used in the CPP.

If only the sources of firm-yield consumable water that have been changed for augmentation and replacement use are considered, then the Applicants do not have enough firm-yield water to cover post-CPP return flow obligations. Such sources would yield only 2.56 acre-feet annually, while the Applicants would have a maximum annual RFO obligation of 67.89 acre-feet (see Table I-7 of the Application). Therefore, any approval of the Application must be contingent upon the Applicants' providing evidence of sufficient firm-yield sources of water decreed for augmentation or replacement use and physically and legally available to them for use in the CPP, and no operations should be allowed under the CPP until such sources have been dedicated for use in the pilot project.

e. 2015 Operations

The Applicants have identified a total of 501 acre-feet of stream depletion credits for the 2015 plan year based on the total of 470 acre-feet of HCU credits and 30.9 acre-feet of excess recharge pond accretions. If excess recharge accretions from the historical deep percolation return flows are to be used as stream depletion credits, then the Applicants need to identify dedicated sources of fully consumable water for those months in which there are deficit recharge pond accretions. If the Applicants don't dedicate fully consumable water during the periods of deficit recharge pond accretions, then the downstream water rights will be injured by Applicants' inability to meet their RFOs in amount, time, and location.

The Applicants have indicated that they plan to deliver to the river 235.3 acre-feet of HCU credits associated with 151.56 of the Subject Shares for Fowler's use in the CWPDA Rule 14 plan, and 234.7 acre-feet of the HCU credits associated with 159.60 of the Subject Shares for Fountain's and Security's use after the credits have been exchanged to Pueblo Reservoir. This would total 470 acre-feet (235.3 + 234.7) associated with 311.16 (151.56 + 159.60) of the Subject Shares.

It should be noted that currently there are approximately 68 of the Subject Shares that would be unavailable to Fowler in the first year of the operations of the CPP, as the dry-up of the historically irrigated land on which those shares were used has exceeded the 10-year dry-up limit under the Amended Use Rules as shown in Table 3. Any use of the 68 Subject Shares for Fowler within the CWPDA Rule 14 plan would circumvent the agreements that Colorado and Kansas reached in the settlement of the Kansas v. Colorado lawsuit. A potential additional 83 shares from the Hanagan and 20 shares from the Diamond A East farms may also be unavailable for use by Fowler, as the parcels on which those shares were used have been considered dry-up under the CWPDA Catlin dry-up. Those parcels have been dried up or irrigated with groundwater for the last 10 to 11 years. There are parcels under the Diamond A West farm that have been dried-up for 7 to 8 years as part of CWPDA Catlin dry-up, and a total of approximately 35 shares historically were used to irrigate those parcels. This would amount to 206 of the Subject Shares that would currently be ineligible or in a few years would become ineligible for use as an augmentation source in a Rule 14 plan without those water rights being changed in water court. Any no-injury finding that the State Engineer makes with respect to the proposed operation of the CPP therefore must address this issue of ineligible shares.

Additionally, the 2015 operations summaries only address the number of shares and potential HCU credits available for the Fowler shares and the Security/Fountain shares, and do not identify the particular parcels of land that would be fallowed during the 2015 plan year. Because this critical detail is not included in the Application, the State Engineer cannot make the no-injury finding required by Section 37-60-115(8)(f), C.R.S., and by the CWCB Guidelines. Therefore, the State Engineer and the CWCB should do one of the following: (i) make no review of and take no action on the Application unless and until the Applicants provide a detailed plan for the particular parcels of land to be fallowed in rotation; or (ii) deny the Application because the State Engineer cannot make a determination that the project can operate without causing injury.

f. Historical values compared to projected operations

Under Section II.G of the CWCB Guidelines, the Applicants were required to provide a comparison of historical values to projected operations under the CPP. In Appendix I, the Applicants have provided only a first year's operations projection based on an average year. Because Applicants are seeking approval of a pilot project that will run for ten years, the CWCB Guidelines seemingly require a projection of that full ten-year period of operations to be compared with the historical values determined under Section II.G of the Guidelines. Applicants therefore should extend their operations projection over the full ten-year period proposed for the CPP, such that the parties, the State Engineer, and the CWCB may evaluate that projection as compared with the historical data.

g. Accounting

The Applicants provided sample daily and monthly accounting for the Schweizer farm and recharge site, as required by Appendix A to the CWCB Guidelines. Additional accounting summarizing all of the farms, recharge operations, and exchanges proposed for inclusion in the CPP should be included to provide an overall summary of Applicants' proposed operations on a monthly basis. As part of the sample accounting required by Appendix A to the CWCB Guidelines, this summary accounting should be made available for the State Engineer, the CWCB, and the parties to review before the State Engineer or the CWCB takes action on the Application.

3. General Compliance with CWCB Guidelines

LAWMA submitted comments on Applicants' Proposal for the CPP on August 13, 2014, within the 30-day period provided for by statute and by the CWCB Guidelines. In those comments, we identified a number of issues of concern, including (i) that the Applicants' request for the CWCB's consideration of the Proposal appeared to conflict with the timing requirements of the CWCB Guidelines, and (ii) that information critical to the State Engineer's and the CWCB's ultimate consideration of any application for the CPP was missing from the Proposal. LAWMA asked the CWCB to consider the Proposal based on the timing requirements of the CWCB Guidelines, and, if it selected the Proposal, to condition that selection on the Applicants' provision, in any Application, of all information necessary for the State Engineer's and the CWCB's review of and action on such application.

The CWCB did not respond to LAWMA's or other parties' comments on the Proposal, acted on the Proposal outside of the timeline required by the Guidelines, and did not condition Applicants' submission of the Application on their inclusion of all information necessary for the State Engineer's and the CWCB's review of and action on the Application. LAWMA again requests that the CWCB and the State Engineer hold applicants for leasing-fallowing pilot projects to the requirements of the statute and the CWCB Guidelines, which are mandatory and not discretionary, and which are designed to ensure that any pilot project that is approved will not cause injury to other water users and other water rights.

Proposed Terms and Conditions

LAWMA supports approval of the CPP if that approval contains the terms and conditions necessary to ensure that Applicants' operations comply with the statute and the CWCB Guidelines and do not cause injury to other water rights, including LAWMA's. In the sections below, we have reproduced Applicants' proposed terms and conditions in italics, underlined LAWMA's requested additions to those terms and conditions, and shown in strikethrough LAWMA's requested removal of language from those terms and conditions. Our additional comments and explanation are shown in regular font.

Proposed term/condition: *3. The following monthly factors will be applied to augmentation station deliveries to determine monthly consumptive use.*

Consumptive Use Factors

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Schweizer	-	*0.000*	*0.063*	*0.155*	*0.377*	*0.531*	*0.537*	*0.538*	*0.445*	*0.250*	*0.179*	-
Diamond A West	-	*0.000*	*0.032*	*0.129*	*0.314*	*0.468*	*0.484*	*0.460*	*0.311*	*0.136*	*0.032*	-
Hirakata Farms	-	*0.000*	*0.062*	*0.153*	*0.373*	*0.528*	*0.533*	*0.532*	*0.425*	*0.244*	*0.174*	-
Hancock	-	*0.000*	*0.062*	*0.133*	*0.329*	*0.525*	*0.539*	*0.545*	*0.472*	*0.260*	*0.209*	-
Diamond A East	-	*0.000*	*0.065*	*0.157*	*0.380*	*0.533*	*0.540*	*0.541*	*0.463*	*0.264*	*0.162*	-
Hanagan	-	*0.000*	*0.030*	*0.113*	*0.274*	*0.408*	*0.428*	*0.381*	*0.259*	*0.097*	*0.020*	-

Comments/explanation: The monthly consumptive use factors shown in the table above may need to be changed after Applicants have revised the HCU analysis to use the proper study period and the 1985 irrigated acres as mapped by the DEO for each farm. We are unable to propose corrected factors until the Applicants provide the revised HCU analysis.

Proposed term/condition: *5. The monthly and annual consumptive use will be further limited by the following maximum values which are the averages of the three greatest years of the study period.*

Monthly and Annual Maximum Consumptive Use Credits
(All Values in Acre-Feet)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Schweizer	*0.0*	*0.0*	*19.0*	*37.4*	*67.4*	*92.7*	*91.1*	*90.2*	*58.4*	*57.2*	*26.8*	*0.0*	*398.0*
Diamond A West	*0.0*	*0.0*	*13.3*	*38.4*	*64.7*	*99.6*	*96.9*	*93.6*	*52.9*	*54.3*	*8.4*	*0.0*	*377.0*
Hirakata Farms	*0.0*	*0.0*	*14.8*	*28.7*	*52.5*	*71.9*	*70.3*	*68.6*	*44.2*	*44.6*	*20.8*	*0.0*	*309.3*
Hancock	*0.0*	*0.0*	*6.9*	*14.8*	*26.5*	*37.8*	*36.7*	*22.1*	*21.8*	*9.4*	*9.4*	*0.0*	*155.6*
Diamond A East	*0.0*	*0.0*	*27.2*	*53.7*	*95.2*	*133.8*	*136.3*	*129.5*	*84.5*	*82.1*	*35.5*	*0.0*	*561.2*
Hanagan	*0.0*	*0.0*	*9.8*	*26.6*	*45.6*	*68.7*	*66.3*	*59.6*	*33.9*	*31.6*	*4.2*	*0.0*	*254.4*

Comments/explanation: The monthly and annual maximum consumptive use credits may change if the proper study period and the use of the 1985 irrigated acres as mapped by the DEO is used for each farm. We are unable to propose corrected consumptive use credit numbers until the Applicants provide the revised HCU analysis.

Proposed term/condition: ~~*8. All parcels containing alfalfa or pasture grass shall be subject to a reduction in the approved amount of transferrable consumptive use if the field is subirrigated. The reduction will be calculated according to the following table. Necessary monitoring well*~~

~~*configuration, if any, will be determined through the application of specific terms and conditions that would be included in the approval of the Pilot Project.*~~

~~*Depth to Ground Water (Feet)*~~	~~*Percent Reduction in CU Credit*~~	
	~~*Pasture Grass*~~	~~*Alfalfa*~~
~~*1*~~	~~*85%*~~	~~*100%*~~
~~*2*~~	~~*50%*~~	~~*90%*~~
~~*3*~~	~~*30%*~~	~~*75%*~~
~~*4*~~	~~*20%*~~	~~*50%*~~
~~*5*~~	~~*15%*~~	~~*35%*~~
~~*6*~~	~~*10%*~~	~~*20%*~~
~~*7*~~	~~*5%*~~	~~*15%*~~
~~*8*~~	~~*0%*~~	~~*10%*~~
~~*9*~~	~~*0%*~~	~~*0%*~~

Comments/explanation: This term and condition should be removed entirely, as the "Operating Procedures for Administration of Parcels Claimed for Augmentation Credits" agreement between Colorado and Kansas does not allow for a reduction in HCU credit if a parcel is disqualified. The Applicants have indicated in Term and Condition No. 9 that they will agree to use the agreement between Kansas and Colorado, thus making this term and condition both incorrect and unnecessary.

Proposed term/condition: *9. Dry-up of the fallowed fields will comply with the "Operating Procedures for Administration of Parcels Claimed for Augmentation Credits" of the Colorado State Engineer's Office. Re-irrigation of dry-up parcels* by any other source of water, including other surface water, other Catlin Canal shares, or groundwater, *shall not be allowed during the year in which such parcel is fallowed in pilot project operations.*

Comments/explanation: The additional language is needed to clarify that any re-irrigation of the dry-up parcel would only occur in an approved augmentation plan or substitute water supply plan.

Proposed term/condition: *10. Applicants will notify the Division Engineer of the status (dry land crop (must specify type), tilled and fallow, not tilled and fallow, stubble of past crop left on field, etc.) of each fallowed field in the Catlin Canal Pilot Project by ~~May 15~~* March 1st *of each year of operations.*

Comments/explanation: The change in date is necessary because the Catlin Canal begins diverting water on March 15th. Since the Applicants have agreed to use of the "Operating Procedures for Administration of Parcels Claimed for Augmentation Credits" agreement in Term and Condition No. 9, Applicants must install signs per Operating Procedures Section B.2 for Temporary Dry-Up Parcels, and must provide the DEO with mapping of the dry-up parcels. A March 1 deadline for Applicants to provide the notice described in Term and Condition No. 10 would give the DEO sufficient time to verify that the necessary signs are installed to identify each parcel as described in this term and condition, and to review the Applicants' mapping of the parcels.

Proposed term/condition: *17. Any return flows not met by proper delivery of that portion of the available headgate diversions shall be made up from some other source decreed for this use ~~or approved for this use by a substitute water supply plan~~. Absent prior approval by the Division Engineer of some other source* decreed for such use*, it will be assumed those losses will be made up from the consumptive yield of shares included in the pilot project.*

Comments/explanation: As discussed above, the Fallowing-Leasing Pilot Projects statute does not allow water to be used both in a substitute water supply plan and in a pilot project. Therefore, any source of water to be used for Applicants to meet RFOs under the CPP must be either a portion of the available headgate diversions from the Subject Shares or a source of water decreed for and legally and physically available to the Applicants for such use.

Proposed term/condition (new): 28. The Subject Shares that are used within the CPP in any year are restricted to such use in that year, and may not be used in any other plan for augmentation, including Rule 14 plans, substitute water supply plans, or future-authorized replacement plans similar to Rule 14 plans for post-1985 operations, in that year.

Comments/explanation: Use of the Subject Shares in other replacement plans in addition to their use in the CPP would injure downstream water rights, including LAWMA's, by the expansion of use on those shares. This expansion would occur due to a double counting of the HCU credits for use in both the CPP and a replacement plan.

Proposed term/condition (new): 29. Approval of the Application is contingent upon the Applicants' providing copies of signed agreements with the Town of Fowler and with the Colorado Water Protection and Development Association by February 1, 2015. If copies of the signed agreements are not served on the State Engineer, the CWCB, and the notification list by that date, the Application will be deemed denied.

Comments/explanation: These agreements should have been provided in the Application. CWPDA will need an agreement with the Applicants before submitting the CWPDA Rule 14 plan at the end of February.

Proposed term/condition (new): 30. Approval of the Application is contingent upon the Applicants' providing a copy of a signed agreement with the Schweizer Farm for use of those Catlin shares as part of the CPP by March 1, 2015. If a copy of that signed agreement is not served on the State Engineer, the CWCB, and the notification list by that date, the Schweizer Farm and associated shares will be deemed ineligible for the pilot project.

Comments/explanation: This agreement should have been provided in the Application. This agreement must be in place before the start of the 2015 irrigation season.

Proposed term/condition (new): 31. Approval of the Application is contingent upon the Applicants' providing, no later than March 15, 2015, evidence that the Subject Shares were historically used on the Participating Farms. If such evidence is not served on the State Engineer, the CWCB, and the notification list by that date, the Application will be deemed denied.

> **Comments/explanation:** Based on information from the DEO's GIS coverages, it is unclear as to exactly where the Subject Shares have been used. The Applicants must provide all parties evidence that the water was actually used on the Participating Farms before operations begin and any credit is allowed; otherwise, Applicants may claim HCU credit to which they are not entitled, injuring other water rights.

Conclusion

It is our opinion that the State Engineer cannot make a written determination that the proposed Catlin Pilot Project can operate without injury unless and until the concerns summarized in this Memorandum have been addressed. If you have any questions relating to these concerns, please call me.

Slattery & Hendrix Engineering LLC

Randy Hendrix

Randy L. Hendrix

cc: Donald F. Higbee
Richard J. Mehren
Jennifer M. DiLalla

Table 1
Catlin Pilot Project Farms Study Period

Super Ditch ID No.	Ownership	Number of Catlin Shares	2010 Irrigated Acres	1985 Irrigated Acres	Claimed as Dry-up In Rule 14 Replacement Plan	First Year Claimed as Dry-up	Number of Consecutive Years as Dry-up	Study Period Use by Applicant	Proposed Study Period to Use
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Diamond A West	223.30	160.70	145.90	49.99	2003	11	1984 to 2013	1973 to 2002
2	K2 Farms Inc.	151.00	150.80	139.68	53.22	2013	1	1984 to 2013	1983 to 2012
5	Ken Schweizer	194.00	195.80	156.43	0.00	n/a	n/a	1984 to 2013	1984 to 2013
6	Eric Hanagan	171.00	108.20	99.90	109.23	Prior 2003	10+	1984 to 2013	See Note
9	Lee Hancock	80.00	72.40	74.78	0.00	n/a	n/a	1984 to 2013	1984 to 2013
10	Diamond A East	278.53	278.43	256.05	51.20	2003	11	1984 to 2013	1973 to 2002
Total		1097.83	966.33	872.74	263.63				

Note:
The Hanagan Farm has had a portion of its shares used for augmentation credits in a Rule 14 plan prior to 2003. The study period should reflect the 30 years prior to the first use for augmentation credits in a Rule 14 Replacemetn Plan.

Column Explanation:
1) Identification number as provided by Applicants in the Catlin Pilot Project proposal dated July 14, 2014.
2) Farm ownership as provided by the Applicants in the Catlin Pilot Project application dated September 25, 2014 Table 2.
3) Number of Catlin Canal shares listed by the Applicants in the Catlin Pilot Project application dated September 25, 2014 Table 2.
4) Irrigated acres identified in 2010 by the Applicants in the Catlin Pilot Project application dated September 25, 2014 Table 2.
5) Irrigated acres identified and agreed upon by Colorado and Kansas in 1985. (Source is GIS coverages available from the Division 2 Engineer's Office)
6) Acres identified as dried up for augmentation credits in a Rule 14 Plan. Additional details in Table 2 of this memorandum. (Source is GIS coverages available from the Division 2 Engineer's Office)
7) First year a portion of the farm was claimed as dry up for augmentation credits in a Rule 14 plan. Additional details in Table 2 of this memorandum.
8) Maximum number of years a parcel was claimed as dry up for augmentation credits in a Rule 14 plan. Additional details in Table 2 of this memorandum.
9) Study period used by the Applicants from the appropriate Appendice for each farm.
10) Study period that should be used as part of the evaluation of consumptive use credits and return flow percentage in the project.

Table 2
Catlin Pilot Project Farms with Dry-Up Previously Claimed in a Rule 14 Repalcement Plan

PARCEL_ID	IRRIG_TYPE	ACRES	IRR03	IRR04	IRR05	IRR06	IRR07	IRR08	IRR09	IRR10	IRR11	IRR12	IRR13	DRYUPTXT13	CROP13_1	COMMENTS13
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Super Ditch ID No. 1 - Diamond A West																
22573313	DRY	5.47	D	D	D	D	D	D	D	D	D	D	N	CWPDA CATLIN DIAMOND A DRY-UP 13 - DISQUALIFIED	FALLOW TILLED	DU: DISQUALIFIED, 10 YEAR DRY-UP
22573323	DRY	9.40	N	N	N	D	D	D	D	D	D	D	DN	CWPDA CATLIN DIAMOND A DRY-UP 13	FALLOW TILLED	
22573426	DRY	6.90	B	B	B	B	D	D	D	D	L	D	DN	CWPDA CATLIN DIAMOND A DRY-UP 13	FALLOW TILLED	
22573411	DRY	19.28	B	B	B	B	B	B	B	B	B	G	DN	CWPDA CATLIN DIAMOND A DRY-UP 13	FALLOW WEEDS	
22573321	DRY	8.93	B	B	B	B	D	D	D	D	D	D	DN	CWPDA CATLIN DIAMOND A DRY-UP 13	FALLOW WEEDS	
Total		49.99														
Super Ditch ID No. 2 - Hirakata Farms																
23562823	DRY	7.77	N	N	S	S	S	S	S	S	S	S	DN	CWPDA CATLIN HIRAKATA DRY-UP 13	FALLOW WEEDS	
23562824	DRY	11.35	S	S	S	S	S	S	S	S	S	S	DN	CWPDA CATLIN HIRAKATA DRY-UP 13	FALLOW WEEDS	
23562716	DRY	15.86	N	N	S	S	S	S	S	S	S	S	DN	CWPDA CATLIN HIRAKATA DRY-UP 13	FALLOW WEEDS	
23562808	DRY	18.24	N	N	S	S	S	S	S	S	S	S	DN	CWPDA CATLIN HIRAKATA DRY-UP 13	FALLOW WEEDS	
Total		53.22														
Super Ditch ID No. 6 - Hanagan																
23563608	FLOOD	19.05	B	B	G	G	B	B	B	B	B	B	DG	CWPDA CATLIN HANAGAN DRY-UP 13	SORGHUM OR MILO	DU: DWR: PLANTED AND IRRIGATED, CROP NOT UP YET
23562509	DRIP	11.48	G	D	G	G	G	G	G	G	G	G	DG	CWPDA CATLIN HANAGAN DRY-UP 13	VEGETABLES (STATUS)	DU: DWR: NOTHING PLANTED YET
23563603	DRY	40.71	B	G	G	G	G	G	G	G	G	G	DN	CWPDA CATLIN HANAGAN DRY-UP 13	FALLOW WEEDS	
23563604	DRIP	24.83	G	G	G	G	G	G	G	G	G	G	G	CWPDA CATLIN HANAGAN DRY-UP 13 - DISQUALIFIED	VEGETABLES (STATUS)	DU: DISQUALIFIED, 10 YEAR DRY-UP; DWR: MIXED CROP - SOUTH 1/2 MIXED VEGETABLES, NORTH 1/2 FALLOW
23563632	DRIP	13.16	G	G	G	G	G	G	G	G	G	G	G	CWPDA CATLIN HANAGAN DRY-UP 13 - DISQUALIFIED	VEGETABLES (STATUS)	DU: DISQUALIFIED, 10 YEAR DRY-UP; DWR: MIXED VEGETABLES
Total		109.23														
Super Ditch ID No. 10 - Diamond A East																
24561110	DRY	20.33	D	D	N	D	D	D	D	D	D	D	DN	CWPDA CATLIN DIAMOND A DRY-UP 13	FALLOW WEEDS	
24561104	DRY	30.87	S	S	S	S	S	S	S	S	S	S	DN	CWPDA CATLIN DIAMOND A DRY-UP 13	FALLOW TILLED	
Total		51.20														

Column Explanation:
1) Parcel identification number determined by the the Division 2 Engineer's Office.
2) Type of irrigation noted in 2013.
3) Acreage
4) Irrigation method in 2003; see below for codes.
5) Irrigation method in 2004; see below for codes.

6) Irrigation method in 2005; see below for codes.
7) Irrigation method in 2006; see below for codes.
8) Irrigation method in 2007; see below for codes.
9) Irrigation method in 2008; see below for codes.
10) Irrigation method in 2009; see below for codes.
11) Irrigation method in 2010; see below for codes.
12) Irrigation method in 2011; see below for codes.
13) Irrigation method in 2012; see below for codes.
14) Irrigation method in 2013; see below for codes.
15) Comments from the Division 2 Engineer's Office.
16) 2013 cropping practice as observed by the Division 2 Engineer's Office field visit.
17) Additional comments from the Division 2 Engineer's Office.

Coding Explanation for Columns 4 through 14

a) N = not irrigated
b) S = irrigated with surface water
c) G = irrigated with ground water
d) D = parcel was dried up that year
e) L = dryland farmed
f) B = irrigated with both surface and ground water
g) DN = not irrigated dry-up parcel (2013 only)
h) DG = ground water irrigated dry up parcel (2013 only)
i) DL = dryland farmed dry-up parcel (2013 only)

Table 3
Catlin Pilot Project Farms and Shares Ineligibile in a Rule 14 Replacement Plan

Super Ditch ID No.	Ownership	Number of Catlin Shares	2010 Irrigated Acres	Acres / Share	Acres Disqualified	Shares Already Ineligible for Rule 14 Plan	Add'l Acres Dried Up in 2004	Shares Dried up in 2004	Add'l Acres Dried Up in 2006	Shares Dried Up in 2006	Add'l Acres Dried Up in 2007	Shares Dried Up in 2007	Total Acres	Total Shares
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1	Diamond A West	223.30	160.70	0.72	5.47	7.60	0.00	0.00	9.40	13.06	15.83	22.00	30.70	42.66
2	K2 Farms Inc.	151.00	150.80	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Ken Schweizer	194.00	195.80	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Eric Hanagan	171.00	108.20	0.63	37.99	60.04	52.19	82.48	0.00	0.00	0.00	0.00	90.18	142.52
9	Lee Hancock	80.00	72.40	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Diamond A East	278.53	278.43	1.00	0.00	0.00	20.33	20.34	0.00	0.00	0.00	0.00	20.33	20.34
Total		1097.83	966.33		43.46	67.64	72.52	102.82	9.40	13.06	15.83	22.00	141.21	205.52

Column Explanation:
1) Identification number as provided by Applicants in the Catlin Pilot Project proposal dated July 14, 2014.
2) Farm ownership as provided by the Applicants in the Catlin Pilot Project application dated September 25, 2014 Table 2.
3) Number of Catlin Canal shares listed by the Applicants in the Catlin Pilot Project application dated September 25, 2014 Table 2.
4) Irrigated acres identified in 2010 by the Applicants in the Catlin Pilot Project application dated September 25, 2014 Table 2.
5) Column 4 divided by Column 3.
6) Acreage from Table 2 Column 3 based on comments in Table 2 Column 17.
7) Column 6 divided by Column 5.
8) Acreage from Table 2 Column 3 based on information in Table 2 Column 5 and 15.
9) Column 8 divided Column 5.
10) Acreage from Table 2 Column 3 based on information in Table 2 Column 7 and 15.
11) Column 10 divided Column 5.
12) Acreage from Table 2 Column 3 based on information in Table 2 Column 8 and 15.
13) Column 12 divided Column 5.
14) Sum of Columns 6, 8, 10, 12.
15) Sum of Columns 7, 9, 11, 13.

TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.
1100 W. 116TH AVENUE • P.O. BOX 33695 • DENVER, COLORADO 80233 • 303-452-6111

RECEIVED

DEC 09 2014

Colorado Water
Conservation Board

December 9, 2014

James Eklund, Director
Tom Browning, Deputy Director
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Re: Catlin Pilot Project ("Project") Application-Tri-State's Comments

Dear Messrs. Eklund and Browning:

The attached materials are submitted for Tri-State Generation and Transmission Association, Inc. ("Tri-State") in response to the subject application filed on September 25, 2014 by the Lower Arkansas Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. ("Applicants"). Tri-State appreciates the opportunity to participate in this process and requests consideration of the attached materials by the Colorado Water Conservation Board ("CWCB").

Tri-State is a wholesale electric power generation and transmission cooperative that serves its 44 member distribution electric cooperatives in Colorado, Wyoming, New Mexico and Nebraska. About twenty of Tri-State's member cooperatives serve customers in Colorado. Tri-State is generally an industrial water user, but also owns agricultural property and water rights in many parts of Colorado, including in the Lower Arkansas River Basin. As well, Tri-State's distribution cooperatives provide electric service to farmers and ranchers throughout the state, who also use Colorado's water resources. Thus, Tri-State supports the State's attempts to develop alternatives to traditional "buy and dry" and the CWCB's fallowing-leasing pilot project program.

Tri-State's engineering representatives from Bishop-Brogden Associates, Inc. ("BBA") and legal representatives from White & Jankowski, LLP have helped develop our responses to the Catlin Pilot Project ("Project") application. BBA conferred with Applicants' engineers to better understand the Project, to suggest improvements, and to understand potential impacts on Tri-State's water rights. Attachment 1 includes Tri-State's legal issues in a letter from White & Jankowski, LLP. Attachment 2 includes our engineering issues from BBA. Collectively, the attachments present conditions that should be included for the Project to succeed.

Tri-State intends to continue participation in the process. Successful fallowing-leasing processes and procedures that protect all water rights and water users is our goal. We believe our comments will help the participants develop this Project to meet the goals and assurances established by the underlying statute.

Sincerely,

Michael G. Sorensen

Michael G. Sorensen
Senior Manager, Fuel and Water Resources

Attachments (2)

CC Via Email:
Dick Wolfe, P.E.
Steve Witte, P.E.
John Stulp

December 9, 2014

Via hand delivery and email to james.eklund@state.co.us; tom.browning@state.co.us

James Eklund, Director
Tom Browning, Deputy Director
Colorado Water Conservation Board
1313 Sherman Street, Suite 721
Denver, Colorado 80203

Re: Tri-State's Comments re Catlin Pilot Project Application

Dear Mr. Eklund and Mr. Browning:

I am writing on behalf of Tri-State Generation and Transmission Association, Inc. ("Tri-State") to submit comments regarding the September 25, 2014 application ("Application") filed by the Lower Arkansas Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc. (collectively, "Applicants") for a fallowing-leasing project involving the Catlin Canal ("Catlin Pilot Project"). These comments are submitted pursuant to C.R.S. § 37-60-115(8)(d)(V) and section II.I of the CWCB's Criteria and Guidelines for Fallowing-Leasing Pilot Projects dated November 19, 2013 ("Criteria"). Tri-State previously submitted comments regarding the Catlin Pilot Project at the proposal stage in a letter dated August 13, 2014. In addition, Tri-State is submitting a letter from Senior Manager Michael Sorensen and a technical comment letter prepared by Bishop-Brogden Associates, Inc. ("BBA"). Those letters are incorporated in this letter by reference and the four letters collectively comprise Tri-State's comments on the Catlin Pilot Project.

For the Catlin Pilot Project, Applicants propose to rotationally fallow six farms owned by five shareholders in the Catlin Canal ("Farms").[1] The consumable amount of water historically used to irrigate the Farms will then be leased by the Town of Fowler (up to 250 acre feet), the City of Fountain (up to 125 acre feet) and Security Water and Sanitation District (up to 125 acre feet). Fowler intends to exchange its leased water to augment well depletions caused by increased pumping of its municipal wells. Fowler intends to file a substitute water supply plan ("SWSP") to allow for increased pumping, or to dedicate its leased water to a Rule 14 Plan[2] operated by Colorado Well Protective and Development Association ("CWPDA"). For Fountain and Security, Applicants plan to attempt to exchange the consumable Catlin water to Pueblo

[1] Several of the Farms also appear to be included in the pending water court change Case No. 2012CW94 (Div. 2). Tri-State does not object to inclusion of the same farms in the Catlin Pilot Project. The Behm farm was dropped from the pilot project between the proposal and application stages.

[2] A plan that Applicants hope will be approved by the Division Engineer under Rule 14 of the Arkansas River Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin.

White & Jankowski, L.L.P.
Kittredge Building, 511 Sixteenth Street, Suite 500, Denver, Colorado 80202
(303) 595-9441 Fax (303) 825-5632 mail@white-jankowski.com

Reservoir so that those municipalities can take delivery via the Fountain Valley Conduit or the Southern Delivery System.

Tri-State is participating in the Pilot Project process to ensure that its water rights are protected from injury and to assist the CWCB and Applicants in demonstrating the viability of non-injurious alternative methods to transfer water rights from agricultural to municipal uses. In the spirit of section I.D.1.a of the Criteria, Tri-State has conferred with the Applicants and other Division 2 water users regarding the Catlin Pilot Project. Tri-State supports approval of the Application so long as critical terms and conditions presented in these comments are included as part of the CWCB's and State Engineer's approval.

Tri-State's requested terms and conditions and the reasons for seeking their inclusion are described in more detail in part I of this letter. While Tri-State supports the CWCB's selection of the Application with proper terms and conditions, part II of this letter summarizes certain legal and injury issues that Tri-State may pursue if necessary terms and conditions are not imposed on the operation of the Catlin Pilot Project.

I. TRI-STATE'S REQUESTED TERMS AND CONDITIONS FOR THE CATLIN PILOT PROJECT.

Based on the information provided by Applicants, the following terms and conditions should be included as part of the CWCB's approval of the Catlin Pilot Project.

A. No inclusion of additional farms.

Applicants' July 14, 2014 Proposal to the CWCB for the Catlin Pilot Project stated that they "anticipate the potential inclusion of additional farms and their associated historically irrigated lands served by shares in the Catlin Canal Company into the Catlin Pilot Project...by amendment to the approved Catlin Pilot Project." Proposal at 4. The Proposal also discussed potential replacement of return flows using Substitute Water Supply Plans or other administrative approvals. Proposal at 5. The Application does not discuss whether or not Applicants continue to plan to incorporate additional farms into the pilot project.

The CWCB should prohibit the future addition of farms to the Catlin Pilot Project by SWSP or Interruptible Water Supply Agreements ("IWSAs"). The pilot project implementing statute requires that "during the term of the pilot project, land and water included in a pilot project is not also included in a substitute water supply plan...[or] an interruptible water supply agreement...." C.R.S. § 37-60-115(8)(d)(XI). *See also* Criteria at § I.D.2.k. The SWSP and IWSA procedures only allow for a respective 30 or 35 day comment period, which is much shorter than the 75-day comment period under 37-60-115(8) and is insufficient for Tri-State's engineers to review for risk of injury to Tri-State's water rights. BBA Letter at 3. The pilot project statute and CWCB Criteria contemplate a pilot project to be a completely self-contained program separate and apart from other statutory procedures such as a SWSP or IWSA.

The CWCB should also prohibit the future addition of farms to the Catlin Pilot Project by amendment to the project. Neither the Criteria nor C.R.S. § 37-60-115(8) provide for "amendments" to a pilot project. Instead, the Criteria include detailed requirements for applications to ensure that the applicants present a complete description of the operation of their pilot projects. The future addition of farms is inconsistent with many of the requirements of the Criteria and Guidelines, as detailed in Tri-State's August 13, 2014 comment letter (Section I.C). The possibility of additional farms prevents Applicants from specifying all of the water rights and lands to be included in the pilot project. Applicants also cannot identify the return flow obligations for future farms. Finally, Applicants cannot specify the maximum quantity of transferable consumptive use water if additional farms could be added.

Tri-State's comments and proposed terms and conditions are based on the relatively modest size of the Catlin Pilot Project presented in the September 25, 2014 Application. It is important to include a term and condition prohibiting the addition of farms to the Catlin Pilot Project either by amendment to the project itself or through other SWSPs or IWSAs. The CWCB should address this issue now rather than awaiting a potential future filing by Applicants. This will save the Applicants the cost of preparing an amendment or SWSP and will save other water users the expense of preparing comments.

B. Stand-alone project.

The Pilot Project Application requests that the Pilot Project be blended with Rule 14 Plans and Surface Water Improvement Rule 10 Plans[3] for both delivery of HCU credits and replacement of return flows. As discussed above, the Criteria and Guidelines contemplate stand-alone pilot projects. Applicants' proposal to blend operation of the Pilot Project with Rule 10 and Rule 14 plans is inconsistent with operating a stand-alone project. It will be impossible to evaluate the feasibility and efficacy of temporary lease fallowing if lease fallowing operations are blended with, and depend on, other unrelated plans. In addition, as a legal matter, water in Rule 10 and Rule 14 plans is not lawfully available for the uses Applicants propose.

Rule 10 plans provide for the maintenance of historical return flows for *irrigation use* of water rights that are using improved delivery methods such as sprinklers. *See* Irrigation Improvement Rule 3 ("The purpose of these Rules is to ensure that improvements to surface water irrigation systems in the Arkansas River Basin in Colorado comply with Article IV-D of the Compact"). Neither Rule 10 nor any of the other Irrigation Improvement Rules provides for replacement of return flows for water rights that are being used for municipal purposes. Applicants' proposal to use Rule 10 water to replace pilot project return flows is not authorized by the Irrigation Improvement Rules.

Similarly, consumptive use water from the Catlin Pilot Project is not legally available to a Rule 10 plan. The pilot project statute provides for temporary changes of irrigation rights to municipal use. C.R.S. § 37-60-115(8)(a)(II). Rule 10 plans use water to maintain historical return flows, which is not a municipal use. The CWCB should prohibit trades of Pilot Project water with Rule 10 plans.

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[3] Rule 10 of the Compact Rules Governing Improvements to Surface Water Irrigation Systems in the Arkansas River Basin in Colorado, October 22, 2010.

Rule 14 Plan water is not available to maintain historical return flows for the Catlin Pilot Project. The Arkansas River Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin ("Well Use Rules"), of which Rule 14 is a part, regulate the operation of tributary wells. They do not provide any authorization to maintain return flows for surface water rights that have been temporarily changed to municipal uses in a pilot project. Specifically, Well Use Rule 6 contemplates temporary changes of water rights to augmentation use to replace well depletions; it does not authorize temporary changes of water rights to replace return flows for surface irrigation rights that have been temporarily changed to municipal use.

In addition, Rule 14 Plans are approved without any notice or comment process for other water users. Use of a Rule 14 Plan to replace return flow obligations for a pilot project is inconsistent with the notice and comment procedures for pilot projects. The CWCB should prohibit the use of Rule 14 water as a source for replacement of pilot project return flow obligations. The CWCB should also prohibit the use of pilot project water to pay Rule 14 return flow obligations because that is not a municipal use of water authorized by the pilot project statute.

There is one aspect of Catlin Pilot Project operations that may be connected to a Rule 14 Plan. Tri-State recognizes that Fowler's municipal water supply is derived from pumping wells under a Rule 14 plan and that delivery of consumptive use credits to Fowler will require their inclusion in a Rule 14 plan. However, it is important to note that the Rule 14 Plan referenced in the Application is a separate approval process under a separate statute and administrative rules. It presents operational issues and risks of water rights injury that are not addressed by the Application. For example, Well Use Rule 6 limits the duration that water rights that are not decreed for augmentation use may be included in a Rule 14 Plan, and some of the Catlin Canal shares included in the Catlin Pilot Project may be restricted by this rule during the operation of the Catlin Pilot Project. Approval of the Catlin Pilot Project cannot lead to automatic approval of Fowler's use of leased consumptive use water in a Rule 14 Plan because Rule 14 Plans involve additional issues, such as replacement of lagged well depletions. Therefore, the approval of the Catlin Pilot Project should be clear that the Rule 14 Plan for Fowler's wells is a separate administrative process to be evaluated on its own merits.

C. Identification of firm supply for return flow replacement obligations.

Maintenance of historical return flows is a critical element of a successful pilot project. Other water rights owners, including Tri-State, depend on historical return flows to make up a portion of their supply. Therefore, maintaining the historical return flow pattern while rotationally fallowing lands is a critical step in preventing injury to other water rights.

The CWCB Criteria require Applicants to identify "the source of water that will be used to meet return flow obligations" and "how and where any necessary replacement water will be delivered to the appropriate stream locations." Criteria, § II.F.a.iii-iv. This source of water must "provide a firm yield of water to replace all return flow obligations, during the pilot project and after completion of the pilot project." *Id.* § II.G.5 (page 9). In order to be "firm", water must be available regardless of hydrologic conditions (e.g. available in a dry year), not be contingent on future agreements or approvals, and must provide for sufficient amounts of water to be delivered in time, location and amount to replace return flow obligations.

In their July 14 Proposal, the Applicants listed a variety of potential methods and sources to maintain historical return flows that will be interrupted by rotational fallowing. The Application focuses on recharge as a primary method to replace return flows but it acknowledges that recharge cannot replace all pilot project return flows. Martin & Wood letter dated September 25, 2014, at 14-15. The application does not identify any firm source of water to replace all Pilot Project return flows. Instead, it lists water rights owned by the Lower Arkansas Valley Water Conservancy District and the possibility of future leases or contracts. There is no evidence of contracts or legally binding commitments for any of these supplies and therefore they do not provide a firm yield (e.g. the district might use the water for non-pilot project purposes in the future). In addition, Applicants do not currently have contracts to use the recharge sites throughout the duration of the Catlin Pilot Project.

Without demonstrating that return flow obligations can be met in time, location and amount, Applicants cannot prove non-injury to other water rights, including Tri-State's. The potential for injury to Tri-State's water rights is described in detail in the BBA letter. Without proving non-injury, the Catlin Pilot Project does not satisfy the requirements of C.R.S. § 37-60-115(8)(f)(I)(A).

Despite the current lack of firm replacement sources, the BBA Letter presents terms and conditions that may allow the Pilot Project to operate without injury. This method of operation will require a projection of return flow obligations and tabulation of the firm supplies that will be used to make replacements. Deliveries of consumptive use water to the lessees must be limited to amounts for which the projection documents a firm source of water to replace the associated return flows. The projection will be updated weekly during the irrigation season to ensure that return flows are being delivered and will be replaced in the future, as a condition of continuing to generate consumptive use water. In addition to the terms and conditions in the BBA letter, each of the water supplies projected for return flow replacement must: (1) be dedicated to the project by contract or other binding commitment; (2) decreed for replacement use or included in a pending change case (except for the Catlin Canal Company shares listed in the Application); and (3) projected only in the amount of a dry-year firm yield.

D. Terms and conditions for operations, accounting and reporting.

The Application presented a preliminary operations plan for the Pilot Project that included contingencies and ambiguities. Tri-State's engineers at BBA have discussed these operational issues with the Applicants' engineer and believe there are solutions to Tri-State's concerns. The BBA letter presents terms and conditions to address these issues under the heading "Operations and Accounting." The BBA Letter also presents terms and conditions to assist the CWCB, Applicants, and other water users in evaluating the efficacy of the Pilot Project. These are refinements to the plan presented in the Application that will assist the Catlin

Pilot Project in operating without causing injury, and are in addition to (and modification of) terms and conditions proposed by the Applicants.

In addition, Tri-State notes that there are numerous agreements and approvals that are necessary for the operation of the Catlin Pilot Project. Many agreements and approvals were listed as incomplete in the July 14 Proposal and no agreements or approvals were provided with the Application. We understand from Applicants' recent status report in Case No. 10CW4 that some agreements have been finalized and others are not yet complete. Applicants provided copies of 5 lease option agreements with participating farmers to the CWCB[4] by letter dated December 5, 2014, which were received too late to perform a detailed review before the December 9 comment deadline for this matter. Based on our initial review, the contracts appear to contemplate irrigation of fallowed ground related to erosion control efforts, which may lead to expansion of use of the water rights included in the pilot project. The CWCB should require that fallowed ground not be irrigated.

We also note that a firm return flow replacement source may require additional agreements beyond those listed in the Proposal, including agreements for a firm leased water source of sufficient duration, and permission to store or recharge water in third party facilities. CWCB should condition approval of the Fowler Pilot Project on Applicants providing copies of all necessary agreements to the CWCB and all parties to the Application, including Tri-State. Criteria, § II.F.c.

Finally, approval of the Fowler Pilot Project should be clear about separate approval processes that Applicants or others may undertake. As discussed above, Rule 14 Plans involving Pilot Project water must be considered on their own merits and Tri-State reserves all rights with respect to Rule 14 Plan applications. The Application also does not provide any detail regarding exchanges. Any exchanges that may be proposed as part of the Pilot Project must be considered on their own merits and be subject to separate approval pursuant to C.R.S. § 37-80-120.

Tri-State's support for the Fowler Pilot Project is conditioned upon the inclusion of the terms and conditions described in this Section I and the BBA letter in either CWCB's or the State Engineer's approval of the pilot project and Applicants' compliance with all terms and conditions of approval. In summary, the critical terms and conditions are that (1) no future farms shall be added to the Pilot Project; (2) the Pilot Project must operate independently to prevent injury and not depend on trades or blended operations with other administrative plans; (3) Applicants demonstrate firm replacement supplies to replace all delayed return flow obligations; and (3) Applicants refine and prove up their operations and reporting plan as outlined in this section I.D.

[4] Notice of these contracts was not provided to the substitute water supply plan notification list as required by the Criteria § II.H.

II. Reservation of Rights.

Tri-State respectfully requests the approval of the Catlin Pilot Project Proposal include terms and conditions described in part I of this letter. However, if the Catlin Pilot Project Proposal is selected or approved without the terms and conditions that Tri-State requests in order to prevent injury to its water rights, or if the project is injurious in its operation, Tri-State reserves the right to raise all issues with the Catlin Pilot Project and pursue them before the CWCB, State Engineer, and Division 2 Water Court. These include but are not limited to the issues described in this letter, Tri-State's comments on the Catlin Pilot Project Proposal dated August 13, 2014, and additional comments that Tri-State may provide in the future. Nothing in this letter waives Tri-State's rights under Colorado law or establishes a precedent regarding lease-fallowing or pilot projects.

Tri-State notes the following additional issues with the Applicants' proposal:

- As described above, the Application did not identify all sources of water to be used to replace historical return flow obligations. Applicants have not shown any contracts or other commitment to use any source other than water delivered to Catlin Canal shares included in the Pilot Project. Applicants acknowledge that this source is not sufficient to replace all return flows. The Application does not comply with the requirements of the Criteria and Guidelines or the statutory requirement that the Pilot Project not injure other water rights. C.R.S. § 37-60-115(8)(f)(I)(A).

- Some of the pilot project water is proposed to be used for augmentation use rather than municipal use required by the pilot project statute. C.R.S. § 37-60-115(8)(a)(II).

- Tri-State understands that the Catlin Pilot Project Proposal was selected at CWCB's meeting on September 12, 2014. This selection violated the Criteria because it was not more than 60 days after the Proposal was received by the CWCB. Criteria § II.A, Step 1.

Conclusion

Thank you for the opportunity to comment regarding Application for the Catlin Pilot Project. Tri-State supports the CWCB's approval of the Application with the terms and conditions listed in this letter and the attached BBA letter. If the CWCB or State Engineer has any questions regarding this letter, please let me know. Please consider Tri-State a party to the Catlin Pilot Project and copy me on further communications affecting the Pilot Project and on the CWCB's decision regarding the Application by email.

Very truly yours,

WHITE & JANKOWSKI, LLP

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matthewm@white-jankowski.com

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December 9, 2014

Colorado Water Conservation Board
James Eklund, Director
Tom Browning, Deputy Director
1313 Sherman St., Room 712
Denver, CO 80203

Re: Comments regarding September 25, 2014 HB 13-1248 Catlin Pilot Project Application

Dear James and Tom:

We are writing on behalf of Tri-State Generation and Transmission Association, Inc. (Tri-State) to provide comments regarding the September 25, 2014 Super Ditch Catlin Pilot Project application (Pilot Project Application, Pilot Project). The Pilot Project Application includes 1,097.83 shares in the Catlin Canal Company (Subject Shares) and six farms (Subject Farms). The Pilot Project was selected at the September 2014 CWCB Board Meeting following the July 14, 2014 Proposal for a Fallowing Leasing Pilot Project (Pilot Project Proposal) by the Lower Arkansas Valley Water Conservancy District (LAVWCD) and the Lower Arkansas Valley Super Ditch Company (collectively "Super Ditch"). Our comments are intended to assist Super Ditch in complying with HB 13-1248 and the Colorado Water Conservation Board (CWCB) November 19, 2013 Criteria and Guidelines for Fallowing-Leasing Pilot Projects (Criteria and Guidelines).
Tri-State owns 17,163.79 shares (49.52-percent interest) in the Amity Mutual Irrigation Company, and water rights in the Fort Lyon Canal Company, Buffalo Canal Company, and various other surface water, exchange and ground water rights in Water District 67 summarized in Tables 1A-1E. Tri-State's water rights will be injured by the Pilot Project without protective terms and conditions. The Amity Canal, Fort Lyon Canal and Buffalo Canal are often the calling water rights on the lower Arkansas River and rely upon winter storage. Injury will occur if historical irrigation season and winter return flows are not replaced or use is expanded. We have completed a review of information in the Pilot Project Proposal, Pilot Project Application and supplemental information provided by Super Ditch's water engineer in an October 28, 2014 email and a November 4, 2014 email. In addition, we have been in communication with Super Ditch's engineer by phone. Super Ditch provided lease option agreements for certain Subject Shares by a December 5, 2014 letter; however we have not had time to review the agreements prior to the December 9 comment deadline.

If the Pilot Project were approved as proposed, it would almost certainly cause injury to other water rights due to a lack of binding contracts, an incomplete return flow replacement plan and deficient accounting. This letter presents terms and conditions and reporting requirements that when taken together with the terms and conditions suggested by the Applicants, daily administration and complete accounting, can minimize the potential for injury to Tri-State's water rights, comply with HB 13-1248 and the Criteria and Guidelines and allow for successful operation of the Pilot Project.

The Pilot Project Application is the second Fallowing-Leasing project Super Ditch has proposed under HB 13-1248; the first was withdrawn and never operated. The magnitude of potential water rights injury from this project is constrained by the limited scope: the Pilot Project Application is for a modest amount of water (up to 560.6 acre-feet (af) of consumptive use water from six farms during three out of ten years), is limited to a ten-year duration and was developed using the relatively conservative engineering assumptions contained in the Criteria and Guidelines. Due to the limited scope of Pilot Project Application, our review has focused on terms and conditions that ensure replacement of historical irrigation return flows.

Summary of Pilot Project Application

The Pilot Project Application requests temporary cessation of irrigation from March 15, 2015 through March 14, 2025 on the six Subject Farms, which were historically irrigated with Catlin Canal Company water, among other supplies. The Pilot Project includes 1,097.83 shares historically used for irrigation on up to approximately 966.33 acres generally located between the town of Manzanola and the town of La Junta, summarized below:

Summary of Reported Pilot Project Subject Shares and Historically Irrigated Acres

Farm	Shares	Irrigated Acres
Schweizer	194.00	195.80
Diamond A West	223.30	160.70
Hirakata	151.00	150.80
Hancock	80.00	72.40
Diamond A East	278.53	278.43
Hanagan	171.00	108.20
Total[1]	1,097.83	966.33

Historical consumptive use (HCU) credits generated by the Pilot Project will be used by the Town of Fowler (Fowler), City of Fountain (Fountain) and Security Water District (Security, and collectively "Lessees"). For Fowler, HCU credits are proposed to be incorporated into the Colorado Water Protective and Development Association (CWPDA) plan under Rule 14 of the Tributary Ground Water Rules[2] (Rule 14 Plan) and used to replace stream depletions resulting from well pumping by Fowler (Fowler-CWPDA Municipal Well Replacement). For Fountain and Security, HCU credits are proposed to be delivered to Pueblo Reservoir, by exchange, and then delivered for municipal water use via the Fountain Valley Conduit.

[1] We note that the total acreage in this table differs from the apparent incorrect total from Table 2 of the Pilot Project Application.
[2] Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado, September 27, 1995.

Super Ditch proposes that during operation of the Pilot Project, water delivered to the fallowed Subject Shares will be either returned to the river immediately at augmentation stations or returned to the river through the ground water system through recharge ponds. The historically irrigated lands will be fallowed; they will receive no water deliveries and will be temporarily "dried up."

The Pilot Project Proposal included the Behm Farm in addition to the six Subject Farms. Because the Pilot Project Application did not contain any information regarding the Behm Farm, we are unable to evaluate terms and condition necessary to prevent injury and the Behm Farm should not be permitted to participate in the Pilot Project.

Stand-Alone Project

To test the efficacy of fallowing-leasing agricultural water rights for municipal use as an alternative to permanent agricultural dry-up, the Pilot Project should stand alone on its own merit. The Pilot Project Application requests that the Pilot Project be blended with Rule 14 Plans and Surface Water Improvement Rule 10 Plans for both delivery of HCU credits and replacement of return flows.[3] Rule 14 Plans and Rule 10 Plans are subject to annual approval by the Division 2 Engineer and are unique to the Arkansas River Basin. If Pilot Project water is used for Rule 14 irrigation pumping replacement or Rule 10 irrigation improvement replacement, then the Pilot Project will not test efficacy of fallowing-leasing agricultural water rights for municipal use. Similarly, it will not be possible to test the efficacy of fallowing-leasing if the Pilot Project relies upon Rule 14 Plans or Rule 10 Plans for the critical element of return flow replacement. Return flow replacement through Rule 14 Plan or Rule 10 Plan is also analogous to inclusion of water through a SWSP or IWSA, which is prohibited by the Criteria and Guidelines. Reliance on administratively approved plans for the Pilot Project should be limited to delivery of water for Fowler-CWPDA Municipal Well Replacement via Rule 14.

Modification of the Pilot Project through other administrative approvals should not be permitted. HB 13-1248 Fallowing-Leasing Pilot Projects include a 75-day comment period and there would not be adequate time for review under the shorter or nonexistent comment periods for SWSPs, IWSAs, Rule 10 Plans or Rule 14 Plans.

<u>The following terms and conditions are needed to properly test the efficacy of a fallowing-leasing project for municipal use:</u>

(1) Delivery of Pilot Project water via a Rule 14 Plan shall be limited to Fowler-CWPDA Municipal Well Replacement approved pursuant to the Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado.

(2) Pilot Project water shall not be included in any plan approved pursuant to the Compact Rules Governing Improvements to Surface Water Irrigation Systems in the Arkansas River Basin in Colorado.

[3] Rule 10 of the Compact Rules Governing Improvements to Surface Water Irrigation Systems in the Arkansas River Basin in Colorado, October 22, 2010.

(3) Replacement of Pilot Project return flow obligations shall not be facilitated by water included in any plan approved pursuant to the Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado or the Compact Rules Governing Improvements to Surface Water Irrigation Systems in the Arkansas River Basin in Colorado.

Necessary Approvals

Item II.F.c of the Criteria and Guidelines requires that the Pilot Project Proposal include *"evidence to demonstrate that all necessary approvals and agreements between ditch companies, ditch members, municipalities, and other parties have been obtained or will be reasonably obtained."* Certain approvals are needed for replacement of return flow obligations. If the Pilot Project were allowed to operate before all necessary approvals were obtained, the Pilot Project may not be able to replace return flows, resulting in injury.

The Pilot Project Proposal included copies of letters of intent pertaining to lease of water by Fountain and Security, lease of water from owners of Subject Shares, carriage of water in the Catlin Canal and use of recharge ponds. Lease option agreements for certain Subject Shares were provided by a December 5, 2014 letter. No binding agreements for lease of Fowler-CWPDA Municipal Well Replacement, use of Pueblo Reservoir Bureau of Reclamation facilities, use of Catlin augmentation stations and firm sources of water for return flow replacement have been provided to date. Prior to operation of the Pilot Project, Super Ditch must provide fully executed binding agreements for the use of all facilities and lease of water necessary to effectuate the Pilot Project, including replacement of return flow obligations.

<u>The following term and condition is needed to ensure successful operation of the Pilot Project and replacement of return flow obligations:</u>

(4) By March 1 prior to each year of operation, Super Ditch shall provide copies of binding agreements for the use of all facilities and lease of water necessary to effectuate the Pilot Project, including replacement of return flow obligations. The term of such agreements shall be sufficient to allow operation during the plan year and replacement of all lagged deep percolation return flow obligations in amount, time and location.

Replacement of Historical Irrigation Return Flows

Item II.G.5 of the Criteria and Guidelines requires that a Fallowing-Leasing Pilot Project Application include *"a description of the source of water to be used to replace all historical return flow obligations, with <u>evidence that the source will provide a firm yield of water to replace all return flow obligations</u>, during the pilot project and after completion of the pilot project"* (emphasis added).

Success of the Pilot Project depends on preventing injury to other water rights by maintaining historical irrigation return flows in amount, time and location. The Pilot Project includes two types of historical return flows: instantaneous tailwater return flows and lagged deep percolation return flows. The Pilot Project Application proposes that the instantaneous tailwater return flows will be replaced by delivery of fallowed Subject Shares to the Catlin Canal Timpas Creek or Crooked Arroyo augmentation station. The Pilot Project Application proposes to replace lagged return flow obligations through (1) recharge, (2) direct delivery of fallowed shares to the augmentation stations and (3) other potential sources of water. The Pilot Project Application shows that recharge alone cannot replace all lagged return flow obligations. Prior to operation of the Pilot Project, Super Ditch must provide evidence that firm replacement sources have been dedicated to replace the maximum amount of lagged return flow obligation.

Location of Return Flow Obligation

The Pilot Project Application does not identify the specific locations where historical return flows from the Subject Shares historically accrued to the Arkansas River. Based on the methodology identified in the Criteria and Guidelines, all return flows should be accounted for at locations above the Fort Lyon Canal headgate. Any approval should identify the location where Pilot Project return flows are owed.

Tailwater Return Flow Obligations

Super Ditch should be required to replace tailwater return flows at or above the point they historically accrued to the Arkansas River or above the calling water right. The Subject Farms are all located upstream of the Fort Lyon Canal, yet the Crooked Arroyo augmentation station delivers water downstream of the Fort Lyon Canal headgate. Tailwater return flow replacements during times when the Fort Lyon Canal is calling should be made at the Timpas Creek augmentation station.

Lagged Deep Percolation Return Flow Obligations

The Pilot Project Application indicates that each year of historical irrigation of the Subject Farms results in lagged return flows that accrue to the Arkansas River for more than 26 years.[4] Therefore, if the Pilot Project operates in 2015, the lagged return flow obligation will extend for over 26 years through 2042. Replacement of lagged return flow obligations is needed to prevent injury to Tri-State's water rights.

Super Ditch has proposed to place nearly the entire deep percolation component of fallowed share deliveries into recharge, however this will not ensure replacement of all lagged return flow obligations because the unit response functions (URFs) used to calculate recharge timing for the two recharge ponds do not match the URFs for the Subject Farms. For example, the greatest duration of lagged recharge accretion is 199 months from the Hanagan recharge pond, while the greatest duration of lagged return flow obligation is 319 months from the Diamond A East farm.
The Pilot Project Application includes an example of one-year operation in 2015 based upon average hydrology. In this example, the total lagged return flow obligation is 656 af.[5] Of this amount, 548 af[6] of lagged return flow obligations are replaced by recharge and direct delivery of fallowed shares to the augmentation stations and 108 af[7] will need to be replaced by other water supplies. The actual amount of lagged return flow obligation may be greater than this example if actual water deliveries to the fallowed shares are greater or if recharge is less successful than expected.

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[4] The duration of lagged return flow obligation may be less than 26 years, 7 months if recommendations presented in the "Deep Percolation and Recharge URFs" portion of this letter are adopted.
[5] Pilot Project Application Table I-1 "Lagged Deep Percolation."
[6] Equal to Pilot Project Application Table I-1 "Lagged Deep Percolation" minus total Pilot Project October 28, 2014 revised Table I-5 "Total Recharge in Acre-Feet (negative values, which are replacement shortfalls, from Table I-4)."
[7] October 28, 2014 revised Table I-5, total 2015 through 2045.

Lagged Return Flow Obligation Not Replaced by Recharge during Pilot Project Operation

During years when the Pilot Project is operating, the Pilot Project Application proposes to replace some lagged return flow obligations with direct delivery of fallowed Subject Shares at the Catlin augmentation stations instead of through recharge. In the 2015 one-year Pilot Project example included in the Pilot Project Application, 18 af[8] of lagged return flow obligation could not be replaced by recharge during March through November 2015 and, instead, Super Ditch proposes to replace these return flow obligations with direct delivery of water to the fallowed Subject Shares. However, direct delivery of water to the fallowed Subject Shares cannot replace lagged return flow obligations at times when the Catlin Canal is not delivering water to shareholders. As shown in the Pilot Project Application Appendix B Table 2 (Attachment 1 of this letter), the Catlin Canal does not always divert water every month of the irrigation season, for example most recently during 2012 and 2013. To the extent that the Pilot Project relies upon future direct delivery of fallowed Subject Shares to replace lagged return flow obligations, the amount of future direct delivery should be projected based upon the minimum historical monthly diversions during the study period.

Lagged Return Flow Obligation Not Replaced by Recharge following Conclusion of Pilot Project

The Pilot Project will result in substantial lagged return flow obligations that cannot be replaced by proposed recharge and evidence is needed that firm sources of water are committed to meet these replacement obligations. For one-year 2015 operations with average monthly deliveries, the Pilot Project Application projects that 108 af[9] of lagged return flow obligation cannot be replaced by recharge alone during 2018 through 2042. Lagged return flow obligations after 2018 would need to be replaced by other sources if the Pilot Project fails to operate in successive years. For ten-year 2015 through 2024 operations with average monthly deliveries,[10] the Pilot Project Application projects that 815 af[11] of lagged return flow obligations cannot be replaced by recharge alone following conclusion of the ten-year Pilot Project. These replacement obligations would need to be replaced by other sources.

Other Sources of Replacement Water

The Pilot Project Application proposes to replace lagged return flow obligations after conclusion of the project using a variety of sources, yet no evidence has been provided that these sources will provide a firm yield in accordance with the Criteria and Guidelines. Lagged return flow obligations will also need to be replaced using other firm sources during the operation of the Pilot Project at times when insufficient water is delivered to fallowed Subject Shares (for example during dry periods) or if recharge credits fall short of lagged return flow replacement obligations, unless Super Ditch has previously dedicated fully consumable water in Pueblo Reservoir for replacement of return flow obligations.

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[8] October 28, 2014 revised Table I-3, sum of March through November 2015, see Attachment 2.

[9] October 28, 2014 revised Table I-5, total 2015 through 2045, see Attachment 2.

[10] As noted above, the amount of lagged return flow obligation would be even greater if water deliveries are greater than average, a full 30 percent of Subject Shares are fallowed or recharge is unsuccessful. A projection of lagged return flow obligation based upon actual operations is needed, discussed in the "Projection of Return Flow Replacement," section of this letter.

[11] Pilot Project Application Table I-7, total of negative (unreplaced) amounts 2025 through 2051, see Attachment 1.

A firm yield source of water must be guaranteed by a signed contract in the full amount and duration of need (including access to necessary structures), not committed to other purposes, and available during dry-year conditions.

Other sources of water identified in the Pilot Project Application that can be included as firm replacement supplies only with adequate evidence and conditions include:

> *Storage in LAVWCD's "if and when" accounts in Pueblo Reservoir:* Reservoir storage accounts do not provide a firm yield until water has been placed in storage. Exchange into Pueblo Reservoir is unavailable at times due to limited physical flow, competition for exchange capacity by decreed exchange water rights and the Pueblo Recreational In-Channel Diversion water right, among other constraints. Term and Condition No. 5 of the May 2, 2012 Super Ditch SWSP Conditional Approval addressed operation of exchange into Pueblo Reservoir, and included a minimum flow of 700 cfs at the Avondale stream gage as a limit on exchange. Operation of exchange to Pueblo Reservoir by the Pilot Project will need to be approved by the Division Engineer or by water court.
>
> If exchange into Pueblo Reservoir is to be relied upon as the firm yield water supply instead of water already in storage, then (a) before each year of operations, Super Ditch should provide a signed contract that commits storage space of up to the maximum amount of lagged return flow obligations plus losses in Pueblo Reservoir for the duration of lagged return flow obligation and (b) starting on the first day of operation during the plan year, Super Ditch should begin prepaying lagged return flow obligations by exchanging all available[12] deliveries to the Subject Shares to Pueblo Reservoir until the maximum amount of lagged return flow obligation plus losses are in storage and before any credits are delivered to the Lessees. Only through prepayment of such return flows can Super Ditch demonstrate water exchanged into Pueblo Reservoir is a firm supply. Without prepayment, Super Ditch could divert the shares for direct use, generate a return flow obligation that continues into the future, and then the ditch could be called out and no water would be available for paying such an obligation.
>
> *Unchanged Ditch Shares:* It does not appear that there has been a water court approved change of use from irrigation to replacement for the Catlin Canal Company, Colorado Canal Company, Lake Meredith Reservoir Company, Bessemer Irrigation Ditch Company, Holbrook Mutual Irrigation Company, Rocky Ford Ditch Company and Highline Canal Company shares listed in the Pilot Project Application. These irrigation water rights cannot be used as a firm yield replacement supply for return flow obligations unless a change of use is approved by water court decree or C.R.S. 37-92-308(4) SWSP approval. The firm yield of direct flow water rights must be projected on a monthly basis because under an annual projection, water may not be available in priority at the time needed to replace return flows.

[12] Available deliveries are all HCU credits and the portion of return flow deliveries that are not needed for return flow obligations during the same day.

Lower Arkansas Water Management Association (LAWMA): We are not aware of any agreements that would allow the LAWMA shares to be used as a replacement supply. LAWMA shares may be considered a firm replacement supply only if they are approved for such use by LAWMA, not committed to other replacement obligations and the LAWMA water supplies can be delivered at or above the historical point of return flow accrual.

CWPDA and LAVWCD: Water provided by CWPDA or LAVWCD must be guaranteed by contract and not committed to another use, such as a Rule 14 Plan or replacement plan pursuant to a Rule 10 Plan.

If replacement from CWPDA or LAVWCD is to be relied upon as the firm yield water supply pursuant to the Criteria and Guidelines, then the Applicants should provide a signed contract that commits specified amounts and sources of water from CWPDA or LAVWCD for the duration of the lagged return flow obligation period. The contract should specify that such return flow replacement water will be delivered separately from water provided under a Rule 14 Plan or Rule 10 Plan and will be committed exclusively to the Pilot Project.

Several sources of water identified in the Pilot Project Application cannot be included as firm replacement supplies and cannot be used to replace return flow obligations in the Pilot Project:

Transbasin Supplies: Twin Lakes Reservoir Company and Larkspur Ditch shares are transbasin supplies and are specifically disallowed by Item II.C of the Criteria and Guidelines.

Rule 14 and Rule 10 Trades: Super Ditch proposes that lagged return flow obligations may be replaced by trades with CWPDA through their Rule 14 Plan or LAVWCD through their Rule 10 Plan, including use of irrigation return flows from Rule 14 well pumping. Replacement of return flow obligations for the Pilot Project should be accounted for and administered entirely within the Pilot Project and not also included in a Rule 14 Plan or Rule 10 Plan as discussed in the "Stand-Alone Project" portion of this letter. Please see comments provided by White and Jankowski dated December 9, 2014, Section I.B.

<u>Reliance on Future Year Operations to Replace Delayed Return Flow Obligations</u>
The Pilot Project Application proposes to replace a portion of lagged return flow obligations by utilizing water deliveries to fallowed shares in successive years of operation. Reliance on future year operation is uncertain and should not be allowed for the Pilot Project: The 2012 Catlin Leasing-Fallowing Pilot Project received conditional approval, yet never operated and the 2014 Highline Pilot Project was withdrawn.

<u>Projection of Return Flow Replacement</u>
The Pilot Project Application does not identify the firm replacement supplies sufficient for all return flow obligations. In order to comply with Item II.G.5 of the Criteria and Guidelines, the Pilot Project must therefore incorporate (a) continuous accounting of future lagged return flow obligations resulting from actual deliveries to date to the fallowed Subject Shares and (b) a

projection of the firm water supplies dedicated for replacement of the future lagged return flow obligations.

The simulated replacement of return flow obligations for 2015 Pilot Project operations presented in the Pilot Project Application is based upon average monthly Catlin Canal diversions for less than 30 percent of the Subject Shares, so it does not project the maximum return flow obligation that may need to be met with other sources if maximum deliveries occurred to 30 percent of the Subject Shares. Simulated replacements also assume successful recharge operations without consideration of potential delivery, maintenance or administration problems. Most importantly, the simulated operations do not identify the firm sources of water that will be used to replace monthly recharge shortfalls.

Although there are multiple methods of projecting replacement of return flow obligations, the least restrictive for the Pilot Project would be to maintain tracking of total future monthly return flow obligations based upon actual deliveries to the fallowed Subject Shares and a running projection of dedicated firm replacement sources, by month. The projection of return flow replacement should be updated weekly during the irrigation season using the following steps to ensure that the Pilot Project is always capable of replacing all return flow obligations. A weekly update of return flow replacement accounting was included as Condition 26 of the May 2, 2012 Super Ditch SWSP Conditional Approval.

a) Before each year of Pilot Project operations, Super Ditch should be required to quantify the amount of lagged return flow obligation from prior years' operation that cannot be replaced by Pilot Project water already recharged or direct delivery of HCU water to the fallowed Subject Shares. Before being allowed to operate the Pilot Project, Super Ditch must identify firm sources of water that will be used to replace the remaining future return flow obligation.
b) During operation of the plan, Super Ditch should be required to update the amount of future lagged return flow obligation, by month, based on actual measured delivery to the fallowed Subject Shares.
c) During operation of the plan, Super Ditch should be required to update the amount of future recharge accretions to the Arkansas River, by month, based upon the actual infiltration at the recharge facilities.
d) During operation of the plan, Super Ditch should be required to update the amount of future lagged return flow obligations, by month, that cannot be replaced by recharge accretions. The firm supply of water that may be used to replace future lagged return flow obligations in excess of recharge must be identified, by month, accounting for losses incurred prior to delivery of such replacement water to the historical return flow location on the river.

If a firm supply of water is not available to replace any current or future monthly lagged return flow obligation, all water delivered to the Subject Shares should be used for return flow replacement until the projection shows no current or future month return flow obligation deficit.

The following terms and conditions are needed to ensure replacement of historical return flows to prevent injury:

(5) Pilot Project return flow obligations shall be replaced at or above the historical point of accretion to the stream or above the downstream calling water right. Return flow obligations shall not be replaced at the Crooked Arroyo augmentation station when there is a call for water at the Fort Lyon Canal headgate.

(6) Pilot Project return flow obligations shall not be replaced by water supplies included in a Rule 10 Plan or Rule 14 Plan.

(7) Pilot Project return flow obligations shall not be replaced by water supplies prohibited by Items I.D.2.k or Item II.C of the Criteria and Guidelines.

(8) A monthly projection of the firm sources of water that will be used to replace future lagged return flow obligations from deliveries to date shall be updated weekly during the irrigation season. If at any time a projected current or future monthly lagged return flow obligation exceeds the firm sources of water that will be used for replacement, no water shall be delivered to Lessees until all return flow obligations are made and the projection shows that a firm source of water is available to replace future return flow obligations.

(9) For the purpose of projection, firm sources of water shall include, exclusively, (a) calculated recharge accretions from actual infiltration of water delivered to fallowed Subject Shares, (b) projected delivery of HCU water to fallowed Subject Shares during the plan year based upon the minimum monthly delivery during the historical water budget study period, and (c) other fully consumable firm replacement supplies either previously stored and dedicated to the Pilot Project or projected based on the dry-year yield of direct-flow water rights approved for replacement use by water court decree or C.R.S. 37-92-308(4) SWSP approval. A replacement water source is considered firm in this context if the water is guaranteed by binding agreement for the term of its inclusion in the projection, fully executed contracts to use structures not owned by the Applicant that are needed to store or deliver the replacement supply are provided, and the Applicant accounts for applicable seepage, evaporation and transit losses.

Recharge Ponds

The Pilot Project Application includes two existing recharge ponds as a means for replacement of future return flow obligations by delivering to recharge ponds a portion of the total delivery to the fallowed Subject Shares. The recharge ponds proposed to be included in the Pilot Project are also currently used in conjunction with LAVWCD's Rule 10 Plan. If the recharge ponds are used in other plans at the same time they are used in the Pilot Project, the commingled recharge operations will require diligent measurement and accounting to ensure proper allocation of recharge accretions.

We note that the Schweizer recharge pond appears to be constructed on lands historically irrigated by Subject Shares on that Subject Farm.

Proper measurement and accounting of recharge is needed for the Pilot Project, addressed by the following proposed terms and conditions:

(10) All recharge ponds shall be surveyed and stage-area-capacity tables shall be approved by the Division Engineer before use.

(11) All recharge ponds shall be outfitted with an inlet flume and a staff gage to measure recharge pond stage.
(12) Measurements shall be collected of the volume of water delivered to each recharge pond and the volume of water stored in each recharge pond.
(13) Observations shall be made and recorded of any spills, seeps or overtopping of recharge ponds when recharge ponds are near full. No credit for recharge infiltration to ground water shall be allowed when spills, seeps or overtopping are observed.
(14) Accounting shall be maintained for the amount of water delivered to recharge ponds, the amount of evaporative loss from recharge ponds, the change in recharge pond storage and the net amount of recharge infiltration to ground water.
(15) If non-Pilot Project water is delivered to recharge, such water shall be accounted for as the first to infiltrate to ground water.

Historical Consumptive Use Analysis Study Period

An HCU analysis was completed for the Subject Farms using a study period of 1984 through 2013 using the Draft Lease Fallowing Tool (LFT). Based upon information provided by the Division of Water Resources, Division 2 office, we understand that not all of the Subject Shares were used for irrigation on the Subject Farms between 2003 and 2013. Instead, certain Subject Shares historically used on each of Subject Farms were used for replacement in Rule 14 Plans. The Catlin Canal water rights are decreed for irrigation and replacement in a Rule 14 Plan is an undecreed use. Prior to approval of the Pilot Project, Super Ditch should revise the LFT historical water budget analysis, consumptive use factors and volumetric limits for each Subject Farm using a 30-year study period that excludes years that the Subject Shares were included in a Rule 14 Plan.

Deep Percolation and Recharge URFs

Water accounting for the Pilot Project relies upon URFs to calculate the timing of lagged deep percolation return flow obligations for each of the Subject Farms and stream accretions from each of the recharge ponds. The proposed URFs for four of the six Subject Farms appear to be flawed as discussed below.

Calculation of Pilot Project URFs was completed using the Glover equation. Calculation of URF timing using the Glover equation includes four basic inputs: (a) specific yield, (b) transmissivity, (c) distance between the nearest river or drain and no flow boundary (“w-distance”) and (d) distance between the centroid of farm or recharge and the nearest river or drain (“x-distance”). Calculation of timing is sensitive to each of these inputs. The distance to the nearest river or drain is used in the Glover equation because that is nearest location of surface water-ground water connection and the likely location of impact.

<u>Subject Farm URFs</u>
It appears that the Arkansas River instead of the nearest river or drain was used to measure w-distance and x-distance for the four of the Subject Farms. Patterson Hollow is located closer to the centroid of the Schweizer Farm and Diamond A West Farm than the Arkansas River and observations indicate that this drainage is typically flowing. Timpas Creek is located closer to the centroid of the Hirakata Farm and Diamond A East Farm than the Arkansas River and gage data show that this drainage is nearly always flowing.

If the distance to the nearest river or drain were used for Pilot Project URFs, the duration of lagged return flow obligation would be reduced. The table below presents the x-distances proposed in the Pilot Project Application and perpendicular distance to the nearest river or drain based upon field observations and review of USGS topographic mapping. Recommended w-distances, while not presented below, would be correspondingly reduced. Recommended x-distances are annotated on the Pilot Project maps in Attachment 3 of this letter. We note that Patterson Hollow is ungaged and we have collected only limited field observations of flow at this location.

Summary of Pilot Project Application and Recommended x-distance for Subject Farms

Pilot Project Farm	Pilot Project Application x-distance, ft (river or drain)	Recommended x-distance, ft (river or drain)
Schweizer Farm	7,230 (Arkansas River)	4,400 (Patterson Hollow)
Diamond A West Farm	5,278 (Arkansas River)	800 (Patterson Hollow)
Hirakata Farm	10,676 (Arkansas River)	7,300 (Timpas Creek)
Hancock Farm	2,445 (Timpas Creek)	no change
Diamond A East Farm	19,678 (Arkansas River)	8,080 (Timpas Creek)
Hanagan Farm	5,395 (Arkansas River)	no change

Recharge Pond URFs

The Applicants propose to use the Schweizer Farm URFs for the Schweizer recharge pond and the Hanagan Farm URFs for the Hanagan recharge pond. Both recharge ponds were previously included in the LAVWCD Rule 10 Plan and URFs for these sites have already been approved. We acknowledge that the technical guidelines for lagging analysis contained in the Criteria and Guidelines may require that the Pilot Project use different URFs than the Rule 10 Plan.

Use of Excess Recharge Credits

At times when the lagged recharge credit exceeds lagged return flow obligations, the Applicants seek to re-divert the calculated excess recharge credits at Pueblo Reservoir by exchange. Based upon the Applicant's one-year projection of 2015 operations, excess recharge credits will total 77 af.[13] Re-diversion of a calculated recharge credits generated by this plan should be specifically prohibited because the exact timing of recharge accrual to the Arkansas River is far too uncertain and Tri-State's water rights divert downstream of the recharge ponds and are frequently calling water rights. Use of calculated excess recharge stream credit accretion to the stream may used to replace calculated Fowler-CWPDA Municipal Well Replacement stream depletions when there are no calling water rights between the point of recharge accretion and well stream depletion.

[13] October 30, 2014 revised Table I-3, total of positive (over-replaced) monthly amounts 2015 through 2018, Attachment 2.

Delivery of Water to Lessees

The Super Ditch must rely on exchanges to deliver water for Fowler-CWPDA Municipal Well Replacement and to Pueblo Reservoir for Security and Fountain. Exchanges must only be operated with the advance permission of the Division Engineer or pursuant to water court decree when there are no calling water rights within the exchange reach. As described above, the exact timing of calculated recharge accretions is far too uncertain to allow re-diversion by exchange; only measured deliveries at augmentation stations should be used as a substitute supply for diversion by exchange, accounting for transit loss between the augmentation station and the Arkansas River.

We note that increased well pumping by Fowler wells will have a delayed depletion on the Arkansas River. In addition to the lagged return flow obligations generated by the Pilot Project, increased Rule 14 Plan well pumping will have a delayed depletive effect that will require replacement under a Rule 14 Plan.

<u>The following terms and conditions are needed to prevent injury from operation of an out-of-priority exchange:</u>

(16) Exchange of water must be approved in advance by the Division Engineer, taking into account the timing of river flows between the exchange from point and exchange to point.
(17) Substitute supplies used for exchange must be delivered at a Catlin augmentation station through a measuring device approved by the Division Engineer.
(18) The amount of substitute supply available for exchange shall be assessed transit loss by the Division Engineer between the augmentation station and Arkansas River.

Operations and Accounting

The Pilot Project Application describes an operational plan involving daily measurement of delivery of the fallowed Subject Shares at two augmentation stations and two recharge ponds. The amount of water delivered to augmentation stations or recharge may vary from time to time to accommodate Pilot Project operations. The Applicants have proposed consumptive use factors to be applied to deliveries to fallowed Subject Shares from each of the Subject Farms. The amount of HCU, tailwater return flow and unlagged deep percolation water delivered each day must be calculated based upon the actual measured deliveries to the augmentation stations and recharge ponds, as opposed to being calculated using assumed ditch loss. As noted above, the exact timing of recharge accretions not needed for return flow replacement is too uncertain to allow re-diversion.

Item II.G of the Criteria and Guidelines specifically prohibits partial year dry-up. To prevent an expansion of use, irrigation of a fallowed parcel should result in disqualification from the Pilot Project for all Subject Shares used on the disqualified Subject Farm for that year.

<u>Identification of Fallowed Parcels and Fallowed Shares</u>
The Pilot Project Application does not identify the specific parcels that will be fallowed on Subject Farms in 2015. Before March 1 each year, Super Ditch should provide mapping to the Division Engineer that identifies the specific parcels and number of Subject Shares on each of

the Subject Farms that will be fallowed during the coming irrigation season and such mapping should be made publically available on the Division of Water Resources website.

During operation, it is likely that the Catlin Canal Company will require Super Ditch to identify how many fallowed Subject Shares will be delivered to each augmentation station and recharge facility because the actual flow rate of delivery will vary from time-to-time based upon changing Catlin Canal river headgate diversions, canal delivery rotation, canal operations and canal losses.

Use of Non-Fallowed Subject Shares and Subject Farms

Many of the Subject Shares have been used as replacement supplies in Rule 14 Plans. To provide operational transparency for the Subject Farms, Super Ditch should provide a report by March 1 each year identifying how non-fallowed Subject Shares will be used (e.g. surface irrigation through Catlin Canal on Subject Farm, Rule 6 of the Tributary Groundwater Rules replacement supply, etc.) and the water supply that will be used on the non-fallowed portions of the Subject Farms and such reporting should be made publically available on the Division of Water Resources website.

Accounting

The Pilot Project Application contains daily and monthly farm accounting forms for fallowed Subject Shares from the Schweizer Farm, which alone are not adequate to account for Pilot Project operations. These forms contain errors and omissions in formulas and notes, and do not consistently rely upon measured delivery to the fallowed Subject Shares. The forms should not be used without addressing the accounting deficiencies summarized in Attachment 4 of this letter.

The Applicants should consider utilizing a combined accounting form for all fallowed Subject Shares that uses weighted consumptive use factors to determine the amount of HCU, tailwater return flow and unlagged deep percolation return flow deliveries. This would greatly simplify accounting and operations.

In addition to accounting for Projection of Return Flow Replacement, Recharge and Augmentation Station as described above, the Pilot Project should be required to provide a simplified report that summarizes the basic plan operation. These basic reporting elements are presented in Attachment 4 of this letter.

The following terms and conditions are needed for operations and to account for delivery of HCU water to Lessees and replacement of return flow obligations:

(19) No partial year dry-up shall be permitted. Irrigation of a fallowed parcel on a Subject Farm shall result in disqualification from the Pilot Project for all fallowed Subject Shares associated with the Subject Farm containing that parcel for that year.

(20) Pilot Project recharge accretions not needed for replacement of lagged return flow obligations may be used for Fowler-CWPDA Municipal Well Replacement, but shall not be used for Pilot Project tailwater return flow replacement nor re-diverted for any other use.

(21) Daily accounting shall be maintained for the measured amount of water delivered to the fallowed Subject Shares at each of the augmentation stations and recharge facilities.

(22) Consumptive use and return flow factors shall be applied to daily measured deliveries at the locations where Subject Shares are delivered by the Catlin Canal Company.
(23) Daily accounting shall be maintained for the amounts of HCU water, tailwater and unlagged deep percolation portions of the measured amount of water delivered at each augmentation station and recharge facility for the fallowed Subject Shares.
(24) Monthly accounting shall be maintained for current and future lagged return flow obligations that have resulted from deliveries to fallowed Subject Shares during the present month and all previous months.
(25) Monthly accounting shall be maintained for calculated recharge accretions to the stream system from actual infiltration at recharge ponds from delivery to the fallowed Subject Shares.
(26) Monthly accounting shall be maintained for lagged return flow obligation not replaced by recharge, distributed on a daily basis.
(27) Daily accounting shall be maintained for measured Pilot Project HCU water and unlagged deep percolation water delivered through the augmentation stations for replacement of lagged return flow obligations that are not replaced with recharge.
(28) Daily accounting shall be maintained for measured deliveries of other water supplies used to replace lagged return flow obligations that are not replaced with recharge, including location of each supply and transit losses associated with delivery of each supply to the location where the return flow obligation is owed.
(29) Daily balance of the Pilot Project's net effect to the Arkansas River.
(30) Daily net amount of HCU water and unlagged deep percolation return flow water delivered through the augmentation stations and not needed for replacement of return flow obligations.
(31) Daily amount of HCU water and unlagged deep percolation return flow water stored to replace future lagged return flow obligations.
(32) Daily amount of HCU water and unlagged deep percolation return flow water delivered to each Lessee.

Efficacy of Streamlined Approach and Pilot Project

The Pilot Project Application relied upon the "streamlined approach" outlined in the Criteria and Guidelines to determine historical consumptive use, return flow characteristics and consumptive use factors. The streamlined approach includes standardized tables of diversions, losses, irrigation demand, consumptive use and return flows, which aided our review of the Pilot Project Application.

Item II.N of the Criteria and Guidelines addresses annual pilot project assessment reports to the CWCB and DWR. The Pilot Project should be used by Super Ditch and the CWCB to evaluate the viability of the Fallowing-Leasing concept. In particular, the following items should be evaluated: (a) changes in soil moisture during fallow-year operations that may reduce return flows during re-irrigation, particularly in frequently water long systems like the Catlin Canal, (b) accounting and measurement standards and (c) compliance with interstate compacts and agreements regarding dry-up.

The following term and conditions is needed to demonstrate efficacy of the Pilot Project:

(33) Super Ditch shall annually prepare a report of Pilot Project operations that presents: (a) A summary of plan year accounting including the total amount of acres and Subject Shares fallowed, plan-year deliveries to the Subject Shares, HCU credits generated, water exchanged for Fowler-CWPDA Municipal Well Replacement, water exchanged to Pueblo Reservoir for Fountain and Security, water exchanged to Pueblo Reservoir for lagged return flow replacement, tail water return flow obligation replaced and un-replaced, lagged return flow obligation replaced and un-replaced, sources of water used to meet lagged return flow obligation, future lagged return flow obligation and firm yield source of water that will be used to meet lagged return flow obligation, (b) the number of days, if any, when there were un-replaced return flow obligations, (c) efficacy of the LFT, temporary dry-up, prevention of erosion, blowing soils and noxious weeds and re-irrigation of temporarily fallowed lands (d) ground water level monitoring data and reductions to HCU resulting from shallow ground water conditions and (d) any additional terms and conditions necessary to prevent injury.

Refinement of Super Ditch's Proposed Terms and Conditions

The Pilot Project Application contained proposed terms and conditions for approval of the Pilot Project. Several of the terms and conditions proposed by Super Ditch should be modified or omitted to prevent injury to Tri-State's water rights and are summarized below. The bulleted numbers correspond to Super Ditch's numbered terms and conditions. These refinements are in addition to the new terms and conditions presented above.

(3) Super Ditch proposes to apply monthly consumptive use factors to augmentation station deliveries. The amount of daily consumptive use water delivered each day should be calculated as the product of consumptive use factors and total measured daily delivery to the fallowed Subject Shares at the augmentation stations and recharge ponds.

(4) Super Ditch proposes to determine the return flow based upon total delivery of fallowed Subject Shares to augmentation stations less the consumptive use portion of such deliveries and ditch loss. Ditch loss has already occurred at the augmentation station. Therefore, the amount of return flow water delivered each day should be calculated as the total measured daily delivery to the fallowed Subject Shares at the augmentation stations and recharge ponds minus the daily amount of consumptive use water. The amount of tailwater and unlagged deep percolation return flow should be allocated 20% and 80%, respectively.

(10) Super Ditch proposes to notify the Division Engineer of the status of each fallowed field in the Catlin Canal Pilot Project by May 15 of each year of operations. This date is two months after the beginning of the irrigation season. Super Ditch should provide mapping of each fallowed field, the number of Subject Shares to be fallowed on each Subject Farm and the use of non-fallowed Subject Shares on each farm by March 1 of each year of operations.

(12) Super Ditch proposes to calculate consumptive use and return flow obligations on a daily basis. Super Ditch should also measure and account for use of consumptive use credits and return flow obligation replacement on a daily basis.

(13) Super Ditch proposes to update return flow obligations and projected future return flow obligations on a monthly basis. Super Ditch proposes to "make up" injury from unreplaced monthly return flow obligations in future months. Water diversions during the irrigation season are time-critical and cannot be "made up" with water at a later date. Accounting of return flow obligation replacement and projection of future return flow obligation replacement should be updated weekly during the irrigation season, provided to the Division Engineer and made publically available on the Division of Water Resources website. If at any point, such a projection shows a weekly return flow obligation deficit from operation during prior weeks or shows that monthly projected return flow obligations cannot be replaced by a firm supply of water, Super Ditch should not be permitted to claim a consumptive use credit or deliver water to Lessees. Replacement of winter-time return flow replacement obligations may be aggregated so long as there is no injury to calling water rights and participants in the Case No. 84CW179 winter water storage program.(14) Super Ditch proposes to replace winter return flow obligations through CWPDA's Rule 14 Plan. Winter return flow obligations should be replaced only through (a) Pilot Project recharge accretions, (b) Pilot Project water exchanged into and stored in Pueblo Reservoir and (c) other firm non-transbasin water supplies approved by water court decree or C.R.S. 37-92-308(4) SWSP approval for replacement.

(15) Super Ditch proposes to exchange water into Pueblo Reservoir subject to a 100 cfs minimum outflow from Pueblo Reservoir. Super Ditch should only exchange water pursuant to the terms and conditions proposed in the "Delivery of Water to Lessees" portion of this letter.

(17) Super Ditch proposes to use supplies of water supplies approved by substitute water supply plan to replace return flow obligations. Only water supplies resulting from delivery to the fallowed Subject Shares or approved for replacement by water court decree or C.R.S. 37-92-308(4) SWSP approval should be used to replace return flow obligations.

(18) Super Ditch proposes to measure diversions in a manner acceptable to the Division Engineer. Such measurement must be completed and recorded daily.

(19) Super Ditch proposes to provide accounting to the Division Engineer on the 10th of the month following the month being reported. Super Ditch should provide weekly accounting within four days of the week being reported and such accounting should be made publically available on the Division of Water Resources website.

(20) Super Ditch proposes to use the tables listed in Appendices B through G of the Pilot Project Application to compare historical use with projected operations. Appendices B through G do not include an accounting of return flow replacement and are not adequate to compare historical use with Pilot Project operations.

Conclusion

Additional terms and conditions are needed in the CWCB's approval of the Pilot Project to prevent injury to Tri-State's water rights. The CWCB's Pilot Project program is a learning experience for the applicants and for other water users on the river, including Tri-State. We may have additional comments based upon the December 18, 2014 conference to confer about the Pilot Project Application, additional information provided by Super Ditch, during review of actual Pilot Project operation and review of the LFT.

Please feel free to call if you have any questions.

Very truly yours,

BISHOP-BROGDEN ASSOCIATES, INC.

Daniel O. Niemela, P.G.
Principal

DON/jeb
Enclosures
cc: client
Bill Hillhouse (via email)
Matthew Merrill (via email)
Dick Wolfe, P.E. (via email)
Steve Witte, P.E. (via email)
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0403.16

Table 1A
Tri-State Generation and Transmission Association, Inc.
Summary of Amity Mutual Irrigation Company Water Rights

Water Right	Amount	Tri-State Pro-Rata Amount	Source	Appropriation Date	Adjudication Date
Amity Canal	283.5 cfs	140.4 cfs	Arkansas River	2/21/1887	7/01/1895
Amity Canal	500.0 cfs	247.6 cfs	Arkansas River	4/01/1893	10/14/1918
Amity Canal	700.0 cfs	346.6 cfs	Goulds Draw	4/01/1893	10/14/1918
Amity Canal	700.0 cfs	346.6 cfs	Big Bend Draw	4/01/1893	10/14/1918
Amity Canal	510.0 cfs	252.5 cfs	Big Sandy Creek	4/01/1893	10/14/1918
Amity Canal	500.0 cfs	247.6 cfs	May Valley Seepage	10/5/1908	10/14/1918
Fort Lyon Canal	1,150.0 cfs	569.4 cfs	Arkansas River	8/01/1896	2/3/1927
Kickingbird Canal	1,150.0 cfs	569.4 cfs	Arkansas River	8/01/1896	2/3/1927
Neesopah Reservoir	36,388 AF	18,018 AF	Arkansas River	8/01/1896	2/3/1927
Nee Gronda Reservoir	98,660 AF	48,853 AF	Arkansas River	8/01/1896	2/3/1927
Neenoshe Reservoir	94,847 AF	46,965 AF	Arkansas River	8/01/1896	2/3/1927
Neeskah Reservoir	35,657 AF	17,656 AF	Arkansas River	8/01/1896	2/3/1927
John Martin Reservoir (Winter Water Storage Program per 84CW179)	Varies	49.52%	Arkansas River	8/01/1896 (3/01/1910 call date)	11/10/1990
John Martin Reservoir (Section 3 Water per 80CW19)	50,000 AF	24,758 AF	Arkansas River	8/01/1896	6/15/1987
John Martin Reservoir (Section 2 Water 49.5% * 60% * 350,000 AF)	103,950 AF	51,472 AF	Arkansas River		

Notes:
Tri-State's pro-rata amount based upon Tri-State's ownership of 17,163.79 AMIC shares, equals Amount * 17,163.79 shs / 34,662.86 shs, or 49.52% of the outstanding AMIC shares.
Tri-State has changed the use of 16,767.52 AMIC shares in Case No. 07CW74.

Table 1B
Tri-State Generation and Transmission Association, Inc.
Summary of Fort Lyon Canal Company Water Rights

Water Right	Amount	Tri-State Pro-Rata Amount	Source	Appropriation Date
Fort Lyon Canal Fort Lyon Canal Fort Lyon Canal	164.6 cfs 597.2 cfs 171.2 cfs	0.9 cfs 3.2 cfs 0.9 cfs	Arkansas River Arkansas River Arkansas River	4/15/1889 3/1/1887 8/31/1893
Horse Creek Reservoir Original Construction	2,000.0 cfs 840.0 cfs 1,466.0 cfs 11,400 AF	10.7 cfs 4.5 cfs 7.9 cfs 61 AF	Horse Creek Arkansas River Arkansas River	8/15/1900 1/25/1906 3/1/1910
Horse Creek Reservoir 1st Enlargement	840.0 cfs 5,000.0 cfs 1,466.0 cfs 15,487 AF	4.5 cfs 26.8 cfs 7.9 cfs 83 AF	Arkansas River Horse Creek Arkansas River	1/25/1906 12/20/1907 3/1/1910
Horse Creek Reservoir 2nd Enlargement	5,000.0 cfs 840.0 cfs 1,466.0 cfs 1,113 AF	26.8 cfs 4.5 cfs 7.9 cfs 6 AF	Horse Creek Arkansas River Arkansas River	6/12/1908 6/12/1908 3/1/1910
Adobe Creek Reservoir Original Construction	8,631.0 cfs 840.0 cfs 1,466.0 cfs 61,575 AF	46.3 cfs 4.5 cfs 7.9 cfs 330 AF	Adobe Creek Arkansas River Arkansas River	1/25/1906 1/25/1906 3/1/1910
Adobe Creek Reservoir Enlargement	8,631.0 cfs 840.0 cfs 1,466.0 cfs 25,425 AF	46.3 cfs 4.5 cfs 7.9 cfs 136 AF	Adobe Creek Arkansas River Arkansas River	12/29/1908 12/29/1908 3/1/1910
"Prince Reservoir" ("Prince Reservoir" Transfer to Thurson Pipeline)	355.2 cfs 1,515 AF	1.9 cfs 8 AF	Arkansas River	8/12/1889
Thurston Pipeline	6.68 cfs Absolute 18.32 cfs Conditional	0.04 cfs Absolute 0.10 cfs Conditional	Thurston Lake whose water is accumulated from springs in said lake, seepage flowing into the lake, waste water from a canal of the FLCC, rainfall and waste water flowing into the lake from land of owners adjoining the lake. Pursuant to the decree in W-27, the water so accumulated is not tributary to any natural stream of the State of Colorado.	7/15/1969
Amity Mutual Irrigation Company – Queens Reservoir	5,483 AF	29 AF	Queen Reservoir Horse Creek Reservoir Adobe Creek Reservoir John Martin Reservoir	80CW019 89CW076
John Martin Reservoir Change	Cumulative 5,000 AF	27 AF	Horse Creek Reservoir Adobe Creek Reservoir Queen Reservoir	79CW160 79CW161 80CW051
Change in Diversion Point	933.0 cfs	5.0 cfs	Horse Creek Reservoir Adobe Creek Reservoir John Martin Reservoir	79CW178
Winter Water Storage Program	38,160 AF of the first 100,000 AF and 38.16% of all water over 103,106 AF	Varies (0.54%)	Horse Creek Reservoir Adobe Creek Reservoir Thurston Reservoir	84CW179
John Martin Reservoir Exchange	Absolute: flow rate 544 cfs, annual limit 15,288.95 AF Conditional: 606 cfs	Absolute: flow rate 2.9 cfs, annual limit 15 AF Conditional: 3.2 cfs	John Martin Reservoir	90CW047
John Martin Operating Plan 1980	20,000 AF	107 AF	John Martin Reservoir	Arkansas River Compact Administration April 24, 1980
Fryingpan-Arkansas Project	Varies depending on hydrologic conditions			

Notes:
Tri-State's pro-rata amount based upon Tri-State's ownership of 504 FLCC shares, equals Amount * 504 shs / 93,989.42 shs, or 0.54% of the outstanding FLCC shares.

Table 1C
Tri-State Generation and Transmission Association, Inc.
Summary of Buffalo Mutual Irrigation Company Water Rights

Water Right	Amount	Tri-State Pro-Rata Amount	Source	Appropriation Date	Adjudication Date
Buffalo Canal	67.5 cfs	6.0 cfs	Arkansas River	1/29/1885	7/01/1895
Buffalo Canal	135.0 cfs	12.0 cfs	Buffalo Creek	10/1/1885	10/14/1918
Buffalo Canal	135.0 cfs	12.0 cfs	Deadman Draw	10/1/1885	10/14/1918
Buffalo Canal	107.0 cfs	9.5 cfs	House Draw	10/1/1885	10/14/1918
Buffalo Canal	135.0 cfs	12.0 cfs	Puntney Draw	10/1/1885	10/14/1918
Buffalo Canal	105.0 cfs	9.3 cfs	Simpson Draw	10/1/1885	10/14/1918
John Martin Reservoir (Winter Water Storage Program per 84CW179)	Varies	8.87%	Arkansas River	08/01/1896 (03/01/1910 call date)	11/10/1990
John Martin Reservoir (Section 2 Water 8.5% * 60% * 350,000 AF)	17,850 AF	1,583 AF	Arkansas River		

Notes:
Tri-State's pro-rata amount based upon Tri-State's ownership 416 BMIC shares, equals Amount * 416 shs / 4,690 shs, or 8.87% of the outstanding BMIC shares.

Table 1D
Tri-State Generation and Transmission Association, Inc.
Summary of Other Surface Water Rights

Water Right	Amount	Source	Appropriation Date	Adjudication Date
Sapp Ditch	6.3 cfs	Wild Horse Creek	1/27/1896	11/4/1909
Ralph Masar Ditch	6.0 cfs	Olson Draw	4/1/1941	8/26/1946
H. L. Bates Ditch	5.0 cfs	Millwood Draw	10/12/1939	8/26/1946
J. K. Martin Ditch	0.6 cfs	Springs	4/1/1900	10/14/1918
J. K. Martin Ditch	1.0 cfs	Springs	5/1/1917	6/3/1922
Brumfield Ditch	2.0 cfs	Buffalo Creek	4/8/1915	6/3/1922

Notes:
Tri-State owns 100% of the water rights listed above.
Tri-State has changed 6.3 cfs of the Sapp Ditch in Case No. 07CW74.

Table 1E
Tri-State Generation and Transmission Association, Inc.
Summary of Other Water Rights

Conditional Groundwater and Storage Water Rights Decreed in Case No. 07CW74

Water Right	Amount	Source	Appropriation Date	Adjudication Date
Tri-State Well Field No.1	5.0 cfs	Tributary Groundwater	7/31/2007	12/31/2007
Tri-State Well Field No.2	15.0 cfs	Tributary Groundwater	7/31/2007	12/31/2007
Tri-State Well Field No.3	55.0 cfs	Tributary Groundwater	7/31/2007	12/31/2007
Tri-State Well Field No.4	30.0 cfs	Tributary Groundwater	7/31/2007	12/31/2007
Tri-State Reservoir	70,000 AF 500.0 cfs	Pauls Arroyo / Arkansas River	7/31/2007	12/31/2007 12/31/2007

Conditional Exchange Water Rights Decreed in Case No. 07CW74

Water Right	Amount	Exchange from Point	Exchange to Point	Appropriation Date	Adjudication Date
Tri-State Exchange	30.0 cfs	Confluence of Arkansas River and Wild Horse Creek	Upper Boundary of Well Field No.4	7/31/2007	12/31/2007

Lower Arkansas Water Management Association

Water Right	Tri-State's Shares of Common Stock
LAWMA	691

Note:
LAWMA provides augmentation water to its shareholders from the following water rights, changed in Case No. 02CW181; Stubbs Ditch, X-Y Canal, Manvel Canal, Lamar Canal, Fort Bent Ditch, and Highland Canal.

Attachment 1

Selected Tables and Appendices

from September 25, 2014 Pilot Project Application

Table 2 - River Headgate Diversions for All Sources Considered in Pilot Project Plan

Farm Name or Designation: Schweizer-05

Catlin Canal D1700552; Sources Included and Excluded:

Notes: Explain period of record as being representative, and list source of data and rights included and excluded. Total Direct Flow plus Winter Water Diversions from Bill Tyner QA/QC Catlin1950-2012Final.xlsx updated to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0	0	4,431	9,541	13,503	18,362	19,304	15,254	10,719	6,294	2,985	0	100,393
1985	0	0	6,441	13,406	8,970	16,678	17,590	15,992	11,792	8,998	3,370	0	103,237
1986	0	129	11,801	14,638	16,316	13,574	16,005	14,802	9,335	8,490	2,832	0	107,922
1987	0	0	7,288	12,612	12,268	16,378	16,216	13,721	10,218	9,280	5,136	0	103,119
1988	0	0	5,502	10,504	10,903	16,524	12,428	13,305	10,136	9,502	4,645	0	93,449
1989	0	0	8,515	14,587	12,123	15,331	13,914	16,090	8,033	5,417	3,855	0	97,866
1990	0	0	3,669	13,968	10,867	15,668	14,461	14,013	7,242	8,301	3,504	0	91,693
1991	0	0	6,962	8,441	9,533	16,766	15,564	16,306	9,447	8,730	0	0	91,749
1992	0	0	6,518	17,517	15,363	12,754	15,149	14,806	12,147	9,761	4,157	0	108,171
1993	0	0	4,124	12,505	15,715	17,757	16,362	16,774	12,548	9,600	4,169	0	109,554
1994	0	0	9,115	16,704	13,905	19,523	17,529	14,367	11,807	10,531	4,437	0	117,917
1995	0	0	9,602	17,655	13,508	13,443	19,452	21,326	15,859	12,617	5,388	0	128,850
1996	0	1,603	14,126	17,384	15,965	18,970	17,944	14,981	11,528	12,203	5,174	0	129,879
1997	0	0	7,861	13,041	14,755	16,328	20,777	9,964	11,438	7,543	0	0	101,708
1998	0	0	4,084	15,413	17,345	17,724	18,166	12,442	13,415	9,398	3,989	0	111,978
1999	0	0	9,354	12,889	7,484	14,555	15,805	13,219	12,659	9,194	4,083	0	99,242
2000	0	405	11,480	13,831	14,110	15,331	14,266	11,067	5,173	8,007	4,122	0	97,792
2001	0	0	5,909	11,010	13,672	15,878	15,909	16,883	9,471	7,680	4,429	0	100,841
2002	0	0	5,693	2,536	1,794	5,613	6,423	0	0	0	390	0	22,449
2003	0	0	3,114	1,184	8,335	15,888	8,400	2,590	1,373	0	2,168	0	43,052
2004	0	0	1,568	10,358	15,182	13,986	12,575	11,641	3,054	5,403	6,467	0	80,235
2005	0	0	5,918	15,353	15,719	15,811	13,234	13,995	3,814	7,909	4,622	0	96,375
2006	0	0	4,471	3,739	10,880	15,847	13,708	13,145	9,689	9,988	3,399	0	84,866
2007	0	0	5,184	13,371	13,851	13,448	15,167	15,115	12,258	11,808	5,325	0	105,526
2008	0	0	8,776	17,500	15,073	18,441	16,950	13,707	11,543	10,314	4,431	0	116,732
2009	0	0	7,369	15,540	15,434	14,617	15,913	12,874	9,388	9,902	3,322	0	104,360
2010	0	0	4,521	12,398	15,345	16,368	14,372	13,760	3,023	7,081	6,207	0	93,073
2011	0	0	5,699	4,336	10,793	18,381	16,812	10,942	7,264	7,969	4,729	0	86,924
2012	0	0	4,014	6,143	10,993	7,089	6,015	1,545	0	0	0	0	35,798
2013	0	0	990	277	9,752	15,249	8,275	10,972	9,345	13,587	0	0	68,446
Average	0	71	6,470	11,613	12,649	15,409	14,823	12,853	8,791	8,184	3,578	0	94,440
Minimum	0	0	990	277	1,794	5,613	6,015	0	0	0	0	0	22,449
Maximum	0	1,603	14,126	17,655	17,345	19,523	20,777	21,326	15,859	13,587	6,467	0	129,879
Limit	0	712	12,469	17,557	16,542	18,978	19,844	18,328	13,978	12,802	6,021	0	125,549

Table I-1
2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
RHD (River Headgate Delivery)													
Schweizer	0.0	0.2	16.4	29.5	32.1	39.1	37.6	32.6	22.3	20.8	9.1	0.0	239.7
Diamond A West	0.0	0.3	23.2	41.7	45.4	55.3	53.2	46.1	31.6	29.4	12.8	0.0	339.0
Hirakata Farms	0.0	0.1	13.2	23.6	25.7	31.3	30.1	26.1	17.9	16.6	7.3	0.0	192.1
Hancock	0.0	0.1	8.3	14.9	16.3	19.8	19.1	16.5	11.3	10.5	4.6	0.0	121.5
Diamond A East	0.0	0.3	29.0	52.0	56.6	69.0	66.4	57.6	39.4	36.6	16.0	0.0	422.9
Hanagan	0.0	0.2	17.8	31.9	34.8	42.4	40.8	35.3	24.2	22.5	9.8	0.0	259.6
Total	0.0	1.2	107.9	193.6	210.9	257.0	247.2	214.3	146.6	136.5	59.7	0.0	1574.8
Lossses - Ditch Loss and Off Farm Lateral Loss ((10.4309% + 3.5%) x RHD)													
Schweizer	0.0	0.0	2.3	4.1	4.5	5.4	5.2	4.5	3.1	2.9	1.3	0.0	33.4
Diamond A West	0.0	0.0	3.2	5.8	6.3	7.7	7.4	6.4	4.4	4.1	1.8	0.0	47.2
Hirakata Farms	0.0	0.0	1.8	3.3	3.6	4.4	4.2	3.6	2.5	2.3	1.0	0.0	26.8
Hancock	0.0	0.0	1.2	2.1	2.3	2.8	2.7	2.3	1.6	1.5	0.6	0.0	16.9
Diamond A East	0.0	0.0	4.0	7.2	7.9	9.6	9.2	8.0	5.5	5.1	2.2	0.0	58.9
Hanagan	0.0	0.0	2.5	4.4	4.8	5.9	5.7	4.9	3.4	3.1	1.4	0.0	36.2
Total	0.0	0.2	15.0	27.0	29.4	35.8	34.4	29.9	20.4	19.0	8.3	0.0	219.4
CU Factors (as a fraction of FHD)													
Schweizer	0.000	0.000	0.063	0.155	0.377	0.531	0.537	0.538	0.445	0.250	0.179	0.000	
Diamond A West	0.000	0.000	0.032	0.129	0.314	0.468	0.484	0.460	0.311	0.136	0.032	0.000	
Hirakata Farms	0.000	0.000	0.062	0.153	0.373	0.528	0.533	0.532	0.425	0.244	0.174	0.000	
Hancock	0.000	0.000	0.047	0.145	0.360	0.522	0.520	0.521	0.397	0.210	0.133	0.000	
Diamond A East	0.000	0.000	0.065	0.157	0.380	0.533	0.540	0.541	0.463	0.264	0.162	0.000	
Hanagan	0.000	0.000	0.030	0.113	0.274	0.408	0.428	0.381	0.259	0.097	0.020	0.000	
Total													
Consumptive Use ((RHD - Losses) x CU factor)													
Schweizer	0.0	0.0	0.9	3.9	10.4	17.9	17.4	15.1	8.5	4.5	1.4	0.0	80.0
Diamond A West	0.0	0.0	0.6	4.6	12.3	22.3	22.2	18.3	8.4	3.4	0.3	0.0	92.5
Hirakata Farms	0.0	0.0	0.7	3.1	8.3	14.2	13.8	12.0	6.5	3.5	1.1	0.0	63.2
Hancock	0.0	0.0	0.3	1.9	5.0	8.9	8.5	7.4	3.9	1.9	0.5	0.0	38.4
Diamond A East	0.0	0.0	1.6	7.0	18.5	31.7	30.9	26.8	15.7	8.3	2.2	0.0	142.7
Hanagan	0.0	0.0	0.5	3.1	8.2	14.9	15.0	11.6	5.4	1.9	0.2	0.0	60.7
Total	0.0	0.0	4.7	23.7	62.8	109.8	107.8	91.1	48.5	23.5	5.8	0.0	477.5
CUA - Allowed Consumptive Use (Lesser of Consumptive Use and Max3 Limits)													
Schweizer	0.0	0.0	0.7	3.4	10.4	17.9	17.4	15.1	8.5	4.5	1.4	0.0	79.3
Diamond A West	0.0	0.0	0.6	2.9	12.3	22.3	21.3	18.3	8.4	3.4	0.1	0.0	89.5
Hirakata Farms	0.0	0.0	0.6	2.7	8.3	14.2	13.8	12.0	6.5	3.5	1.1	0.0	62.7
Hancock	0.0	0.0	0.3	1.6	5.0	8.9	8.5	7.4	3.9	1.9	0.5	0.0	38.1
Diamond A East	0.0	0.0	1.6	4.2	18.5	31.7	30.9	26.8	15.7	8.3	2.2	0.0	140.0
Hanagan	0.0	0.0	0.4	3.1	8.2	14.9	15.0	11.6	5.4	1.9	0.0	0.0	60.5
Total	0.0	0.0	4.3	17.8	62.8	109.8	106.9	91.1	48.5	23.5	5.4	0.0	470.0
RHDA - RHD based on Allowed Consumptive Use (Allowed Consumptive Use/((1-0.104309-0.035) x CU Factor)													
Schweizer	0.0	0.2	13.7	25.1	32.1	39.1	37.6	32.6	22.3	20.8	9.1	0.0	232.6
Diamond A West	0.0	0.0	20.4	25.7	45.4	55.3	51.0	46.1	31.6	29.4	4.4	0.0	309.3
Hirakata Farms	0.0	0.0	10.9	20.3	25.7	31.3	30.1	26.1	17.9	16.6	7.3	0.0	186.4
Hancock	0.0	0.0	8.3	12.9	16.3	19.8	19.1	16.5	11.3	10.5	4.6	0.0	119.3
Diamond A East	0.0	0.3	29.0	31.5	56.6	69.0	66.4	57.6	39.4	36.6	16.0	0.0	402.4
Hanagan	0.0	0.2	16.9	31.9	34.8	42.4	40.8	35.3	24.2	22.5	0.0	0.0	248.9
Total	0.0	0.7	99.2	147.5	210.9	257.0	245.0	214.3	146.6	136.5	41.4	0.0	1498.9
DLA - Ditch Loss based on Allowed Consumptive Use ((0.104309 + 0.035) x RHDA)													
Schweizer	0.0	0.0	1.9	3.5	4.5	5.4	5.2	4.5	3.1	2.9	1.3	0.0	32.4
Diamond A West	0.0	0.0	2.8	3.6	6.3	7.7	7.1	6.4	4.4	4.1	0.6	0.0	43.1
Hirakata Farms	0.0	0.0	1.5	2.8	3.6	4.4	4.2	3.6	2.5	2.3	1.0	0.0	26.0
Hancock	0.0	0.0	1.2	1.8	2.3	2.8	2.7	2.3	1.6	1.5	0.6	0.0	16.6
Diamond A East	0.0	0.0	4.0	4.4	7.9	9.6	9.2	8.0	5.5	5.1	2.2	0.0	56.1
Hanagan	0.0	0.0	2.4	4.4	4.8	5.9	5.7	4.9	3.4	3.1	0.0	0.0	34.7
Total	0.0	0.1	13.8	20.5	29.4	35.8	34.1	29.9	20.4	19.0	5.8	0.0	208.8

Marting and Wood Water Consultants, Inc.
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Table I-1
2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Return Flow (RHDA - DLA - CUA)													
Schweizer	0.0	0.2	11.1	18.2	17.2	15.8	15.0	13.0	10.7	13.4	6.4	0.0	120.9
Diamond A West	0.0	0.0	17.0	19.3	26.8	25.3	22.6	21.5	18.7	21.9	3.7	0.0	176.7
Hirakata Farms	0.0	0.0	8.8	14.8	13.9	12.7	12.1	10.5	8.8	10.8	5.2	0.0	97.8
Hancock	0.0	0.0	6.8	9.5	9.0	8.2	7.9	6.8	5.9	7.2	3.4	0.0	64.5
Diamond A East	0.0	0.3	23.3	22.9	30.2	27.7	26.3	22.8	18.2	23.2	11.6	0.0	206.4
Hanagan	0.0	0.2	14.1	24.4	21.7	21.6	20.0	18.8	15.4	17.5	0.0	0.0	153.8
Total	0.0	0.6	81.1	109.1	118.8	111.3	103.9	93.4	77.7	94.0	30.2	0.0	820.0
Tailwater (20% RF)													
Schweizer	0.0	0.0	2.2	3.6	3.4	3.2	3.0	2.6	2.1	2.7	1.3	0.0	24.2
Diamond A West	0.0	0.0	3.4	3.9	5.4	5.1	4.5	4.3	3.7	4.4	0.7	0.0	35.3
Hirakata Farms	0.0	0.0	1.8	3.0	2.8	2.5	2.4	2.1	1.8	2.2	1.0	0.0	19.6
Hancock	0.0	0.0	1.4	1.9	1.8	1.6	1.6	1.4	1.2	1.4	0.7	0.0	12.9
Diamond A East	0.0	0.1	4.7	4.6	6.0	5.5	5.3	4.6	3.6	4.6	2.3	0.0	41.3
Hanagan	0.0	0.0	2.8	4.9	4.3	4.3	4.0	3.8	3.1	3.5	0.0	0.0	30.8
Total	0.0	0.1	16.2	21.8	23.8	22.3	20.8	18.7	15.5	18.8	6.0	0.0	164.0
Deep Perc (80% RF)													
Schweizer	0.0	0.1	8.8	14.6	13.8	12.6	12.0	10.4	8.5	10.7	5.1	0.0	96.7
Diamond A West	0.0	0.0	13.6	15.4	21.4	20.3	18.1	17.2	15.0	17.5	2.9	0.0	141.4
Hirakata Farms	0.0	0.0	7.1	11.9	11.1	10.2	9.7	8.4	7.1	8.7	4.1	0.0	78.2
Hancock	0.0	0.0	5.4	7.6	7.2	6.5	6.3	5.5	4.7	5.7	2.7	0.0	51.6
Diamond A East	0.0	0.2	18.6	18.3	24.2	22.2	21.0	18.2	14.5	18.6	9.2	0.0	165.1
Hanagan	0.0	0.1	11.3	19.5	17.4	17.3	16.0	15.1	12.3	14.0	0.0	0.0	123.0
Total	0.0	0.5	64.8	87.3	95.0	89.1	83.2	74.7	62.2	75.2	24.2	0.0	656.0
Additional Augmentation Station Release Due to Application of Max3 Limits ((RHD - RHDA) * (1 - 0.2935))													
Schweizer	0.0	0.0	2.4	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4
Diamond A West	0.0	0.2	2.6	14.3	0.0	0.0	2.0	0.0	0.0	0.0	7.6	0.0	26.7
Hirakata Farms	0.0	0.1	2.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
Hancock	0.0	0.1	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
Diamond A East	0.0	0.0	0.0	18.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.3
Hanagan	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	0.0	9.6
Total	0.0	0.4	7.8	41.4	0.0	0.0	2.0	0.0	0.0	0.0	16.4	0.0	68.0
Lagged Deep Percolation			Total										
2015	0.0	0.0	-0.5	-2.5	-5.3	-8.3	-11.2	-13.8	-15.9	-17.7	-19.2	-19.3	-113.6
2016	-18.2	-16.8	-15.5	-14.4	-13.5	-12.6	-11.9	-11.2	-10.7	-10.3	-9.9	-9.6	-154.6
2017	-9.2	-8.9	-8.6	-8.3	-8.1	-7.8	-7.6	-7.3	-7.1	-6.9	-6.7	-6.5	-93.2
2018	-6.3	-6.2	-6.0	-5.8	-5.7	-5.5	-5.4	-5.2	-5.1	-5.0	-4.8	-4.7	-65.8
2019	-4.6	-4.5	-4.4	-4.3	-4.1	-4.0	-4.0	-3.8	-3.8	-3.7	-3.6	-3.5	-48.2
2020	-3.4	-3.3	-3.2	-3.0	-2.8	-2.6	-2.4	-2.3	-2.1	-2.0	-1.9	-1.8	-30.9
2021	-1.8	-1.8	-1.8	-1.8	-1.7	-1.7	-1.7	-1.7	-1.6	-1.6	-1.6	-1.6	-20.4
2022	-1.6	-1.5	-1.5	-1.5	-1.4	-1.4	-1.3	-1.3	-1.3	-1.2	-1.2	-1.1	-16.3
2023	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-13.1
2024	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-12.0
2025	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-10.9
2026	-0.9	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-9.9
2027	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-9.0
2028	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-8.2
2029	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-7.5
2030	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-0.5	-0.5	-6.7
2031	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.4	-6.1
2032	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-4.5
2033	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-4.0
2034	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.6
2035	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.3
2036	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-3.0
2037	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.7
2038	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.5
2039	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.2
2040	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.0
2041	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-1.7
2042	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
2043	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2044	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2045	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	-55.0	-52.9	-51.3	-51.3	-52.2	-53.4	-54.8	-56.0	-56.8	-57.5	-57.9	-57.1	-656.1

Marting and Wood Water Consultants, Inc.
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Table I-1

2015 Projection

Average Historical Use

Assuming Operations Beginning in March of 2015

Net Historical Accretions ((HCU + Deep Percolation - Lagged Deep Percolation) < 0)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2015	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-19.3	-19.3
2016	-18.2	-16.8	-15.5	-14.4	-13.5	-12.6	-11.9	-11.2	-10.7	-10.3	-9.9	-9.6	-154.6
2017	-9.2	-8.9	-8.6	-8.3	-8.1	-7.8	-7.6	-7.3	-7.1	-6.9	-6.7	-6.5	-93.2
2018	-6.3	-6.2	-6.0	-5.8	-5.7	-5.5	-5.4	-5.2	-5.1	-5.0	-4.8	-4.7	-65.8
2019	-4.6	-4.5	-4.4	-4.3	-4.1	-4.0	-4.0	-3.8	-3.8	-3.7	-3.6	-3.5	-48.2
2020	-3.4	-3.3	-3.2	-3.0	-2.8	-2.6	-2.4	-2.3	-2.1	-2.0	-1.9	-1.8	-30.9
2021	-1.8	-1.8	-1.8	-1.8	-1.7	-1.7	-1.7	-1.7	-1.6	-1.6	-1.6	-1.6	-20.4
2022	-1.6	-1.5	-1.5	-1.5	-1.4	-1.4	-1.3	-1.3	-1.3	-1.2	-1.2	-1.1	-16.3
2023	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-13.1
2024	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-12.0
2025	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-10.9
2026	-0.9	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-9.9
2027	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-9.0
2028	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-8.2
2029	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-7.5
2030	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-0.5	-0.5	-6.7
2031	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.4	-6.1
2032	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-4.5
2033	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-4.0
2034	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.6
2035	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.3
2036	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-3.0
2037	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.7
2038	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.5
2039	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.2
2040	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.0
2041	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-1.7
2042	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
2043	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2044	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2045	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	-55.0	-52.9	-50.8	-48.8	-46.8	-45.2	-43.6	-42.2	-40.9	-39.8	-38.8	-57.1	-561.8

Historical Depletions (HCU + Positive (Deep Perc - Lagged Deep Perc))

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.1	9.6	17.9	24.2	30.4	29.0	24.8	16.0	13.7	4.6	0.0	170.2
Diamond A West	0.0	0.0	14.1	18.3	33.7	42.5	39.4	35.4	23.4	20.9	3.0	0.0	230.8
Hirakata Farms	0.0	0.0	7.6	14.5	19.4	24.4	23.5	20.4	13.6	12.2	5.2	0.0	140.9
Hancock	0.0	0.0	5.8	9.2	12.2	15.4	14.8	12.9	8.6	7.6	3.3	0.0	89.8
Diamond A East	0.0	0.2	20.3	22.6	42.7	53.8	51.9	45.0	30.2	26.9	11.5	0.0	305.1
Hanagan	0.0	0.0	10.8	21.6	24.6	31.2	30.1	25.7	16.8	14.9	0.0	0.0	175.8
Total	0.0	0.3	68.2	104.1	156.8	197.8	188.7	164.2	108.6	96.2	27.6	0.0	1112.6

Net Historical Winter (Nov 2014- Mar 2015) Accretions (Negative (Deep Perc - Lagged Deep Perc))

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2014												-19.3	-19.3
2015	-18.2	-16.8	-15.5										-50.5
Total	-18.2	-16.8	-15.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-19.3	-69.8

Net Historical Depletions ((HCU + Deep Percolation - Lagged Deep Percolation) > 0)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Total	0.0	0.5	68.6	102.6	152.5	190.6	178.9	152.0	94.7	81.0	10.4	0.0	1031.8

Abbreviations

RHD	River Headgate Delivery
FHD	Farm Headgate Delivery
CU	Consumptive Use
DL	Ditch Loss
RF	Return Flow

Table I-7

Estimated Lagged Deep Percolation for a 10-year Pilot Project using Average Annual Historical Consumptive Use

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2015	0	0	0.02	0.37	1.28	2.44	3.68	4.70	5.44	5.89	6.14	1.03	30.98
2016	2.78	3.9	4.05	2.97	2.04	1.67	1.68	1.99	2.5	2.88	3.26	4.44	34.16
2017	5.9	6.74	6.63	5.31	4.16	3.57	3.38	3.51	3.85	4.07	4.3	5.34	56.76
2018	6.67	7.39	7.17	5.75	4.49	3.81	3.54	3.6	3.86	4.02	4.18	5.17	59.65
2019	6.44	7.11	6.86	5.38	4.09	3.37	3.08	3.09	3.33	3.47	3.61	4.57	54.40
2020	5.83	6.48	6.26	4.72	3.36	2.56	2.19	2.16	2.36	2.49	2.54	3.5	44.45
2021	4.76	5.43	5.23	3.7	2.35	1.56	1.21	1.19	1.4	1.53	1.59	2.57	32.52
2022	3.86	4.52	4.34	2.84	1.54	0.8	0.48	0.51	0.74	0.91	1.01	2	23.55
2023	3.29	3.96	3.78	2.28	0.99	0.25	-0.07	-0.04	0.2	0.37	0.47	1.47	16.95
2024	2.77	3.44	3.26	1.77	0.48	-0.26	-0.57	-0.53	-0.29	-0.12	-0.01	0.99	10.93
2025	2.29	2.96	3.29	3.21	2.97	2.59	2.13	1.7	1.16	0.61	0.01	-0.48	22.44
2026	-0.93	-1.37	-1.69	-2.1	-2.45	-2.8	-3.13	-3.38	-3.65	-3.85	-4.11	-4.29	-33.75
2027	-4.44	-4.6	-4.66	-4.82	-4.94	-5.08	-5.2	-5.28	-5.37	-5.4	-5.52	-5.55	-60.86
2028	-5.57	-5.61	-5.55	-5.6	-5.63	-5.67	-5.71	-5.71	-5.72	-5.68	-5.73	-5.71	-67.89
2029	-5.67	-5.65	-5.55	-5.55	-5.54	-5.53	-5.55	-5.5	-5.5	-5.44	-5.46	-5.41	-66.35
2030	-5.34	-5.32	-5.26	-5.18	-5.1	-5	-4.95	-4.85	-4.8	-4.73	-4.66	-4.6	-59.79
2031	-4.55	-4.53	-4.48	-4.42	-4.34	-4.26	-4.22	-4.13	-4.09	-4.04	-3.99	-3.97	-51.02
2032	-3.95	-3.95	-3.93	-3.91	-3.9	-3.86	-3.86	-3.81	-3.79	-3.77	-3.76	-3.75	-46.24
2033	-3.73	-3.73	-3.71	-3.69	-3.68	-3.64	-3.64	-3.59	-3.57	-3.56	-3.55	-3.54	-43.63
2034	-3.52	-3.53	-3.5	-3.52	-3.48	-3.46	-3.44	-3.39	-3.37	-3.35	-3.36	-3.33	-41.25
2035	-3.31	-3.33	-3.31	-3.33	-3.29	-3.27	-3.25	-3.21	-3.19	-3.18	-3.18	-3.15	-39.00
2036	-3.14	-3.16	-3.14	-3.16	-3.12	-3.1	-3.08	-3.05	-3.02	-3.01	-3.02	-2.99	-36.99
2037	-2.98	-3	-2.99	-3.01	-2.97	-2.95	-2.92	-2.9	-2.88	-2.87	-2.88	-2.85	-35.20
2038	-2.84	-2.86	-2.85	-2.87	-2.83	-2.81	-2.79	-2.76	-2.74	-2.73	-2.74	-2.72	-33.54
2039	-3.71	-2.73	-2.72	-2.74	-2.7	-2.7	-2.66	-2.65	-2.62	-2.61	-2.62	-2.6	-32.06
2040	-2.59	-2.61	-2.6	-2.63	-2.59	-2.59	-2.55	-2.53	-2.51	-2.5	-2.51	-2.49	-30.70
2041	-2.49	-2.5	-2.5	-2.53	-2.49	-2.49	-2.45	-2.43	-2.41	-2.37	-2.35	-2.29	-29.30
2042	-2.25	-2.23	-2.2	-2.2	-2.13	-2.12	-2.09	-2.07	-2.05	-2.02	-2	-1.94	-25.30
2043	-1.9	-1.89	-1.85	-1.86	-1.8	-1.79	-1.76	-1.75	-1.73	-1.7	-1.68	-1.62	-21.33
2044	-1.59	-1.57	-1.54	-1.52	-1.49	-1.47	-1.46	-1.45	-1.44	-1.41	-1.38	-1.35	-17.67
2045	-1.32	-1.29	-1.26	-1.24	-1.21	-1.2	-1.19	-1.18	-1.17	-1.14	-1.12	-1.09	-14.41
2046	-1.06	-1.03	-1.01	-0.99	-0.96	-0.95	-0.94	-0.93	-0.92	-0.9	-0.88	-0.85	-11.42
2047	-0.82	-0.8	-0.77	-0.76	-0.73	-0.72	-0.71	-0.71	-0.7	-0.68	-0.66	-0.63	-8.69
2048	-0.61	-0.58	-0.56	-0.55	-0.53	-0.51	-0.51	-0.5	-0.5	-0.48	-0.46	-0.44	-6.23
2049	-0.41	-0.39	-0.37	-0.35	-0.34	-0.32	-0.32	-0.32	-0.32	-0.3	-0.28	-0.26	-3.98
2050	-0.23	-0.21	-0.2	-0.18	-0.16	-0.15	-0.15	-0.15	-0.15	-0.13	-0.12	-0.09	-1.92
2051	-0.07	-0.05	-0.04	-0.02	-0.01	0	0	0	0	0	0	0	-0.19
Total Post Pilot Project Lagged Deep Percolation Return Flow Requirements (2026 through 2051)													-818.71

Martin and Wood Water Consultants, Inc.
Job No. 816.2

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Attachment 2

Selected Tables and Appendices

from Pilot Project Application, Revised October 28, 2014

2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

Table I-3
Total Recharge in Acre-Feet (directing all deep percolation water to the recharge ponds less the shortfall from the Schweizer Recharge Pond)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Depletion	Accretion
2015	0.00	0.00	-0.51	-1.92	-2.96	-3.31	-3.17	-2.69	-1.89	-1.17	-0.47	1.01	-17.07	-17.07	0.00
2016	2.77	3.90	4.54	4.87	4.99	4.97	4.82	4.67	4.39	4.05	3.71	3.40	51.09	0.00	51.09
2017	3.12	2.84	2.58	2.34	2.11	1.90	1.69	1.52	1.35	1.18	1.03	0.90	22.56	0.00	22.56
2018	0.77	0.65	0.54	0.44	0.34	0.25	0.16	0.10	0.01	-0.05	-0.12	-0.17	2.91	0.00	2.91
2019	-0.22	-0.28	-0.32	-0.37	-0.40	-0.44	-0.47	-0.50	-0.53	-0.56	-0.58	-0.59	-5.26	-5.26	0.00
2020	-0.61	-0.63	-0.60	-0.67	-0.73	-0.81	-0.88	-0.94	-0.98	-0.99	-1.07	-1.08	-9.97	-9.97	0.00
2021	-1.06	-1.05	-1.04	-1.02	-1.01	-1.00	-0.99	-0.97	-0.97	-0.95	-0.94	-0.93	-11.93	-11.93	0.00
2022	-0.91	-0.90	-0.89	-0.86	-0.81	-0.77	-0.72	-0.68	-0.66	-0.63	-0.59	-0.57	-8.98	-8.98	0.00
2023	-0.57	-0.56	-0.57	-0.56	-0.55	-0.55	-0.55	-0.54	-0.54	-0.54	-0.53	-0.53	-6.58	-6.58	0.00
2024	-0.52	-0.52	-0.52	-0.51	-0.51	-0.51	-0.50	-0.50	-0.49	-0.50	-0.49	-0.48	-6.04	-6.04	0.00
2025	-0.48	-0.47	-0.48	-0.47	-0.46	-0.46	-0.45	-0.46	-0.45	-0.45	-0.44	-0.43	-5.49	-5.49	0.00
2026	-0.44	-0.44	-0.43	-0.42	-0.42	-0.42	-0.43	-0.41	-0.42	-0.40	-0.40	-0.40	-5.02	-5.02	0.00
2027	-0.40	-0.39	-0.39	-0.38	-0.38	-0.38	-0.38	-0.38	-0.37	-0.36	-0.36	-0.36	-4.53	-4.53	0.00
2028	-0.36	-0.36	-0.35	-0.35	-0.34	-0.35	-0.34	-0.34	-0.34	-0.33	-0.33	-0.32	-4.11	-4.11	0.00
2029	-0.33	-0.33	-0.32	-0.32	-0.32	-0.30	-0.31	-0.30	-0.31	-0.30	-0.30	-0.30	-3.73	-3.73	0.00
2030	-0.29	-0.30	-0.30	-0.29	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-3.40	-3.40	0.00
2031	-0.27	-0.27	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.26	-0.28	-0.29	-3.16	-3.16	0.00
2032	-0.31	-0.33	-0.34	-0.35	-0.36	-0.37	-0.36	-0.36	-0.36	-0.35	-0.35	-0.35	-4.19	-4.19	0.00
2033	-0.35	-0.35	-0.34	-0.34	-0.34	-0.33	-0.33	-0.33	-0.32	-0.32	-0.32	-0.32	-3.99	-3.99	0.00
2034	-0.32	-0.31	-0.31	-0.35	-0.31	-0.32	-0.30	-0.30	-0.29	-0.29	-0.30	-0.27	-3.65	-3.65	0.00
2035	-0.27	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-0.27	-0.26	-0.26	-3.27	-3.27	0.00
2036	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.25	-0.24	-0.24	-0.24	-0.24	-2.99	-2.99	0.00
2037	-0.24	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.22	-0.22	-0.22	-0.22	-2.72	-2.72	0.00
2038	-0.22	-0.21	-0.21	-0.21	-0.21	-0.21	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-2.47	-2.47	0.00
2039	-0.20	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.18	-0.18	-0.18	-0.18	-0.18	-2.24	-2.24	0.00
2040	-0.18	-0.18	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.16	-2.04	-2.04	0.00
2041	-0.16	-0.16	-0.16	-0.16	-0.16	-0.15	-0.15	-0.15	-0.15	-0.13	-0.12	-0.09	-1.75	-1.75	0.00
2042	-0.07	-0.05	-0.04	-0.02	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.20	-0.20	0.00
2043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2044	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2045	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total													-48.22	-124.78	76.56

Marting and Wood Water Consultants, Inc.
Job No. 816.2

11/23/2014 2:26 PM

2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

Table I-5
Total Recharge in Acre-Feet (negative values, which are replacement shortfalls, from Table I-4)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Depletion
2015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	-0.12	-0.17	-0.34
2019	-0.22	-0.28	-0.32	-0.37	-0.40	-0.44	-0.47	-0.50	-0.53	-0.56	-0.58	-0.59	-5.26
2020	-0.61	-0.63	-0.60	-0.67	-0.73	-0.81	-0.88	-0.94	-0.98	-0.99	-1.07	-1.08	-9.97
2021	-1.06	-1.05	-1.04	-1.02	-1.01	-1.00	-0.99	-0.97	-0.97	-0.95	-0.94	-0.93	-11.93
2022	-0.91	-0.90	-0.89	-0.86	-0.81	-0.77	-0.72	-0.68	-0.66	-0.63	-0.59	-0.57	-8.98
2023	-0.57	-0.56	-0.57	-0.56	-0.55	-0.55	-0.55	-0.54	-0.54	-0.54	-0.53	-0.53	-6.58
2024	-0.52	-0.52	-0.52	-0.51	-0.51	-0.51	-0.50	-0.50	-0.49	-0.50	-0.49	-0.48	-6.04
2025	-0.48	-0.47	-0.48	-0.47	-0.46	-0.46	-0.45	-0.46	-0.45	-0.45	-0.44	-0.43	-5.49
2026	-0.44	-0.44	-0.43	-0.42	-0.42	-0.42	-0.43	-0.41	-0.42	-0.40	-0.40	-0.40	-5.02
2027	-0.40	-0.39	-0.39	-0.38	-0.38	-0.38	-0.38	-0.38	-0.37	-0.36	-0.36	-0.36	-4.53
2028	-0.36	-0.36	-0.35	-0.35	-0.34	-0.35	-0.34	-0.34	-0.34	-0.33	-0.33	-0.32	-4.11
2029	-0.33	-0.33	-0.32	-0.32	-0.32	-0.30	-0.31	-0.30	-0.31	-0.30	-0.30	-0.30	-3.73
2030	-0.29	-0.30	-0.30	-0.29	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-3.40
2031	-0.27	-0.27	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.26	-0.28	-0.29	-3.16
2032	-0.31	-0.33	-0.34	-0.35	-0.36	-0.37	-0.36	-0.36	-0.36	-0.35	-0.35	-0.35	-4.19
2033	-0.35	-0.35	-0.34	-0.34	-0.34	-0.33	-0.33	-0.33	-0.32	-0.32	-0.32	-0.32	-3.99
2034	-0.32	-0.31	-0.31	-0.35	-0.31	-0.32	-0.30	-0.30	-0.29	-0.29	-0.30	-0.27	-3.65
2035	-0.27	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-0.27	-0.26	-0.26	-3.27
2036	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.25	-0.24	-0.24	-0.24	-0.24	-2.99
2037	-0.24	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.22	-0.22	-0.22	-0.22	-2.72
2038	-0.22	-0.21	-0.21	-0.21	-0.21	-0.21	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-2.47
2039	-0.20	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.18	-0.18	-0.18	-0.18	-0.18	-2.24
2040	-0.18	-0.18	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.16	-2.04
2041	-0.16	-0.16	-0.16	-0.16	-0.16	-0.15	-0.15	-0.15	-0.15	-0.13	-0.12	-0.09	-1.75
2042	-0.07	-0.05	-0.04	-0.02	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.20
2043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2044	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2045	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total													-108.05

Marting and Wood Water Consultants, Inc.
Job No. 816.2

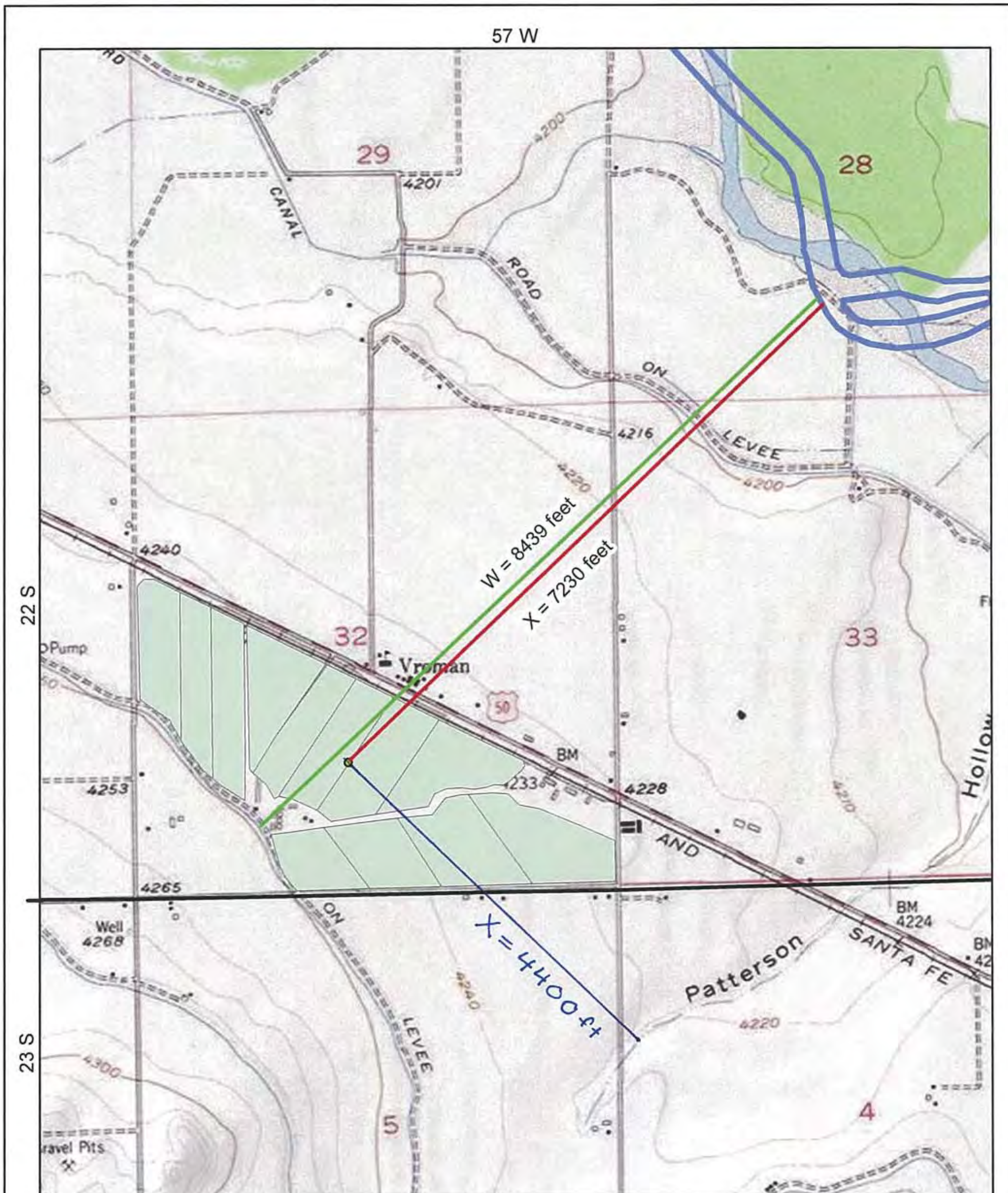
11/23/2014 2:26 PM

Attachment 3

Annotated Maps

Pilot Project Application

December 9, 2014



Legend

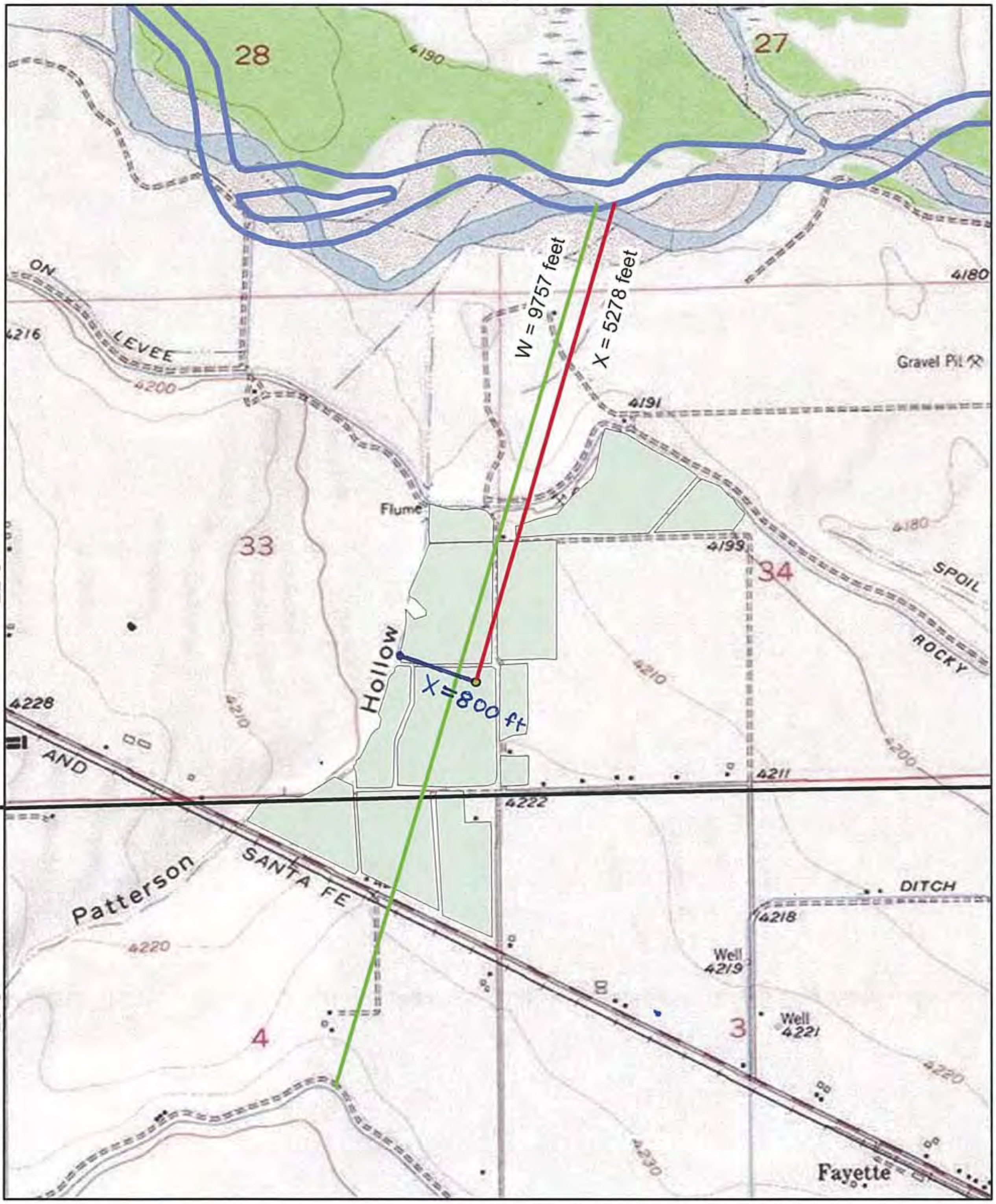
- Irrigated Area
- W Distance
- Centroid
- X Distance

0 1,000 2,000 3,000 4,000 Feet

N S W E

Job No.: 816.2	Catlin Canal Pilot Project Application	Schweizer Figure 26	M&W MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com	
Date: 9/23/14					
Drawn: EP					
Checked: CML					

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd



Legend

Irrigated Area — W Distance

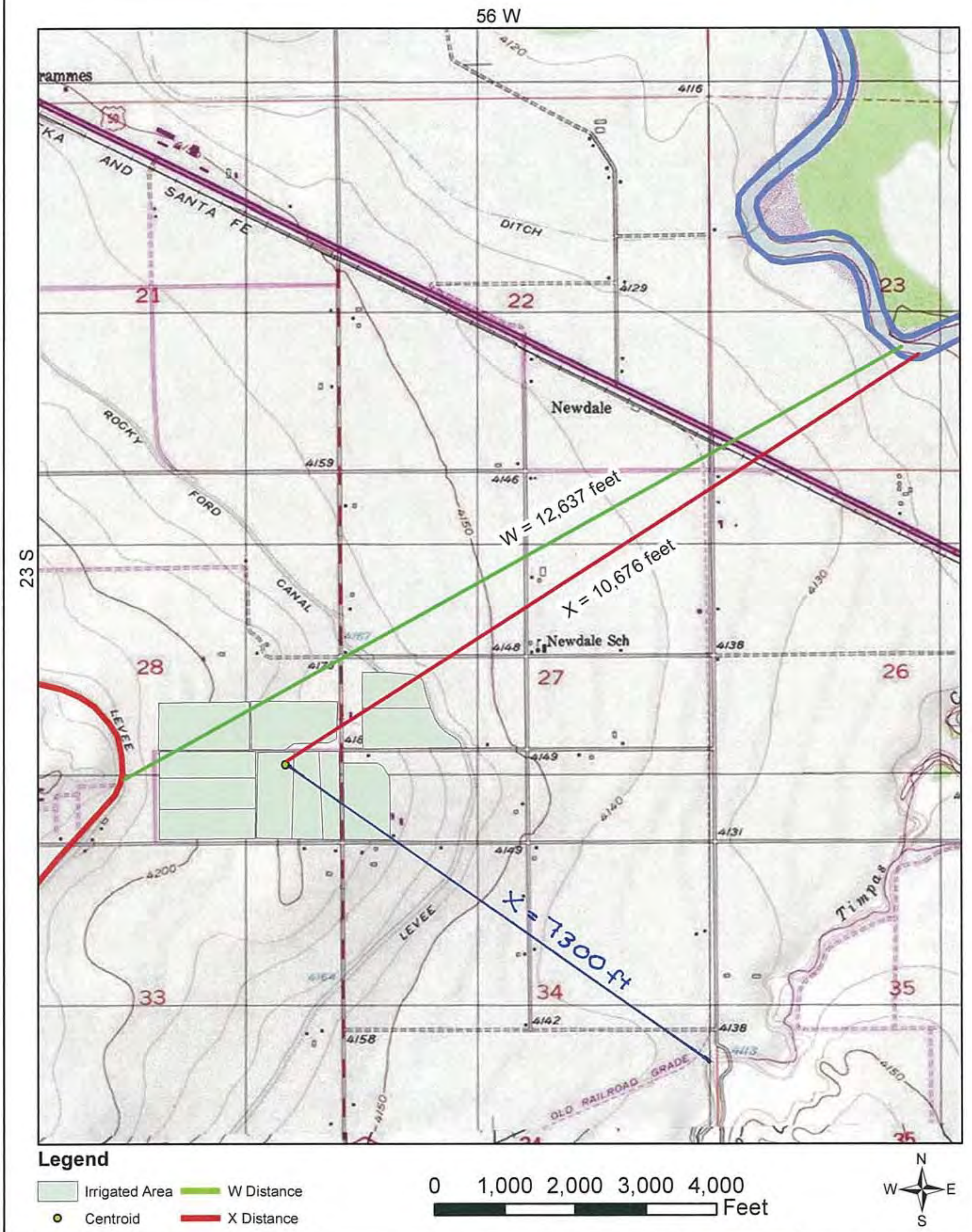
Centroid — X Distance

0 1,000 2,000 3,000 4,000 Feet

N S E W

Job No.:	816.2	Catlin Canal Pilot Project Application	Diamond A West Figure 27	M&W MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date:	9/23/14				
Drawn:	EP				
Checked:	CML				

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd



Job No.:	816.2
Date:	9/23/14
Drawn:	EP
Checked:	CML

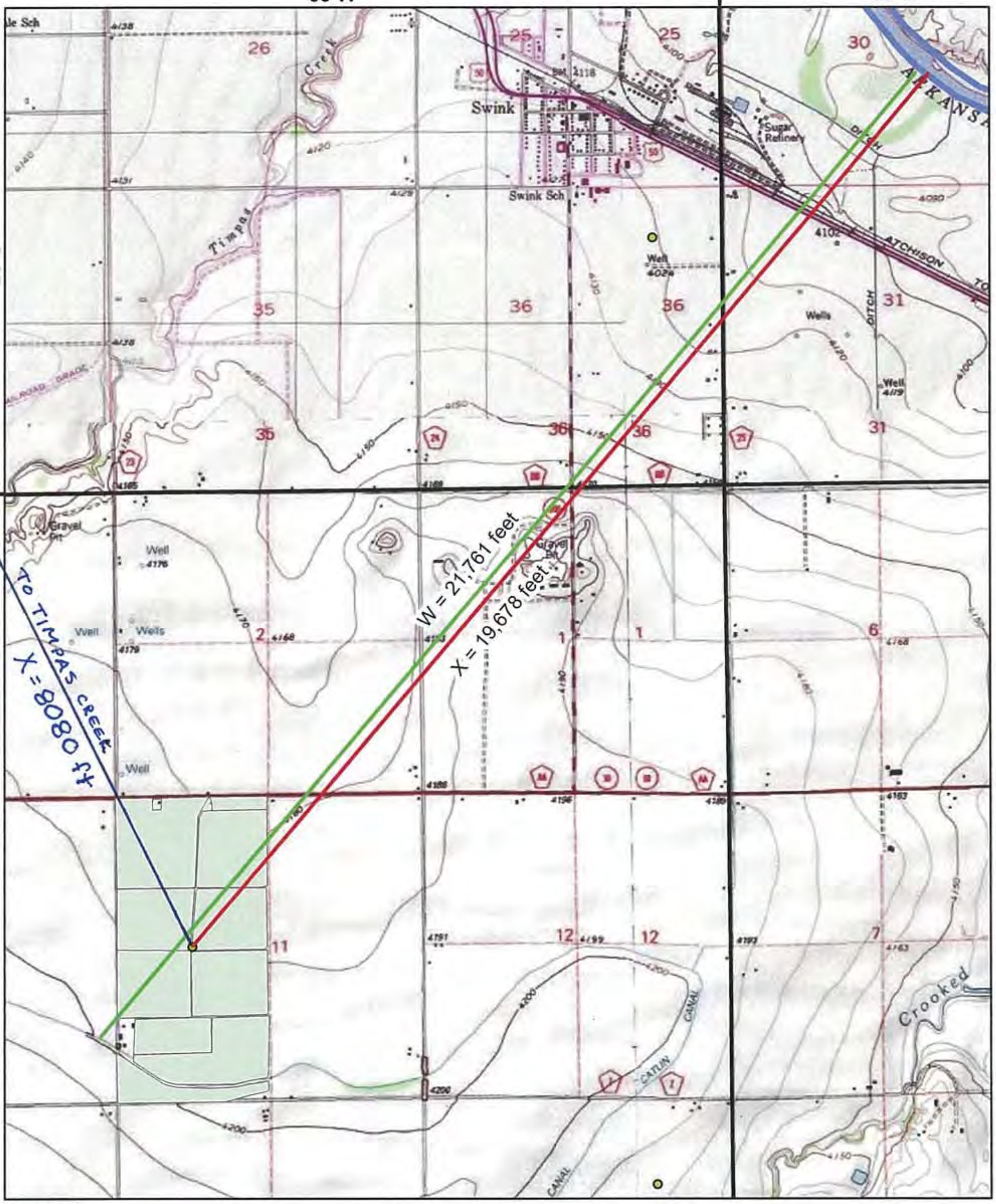
Catlin Canal
Pilot Project Application

Hirakata Farms
Figure 28

M&W
MARTIN AND WOOD
WATER CONSULTANTS INC.

538 Commons Drive
Golden, CO 80401
(303) 526-2600
www.martinandwood.com

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd



Legend

Irrigated Area — W Distance

Centroid — X Distance

0 1,500 3,000 4,500 6,000 Feet

Job No.:	816.2	Catlin Canal Pilot Project Application	Diamond A East Figure 30	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date:	9/23/14				
Drawn:	EP				
Checked:	CML				

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

Attachment 4

Accounting Deficiencies and Basic Reporting Elements

Deficiencies and Exclusions Identified in Provided Example Accounting

Applicants provided a proposed accounting form (Appendix J to the 2015 Catlin Pilot Project Application) for one of the Subject Farms as a representative example for the other Subject Farms. An Excel version of the table was provided by Super Ditch's engineer on November 4, 2014 that includes daily operations accounting for the Schweizer Farm and associated Town of Fowler augmentation operations for one month (March 2015), as well as a summary of monthly operations for the Schweizer Farm. The proposed accounting also includes lagging tables for Schweizer Farm return flows and Schweizer Recharge accretions.

The following list provides a summary of apparent calculation errors and missing information identified from our review of the example farm accounting. This list is not comprehensive or complete because the Applicant has not yet provided proposed accounting for the Pilot Project as a whole.

Schweizer Farm Daily Accounting

1. It is unclear why the Recharge Pond Delivery Target is set to 1.48% of unlagged deep percolation for the Schweizer Farm.
2. It is unclear why the number of shares used as the basis to determine diversions to the subject farm is set as 25.96. The Schweizer Farm is irrigated by 194 Catlin shares (Application Table 2) of which 47.36 are fallowed shares (Application Table 5).
3. The formulas in columns (14) Farm Leased WW and (15) Farm Direct Diversion calculate pro-rata diversions using 2,250 total Catlin shares. It is our understanding that there are 18,660 total Catlin shares outstanding.
4. Footnotes for columns (17) through (17g) appear to be incomplete and/or misnumbered.
5. Measured Farm Headgate Delivery (col. 17) contains a formula. We would expect this column to contain measured input values.
6. Recharge Pond Accretion (col. 22b) daily values are not linked to calculated values.

Fowler Operations Daily Accounting

1. Formula not provided for Lagged Deep Perc (col. 24) daily values. Monthly total value incorrectly references total recharge accretions instead of lagged deep percolation.
2. Calculated CU (columns 26 and 27) values are based on pro-rata headgate diversions instead of measured farm headgate deliveries.
3. Target Aug Station Discharge Total Discharge (col. 29) does not appear to account for the portion of unlagged deep percolation return flow delivered to recharge facilities.
4. Aug Station Discharge (col. 30) contains formulas. We would expect this column to contain measured input values.
5. Farm Aug Station Discharge (col. 30a) incorrectly calculates the subject farm's allocation of deliveries through the augmentation stations pro-rata to all Catlin Canal shares as opposed to only those shares with augmentation station deliveries.
6. The "default" formulas for columns (31) through (34) appear to double-count CU credits.
7. Footnotes for columns (29) and (36) contain errors.

Schweizer Farm Monthly Accounting Summary

1. Include a notes section explaining how each column is calculated.
2. Efficiency values (col. 6) do not appear to match CU factors from Application.
3. CU Credit (col. 7) is based on pro-rata headgate diversions instead of measured farm headgate deliveries.
4. Column (10) titled Recharge appears to reflect deliveries to recharge, not the actual amount recharged (infiltrated) to ground water. However, these values are used as inputs for recharge lagging in the Schweizer Pond Recharge sheet.
5. Columns (13), (16) and (17) do not include formulas.

December 9, 2014

Schweizer Pond Recharge Lagging

1. Calculation of recharge accretions appears to be based on deliveries to recharge (Schweizer Monthly Accounting, col. 10) instead of actual amounts recharged (infiltrated) to ground water.

The table on the following page presents a list of elements that should be included as part of regular summary reports to demonstrate the efficacy of the Pilot Project.

Suggested Reporting Summary for 2015 Catlin Pilot Project

Reporting Item	Description
River headgate diversions	
1 Diversions under direct flow water right(s)	Measured total Catlin Canal diversions
2 Winter water diversions	Measured total Catlin Canal diversions
Fallowed shares deliveries	
3 Number of fallowed shares	Subject shares associated with fallowed parcels
4 Total delivery to fallowed shares	Measured deliveries at aug stations and recharge sites
5 CU portion of delivery	Summarized from farm by farm accounting
6 Tailwater RF portion of delivery	Summarized from farm by farm accounting
7 Deep percolation RF portion of delivery	Summarized from farm by farm accounting
Augmentation station operations	
8 Delivery at Timpas Creek Augmentation Station for fallowed shares	Measured deliveries to fallowed shares at aug station
9 CU portion of delivery	From farm by farm accounting
10 Tailwater RF portion of delivery	From farm by farm accounting
11 Deep percolation RF portion of delivery	From farm by farm accounting
12 Delivery at Crooked Arroyo Augmentation Station for fallowed shares	Measured deliveries to fallowed shares at aug station
13 CU portion of delivery	From farm by farm accounting
14 Tailwater RF portion of delivery	From farm by farm accounting
15 Deep percolation RF portion of delivery	From farm by farm accounting
Recharge operations	
16 Total delivery to Schweizer Recharge for fallowed shares	Measured, from daily recharge accounting
17 CU portion of recharge delivery	From farm by farm accounting
18 Deep percolation RF portion of recharge delivery	From farm by farm accounting
19 Evaporation from Schweizer Recharge site	From recharge accounting
20 Net infiltration to ground water	Measured, from recharge accounting
21 Total delivery to Hanagan Recharge for fallowed shares	Measured, from daily recharge accounting
22 CU portion of recharge delivery	From farm by farm accounting
23 Deep percolation RF portion of recharge delivery	From farm by farm accounting
24 Evaporation from Hanagan Recharge site	From recharge accounting
25 Net infiltration to ground water	Measured, from recharge accounting
Return flow obligations (RFO)	
26 Total lagged deep percolation RFO	From farm by farm accounting
27 Total RFO at river	Total tailwater RFO + Total lagged RFO
28 Total tailwater RF delivery at augmentation stations	Total tailwater delivered to all aug stations
29 Recharge accretions	Total accretions from recharge
30 Schweizer Recharge accretion to river	From recharge accounting
31 Hanagan Recharge accretion to river	From recharge accounting
32 Unlagged deep percolation RF delivery at all augmentation stations for RFO	Unlagged deep percolation delivery used for RFO
33 CU delivered at augmentation stations for RFO	Total CU delivery at aug stations allocated for RFO
34 Other RFO replacement supplies	N/A
35 Source and location of replacement supply	Separate accounting
36 Amount of replacement supply	Separate accounting
37 Transit loss applied to replacement supply	Separate accounting
38 Delivered replacement to location where RFO owed	Separate accounting
39 Net RFO balance (negative is unreplaced RFO)	Total replacements less total RFO at river
CU credit from Pilot Project after RFO replacement	
40 Net CU delivered to augmentation stations	Total CU credit delivered at aug stations less amount used for RFO
41 Transit loss on CU	Transit loss applied to CU credit from aug station to river
42 Net total CU delivered to Arkansas River	Net CU delivered to aug stations less transit loss to river
43 CU credit used in Fowler Rule 14 Plan	Credit applied to Rule 14 Plan (separate accounting)
44 CU credit exchanged to Pueblo Reservoir	Credit exchanged (separate accounting)
45 Unused CU credit	Any remaining CU credit
Unlagged deep percolation delivery to augmentation stations	
46 Unlagged deep percolation delivery to augmentation stations	From farm by farm accounting
47 Net unlagged deep percolation delivered to Arkansas River	Unlagged deep percolation delivered at aug stations less amount used for RFO
48 Unlagged deep percolation credit used in Fowler Rule 14 Plan	Credit applied to Rule 14 Plan (separate accounting)
49 Unlagged deep percolation credit exchanged to Pueblo Reservoir	Credit exchanged (separate accounting)
50 Unused unlagged deep percolation credit	Any remaining deep percolation credit

December 9, 2014

CARLSON, HAMMOND & PADDOCK, L.L.C.
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December 9, 2014

Via Email and U.S. Mail

Colorado Water Conservation Board
c/o Tom Browning
Deputy Director, Integrated Resources
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, CO 80203

Re: Board of Water Works of Pueblo Colorado's Comments on the Catlin Canal Pilot Project Application

Dear Tom:

I am writing on behalf of the Board of Water Works of Pueblo, Colorado ("Pueblo Water"), to provide you with comments on Lower Arkansas Valley Water Conservancy District ("LAVWCD") and the Lower Arkansas Valley Super Ditch Company's H.B. 13-1248 Catlin Canal Pilot Project Application ("Application"). Pueblo Water has the following questions and comments:

1. Pueblo Water is concerned with Applicants' ability to replace post-project depletions. Applicants lists "if and when" accounts and Long Term Excess Capacity Contract water in Pueblo Reservoir and shares owned by LAVWCD in various ditch and reservoir companies with water rights on the Arkansas River as sources of water that "may be available" to meet post-project return flow obligations. The Criteria and Guidelines for Fallowing-Leasing Pilot Projects require, at a minimum,

> a description of the source of water to be used to replace all historical return flow obligations, with evidence that the source will provide a firm yield of water to replace all return flow obligations, during the pilot project and after completion of the pilot project.

In general, Pueblo Water is concerned that Applicants have not met this requirement for these water sources. Pueblo Water's specific concerns with each claimed source of replacement water is discussed below:

A. Southeastern Water Conservancy District "If and When" Accounts and "Long Term Excess Capacity Master Contract" Water

The Application identifies 2,500 acre-feet of agricultural water and 500 acre-feet of municipal water stored in "if and when" accounts held by LAVWCD in Pueblo Reservoir as a source of water to replace post-pilot project depletions. Pursuant to the Composite Contract (as amended) Between the United States of America and the Southeastern Colorado Water Conservancy District, when water is evacuated from Pueblo Reservoir to meet the necessities of the Fryingpan-Arkansas Project, the water evacuated will be charged first against "if and when" accounts for use outside District boundaries and second against "if and when" accounts for use within District boundaries. Because water stored in "if and when" accounts is first to be evacuated from Pueblo Reservoir, this water may not be available to Applicants to replace post-project depletions on a regular basis. Applicants should provide their "if and when" account contracts and information on the projected evacuation frequency to better evaluate their use as a source of water available to meet post-project depletions.

Additionally, Applicants have not identified the specific water rights stored in LAVWCD's "if and when" accounts. The water stored in LAVWCD's "if and when" accounts must be legally available for use as a source of water to meet post-project depletions. Applicants should identify the specific water stored in their "if and when" accounts to ensure that it is legally available as a replacement source.

Finally, Applicants list Southeastern Colorado Water Conservancy District's ("Southeastern") proposed Long Term Excess Capacity Master Contract ("Master Contract") as a source of replacement water to meet post-pilot project depletions. The Master Contract is part of the larger Arkansas Valley Conduit Project for which the Bureau of Reclamation recently issued its Record of Decision ("ROD") on February 27, 2014. The ROD authorizes the Bureau of Reclamation to enter into a contract with Southeastern to store non-Project water in available excess storage space in Pueblo Reservoir. The Master Contract has not been executed. Because the Master Contract has not been executed, Pueblo Water is unable to determine the sufficiency of this source as a replacement supply. Accordingly, this source of replacement water should not be included as a source of replacement water.

B. Shares Owned by LAVWCD in Various Ditch and Reservoir Companies

Applicants list shares that LAVWCD owns in various ditch and reservoir companies with water rights on the Arkansas River as a source of water that "could be made available" to meet post-project depletions but does not detail how this water will be made available for use. Applicants have not conducted an analysis showing that those sources are available to replace post-project depletions in amount, time and place, or how and where any replacement water will be delivered to the appropriate stream location as required by the Criteria and Guidelines for

Fallowing-Leasing Pilot Projects. Applicants do not state if LAVWCD's shares in the various ditch and reservoir companies are decreed for replacement use. LAVWCD's shares in the various ditch and reservoir companies must be legally available for use as a source of water to meet post-project depletions.

Additionally, Applicants do not describe how the sources will be made available to replace post-project depletions. Will LAVWCD donate the sources or will the lessor or lessee be responsible for acquiring them? More information is needed on how this water will be available for use as a source of water to meet post-project depletions.

2. The pilot project's purpose is to demonstrate the feasibility of fallowing-leasing as an alternative to "buy and dry." The pilot project should be testing not only the water rights and administration feasibility of fallowing-leasing, but also the economic feasibility. Accordingly, copies of all contracts among pilot project participants should be included with the Application or subsequently provided if not already available. Applicants should provide the water lease contract with the Town of Fowler once it is executed.

3. To fulfill the purpose of the pilot program, which is to demonstrate the feasibility of fallowing-leasing as an alternative to "buy and dry," the plan should require Applicants to provide a comprehensive annual reporting of the project's operations, including operational challenges, solutions, and any other information relevant to understanding the functioning and viability of this project. Without such comprehensive reporting, non-participants will not be adequately informed about the operations of the project and the knowledge gained on the viability of such programs.

4. Term and Condition Nos. 3 and 4 on page 25 of the Application discuss the calculation of monthly consumptive use credits. To better protect Pueblo Water and other water right holders, Pueblo Water requests that Term and Condition Nos. 3 and 4 be rewritten to emphasize that Applicants must fulfill their return flow replacement obligation before receiving any consumptive use credit. For example, it is not that "the portion of available pilot project augmentation station headgate delivery that is not credited as consumptive use will be allocated to return flow..." as currently described in Term and Condition No. 4, but that the portion <u>not identified as a return flow replacement obligation</u> is the amount available for consumptive use. Along the same lines, the table under Term and Condition No. 3 should instead be surface and deep percolation return flow obligation factors that are applied to deliveries under the pilot program.

Additionally, the phrase "augmentation station deliveries" in Term and Condition No. 3 should be defined as being comprised of deliveries at the Catlin Canal augmentation stations plus deliveries at the farm headgates for recharge.

5. Pueblo Water owns various water rights including rights of substitution and exchange in the Arkansas River including Pueblo Reservoir. The Application seeks to exchange approximately 232 acre-feet of project generated depletion credits to Pueblo Reservoir. The plan should include terms and conditions that protect senior decreed exchanges that operate within that same reach, the Pueblo RICD decreed in Case No. 01CW160, and the Pueblo Flow Management Program. Specifically, in order to protect the current operational regime of the Pueblo Flow Management Program, Pueblo Water requests that Applicants operate any exchange to Pueblo Reservoir as though the Pueblo RICD is calling 24 hours a day.

6. While the plan volumetrically limits monthly and annual consumptive use, the plan does not state what happens when a volumetric limit is reached.

7. The Application proposes the use of the Catlin Canal Timpas Creek and Crooked Arroyo augmentation stations on Timpas Creek and Crooked Arroyo to deliver water to the Arkansas River. The Timpas Creek augmentation station is approximately 7 miles upstream of the Arkansas River and the Crooked Arroyo augmentation station is approximately 5 miles upstream of the Arkansas River. Applicants propose that if the discharge of Timpas Creek or Crooked Arroyo at the Arkansas is greater than the augmentation discharge from the Catlin Canal to either Timpas Creek or Crooked Arroyo, then all the credits delivered to either Timpas Creek or Crooked Arroyo are available at the Arkansas. This assumption fails to account for other waters contributing to the flow of the creek. For example, it would be possible for some or all of the return flow credits to be lost in ether Timpas Creek or Crooked Arroyo upstream of the Arkansas River, yet due to downstream inflow, the total discharge to the Arkansas is greater than the Timpas Creek or Crooked Arroyo augmentation station discharge. In such a circumstance Applicants would be receiving credit for water not actually delivered to the Arkansas River. Pueblo Water believes some base flow analysis of Timpas Creek and Crooked Arroyo is warranted prior to using either augmentation station, and a period of monitoring flows while using the augmentation stations, in wet, average and dry conditions, to confirm that the water is delivered to the Arkansas River. At a minimum, establishment of a transit loss for Timpas Creek and Crooked Arroyo is needed in order to not overestimate the credit for water delivered to the Arkansas River.

Thank you for the opportunity to provide comments. Pueblo Water does not have additional questions or comments at this time. Pueblo Water reserves the right, however, to make additional comments on the Application as the Application progresses, or on subsequent versions of the Application. If you have any questions about these comments, please do not hesitate to contact Bill Paddock or me.

Thank you for your attention to this matter.

Sincerely,

Mason H. Brown

cc: Alan Ward
Mark McLean, P.E.
Bill Paddock, Esq.

COLORADO

Colorado Water Conservation Board

Department of Natural Resources

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix E

Transmittal Letter and Project Application

BERG HILL GREENLEAF & RUSCITTI LLP

ATTORNEYS & COUNSELORS AT LAW

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Peter D. Nichols
Leah K. Martinsson

Email: pdn@bhgrlaw.com
lkm@bhgrlaw.com

September 25, 2014

Via e-mail delivery (james.eklund@state.co.us; tom.browning@state.co.us)

Colorado Water Conservation Board
James Eklund, Director
Tom Browning, Deputy Director
1313 Sherman Street, Room 721
Denver, CO 80203

Re: HB 13-1248 Catlin Pilot Project Application

Dear Mr. Eklund and Mr. Browning:

The Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. (collectively, "Applicants") are pleased to submit the enclosed fallowing-leasing pilot project application pursuant to HB 13-1248, C.R.S. § 37-60-115(8) (2013) for approval of a pilot project to begin operation in 2015. On July 14, 2014, Applicants submitted a Catlin Pilot Project Proposal (the "Proposal") pursuant to Section II.A of the Criteria and Guidelines for Fallowing Leasing Pilot Projects (the "Criteria and Guidelines"). On September 12, 2014, the Colorado Water Conservation Board ("CWCB") considered the Catlin Pilot Project Proposal in accordance with the requirements of the Criteria and Guidelines and adopted a resolution approving the Catlin Pilot Project Proposal for formal selection as an eligible pilot project within the Arkansas River Basin.

As described in the Proposal, the Catlin Pilot Project will use water available from certain shares in the Catlin Canal Company for temporary municipal uses by the Town of Fowler, the City of Fountain, and the Security Water District. This request is for approval of a pilot project that will operate each year over the ten-year period of March 15, 2015 through March 14, 2025. All requirements for a pilot project proposal, as set forth in Section II.F(a)-(d) of the Criteria and Guidelines, were satisfied in the Proposal with exhibits, which is incorporated herein.

Applicants request that the CWCB post this Catlin Pilot Project Application on its website upon receipt pursuant to Section II.A of the Criteria and Guidelines. Additionally, pursuant to C.R.S. § 37-60-115(8)(e)(II) and Section II.H of the Criteria and Guidelines, Applicants have provided written notice and a copy of this Catlin Pilot Project Application and all accompanying materials by either first class mail or electronic mail to all parties that have subscribed to the substitute water supply plan notification list for Water Division 2. Proof of such notice is attached hereto. In addition, we ask the CWCB to serve the application and accompanying materials on the appropriate CWCB e-mail notification list, which we understand is not currently publicly available. Pursuant to Section II.B of the Criteria and Guidelines, Applicants have submitted a check for the five hundred dollar ($500.00) application fee to the CWCB by separate, hand-delivered transmittal.

Pursuant to Section II.I of the Criteria and Guidelines, CWCB staff is responsible for convening and facilitating a conference between the Applicants, the State Engineer, and owners of water rights or contract rights that file comments on the Catlin Pilot Project Application. Applicants propose that this conference be scheduled for **Tuesday, December 16th at 10:00am** at the CWCB's offices. We request that the CWCB schedule this conference and provide notice of the date, time, and location for the conference on its website.

Section II.G of the Criteria and Guidelines sets forth the information required to be submitted for a pilot project application. The attached letter report from Martin and Wood Water Consultants, Inc. dated September 25, 2014 (the "Martin and Wood Report") includes all information required therein and has been prepared in compliance with the technical requirements set forth in Section II.G of the Criteria and Guidelines. In addition, the Martin and Wood Report includes proposed terms and conditions designed to ensure that the Catlin Pilot Project will operate and can be administered without causing injury to other water rights, decreed conditional water rights, or contract rights to water are also set forth in the Martin and Wood Report. The appendices and the LFT spreadsheet to the Martin and Wood Report may be accessed by entering the following link in your file browser:

ftp://server.martinandwood.com/
User name: pilot2015
Password: catlin

Applicants appreciate the opportunity to apply for participation in the HB 13-1248 pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up. We believe that the Catlin Pilot Project meets all of the requirements for, and fulfills the objectives of, the contemplated pilot projects and request CWCB approval of the Catlin Pilot

Project Application pursuant to C.R.S. § 37-60-115(8) and the Criteria and Guidelines to allow for operation of the Catlin Pilot Project beginning in 2015. Thank you for your consideration.

Sincerely,

Peter D. Nichols
Leah K. Martinsson

cc: Lynden Gill, Chairman, Lower Ark
John Schweizer, President, Super Ditch
Jay Winner, General Manager, Lower Ark

Martin and Wood Water Consultants, Inc.
538 Commons Drive, Golden, CO 80401
Phone: (303) 526-2600. Fax: (303) 526-2624
www.martinandwood.com

September 25, 2014

Peter D. Nichols
Leah K. Martinsson
Berg, Hill, Greenleaf & Ruscitti, LLP
1712 Pearl St
Boulder, CO 80302

Re: HB 13-1248 Catlin (Fallowing-Leasing) Pilot Project
Use of Catlin Canal Shares by Town of Fowler, the City of Fountain, and the Security Water District

Dear Mr. Nichols and Ms. Martinsson:

This letter report provides the information required for the Catlin Pilot Project application being filed on behalf of the Lower Arkansas Valley Water Conservancy District (Lower Ark) and the Lower Arkansas Valley Super Ditch Company (Super Ditch), which proposes the use of certain shares in the Catlin Canal Company as an augmentation source to provide a temporary municipal supply for the Town of Fowler Wells and to provide an additional municipal water supply for the City of Fountain and the Security Water District during the requested ten-year pilot project approval period. This report satisfies Section II.G, Information to be Included in a Pilot Project Application; of the Criteria and Guidelines for Fallowing-Leasing Pilot Projects (Criteria and Guidelines), which was used to develop the following information for the 311.2 shares (Subject Shares), of the 1097.83 shares used on the participating farms, that will be used for the proposed 2015 operation of the pilot project. Version 3[1] of the Lease-Fallowing Tool (LFT), provided by the Division of Water Resources and currently under development by the Lease-Fallowing Technical Committee, was used to complete the historical use analysis of the subject farms.

The Catlin Canal diverts from the Arkansas River approximately 44 miles, as the crow flies, downstream of Pueblo Reservoir, or nearly 61 miles as a stream distance. The canal is approximately 35 miles long, diverting from the Arkansas River 4.1 miles east of the Town of Fowler and terminating on Crooked Arroyo about 5.4 miles west-southwest of the City of La Junta. The following table

[1] Version 3 has been reviewed by the Lease-Fallowing Technical Committee, and it is our understanding that only remaining issues are the ability to run the tool with user-defined data, as well as some minor changes in the user interface and output formats. Modifications to the tool to address these issues should not affect the results of the tool presented herein.

describes the water rights owned by the Catlin Canal Company, all of which are decreed for irrigation use:

Table 1
Catlin Canal Company Water Rights

Water Right	Priority No.	Appropriation Date	Adjudication Date	Amount (c.f.s.)
Catlin Canal	2	04/10/1875	04/08/1905	22.0
Catlin Canal	5	12/03/1884	04/08/1905	226.0
Catlin Canal	7	11/14/1887	04/08/1905	97.0

The Catlin Canal also diverts water attributable to the Winter Water Program decreed in Case No. 84CW179. It also diverts Frying Pan-Arkansas Project water (Fry-Ark Project Water), but that Fry-Ark Project water is not included in this pilot project.

The Catlin Pilot Project utilizes direct flow and stored water native to the Arkansas River Basin and derived from shares in the Catlin Canal Company. As such, proposed operation of the Pilot Project during its ten-year term will not involve any transfer or facilitation of transfer of water across the Continental Divide by direct diversion, exchange, or otherwise, nor does it involve the transfer or facilitation of transfer of water out of the Rio Grande Basin by direct diversion, exchange or otherwise.

I. Historical Use Analysis

The Catlin Canal Company has a total of 18,660 outstanding shares. The decree in Case No. 06CW049 states that the Catlin Canal priorities have been used to irrigate between 17,000 and 18,660 acres of land. Per the results of GIS data and as reported in HydroBase, 15,877 acres were irrigated by surface water via the Catlin Canal in 2003. As such, based on the 2003 GIS data and the decree, respectively, one share has historically served an average between 0.85 acre to 1.0 acre.

A. *Participating Farms*

The Catlin Pilot Project proposes to use shares historically used to irrigate lands located on the Schweizer, Diamond A West, Hirakata, Hancock, Diamond A East, and Hanagan Farms (see Figure 1, Catlin Canal Pilot Project Area Map, Appendix A) (Participating Farms). As described below, the Participating Farms currently use a total of 1097.83 shares to irrigate 959.5 acres, which equates to an average of approximately 0.87 acres per share. Average irrigation for the thirty-year study period from 1984 through 2013 was 973.8 acres for the farms. Table 2 below provides a legal description of the historically irrigated acres, the number of irrigated acres, the acres per share, the number of shares for each of the above participating farmers, and associated share certificates.

As shown in Figure 1, the Schweizer Farm and Diamond A West Farm are, respectively, located about 3.3 miles and 4.6 miles south east of the Town of Manzanola along State Highway 50, the Hirakata Farm is about 3.4 miles southeast of the Town of Rocky Ford, the Hancock Farm is located about 5.5 miles south of the Town of Rocky Ford, the Hanagan Farm is located ¼ mile east of Swink, and the Diamond A East Farm is located approximately 3 miles southwest of the Town of Swink.

Table 2
Historically Irrigated Lands

Participating Farmer	Legal Description of Historically Irrigated Lands	Irrigated Acres[1]	Acres per Share	Number of Shares	Associated Share Certificates
Schweizer	Portions of the S½ of the NW¼ and the S½ of Section 32, T22S, R57W of the 6th P.M., Otero County, Colorado	195.8	1.01	194	2754
Diamond A West	Portions of the E½ of Section 33 and the W½ of Section 34, T22S, R57W, and the NE¼ of Section 4, T23S, R57W, all of the 6th P.M., Otero County, Colorado	160.7	0.72	223.3	3314, 3329, 3603
Hirakata Farms	Portions of the SW¼ of Section 27 and the S½ of Section 28, all in T23S, R56W of the 6th P.M., Otero County, Colorado	150.8	1.00	151	3550
Hancock	S½ SE¼ of Section 7, T24S, R56W of the 6th P.M., Otero County, Colorado	72.4	0.91	80	3116
Diamond A East	Portions of the W½ of Section 11, T24S, R56W of the 6th P.M., Otero County, Colorado	278.43	1.02	278.53	3540, 3541, 3542, 3604
Hanagan	NE¼ of Section 36, T23S, R56W of the 6th P.M., Otero County, Colorado	108.2	0.75	171	3317
Total		959.5	0.87	1097.83	-

[1]Based on 2010 aerial photography.

B. Methodology

The historical consumptive use of the Catlin Canal Company water rights per share was determined using the criteria specified in Section II.G of the Criteria and Guidelines, via Version 3 of the LFT, which may be accessed at an ftp site via the instructions at the end of this report. The presumptive factors used in the historical use analyses are as follows (see Tables 27 in Appendices B through E for a list of the factors for each year of the historical use analyses for the farms):

Farm Efficiency - 55%
Soil Moisture – 6 inches (root depth of 4 feet, AWC 12.5%)
Surface Water Return Flows – 20% of farm headgate delivery
Ground Water Return Flows – 80% of farm headgate delivery

Other factors used in the historical use analyses are as follows:

Ditch Loss – 10.4309% per HI Model
Off-Farm Lateral Losses – 3.5% per HI Model

Section II.G also requires the use of the Modified Blaney-Criddle with TR-21 crop coefficients, use of the weather station nearest to the headgate, and 30 years of diversion records, cropping patterns based on county cropping records, use of the USBR effective precipitation method, and an aerial photograph from each decade used in the analysis. The LFT provides for the first five criteria, with the study period for the Participating Farms consisting of the most recent period from which diversion records are available (1984 through 2013). Note that the LFT designates the Rocky Ford 2 SE weather station as that nearest the headgate, and that the diversion records therein include only deliveries of native and winter water. It is our understanding that the county cropping patterns used in the model are peer reviewed on an annual basis by personnel from both Kansas and Colorado.

C. Historically Irrigated Acreage

CDSS mapping was reviewed to develop irrigated acreage for the Participating Farms (Division 2 Irrigated Lands). Aerial photographs of the Hancock and Hanagan farms obtained for the years 1988, 1998, 2005 and 2011, and of the Schweizer, Diamond A West, Hirakata, and Diamond A East Farms for the years 1983, 1993, 2005 and 2010 are included in Appendix A as Figures 2 through 25. Shapefiles, provided by Ivan Walter, for irrigated acres for the 1980 through 1985 time period (as digitized by Kansas), and for 1998 (SEO data) were also compared to the acreages identified on the aerial photographs. No notable discrepancies were found via comparison of the various datasets. The irrigated acreages identified on the aerial photographs are included in Table 3 below.

Table 3
Historically Irrigated Acreages Identified on Aerial Photographs

Subject	Source	Estimate of Irrigated Area (acres)
Schweizer aerial, 7/22/1983, infrared	earthexplorer.usgs.gov	186.9
Schweizer aerial, 8/16/1993, black and white	earthexplorer.usgs.gov	188.7
Schweizer aerial, 2005, color	terraserver.com	193.5
Schweizer aerial, 7/28/2010, color	terraserver.com	195.8
Diamond A West aerial, 7/22/1983, infrared	earthexplorer.usgs.gov	196.5
Diamond A West aerial, 8/16/1993, black and white	earthexplorer.usgs.gov	181.8
Diamond A West aerial, 2005, color	terraserver.com	159.0
Diamond A West aerial, 7/282010, color	terraserver.com	160.7
Hirakata Farms aerial, 7/9/1983, infrared	earthexplorer.usgs.gov	151.5
Hirakata Farms aerial, 7/25/1993, black and white	earthexplorer.usgs.gov	138.3
Hirakata Farms aerial, 2005, color	terraserver.com	151.6
Hirakata Farms aerial, 7/28/2010, color	terraserver.com	150.8
Hancock aerial, 9/4/1988, infrared	earthexplorer.usgs.gov	72.2
Hancock aerial, 6/27/1998, black and white	terraserver.com	75.7
Hancock aerial, 6/1/2005, color	terraserver.com	74.5
Hancock aerial, 7/28/2010, color	ArcView Basemap Imagery	72.4
Diamond A East aerial, 7/9/1983, infrared	earthexplorer.usgs.gov	286.9
Diamond A East aerial, 7/25/1993, black and white	earthexplorer.usgs.gov	279.2
Diamond A East aerial, 2005, color	terraserver.com	271.3
Diamond A East aerial, 7/28/2010, color	terraserver.com	271.6
Hanagan aerial, 9/16/1988, infrared	earthexplorer.usgs.gov	114.9
Hanagan aerial, 6/27/1998, black and white	terraserver.com	117.7
Hanagan aerial, 6/1/2005, color	terraserver.com	105.3
Hanagan aerial, 5/9/10, color	ArcView Basemap Imagery	108.2

Irrigated acreages for any study period (1984-2013) years prior to the year of the first aerial photograph of any Participating Farm were assumed to be equal to that year. For example, the Hancock Farm irrigated acreages for each year from 1984 through 1987 was set at 72.2 acres, which is the 1988 acreage determined for the Hancock Farm. Irrigated acreages for years between aerial photographs was simply prorated based on the acreages for the years prior to and following that period. The resulting acreages were entered into the data tabs of the LFT for each of the Participating Farms.

D. HCU for Shares to be Used in 2015

The number of acres to be fallowed and their associated shares analyzed for 2015 operations were determined based on discussions with the participating farmers and all represent 30% or less of the acreage of each the Participating Farms to allow for continuous operation during the 10-year term of the pilot project. Consumptive use for dry-up of other portions of each farm for future years will entail a simple proration based on the area of the fallowed fields and the consumptive use per acre for each farm. Similarly, the number of shares allocated to dry-up will be based on the number of shares per acre for each Participating Farm.

Per Section II.G, the historical consumptive use is further limited to the maximum of the volumetric limit for the monthly consumptive use amount, based on the average of the three greatest months of the study period, and the volumetric limit for the annual consumptive use amount, based on the average of the three greatest years of the study period. The tables required by Section II.G are also attached in Appendices B (Schweizer Farm), C (Diamond A Farm), D (Hirakata Farm), E (Hancock Farm), F (Diamond A East Farm) and G (Hanagan Farm) as well as some additional tables generated by the current version of the LFT.[2]

The LFT run was based on the historically irrigated acres estimated for each Participating Farm in Section I.D above. Those results were then prorated to reflect per-acre consumptive use amounts, using the acreage irrigated in the final year of the study period, and applied to the acreage to be fallowed for 2015 operations. The results of this analysis indicate that the 311.2 shares associated with the lands to be fallowed in 2015 would provide an average annual consumptive use of 477.5 acre-feet. Note that the LFT indicates a historical maximum (average of maximum 3-years) of 579.2 acre-feet per year and a minimum consumptive use 132.3 acre-feet per year for the Subject Shares. Please see Table 4 below and/or Appendices B through E, Tables 16 for a summary of these values for each farm.

[2] Note that Tables 10 through 14 (per the numbering system in the Criteria and Guidelines) are re-numbered as Tables 13 through 17 by the LFT, to allow for the additional tables necessary to determine and apply the aforementioned historical consumptive use limitations.

Table 4
Historical Consumptive Use, Fallow Acres and Fallow Shares

Farm Name	HCU Minimum	HCU Average	HCU Max3	Average	Shares Fallow	Measured Fallow Fields	HCU Fallow (Minimum	HCU Fallow (Average)	HCU Fallow (Max3)
	acre-feet	acre-feet	acre-feet	acre-feet/acre	#	acres	acre-feet	acre-feet	acre-feet
Schweizer	82.5	327.8	398.0	1.67	47.36	47.8	20.1	80.0	97.2
Diamond A West	94.9	308.3	377.0	1.92	66.99	48.2	28.5	92.5	113.1
Hirakata Farms	64.2	251.6	309.3	1.67	37.95	37.9	16.1	63.2	77.7
Hancock	34.0	128.0	155.6	1.77	24.00	21.7	10.2	38.4	46.7
Diamond A East	118.4	475.8	560.8	1.75	83.56	81.5	35.5	142.7	168.2
Hanagan	72.7	202.2	254.4	1.87	51.30	32.5	21.8	60.7	76.3
Total	466.7	1693.7	2055.1	-	311.2	269.6	132.3	477.5	579.2

However, the Max3 monthly limits in the LFT are based on the three maximum months rather than the months for the three maximum years, which is the methodology contained in the Criteria and Guidelines (Section II.G). Although use of the monthly maximums from the study period is the norm for calculating historical consumptive use and is the approach advocated by many members of the leasing-fallowing technical committee, the Criteria and Guidelines have not been modified to reflect this approach and instead set forth a different approach whereby all of the monthly maximum values are not contained in the three years of maximum annual diversions. Application of the Criteria and Guidelines methodology results in the following revised amounts.

Table 5
Revised Historical Consumptive Use, Fallow Acres and Fallow Shares

Farm Name	HCU Minimum	HCU Average	HCU Max3	Average	Shares Fallow	Measured Fallow Fields	HCU Fallow (Minimum	HCU Fallow (Average)	HCU Fallow (Max3)
	acre-feet	acre-feet	acre-feet	acre-feet/acre	#	acres	acre-feet	acre-feet	acre-feet
Schweizer	70.8	324.7	391.0	1.66	47.36	47.8	17.3	79.3	95.4
Diamond A West	70.3	298.3	346.1	1.86	66.99	48.2	21.1	89.5	103.8
Hirakata Farms	54.6	249.4	303.3	1.65	37.95	37.9	13.7	62.7	76.2
Hancock	28.1	127.1	145.8	1.76	24.00	21.7	8.4	38.1	43.7
Diamond A East	102.5	466.6	557.6	1.72	83.56	81.5	30.7	140.0	167.3
Hanagan	47.2	201.6	247.0	1.86	51.30	32.5	14.2	60.5	74.1
Total	373.5	1667.8	1990.7	-	311.2	269.6	105.4	470.0	560.6

Note that the HCU Minimum, HCU average, HCU Max3, HCU Fallow Minimum, HCU Fallow (Average) and HCU Fallow (Max3) amounts associated with the participating acreage for 2015 are reduced due to the application of the LFT monthly consumptive use factors and recalculation of the Max3 monthly limitations. Fallowing of the fields associated with the Subject Shares will result in minimum, average and Max3 annual consumptive use of 105.4 acre-feet, 470.0 acre-feet and 560.6 acre-feet for 2015 operations, respectively, as shown in Table 4 above.

This HCU analysis demonstrates the amounts of water that may be made available as consumptive use from the lands anticipated to be fallowed during 2015 operations for temporary municipal use. Actual amounts of water to be provided in 2015 and in subsequent years to Fowler, Fountain and Security (the Municipal Participants) will vary depending on the actual number of acres fallowed during that year's operations, the Municipal Participants' water needs, and water availability under pilot project operations. Under any scenario, the pilot project will not be operated such that the total transferable consumptive use would exceed 1,000 acre-feet per year.

II. Lagged Historical Return Flow Obligations

A. *URFs for Participating Farms*

As set forth in Section II.G, the Glover-Balmer analytical solution was used to calculate the lag effect of deep percolation return flows for the Participating Farms, per the following criteria:

- Specific Yield = 0.20
- Transmissivity according to cited reference or through the applicant's detailed analysis
- Use of the relevant ditch as the location of the no-flow boundary
- The distance to the river is equal to the length of a line extending perpendicular from the river or drain to the centroid of the irrigated land; return flows accrue to the river or drain at this location on the river; and
- The number of monthly time steps (URF period) for the URF will be limited to the number of months required for at least ninety percent of the impact to occur to the stream; the URFs will then be normalized by apportioning the remaining return flows across the URF period.

The transmissivity[3] was determined from the hydraulic conductivity of eight wells in the Arkansas River basin, three located between the Towns of Manzanola and Swink and two located near the Town of La Junta, (all in valley-fill deposits in the main valley) and three located in the Timpas Creek valley (valley-fill deposits), and the saturated thickness of seventeen wells located near the subject farms. The Well ID, Saturated Thickness (B), Transmissivity and Hydraulic Conductivity (K) are estimated for each well and illustrated in the following Table 6. The K for the Hanagan, Diamond A West and Schweizer Farms is the geometric mean for the wells located on the Arkansas River Mainstem. The K for the Hancock Farm is that of Well ID C 24-56-18acb and acb2[4], which are located in the section immediately south of the Hancock Farm. The K for the Hirakata Farm is that of Well ID C 24-56-4cdc, which is located about one mile south of the Hirakata Farm. The K for the Diamond A East Farm is the geometric mean of the wells located in the Timpas Creek valley.

[3] USGS Ground Water Circular No. 11, Woodrow W. Wilson, United States Geological Survey, 1965
[4] Since the two wells located at this location have the same transmissivity, saturated thickness and hydraulic conductivity, they were considered as one well for the purposes of this report to prevent skewing of the data.

Table 6
Hydraulic Conductivity

Well ID	B (feet)	T (gpd per foot)	K (gpd)
Arkansas River Mainstem			
C 23-55-30bcc	28	115,000	4,100
C 23-55-33bad	29	80,000	2,800
C 23-55-36-bda	16	140,000	8,800
C 23-56-8ddc	18	55,000	3,100
C 23-57-2ddc	12	50,000	4,200
Geometric Mean			4,200
Timpas Creek			
C 24-56-4cdc	20	80,000	4,000
C 24-56-18acb & acb2	20	110,000	5,500
Geometric Mean			4,700

The saturated thicknesses (B) between the farms and the Arkansas River were determined via evaluation of well logs for several wells located in the vicinity of the farms. The average B for wells grouped in the above categories was calculated, and the average of these values was used as the B for each Glover-Balmer analytical solution. Table 7 below contains the well data and saturated thickness for each farm.

Table 7
Saturated Thickness
(All values in feet)

Farm Name	Permit No.	SWL	Depth	Top of Sands/ Gravels	Bottom of Sands/ Gravels	Top of Saturated Thickness	Bottom of Saturated Thickness	Saturated Thickness	Average
Hirakata	22490	18	30	25		25			
	241059-A (2007)	22	54	13	45	22	45	23	
	241059-A (2004)	22	49	13	45	22	45	23	
	224167-A	25	46		42	25	42	17	
	260-R	15	30			15			
	1224-R	19	52		50	19	50	31	
	280697-A	31	53	31	51	31	51	20	
	22344-F		40						
	90446-A	17	39	16		17			
	262258	23.2	40	5		23.2			
	46972-A	25	44	23	38	25	38	13	
	5976-F	19	50	18	50	19	50	31	
	13617-R	27	47			27			
	5253-F	21	54	16	53	21	53	32	
	13622-R	32	55			32			
	6556-F	18	50	27	50	27	50	23	23.7
Hanagan	23035-F	17	51	0	47	17	47	30	
	6835-F	14	36	4	34	14	34	20	
	23034-F		52						
	16699	22	32	0	32	22	32	10	
	21559-F		40						
	5894-F	9	36			9			
	1371-R	30	60			30			
	1374-R	32	52			32			
	155833	40	62	18	58	40	58	18	
	34492	16	20			16			
	1372-R	30	50			30			
	12151-R	27	37			27			
	210-CWCB	20	29			20			
	21559-F		40						19.5
Diamond A East (includes Hanagan Wells)	204994-A	31	45	0	41	31	41	10	
	33788-A	20	30	0	25	20	25	5	
	295030		30						
	175191	8	20	0	18	8	18	10	
	492-RN	6	86			6			
	171675		45						
	13680-R	18	23			18			
	45336	31	44			31			
	207185	24	42	0	39	24	39	15	14.8

Farm Name	Permit No.	SWL	Depth	Top of Sands/ Gravels	Bottom of Sands/ Gravels	Top of Saturated Thickness	Bottom of Saturated Thickness	Saturated Thickness	Average
Hancock	13038-R	21	42			21			
	13283-R	24	48	19	48	24	48	24	
	132821-R	24	48			24			
	23028-R		46						
	12899-R	24	48			24			
	151573-A	6	30	5	28	6	28	22	
	151573		40						
	50751-MH		8						
	60769	29	40	30	35	30	35	5	
	13037	21	34			21			
	4547	18	25	18		18			
	241464 (586-R)	26	37			26			17.0
Diamond A West	2019	15.5	21			15.5			
	6188-F	26	57	26	55	26	55	29	
	10292-R	13	39			13			
	10293-R	15	30			15			
	15319-R	18	28			18			
	21556-F		35						
	46941	20	28.5			20			
	46942	23	29			23			
	79878	15	30	5	19	15	19	4	
	211739	18	42	18	40	18	40	22	
	262260	17.5	34	5	34	17.5	34	16.5	
	285264-A	17	35	2	33	17	33	16	17.5
Schweizer	6163-F	9	18	9		9			
	6429-R	6.5	27			6.5			
	6430-R-R	9	39	3	27	9	27	18	
	6547-R	12	28		23.5	12	23.5	11.5	
	6549-R	12	27			12			
	13673-R	21	33	7		21			
	13674-R	21	38	4	38	21	38	17	
	13674-R-R	25	38	15		25			
	13675-R			12.5	20.6	12.5	20.6	8.1	
	13676-R	15	24	14	23	15	23	8	
	13678-R	15	31	15	30.5	15	30.5	15.5	
	13679-R	16	32	16	31	16	31	15	
	39263	8	28		27	8	27	19	
	46961	20	28.5			20			
	234254	9	25	6	24	9	24	15	
									14.1
	Average							19	17.0

The transmissivities for the Schweizer, Diamond A West, Hirakata, Hancock, Diamond A East, and Hanagan Farms were accordingly estimated at approximately 59,300 gpd per foot (14.1 feet x 4,200 gpd), 73,500 gpd per foot (17.5 feet x 4,200 gpd), 94,700 gpd per foot (23.7 feet x 4,000 gpd), 93,500 gpd per foot (17.0 feet x 5,500 gpd), 69,300 gpd per foot (14.8 feet x 4,700 gpd) and 81,900 gpd per foot (19.5 feet x 4,200 gpd), respectively. The distances from the drain or river, as appropriate, and the no-flow boundary to the centroid of irrigated areas are illustrated on attached in Appendix A as Figures 26 through 31. The URFs were developed using WPDM, developed by James Hyre of

Western Water Consulting, Inc., copyright 2001. The URFs are included below in the Terms and Conditions section of this report. Per Section II.G, the time steps encompass 90% of the impact, and the URFs were normalized by apportioning the remaining return flows across the URF period. The estimated lagged historical return flows are illustrated in attached Tables 24 and 25, Appendices B through G, and described in following sections of this report.

B. Recharge Ponds to Deliver Lagged Return Flows

Catlin Pilot Project operations will utilize recharge ponds, when feasible, to meet historical return flow obligations associated with the dry-up of the historically irrigated lands for 2015 and subsequent years. The Applicants currently have agreements for the use of two existing recharge ponds located on farms irrigated via the Catlin Canal, the Schweizer Recharge Pond and Hanagan Recharge Pond. Locations and the current status of the recharge ponds are described in this section.

Schweizer Recharge Pond. The Schweizer Recharge Pond is located in the SW¼ of the NW¼ of Section 32, Township 22 South, Range 57 West of the 6th P.M, as shown on Figure 32. The Schweizer Recharge Pond has a surveyed capacity of 15 acre-feet at a surface area of 5.15 acres. Recharge from the Schweizer Recharge Pond returns to the Arkansas River downstream of the Rocky Ford Ditch and Fort Lyon Storage Canal. Noting that the Schweizer Farm is the upstream most farms in the Catlin Pilot Project, the Schweizer Recharge Pond is ideally located to provide replacement of lagged return flows upstream of the historical lagged return flows for all of the Participating Farms. Testing of the Schweizer Recharge Pond is currently underway and is being conducted pursuant to the terms set forth in Lower Ark's Rule 10 Compact Compliance Plan for 2014. Preliminary results show a maximum recharge rate of 35 acre-feet per week. The Schweizer pond is located on the Schweizer Farm, but not within ¼ mile of all of the fallowed parcels. As such, both lagged return flows and recharge for the Schweizer Farm are included in the projection and tracked in the accounting, although the URFs for the Schweizer Farm are used for both since the difference in lagging is minimal (i.e. 90% of the deep percolation return flows for the Schweizer Farm were estimated to reach the Arkansas River by 2019, while 90% of the recharge from the Schweizer Farm is estimated to reach the Arkansas River by 2020). For the purposes of this analysis, water allocated to historical deep percolation return flows for the Schweizer, Diamond A West, Hirakata and Hancock Farms was delivered to the Schweizer Recharge Pond due to relative similarity in timing of lagged return flows from said farms and the said recharge pond.

Hanagan Recharge Pond. The Hanagan Recharge Pond is located in the NW¼ of the NW¼ of Section 31, Township 23 South, Range 55 West of the 6th P.M, as shown on Figure 33. The Hanagan Recharge Pond has a surveyed capacity of 13.06 acre-feet at a surface area of 3.86 acres. Recharge from the Hanagan Pond returns to the Arkansas River just downstream of the Town of Swink. Because there are no surface diversions located between the points of recharge from the Schweizer Recharge Pond and the Hanagan Recharge Pond, the Hanagan Recharge Pond may also be used to replace lagged return flows from all of the Participating Farms. The Hanagan Recharge Pond is also currently undergoing testing pursuant to the terms set forth in Lower Ark's Rule 10 Plan. Preliminary results show a maximum recharge rate of approximately 33 acre-feet per week. The Hanagan Recharge Pond is located within ¼ mile of the Hanagan Farm parcels. Therefore, under the Criteria and Guidelines, it assumed that recharge delivered to the Hanagan Farm for the fallowed Hanagan parcels will lag to the stream with the same timing as historical returns flows. As a result, lagging of said recharge is not separately tracked in the projection and accounting. For the purposes of this analysis, water allocated to historical deep percolation return flows for the Diamond A East Farm was also delivered to the Hanagan Recharge Pond due to relative similarity in timing of lagged return flows from said farm and said recharge pond.

URFs were developed for both recharge ponds using the same assumptions contained in the Criteria and Guidelines and used to develop URFs for the Participating Farms. Due to the locations of the Schweizer and Hanagan Recharge Ponds, the URFs are identical to the URFs for the Schweizer and Hanagan Farms, respectively.[5]

As indicated above, preliminary testing of the Schweizer Recharge Pond has shown that it is capable of recharging all deep percolation return flow obligations owed for the operation of the Pilot Project for 2015 and future years. However, the timing is such that under average diversion conditions, augmentation station deliveries will also be needed to replace deep percolation return flow obligations during the first year of operation. Additionally, after 2026 it is anticipated that there will be insufficient accretions from the recharge ponds to replace all post-pilot project deep percolation return flow, such that other means and/or sources of replacement will be utilized to replace such return flows beginning in 2026 and thereafter. Applicants seek approval to use both recharge ponds in Catlin Pilot Project operations, as may be necessary and/or desirable. In addition, Applicants are currently investigating the feasibility of locating additional recharge pond locations that may be desirable, though not necessary, for use in future years' operation of the Catlin Pilot Project.

C. Depletion Credits for 2015 Operations

Use of the Integrated Decision System Alluvial Water Accounting System (IDS AWAS) to model fallowing for each farm (as described above) beginning in March of the first year of operations, and average diversions, provides for an average historical consumptive use of 470 acre-feet (limited by the Max3 monthly amounts). Addition of 30.9 acre-feet of excess recharge pond accretions results in a stream depletion credit of 501 acre-feet in the first calendar year of operations. After subtracting an estimated 37.4 acre-feet for evaporative losses from the recharge ponds, a net stream depletion credit of 463.6 acre-feet is available for temporary municipal use by the Municipal Participants for 2015. Note that the amount available over the entire ten-year term of the Pilot Project will be somewhat less than the average historical consumptive use of 470 acre-feet provided via the Catlin Pilot Project due to the need to replace evaporative losses from the recharge ponds.

[5] In the context of including these recharge ponds in Super Ditch's 2012 SWSP, Bishop and Brogden Associates, Inc. (BBA) developed and recommended use of URFs developed using a methodology that is different from that contained in the Criteria and Guidelines. Depending on which set of URFs are used, the timing and amount of return flows accruing to the river from the recharge ponds varies slightly. The URFs developed in conformance with the Criteria and Guidelines are used in this report. This approach is also preferable because it maintains consistency with the URF determinations for the Participating Farms.

D. Post-Pilot Project Return Flow Obligations

Using the above-described URFs for the Participating Farms and the Schweizer and Hanagan Recharge Ponds, post-dry-up lagged return flow obligations for 2015 operations are estimated to total 107.7 acre-feet over the following 27 years, with more than half of the lagged return flow obligations occurring in the first 10 years. Assuming 10 years of pilot project operations under average year conditions, total post-pilot project return flow obligations are estimated at approximately 819 acre-feet from the year 2026 through the year 2051 (see Appendix I, Table I-7). During the 10-year term of the pilot project, lagged return flow obligations owed from prior years' operations will be met through augmentation station deliveries of water available from the dry-up of historically irrigated lands and recharge pond accretions in excess of return flow obligations, which have been estimated to occur in the years 2015 through 2025 in conducting this analysis.

E. Source of Water to Replace Historical Return Flow Obligations

During the term of the Catlin Pilot Project, return flow obligations will generally be met through portions of the headgate diversions of the water available from the dry-up of historically irrigated lands and in the manner discussed below. However, any excess stream depletion credits (including excess return flow deliveries) may be exchanged into Pueblo Reservoir if necessary for later use to replace post farm dry-up lagged depletions or post-pilot project depletions. As to return flow obligations owed after the conclusion of the pilot project's operations, Applicants have various sources of water that may be available to meet annual return flow obligations. Lower Ark historically has maintained storage accounts in Pueblo Reservoir to store various water supplies that come available to it. Currently, Lower Ark has 2500 acre-feet of agricultural storage and 500 acre-feet of municipal storage in Pueblo Reservoir via "if and when" accounts. Lower Ark is also a participant entity in SECWCD's proposed Long Term Excess Capacity Master Contract. This or other upstream storage may be used to store water made available to meet post-pilot project return flow obligations.

Lower Ark owns shares in a number of ditch and reservoir companies with water rights on the Arkansas River. Many of these ditch and reservoir company shares have undergone water court proceedings to changes the use of those water rights, whereby the historical consumptive use associated with those shares has been quantified. The potential yield of Lower Ark's shares in these companies has been preliminarily estimated based on these prior change cases where possible, estimates provided by Division 2 personnel, or other information, as shown in Table 8 below:

Table 8
Annual Firm Yield
(Dry year)

Company	Shares	Firm Yield (Dry Year) (acre-feet)	Comments
Catlin Canal Company	0.1	0.07	Division 2
LAWMA	150	30.00	Common Stock Shares @ 0.2 acre-feet per share
Colorado Canal Company	2	1.18	1978 Depletions from the July 1985 W. W. Wheeler Report, Revised August and October 1985, titled Final Report, Colorado Canal, Lake Meredith, Lake Henry Change of Water Rights
Lake Meredith Reservoir Company	2		
Bessemer Irrigation Ditch Company	73.6	73.60	Division 2
Holbrook Mutual Irrigation Company	132.3	26.46	Division 2
Rocky Ford Ditch Company	1	1.38	Case No. 06CW049 HCU per share multiplied by the 2002 diversions divided by the average annual diversions.
Consolidated Extension Canal Company	1	NA	
Highline Canal Company	6	47.88	Division 2
Total	-	180.57	

These native sources can provide a firm (dry-year) yield of more than 180 acre-feet annually that could be made available to meet the post-project return flow obligations, which is more than adequate to satisfy the maximum annual estimated post-pilot project deep percolation lagged depletions of 68 acre-feet projected to occur in 2028 (see Appendix I, Table I-7), based upon continuous operation of the pilot project during its ten-year term. In addition, Lower Ark owns shares in both the Twin Lakes Reservoir Company and the Larkspur Ditch. Based on information provided by Division 2 personnel, the Twin Lakes shares could provide a firm yield of approximately 71.25 acre-feet, assuming that source is available to meet return flow obligations. Larkspur Ditch shares provide a potential additional source of water that could meet post-project return flow obligations, if deemed suitable. Moreover, Lower Ark is regularly acquiring additional water supplies, either through lease or purchase and such additional water supplies may be available to meet post-pilot project return flow obligations.

As demonstrated above, the firm (dry-year) yield of these various water supplies currently owned by the District are more than sufficient to meet the post-pilot project return flow obligations. These sources and other sources that may be available through future purchase, lease, or trade, could serve either directly or indirectly to meet these obligations.

III. Description of Pilot Project Operations

The Catlin Pilot Project will be operated by drying up adequate acreage to provide the amount of depletion credits desired by the Municipal Participants, up to 500 acre-feet annually. Fowler has requested up to 250 acre-feet annually and Fountain and Security have leases in place for up to 125 acre-feet annually. 2015 operations contemplate that no more than 30% of each Participating Farm will be fallowed. The Catlin Pilot Project will be operated such no Participating Farm is fallowed for more than three years in a consecutive ten-year period or no more than 30% of a Participating Farm is fallowed for more than 10 consecutive years.

Applicants have investigated and confirmed that there are no local government land use requirements that apply to operation of the Catlin Pilot Project. As proposed to be operated, the Otero County 1041 Regulations apply to a “municipal and industrial water project” that involves the permanent cessation of irrigation, the lease of water rights resulting in the cessation of irrigation for three consecutive years or more; or the development of the agricultural land for uses other than irrigated agriculture. *See* Guidelines and Regulations for Areas and Activities of State Interest, County of Otero, State of Colorado § 3.103(3)(b). The agreement with participating farmers will specifically provide that the same lands within any Participating Farm will not be fallowed for more than two consecutive years, unless applicable Otero County 1041 permitting requirements have been complied with.

In addition, the agreement that will be executed between Applicants and participating farmers will provide for weed control and erosion protection for the lands removed from irrigation as a part of the Catlin Pilot Project. This will include the acknowledgement of, and agreement to comply with applicable County code noxious weed management requirements, including the Otero County Noxious Weed Management Plan, Otero County Code, Chapter 12 – Vegetation.

A. Town of Fowler

1. Municipal Use

It is proposed that the Town of Fowler will use Catlin Pilot Project depletion credits[6] to allow for increased irrigation season outdoor water use through increased pumping of Fowler’s wells. Fowler’s well depletions are currently covered though CWPDA’s Rule 14 plan. CWPDA’s Rule 14 plan augments tributary water well depletions pursuant to the *Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado*. There are 972 wells included in the 2015 plan year CWPDA Rule 14 Plan. These wells are located in the Fountain Creek alluvium and in the Arkansas River alluvium downstream of Pueblo Reservoir and upstream of John Martin Reservoir. The CWPDA Rule 14 Plan uses various sources of water (described in the aforementioned approval) to replace stream depletions resulting from use of the included wells, as well as return flow obligations resulting from use of some of the sources.. Winter return flows are provided via either release of water from Pueblo Reservoir or by booking over storage to the Winter Water Program. Currently, personnel from the Division 2 office provide CWDPA with the amounts that must be released to replace depletions and return flow obligations based on the engineering provided for the CWPDA Rule 14 Plan.

Current depletions for the Fowler wells are estimated and replaced as described in the March 28, 2014 approval by the State Engineer. Operation of the Catlin Pilot Project for 2015 will dedicate

[6] Depletion credits, rather than historical consumptive use, are used as the metric for water available for temporary municipal use in pilot project operations. Depletion credits may be less than or greater than historical consumptive use resulting from the balance of deliveries for return flows, accretions from recharge ponds and recharge pond evaporation.

the depletion credits/consumptive use of 151.56[7] of the Subject Shares (the "Fowler Shares"), which will yield 235.3 acre-feet of consumptive use in an average year, to the CWPDA Rule 14 Plan for the 2015 plan year (April 1, 2015 through March 31, 2016). CWPDA has indicated that it can and will accept the Fowler Shares for use in its 2015 Rule 14 Plan to allow for increased municipal well pumping by Fowler and would be capable of replacing return flow obligations associated with those shares. However per the 2015 projections, pilot project operations will return all return flows and use of the CWPDA plan to do so will not be necessary for 2015 operations.

2. Delivery of Depletion Credits

The water attributable to the Fowler Shares will be delivered to the headgate of the Catlin Canal and measured through the ditch flume. The portion of the delivery attributable to ditch losses will be left in the ditch. Two existing augmentation stations may be used for operations, the Timpas Creek augmentation station on the Catlin Canal, located in the SW¼ of the SW ¼ of Section 18, Township 24 South, Range 56 West of the 6th P.M., which delivers water to the Arkansas River 31.3 miles downstream of the Town of Fowler in the NE¼ of the NW¼ of Section 25, Township 23 South, Range 56 West of the 6th P.M., and/or the Crooked Arroyo Augmentation Station on the Catlin Canal, located in the NW¼ of the NE ¼ of Section 13, Township 24 South, Range 56 West of the 6th P.M., which delivers water to the Arkansas River 36.5 miles downstream of the Town of Fowler in the NE¼ of the SW¼ of Section 33, Township 23 South, Range 56 West of the 6th P.M. Each month's depletions will be measured through the flume at the augmentation station(s), and will be subsequently returned to the Arkansas River where the Town of Fowler will then use the depletion credits to replace lagged depletions resulting from pumping its wells through their inclusion in CWPDA's Rule 14 Plan. This may involve exchange of water delivered through the augmentation stations from those stations to the point of depletion of the Fowler wells, which represents a 31.3 or 36.5 mile exchange reach. Alternatively, as a part of its overall plan operation, CWPDA may use augmentation sources available to it upstream of the point of depletion of the Fowler Wells to replace said depletions, and use the pilot project depletion credits to replace other depletions under CWPDA's Rule 14 Plan that occur downstream of the point of depletion of the Fowler Wells. Transit losses will be charged, as necessary from the point of delivery to Timpas Creek and Crooked Arroyo to the confluence of each with the Arkansas River.

3. Return Flow Obligations

During the term of the Catlin Pilot Project, return flow obligations will generally be met through portions of the headgate diversions of the depletion credits available from fallowed lands. For 2015, return flows due each month from the fallowed lands associated with the Fowler Shares will either be delivered to the Schweizer and/or Hanagan Recharge Ponds or be measured through the

[7] Note that 151.56 shares are slightly less than 50% of the Subject Shares, which would be 155.58 shares. This is because portions of the Hanagan Farm have previously been included in the Catlin Augmentation Associations' Rule 14 plan and are not eligible to be dedicated to the CWPDA Rule 14 Plan for Fowler's use. As such, the only those portions of the Hanagan Farm that have not been included in a Rule 14 plan are included as a source of fallowed acreage for the purpose of providing additional water for Fowler via CWPDA's Rule 14 plan. The result is a slightly different average consumptive use and net depletion credit for the shares dedicated to Fowler's use, which results in slightly fewer shares being necessary to generate approximately ½ of the net depletion credits.

augmentation stations and returned therefrom to the Arkansas River to replace return flows and/or for augmentation use for the Fowler Wells. It is anticipated that operation of the Schweizer Recharge Pond should be sufficient to meet all return flow obligations associated with operation of the Catlin Pilot Project, though the Hanagan Recharge Pond may also be used. Note that there are no decreed diversions from the Arkansas River between the point of return flow from the Schweizer and Hanagan Recharge Pond and the confluence of Crooked Arroyo and the Arkansas River. As such, return flows from either recharge pond may offset return flow obligations from all of the Pilot Project farms.

At times when return flow obligations are not fully met through recharge operations, water will be released from upstream storage to meet return flow obligations. This water will have been placed into storage via exchanges having occurred at times when exchange potential exists and depletion credits exceed amounts owed for Fowler's additional well depletions. Such exchanges may include additional amounts that may be needed to replace evaporation from the recharge ponds and Pueblo Reservoir and transit losses for recharge deliveries from Pueblo Reservoir.

Return flow obligations for Fowler may also be met through coordinated operations and/or trades of the depletion credits with water already stored in Pueblo Reservoir. For example, Lower Ark currently operates Rule 10 plans that utilize portions of a total of 3,000 acre-feet of water stored in its "if and when" account in Pueblo Reservoir (2500 acre-feet of agricultural storage and 500 acre-feet of municipal storage). Lower Ark's current Rule 10 Plan includes thirteen farms on the Catlin Canal, consisting of a total of 2370 acres irrigated by 2224.5 Catlin Shares. The west-most farm in the Rule 10 Plan is the Schweizer Farm, which is ideal in that both the Schweizer and Hanagan Recharge Ponds, and the Timpas Creek and Crooked Arroyo Augmentation Stations are upstream of the locations where return flows for the Rule 10 plan farms are owed. At times when depletion credits are available from the Pilot Project and there are return flow obligations for the Rule 10 plans, a trade of "if and when" water for depletion credits may be utilized to reduce transit losses that would occur via release and delivery of water from Pueblo Reservoir to the point of return flow obligation, resulting in an equivalent amount of water being transferred to storage in Pueblo Reservoir. This water could then be later used to meet return flow obligations. The same potential for exchanges may be utilized for trades of water in conjunction with the CWPDA Rule 14 Plan, since CWPDA likewise has water stored in Pueblo Reservoir and has return flow obligations for farms on the Catlin Canal. These trades of water may also occur regardless of the whether or not exchange potential exists in the pertinent exchange reaches. Similar coordinated operations may also occur with various other Rule 14 Plans operating on the Arkansas River.

It is possible also that lawn irrigation return flows from well water use by the Town of Fowler may be available in time and place to replace a portion of the historical irrigation return flows in the future. Nevertheless, until such time that the pilot project water is incorporated into the a future CWPDA Rule 14 Plan allowing for use of lawn irrigation return flows, it will be assumed that irrigation season return flows will be provided for as described herein, and winter return flows will be provided for as described below. If CWPDA obtains approval for lawn irrigation return flow credits, then additional water would be available to the Town of Fowler under Pilot Project operations.

4. Summary of 2015 Operations

For 2015 operations as currently projected using an average year, 235.3 acre-feet of the Catlin historical consumptive use credits will be provided to the Town of Fowler. Excess recharge pond accretions will provide an additional credit of 17 acre-feet, with recharge pond evaporation estimated at 20.5 acre-feet, resulting in a net depletion credit of 231.8 acre-feet for the Town of Fowler's use. (The dry-year (2002) net depletion credit is estimated at 40.3 acre-feet). Due to the excess recharge pond accretions that result in full replacement of historical winter lagged deep percolation return flows, an exchange of historical consumptive use water to provide for storage of deep percolation winter return flows in Pueblo Reservoir should not be necessary. However, if such an exchange were to be necessary or desirable, the administrative reach for the exchange of winter return flow replacement water would extend approximately 90 miles from the downstream terminus, at the confluence of Timpas Creek with the Arkansas River, to the upstream terminus, at the outlet works of Pueblo Reservoir. In the event the recharge ponds do not completely replace winter deep percolation return flows, winter return flows may be released from storage to the stream and/or may be booked over to the winter water storage program (based on any call placed on the river by the WWSP) as determined necessary to replace such return flows to the appropriate water rights.

B. City of Fountain and Security Water District

1. Municipal Use

It is proposed that Fountain and Security will use Catlin depletion credits to bolster municipal supplies, which will be delivered via exchange of said water into Pueblo Reservoir, either directly or via stepped exchanges. Applicants will deliver these supplies to Fountain and Security at Pueblo Reservoir. Fountain and Security will be responsible for maintaining storage space in Pueblo Reservoir (through an "if and when" account or long-term excess capacity master contract) and for delivering such water to their municipal systems through the Fountain Valley Conduit.

2. Delivery of Depletion Credits

Prior to exchange to Pueblo Reservoir, the water attributable to 159.60[8] fallowed shares will be delivered to the headgate of the Catlin Canal and measured through the ditch flume. The portion of the delivery attributable to ditch losses (canal losses of 10.43% and lateral losses of 3.5%) will be left in the ditch. Each month's depletions will be measured through the flume at the Timpas Creek augmentation station or the Crooked Arroyo augmentation station, as appropriate, and returned to the Arkansas River at the locations identified above, wherefrom the available depletion credit will be exchanged to Pueblo Reservoir and delivered to Fountain and Security.

[8] Note that 159.6 shares are slightly more than 50% of the Subject Shares, which would be 155.58 shares. This is due to the inclusion of portions of the Hanagan Farm in the Catlin Augmentation Associations' Rule 14 plan for 10-years. These portions the Hanagan Farm may not be used in a Rule 14 plan at this time. As such, the only those portions of the Hanagan Farm that have not been included in a Rule 14 plan are included as a source of fallowed acreage for the purpose of providing additional water for Fowler via CWPDA's Rule 14 plan. The result is a slightly different average consumptive use and net depletion credit for the shares dedicated to use by Fountain and Security, which results in slightly more shares being necessary to generate approximately ½ of the net depletion credits.

Stepped exchanges may be used when exchange potential exists in only a portion of the reach between the augmentation stations and Pueblo Reservoir. For example, if there is exchange potential from the Timpas Creek augmentation station to the Colorado Canal, but not from the Colorado Canal to Pueblo Reservoir, water may be exchanged to the Colorado Canal for delivery to Lake Meredith. This water may later be released and exchanged to Pueblo Reservoir when exchange potential exists from the Lake Meredith point of delivery to the Arkansas River to Pueblo Reservoir. Applicants would only operate stepped exchanges into storage locations for which Applicants have obtained a right to do so. Use of stepped exchanges, while desirable, is not necessary for the proposed pilot project operations.

3. Return Flow Obligations

During the term of the Catlin Pilot Project, return flow obligations will generally be met through portions of the headgate diversions of water available from the fallowed lands. Water will be delivered to the Schweizer and/or Hanagan Recharge ponds or be measured through the augmentation stations to meet return flows due each month. Water returned therefrom to the Arkansas River will be used to replace return flows. There are no decreed diversions from the Arkansas River between the points of return flow from the Schweizer and Hanagan Recharge Ponds and the confluence of Crooked Arroyo and the Arkansas River. As such, return flows from either recharge pond may offset return flow obligations from all of the Participating Farms. If return flows accrue in excess of amounts owed for that month, such excess return flow water may be exchanged to Pueblo Reservoir for use by the Municipal Participants or for replacement of future return flow obligations. Water exchanged to Pueblo Reservoir and later released either directly to meet return flow obligations or back into recharge may be subject to evaporation from the recharge ponds and Pueblo Reservoir, and transit losses for recharge deliveries from Pueblo Reservoir.

Return flow obligations associated with Fountain and Security's temporary municipal use of the water available from the fallowed lands may also be met through coordinated operations and/or trades of the depletion credits with water already stored in Pueblo Reservoir in the same manner described in Section III.A.3, above.

4. Operations for 2015

For 2015 operations as currently projected, 234.7 acre-feet of the Catlin historical consumptive use credit will be allocated to Fountain and Security, based on an average year analysis. Excess recharge pond accretions will provide an additional credit of 14 acre-feet, with recharge pond evaporation estimated at 16.9 acre-feet, resulting in a net depletion credit of 231.8 acre-feet that may be exchanged to Pueblo Reservoir for delivery to Fountain and Security. (The dry-year (2002) net depletion credit is estimated at 40.3 acre-feet.)

Due to the excess recharge pond accretions, an exchange of deep percolation water to Pueblo Reservoir for the purpose of replacing winter return flows should not be necessary. However, if such an exchange is needed, the administrative reach for the exchange would extend approximately 90 miles from the downstream terminus, at the confluence of Timpas Creek with the Arkansas River, to the upstream terminus, at the outlet works of Pueblo Reservoir. It is anticipated that the winter return flows would be booked over to the winter water program and/or released to the stream as determined necessary to replace such return flows to the appropriate water rights.

C. *Exchanges*

Several exchanges have been discussed in the above operations section of this report, though not all of these exchanges may be necessary for the proposed operations. For example, based on the projection in Section D below, exchanges to provide a source for replacement of winter return flow obligations may not be necessary. Exchanges that may be operated as part of the Catlin Pilot Project include the following.

- Timpas Creek and Arkansas River Confluence to the point of depletion of the Fowler Wells
- Crooked Arroyo and Arkansas River Confluence to the point of depletion of the Fowler Wells
- Timpas Creek and Arkansas River Confluence to Pueblo Reservoir
- Crooked Arroyo and Arkansas River Confluence to Pueblo Reservoir
- Schweizer Recharge Pond point of accretions to the Arkansas River to the point of depletion of the Fowler Wells
- Hanagan Recharge Pond point of accretions to the Arkansas River to the point of depletion of the Fowler Wells
- Schweizer Recharge Pond point of accretions to the Arkansas River to Pueblo Reservoir
- Hanagan Recharge Pond point of accretions to the Arkansas River to Pueblo Reservoir
- Stepped exchanges may also occur from the Timpas Creek and Arkansas River Confluence, the Crooked Arroyo and Arkansas River Confluence, the Schweizer Recharge Pond point of accretions to the Arkansas River, and the Hanagan Recharge Pond point of accretions to the Arkansas River to the Colorado Canal for storage in Lake Henry and Lake Meredith, or the Holbrook Canal for storage in Dye Reservoir and/or Holbrook Reservoir. The stored water will be subsequently released from these reservoirs and exchanged from the reservoir's points of delivery to the Arkansas River to Pueblo Reservoir.
- Stepped exchanges may also occur to and from other diversion and delivery points located in the reach from the Crooked Arroyo confluence with the Arkansas River to Pueblo Reservoir

In evaluating the potential for operating the above-described exchanges, we have reviewed the report dated May 2, 2011 and prepared by Leonard Rice Engineers, which provided a preliminary evaluation of Arkansas River exchange potential in support of the exchanges requested by Applicants in Case No. 10CW04. We have also reviewed the expert report, dated September 2, 2014 and prepared by the Wilson Water Group in support of SECWCD's application of rights of exchange in Case No. 06CW08 (Water Div. 2). Both of these reports indicate that exchange potential exists at times from the Catlin Canal to Pueblo Reservoir. Even when exchange potential does not exist in the complete reach, there may be exchange potential in portions of the reach to facilitate stepped exchanges. Moreover, we note that the LRE report modeling was conducted using conservative safety factors, and actual exchange potential will likely be greater than identified therein.

Based on this, as well as our professional experience in the administration of the Arkansas River that exchange operations can be coordinated to leverage exchange potential, it is my opinion that through the exchanges and stepped exchanges described above, it will be possible to exchange water into Pueblo Reservoir for use by the Municipal Participants and/or for the replacement of return flows in pilot project operations.

D. Projection

A projection of example operations in an average year is attached in Appendix I. In this example, historical consumptive use is 470 acre-feet, tailwater is 164 acre-feet, deep percolation is 656 acre-feet, and lagged deep percolation is 113.6 acre-feet in the first year. Directing all deep percolation return flows into the recharge ponds as described above would result in a shortfall of approximately 53.2 acre-feet for the Schweizer, Diamond A West, Hirakata and Hancock Farms for 2015, and a net gain to the stream of approximately 38.4 acre-feet for the Diamond A East and Hanagan Farms, for a total shortfall of 14.8 acre-feet in the first year of operations. In order to replace the full deep percolation return flow obligation, the shortfall for the Schweizer, Diamond A West, Hirakata and Hancock Farms may instead be delivered through the augmentation stations, which would result in a net gain to the stream of 29.9 acre-feet during the irrigation season, and an excess recharge pond accretion of approximately 7.7 acre-feet from December through March. Lagged deep percolation for the next 27 years is a total of 107.7 acre-feet, with a maximum replacement requirement of approximately 11.9 acre-feet in 2021. As is commonly the procedure for the operation of SWSPs and changes of water rights, it is anticipated that the lagged deep percolation return flows will be replaced utilizing water deliveries under the participating shares in successive years of operation. Application of evaporative losses from the recharge ponds and Pueblo Reservoir, and transit losses from Pueblo Reservoir releases will not cause obligations to exceed the replacement water available to the Applicants. Table 9 summarizes these amounts.

Table 9
Summary of Projection Results
(All values in acre-feet)

HCU	Tailwater	Deep Percolation	Lagged Deep Percolation	All Deep Percolation Delivered to Recharge Ponds		Schweizer Recharge Pond Shortfall Directed to Augmentation Station	
				Schweizer Recharge Pond Shortfall	Hanagan Recharge Pond Excess Accretion	Irrigation Season Excess Accretion	December through March Excess Accretion
470.0	164.0	656.0	-113.6	-53.1	38.4	29.9	7.7

As demonstrated by the preceding paragraphs, because the pilot project operations will be managed and coordinated in a manner to take advantage of available exchange potential and to utilize other water resource management techniques, it is our opinion that there are no administrative or operational obstacles to the proposed operation of the Catlin Canal Pilot Project, and that said project can and will be implemented using existing infrastructure, and no additional diversion structures, augmentation stations, or return structures will be needed for operations.

IV. Accounting

Example accounting forms are attached in Appendix J for the Schweizer Farm portion of the Fowler operations. Each farm will require a separate monthly accounting form for each operation (Fowler Operations and Fountain and Security Operations). It will also be necessary to complete separate monthly accounting forms for the Hanagan Farm shares for each operation due to the inclusion of portions of the Hanagan Farm in the Catlin Augmentation Associations' Rule 14 Plan as described above. The operations accounting sheets total the augmentation station discharges and deliveries for each operation. The accounting will use the tables listed in Appendix A of Section II.G of the Criteria and Guidelines as the tool for comparing this historical use analysis with projected operations as a pilot project.

V. Proposed Terms and Conditions

It is our opinion that operation of the Catlin Pilot Project pursuant to the following terms and conditions will not result in injury to other vested water rights, conditional water rights, or contract rights of others.

1. All water used in the pilot project will be delivered to the headgate of the Catlin Canal, and only lands irrigated under the Catlin Canal Co. will be used in the leasing-fallowing operations of the Pilot Project.

2. No lands shall be fallowed for more than three years during the ten-year period of the Catlin Pilot Project and no more than 30% of the parcels on each participating farm shall be fallowed in any year of the Catlin Pilot Project. For lands located in Otero County, no more than two of the three years of fallowing during the pilot project term will be consecutive unless 1041 permitting requirements are complied with.

3. The following monthly factors will be applied to augmentation station deliveries to determine monthly consumptive use.

Consumptive Use Factors

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Schweizer	-	0.000	0.063	0.155	0.377	0.531	0.537	0.538	0.445	0.250	0.179	-
Diamond A West	-	0.000	0.032	0.129	0.314	0.468	0.484	0.460	0.311	0.136	0.032	-
Hirakata Farms	-	0.000	0.062	0.153	0.373	0.528	0.533	0.532	0.425	0.244	0.174	-
Hancock	-	0.000	0.062	0.133	0.329	0.525	0.539	0.545	0.472	0.260	0.209	-
Diamond A East	-	0.000	0.065	0.157	0.380	0.533	0.540	0.541	0.463	0.264	0.162	-
Hanagan	-	0.000	0.030	0.113	0.274	0.408	0.428	0.381	0.259	0.097	0.020	-

4. The portion of available pilot project augmentation station headgate delivery that is not credited as consumptive use will be allocated to return flow with an amount equal to 20% of the farm delivery headgate diversions minus ditch and consumptive use attributed to tail water surface returns and all remaining water will be attributed to lagged deep percolation returns.

5. The monthly and annual consumptive use will be further limited by the following maximum values which are the averages of the three greatest years of the study period.

Monthly and Annual Maximum Consumptive Use Credits
(All Values in Acre-Feet)

Farm	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Schweizer	0.0	0.0	19.0	37.4	67.4	92.7	91.1	90.2	58.4	57.2	26.8	0.0	398.0
Diamond A West	0.0	0.0	13.3	38.4	64.7	99.6	96.9	93.6	52.9	54.3	8.4	0.0	377.0
Hirakata	0.0	0.0	14.8	28.7	52.5	71.9	70.3	68.6	44.2	44.6	20.8	0.0	309.3
Hancock	0.0	0.0	6.9	14.8	26.5	37.8	36.7	36.7	22.1	21.8	9.4	0.0	155.6
Diamond A East	0.0	0.0	27.2	53.7	95.2	133.8	136.3	129.5	84.5	82.1	35.5	0.0	561.2
Hanagan	0.0	0.0	9.8	26.6	45.6	68.7	66.3	59.6	33.9	31.6	4.2	0.0	254.4

6. Deep percolation return flows for the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms will be lagged using the URFs attached in Appendix H. Deep percolation return flows for the Hanagan Farm will be maintained by returning water to the Hanagan Recharge Pond within ¼ mile of said farm, negating the need for lagging per the Criteria and Guidelines. Deep percolation return flows from the Schweizer, Diamond A West, Hirakata, Hancock, and Diamond A East Farms may be delivered to the Schweizer and/or Hanagan Recharge Ponds, and will be lagged using the applicable URFs attached in Appendix H.

7. Fallowed parcels must be at least ten acres in size unless they comprise all of an existing CDSS parcel that is already less than ten acres. Parcels that represent a portion of an existing field can only be split in the same direction of historic irrigation unless a means of physical separation is approved by the CWCB based on the written determination of the State Engineer. A physical separation must exist between any irrigated portion of a parcel and the dry-up portion. For dry-up fields left fallow or with a dry-land cover crop without permanent root system (that is, not alfalfa or pasture grass for example), the separation can be a ditch or tilled strip at least ten feet in width that prevents irrigation application from reaching the dry-up parcel. For partial fields containing deep-rooted crops such as alfalfa or pasture grass, a deep tilled separation of at least 25 feet must be maintained along with any ditches necessary to ensure no irrigation application to the dry-up portion. For any dry-up parcel that is planted with a dry-land crop (haygrazer, milo, millet, etc.), the crop should either be drilled at an angle to normal irrigation direction or a tilled strip maintained at the top of the field that clearly separates the crop from any possible irrigation source or both.

8. All parcels containing alfalfa or pasture grass shall be subject to a reduction in the approved amount of transferrable consumptive use if the field is subirrigated. The reduction will be calculated according to the following table. Necessary monitoring well configuration, if any, will be determined through the application of specific terms and conditions that would be included in the approval of the Pilot Project.

Depth to Ground Water (Feet)	Percent Reduction in CU Credit	
	Pasture Grass	Alfalfa
1	85%	100%
2	50%	90%
3	30%	75%
4	20%	50%
5	15%	35%
6	10%	20%
7	5%	15%
8	0%	10%
9	0%	0%

9. Dry-up of the fallowed fields will comply with the "Operating Procedures for Administration of Parcels Claimed for Augmentation Credits" of the Colorado State Engineer's Office. Re-irrigation of dry-up parcels shall not be allowed during the year in which such parcel is fallowed in pilot project operations.

10. Applicants will notify the Division Engineer of the status (dry land crop (must specify type), tilled and fallow, not tilled and fallow, stubble of past crop left on field, etc.) of each fallowed field in the Catlin Canal Pilot Project by May 15 of each year of operations.

11. Applicants will ensure that all participating farmers are contractually bound to provide for weed control and erosion protection for the lands removed from irrigation as a part of the Catlin Canal Pilot Project. This will include the acknowledgement of, and agreement to comply with applicable County code noxious weed management requirements, including the Otero County Noxious Weed Management Plan, Otero County Code, Chapter 12 – Vegetation.

12. Consumptive use credits and return flow obligations shall be calculated on a daily basis. Water allocated to deep percolation return flows that is not required to replace return flows on a given day will be allocated as a stream depletion credit. Such depletion credits may be used to augment depletions from the Town of Fowler wells, exchanged to Pueblo Reservoir for use by the City of Fountain and/or the Security Water District, or stored for such uses or to replace return flows as necessary.

13. Calculations of return flows owed to the river must be updated as needed (at least monthly), based on actual past water availability and estimated future availability. If there is an under delivery of return flow water in any month this under delivery shall be made up in the subsequent month.

14. Unless otherwise replaced via pilot project operations (such as recharge) or CWPDA's Rule 14 plan, depletions credits will be exchanged to Pueblo Reservoir and stored in

Lower Ark's "if and when" account to provide a replacement supply for winter return flow obligations.

15. Exchange into Pueblo Reservoir may occur only when there is at least 100 cfs of outflow (inclusive of hatchery flows) from Pueblo Reservoir. Such diversions/exchanges may not cause the outflow from Pueblo Reservoir to be less than 100 cfs.

16. Waters that are exchanged to, stored in, and subsequently released from Pueblo Reservoir will experience, delivery, storage and transit losses that will have to be made up from other sources. Absent prior approval by the Division Engineer of some other source, it will be assumed those losses will be made up from the consumptive yield of these rights.

17. Any return flows not met by proper delivery of that portion of the available headgate diversions shall be made up from some other source decreed for this use or approved for this use by a substitute water supply plan. Absent prior approval by the Division Engineer of some other source, it will be assumed those losses will be made up from the consumptive yield of shares included in the pilot project.

18. All diversions shall be measured in a manner acceptable to the Division Engineer. The Applicant shall install and maintain measuring devices as required by the Division Engineer for operation of this pilot project.

19. Accounting of water in this Catlin Canal Pilot Project must be provided to the Division Engineer on forms and at times acceptable to him. Said accounting must be received by the 10th of the month following the month being reported. The name, mailing address and phone number of the contact person who is responsible for operation and accounting of this plan must be provided on the accounting forms.

20. The accounting will use the tables listed in Appendices B through G of this document as the tool for comparing historical use analyses with projected operations as a pilot project.

21. The name, e-mail and postal addresses, and phone number of the contact person who will be responsible for the operation and accounting of this pilot project must be provided with the accounting forms to the Division Engineer and Water Commissioner.

22. Pueblo Reservoir, Twin Lakes Reservoir and Fountain Valley Pipeline (or Conduit) are owned and operated as part of the Fryingpan-Arkansas Project by the United States Department of the Interior, Bureau of Reclamation. Applicants shall store water in Pueblo Reservoir only so long as they have a contract with the owners of that structure, and such storage and use is within the effective time period of such contract. Any use of Fryingpan-Arkansas Project facilities by Applicants, for storage, exchange or otherwise, will occur only with the written permission of the owner of said reservoir, and will be made consistent with such policies, procedures, contracts, charges, and terms as may lawfully be determined by the U.S. Bureau of Reclamation of its successors in interest, in their good faith discretion. Any approval of the Catlin Pilot Project will not give

Applicants any rights to use of Fryingpan-Arkansas Project structures, including Pueblo Reservoir, but will not alter any existing rights Applicants may have. Any use of the Fryingpan-Arkansas Project facilities. Applicants shall not operate the Catlin Pilot Project in a manner that would interfere with the lawful operation of the Fryingpan-Arkansas Project.

23. Applicants acknowledge that any Catlin Pilot Project approval does not give Applicants any rights to ownership or use of any Fryingpan-Arkansas Project structure, or any rights of ownership or rights to purchase or receive allocation of Fryingpan-Arkansas Project water, and does not alter any existing rights (including any right to renew existing contracts) Applicants may have.

24. Applicants shall not operate the Catlin Pilot Project in a manner that would interfere with the lawful operation of the Fryingpan-Arkansas Project. Any water stored in Pueblo Reservoir as a part of this Catlin Pilot Project shall be beneficially used within Southeastern's district boundaries.

25. Use of Winter Water to meet return flow obligations from the fallowing of historically irrigated lands shall be consistent with the terms and conditions contained in the Winter Water Storage Program ("WWSP") decreed in Case No. 84CW179 (Water Div. 2) and Southeastern's contract for Winter Water storage in Pueblo Reservoir. Deliveries of Applicants Winter Water shall be delivered through the Catlin Canal during the period of March 16, through November 14 at the same time as deliveries of Winter Water Storage are made to other Catlin Canal shareholders.

26. To the extent that the Catlin Pilot Project stores the net depletion amount of the participating shares in Pueblo Reservoir, such water may be booked over to replace winter return flow on a monthly or weekly basis, or as otherwise required by the Division Engineer, to participants in the Winter Water Storage Program as necessary to prevent injury to the water rights included in that Program.

27. Prior to operation of the Pilot Project, Applicants shall provide proof to the Division Engineer that all agreements and approvals necessary for operation of the Pilot Project have been obtained.

Through the use of the LFT to evaluate historical consumptive use, and the above-described operations and accounting, the Catlin Canal Pilot Project, will provide data from which the CWCB and State Engineer can evaluate the efficacy of using a streamlined approach for determining historical consumptive use, return flows, the potential for material injury to other water rights, and conditions to prevent injury. Operations and accounting for the Catlin Canal Pilot Project will also demonstrate how to operate, administer and account for the practice of fallowing irrigated agricultural land for leasing water for temporary municipal use without causing material injury to other vested water rights, decreed conditional water rights, or contract rights to water.

Please contact us if you have any questions or any additional information is needed for your review of this application.

Sincerely,
MARTIN AND WOOD
WATER CONSULTANTS, INC.

Craig M. Lis, P.E.
Senior Water Rights Engineer

Joe Tom Wood, P.E.
President

The appendices and the LFT spreadsheet may be accessed by entering the following link in your file browser (e.g., Windows Explorer). Please be patient, as the appendices may take a few minutes to load.

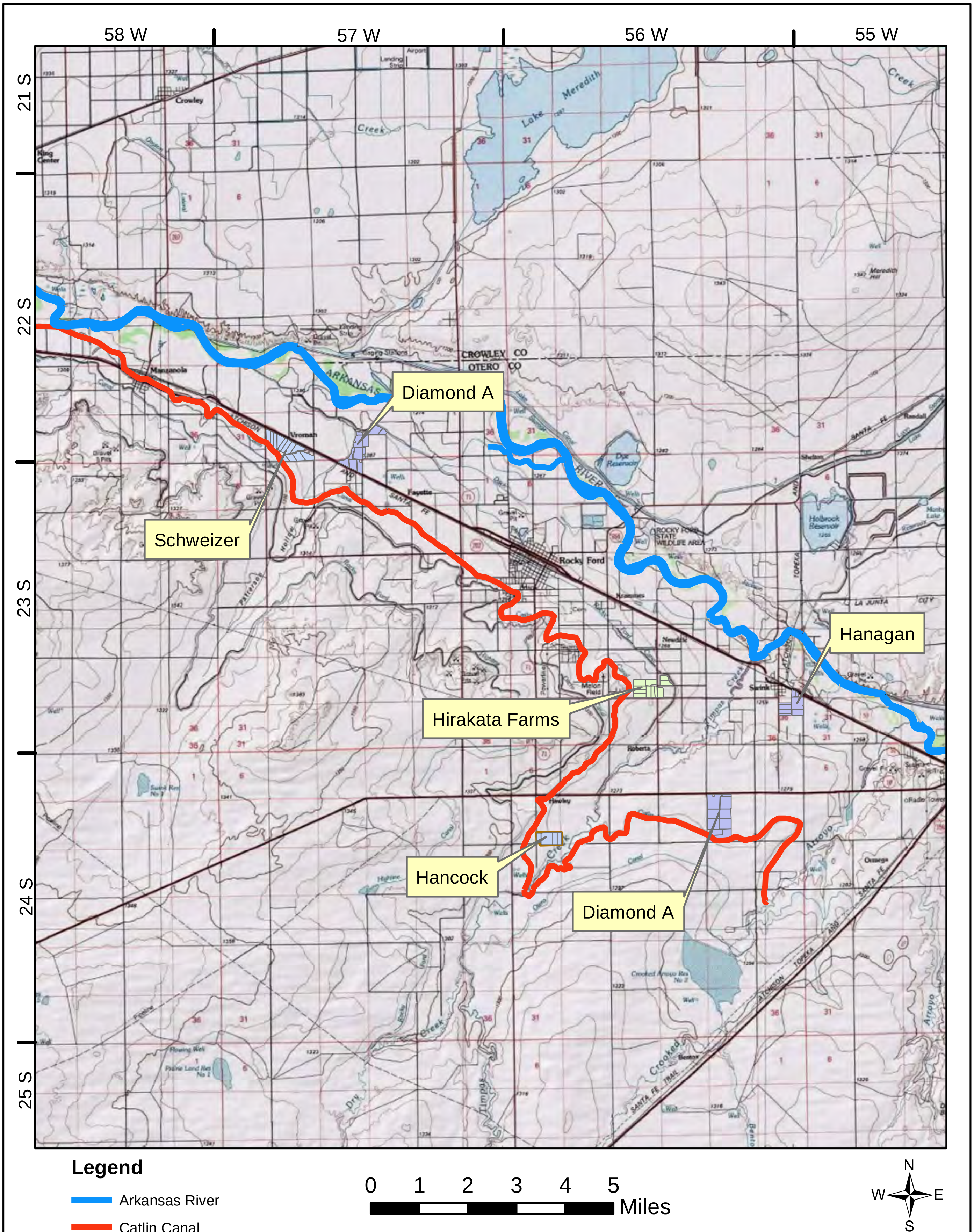
ftp://server.martinandwood.com/

The user name and password are as follows.

User name: pilot2015
Password: catlin

APPENDIX

A



Job No.: 816.2 **Date:** 23-Sep-2014 **Drawn:** CML **Checked:** CRR	Catlin Canal Pilot Project Application	Participating Farms Figure 1	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com

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57 W

22 S

23 S

Legend

Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.:	816.2	Catlin Canal Pilot Project Application	Schweizer 1983 Figure 2	M&W MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date:	9/23/14				
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Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2	Catlin Canal Pilot Project Application	Schweizer 1993 Figure 3	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com	
Date: 9/23/14					
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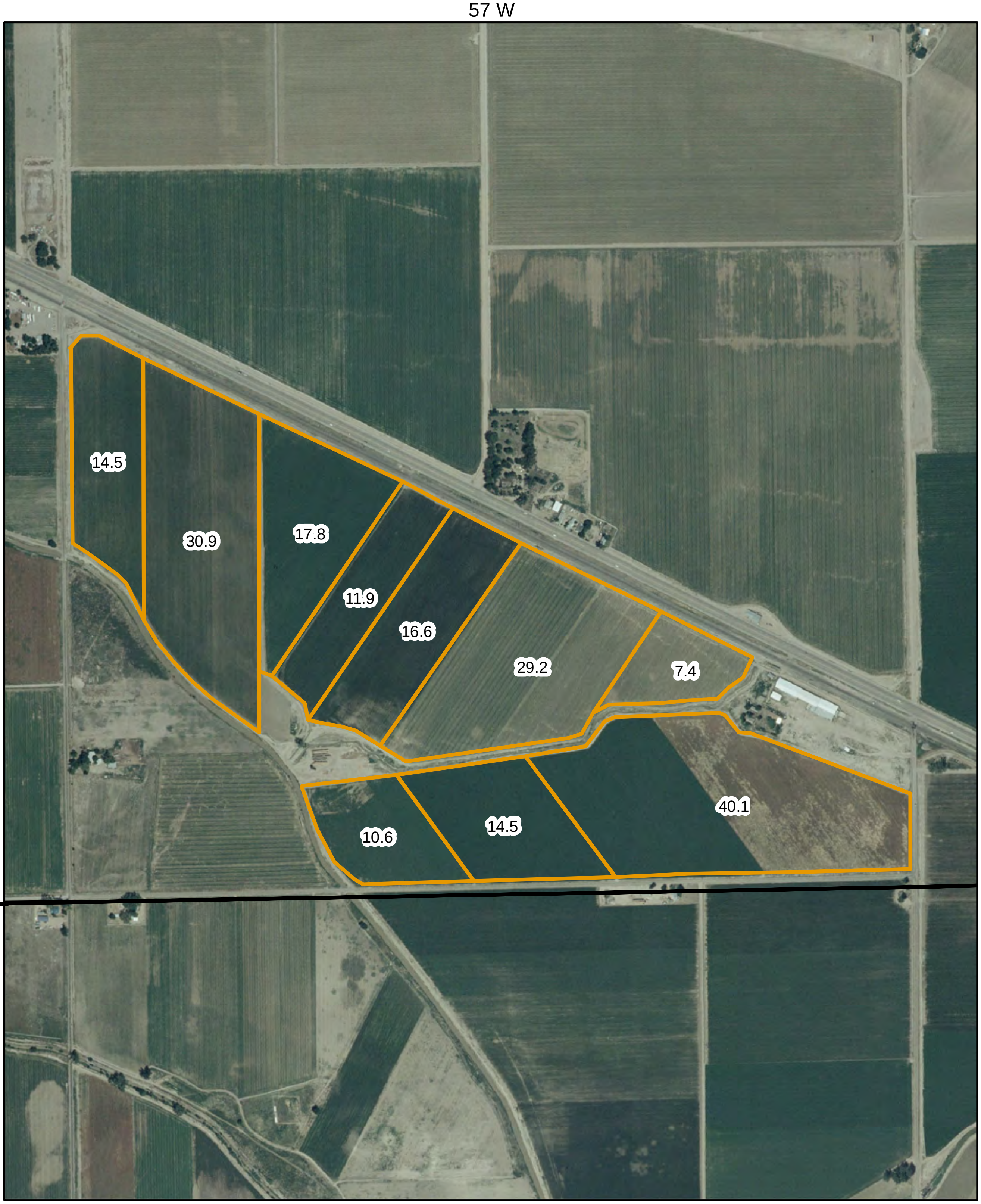

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Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.:	816.2
Date:	9/23/14
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Checked:	CML

Catlin Canal
Pilot Project Application

Schweizer
2005
Figure 4

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Job No.: 816.2	Catlin Canal Pilot Project Application	Schweizer 2010 Figure 5	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 9/23/14				
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Job No.: 816.2	Catlin Canal Pilot Project Application	Diamond A West 1983 Figure 6	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com	
Date: 9/23/14					
Drawn: EP					
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Job No.:	816.2
Date:	9/23/14
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Checked:	CML

Catlin Canal
Pilot Project Application

Diamond A West
1993
Figure 7

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Legend

Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.:	816.2
Date:	9/23/14
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Catlin Canal
Pilot Project Application

Diamond A West
2005
Figure 8

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Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N S W E

Job No.:	816.2
Date:	9/23/14
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Catlin Canal
Pilot Project Application

Diamond A West
2010
Figure 9

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Job No.: 816.2 **Date:** 9/23/14 **Drawn:** EP **Checked:** CML	Catlin Canal Pilot Project Application	Hirakata Farms 1983 Figure 10	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com

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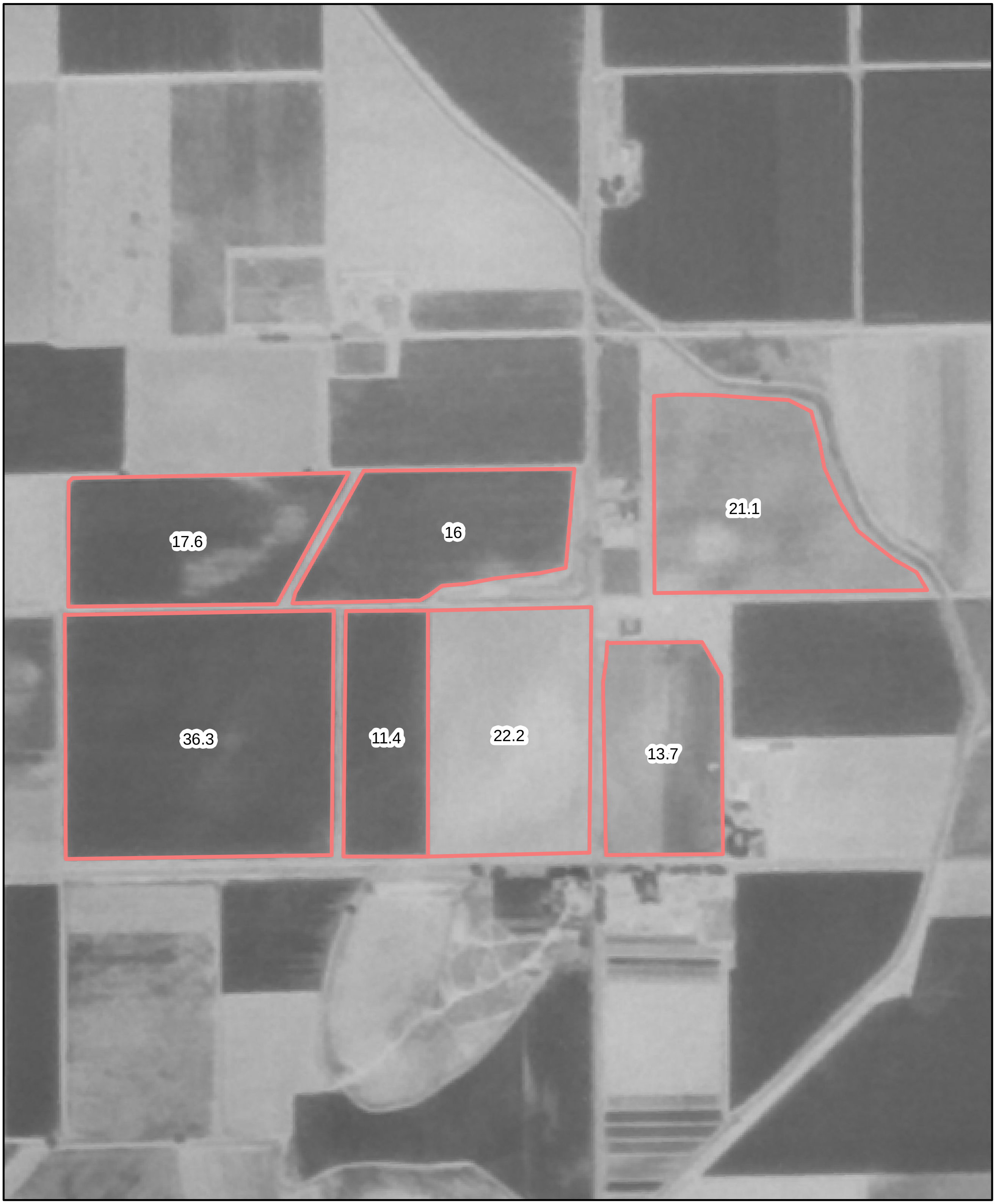
56 W

23 S



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Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N
W E
S

Job No.:	816.2	Catlin Canal Pilot Project Application	Hirakata Farms 1993 Figure 11	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
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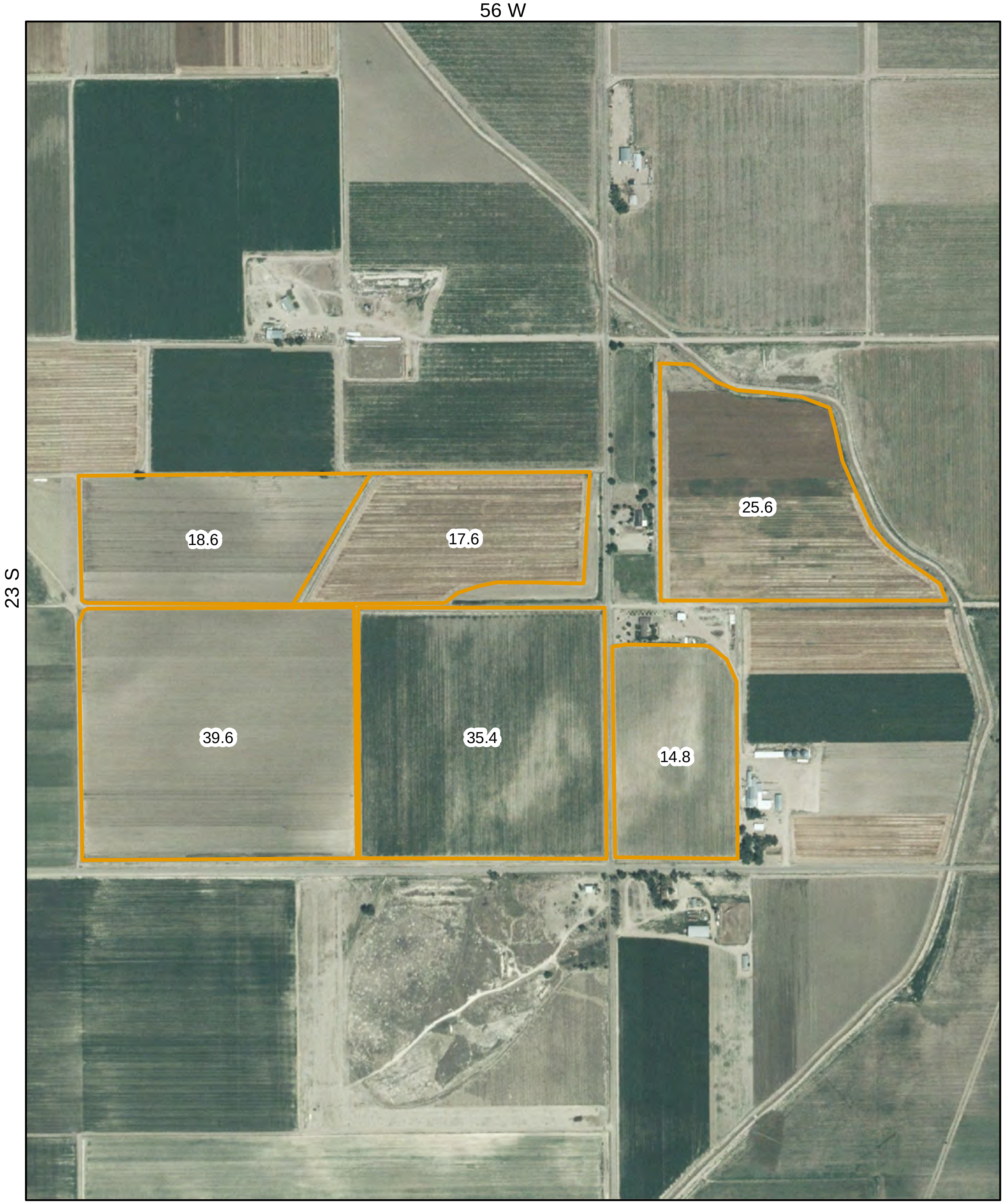

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Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2	Catlin Canal Pilot Project Application	Hirakata Farms 2005 Figure 12	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
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56 W

23 S

Legend

Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2	Catlin Canal Pilot Project Application	Hirakata Farms 2010 Figure 13	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
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Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2	Catlin Canal Pilot Project Application	Hancock 1988 Figure 14	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
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56 W

24 S

Legend

Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2	Catlin Canal Pilot Project Application	Hancock 1998 Figure 15	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 9/23/14				
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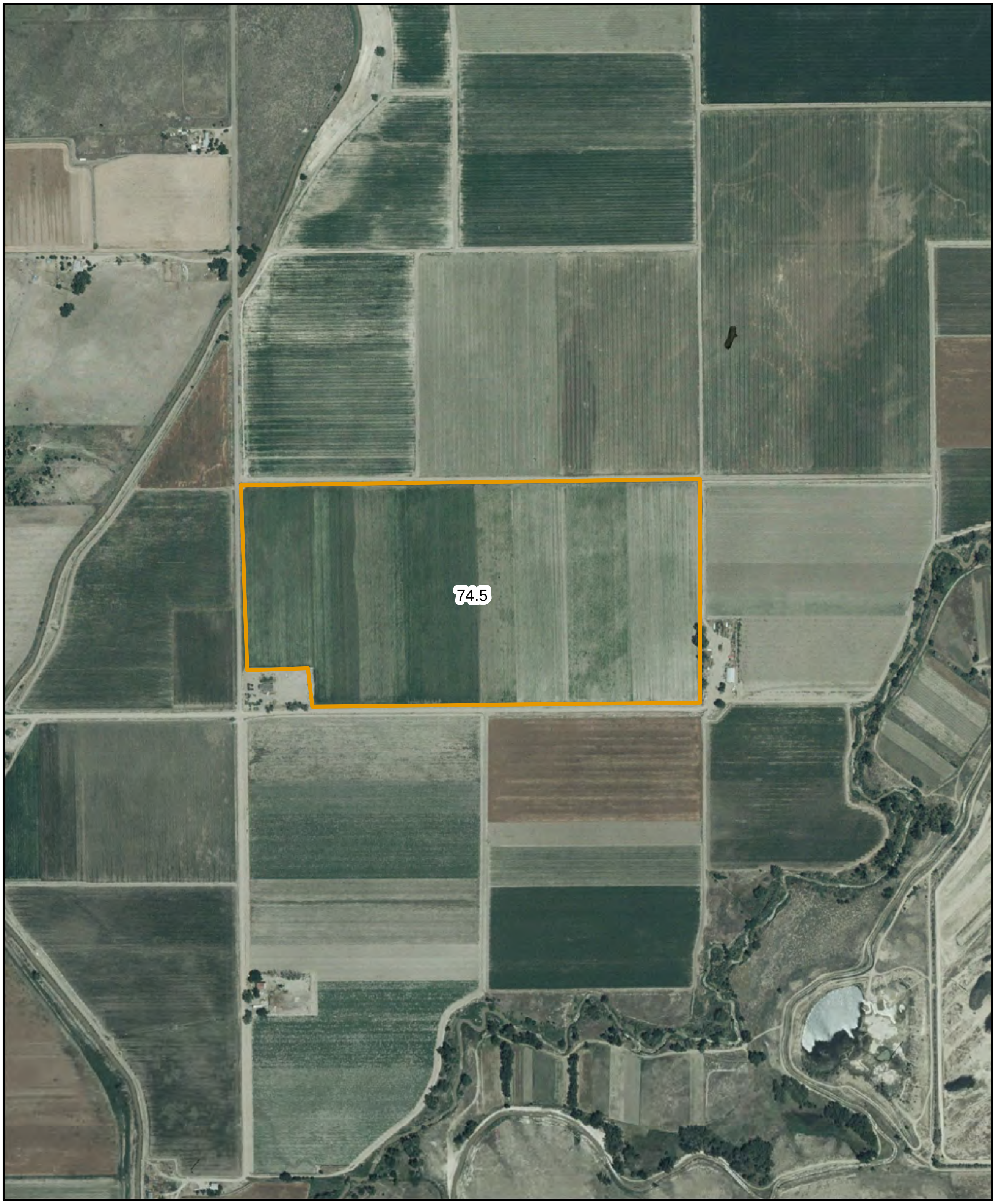
56 W

24 S



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Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2	Catlin Canal Pilot Project Application	Hancock 2005 Figure 16	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
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Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2	Catlin Canal Pilot Project Application	Hancock 2010 Figure 17	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
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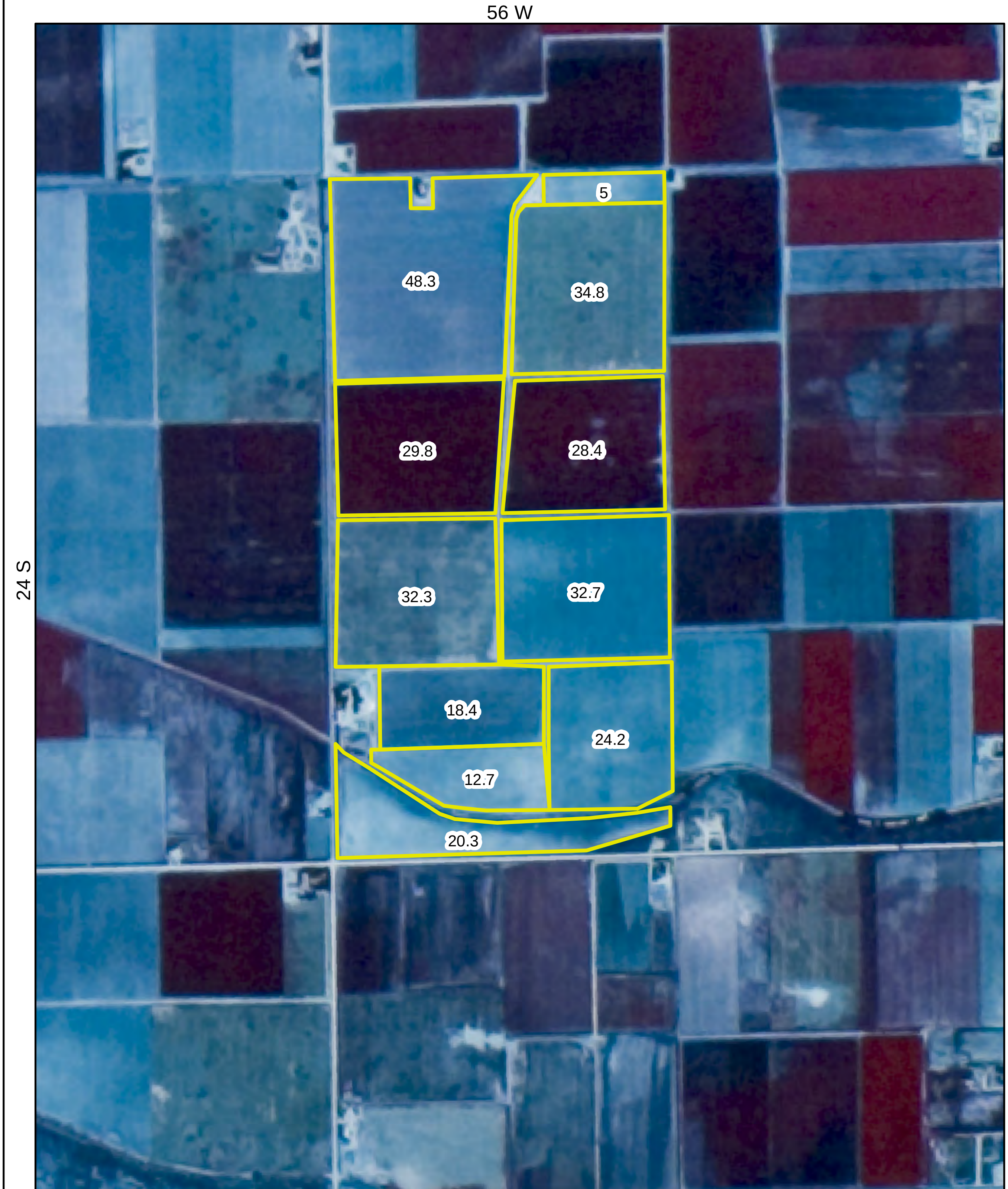

Legend

Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2	Catlin Canal Pilot Project Application	Diamond A East 1983 Figure 18	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
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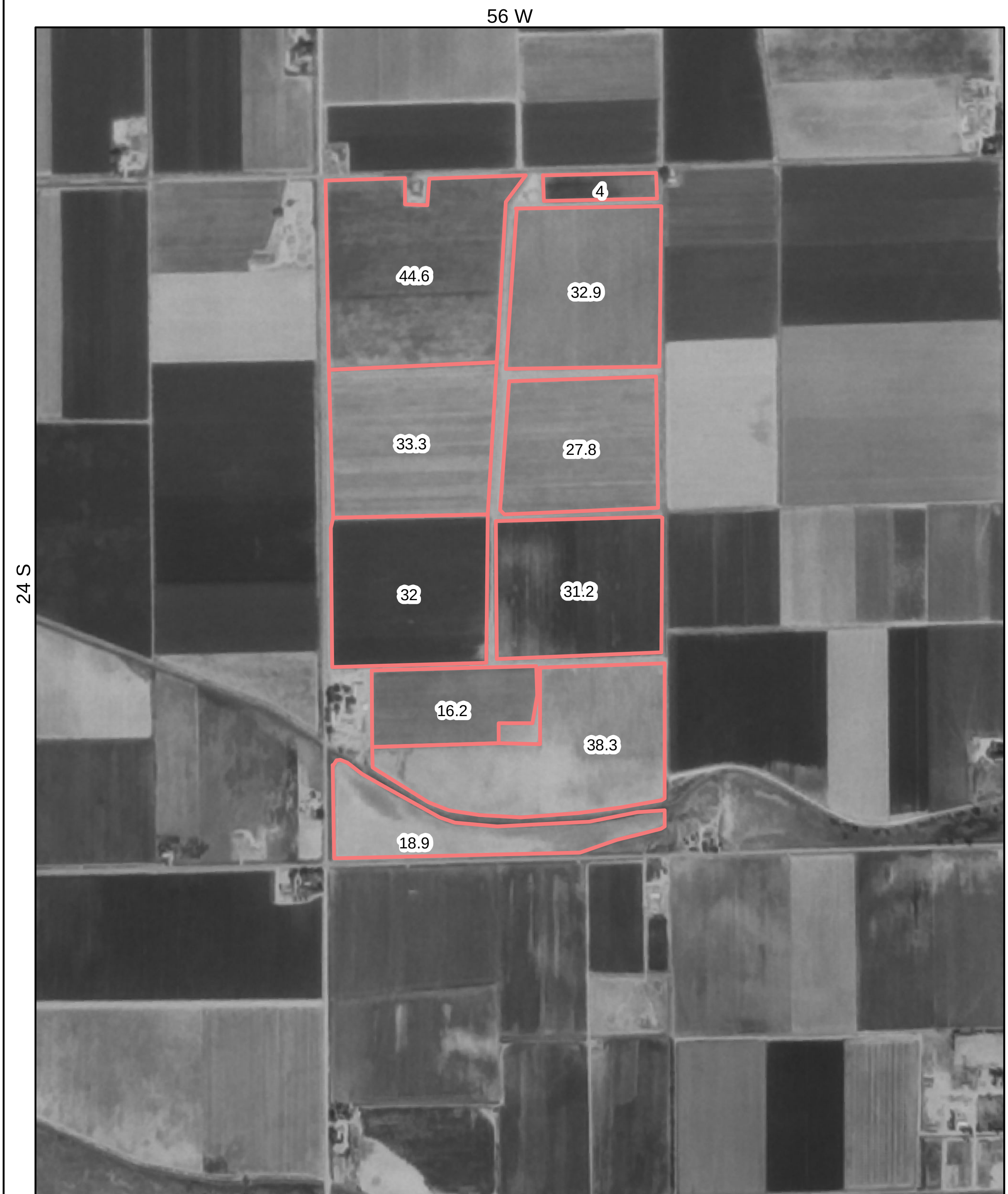

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Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.:	816.2
Date:	9/23/14
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Catlin Canal
Pilot Project Application

Diamond A East
1993
Figure 19

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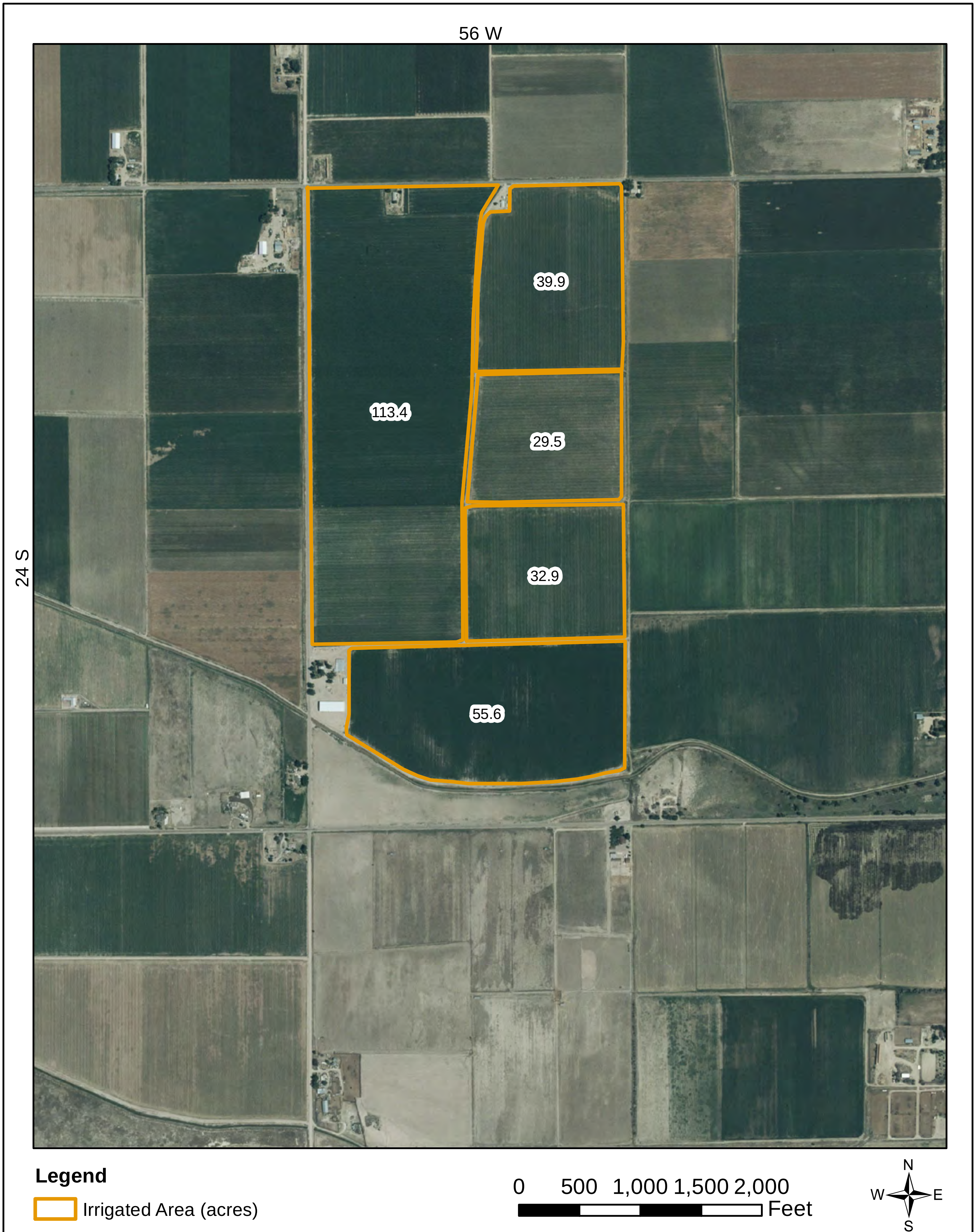

Job No.:	816.2	Catlin Canal Pilot Project Application	Diamond A East 2005 Figure 20	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
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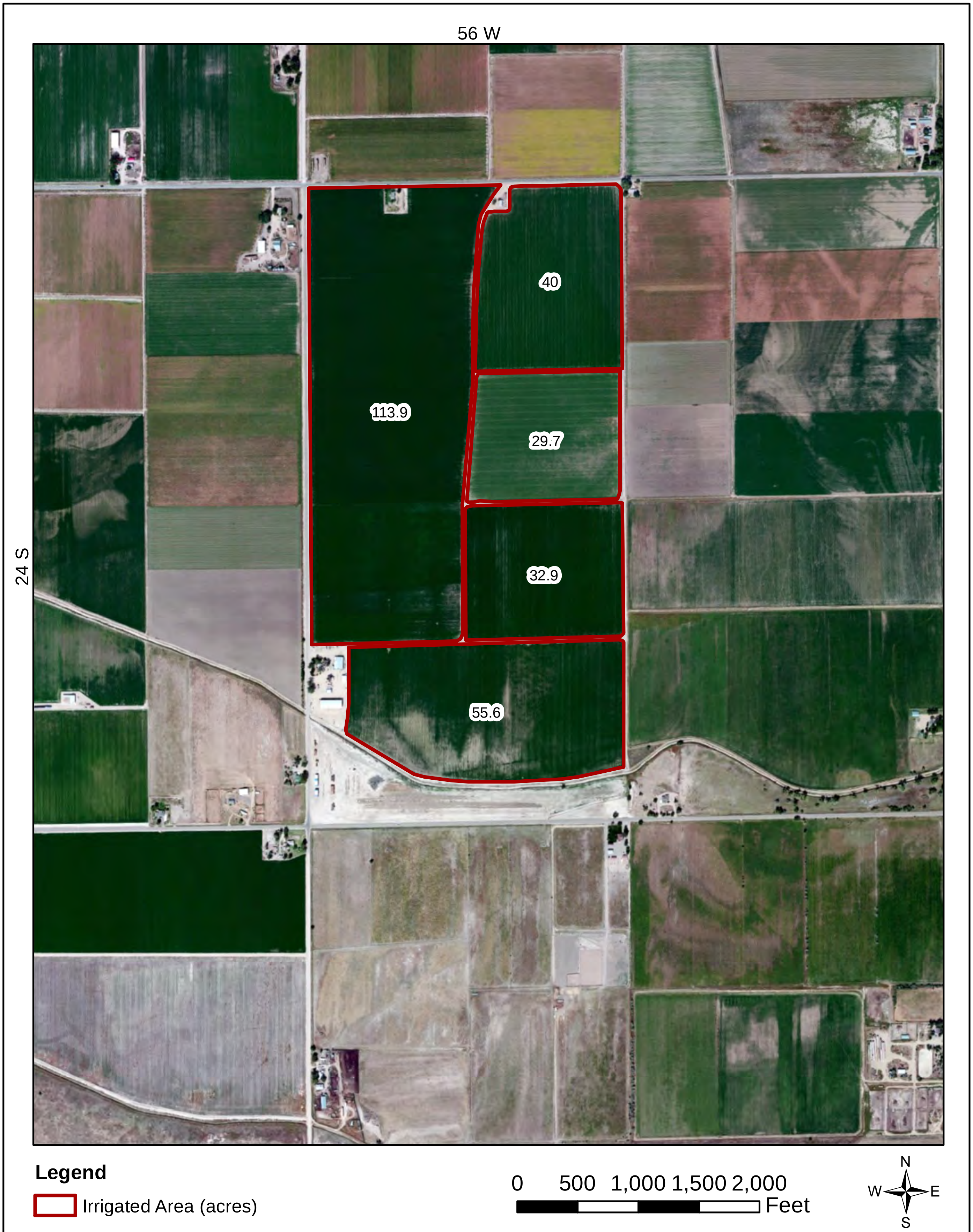

Job No.: 816.2	Catlin Canal Pilot Project Application	Diamond A East 2010 Figure 21	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
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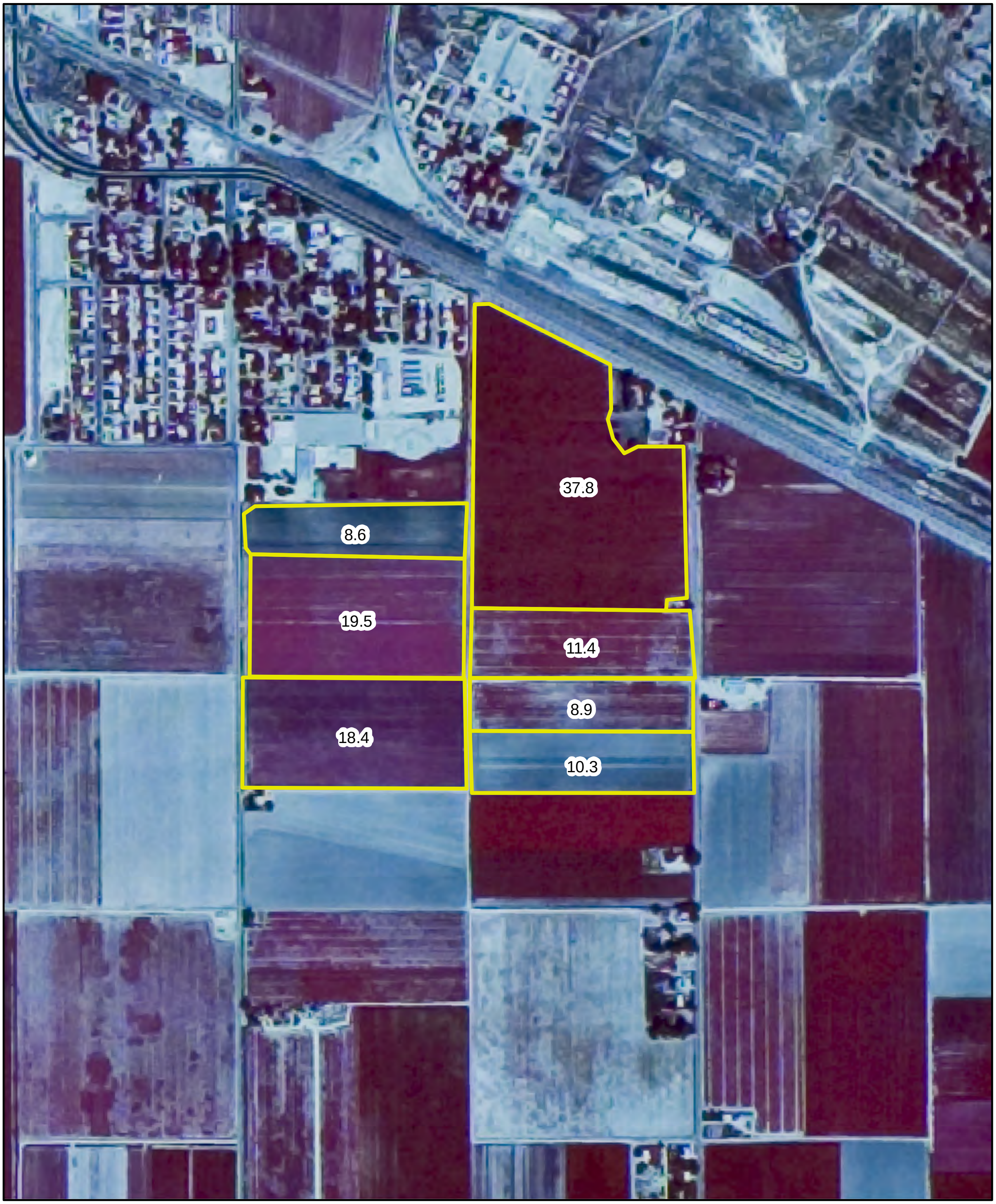

Legend

Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2 **Date:** 9/23/14 **Drawn:** EP **Checked:** CML	Catlin Canal Pilot Project Application	Hanagan 1988 Figure 22	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com

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56 W

23 S

Legend

Irrigated Area (acres)

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2	Catlin Canal Pilot Project Application	Hanagan 1998 Figure 23	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 9/23/14				
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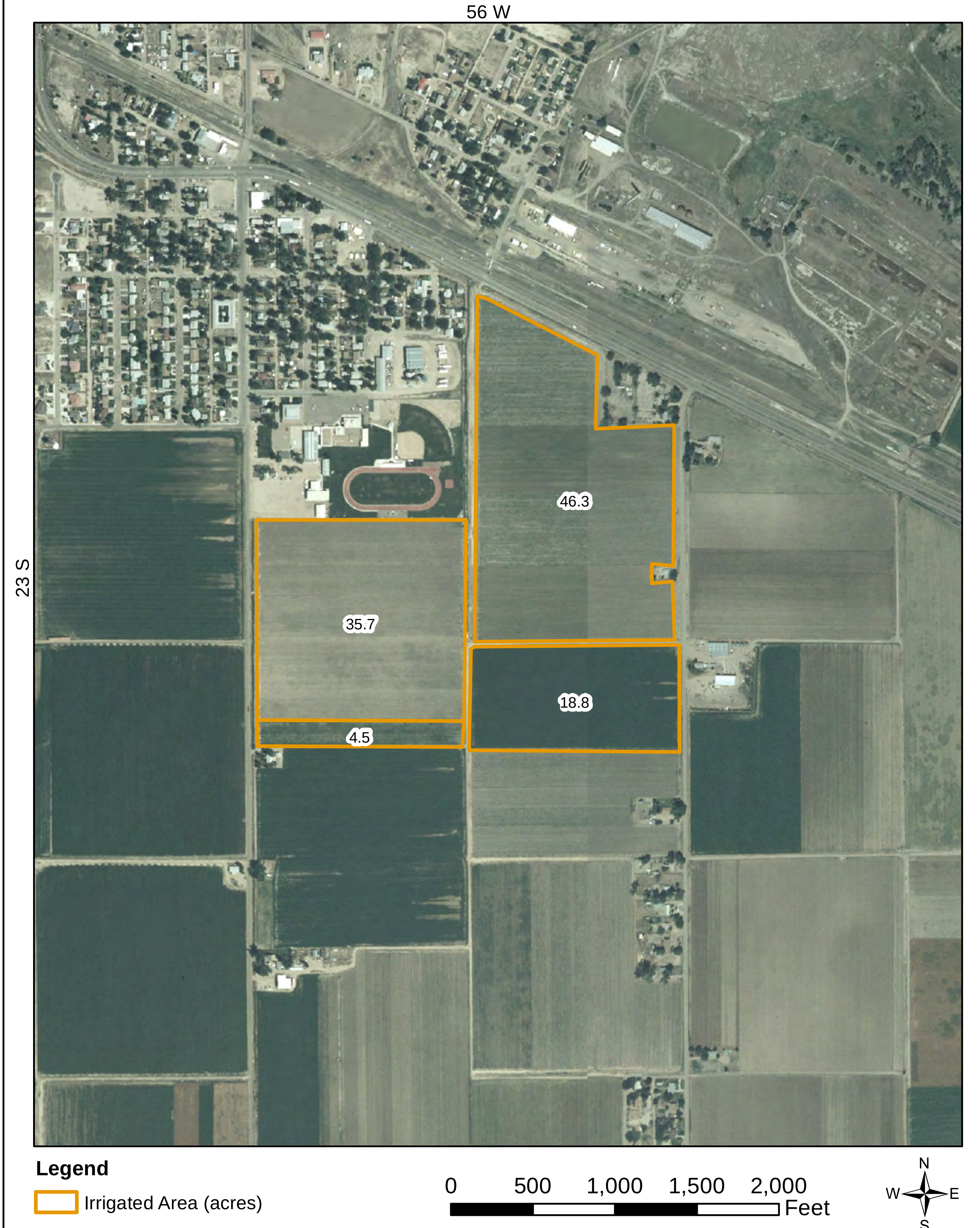

Job No.:	816.2
Date:	9/23/14
Drawn:	EP
Checked:	CML

Catlin Canal
Pilot Project Application

Hanagan
2005
Figure 24

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Job No.: 816.2 **Date:** 9/23/14 **Drawn:** EP **Checked:** CML	Catlin Canal Pilot Project Application	Hanagan 2010 Figure 25	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com

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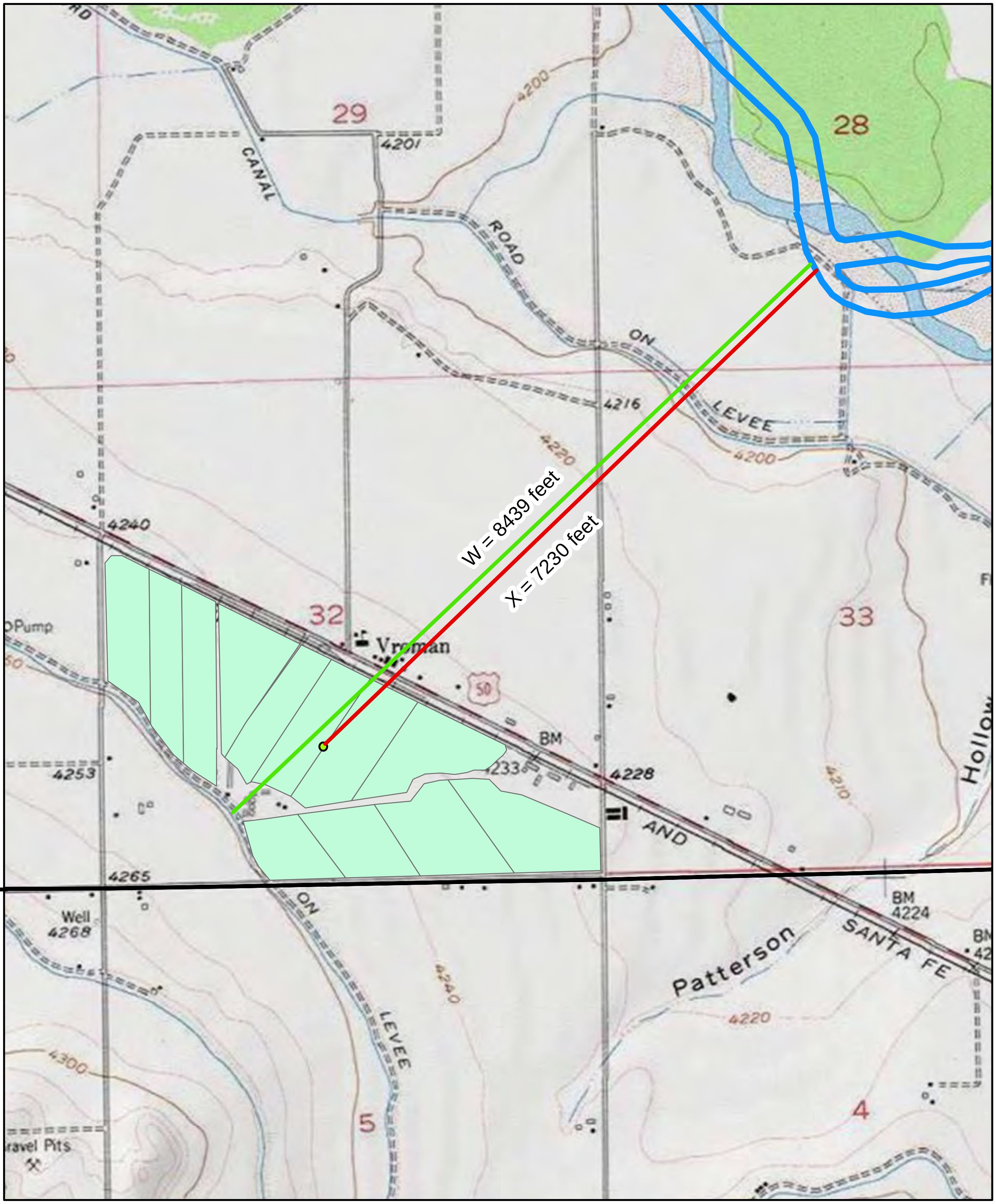
57 W

22 S

23 S



Legend

- Irrigated Area
- Centroid
- W Distance
- X Distance

0 1,000 2,000 3,000 4,000 Feet

N W E S

Job No.:	816.2
Date:	9/23/14
Drawn:	EP
Checked:	CML

Catlin Canal
Pilot Project Application

Schweizer

Figure 26

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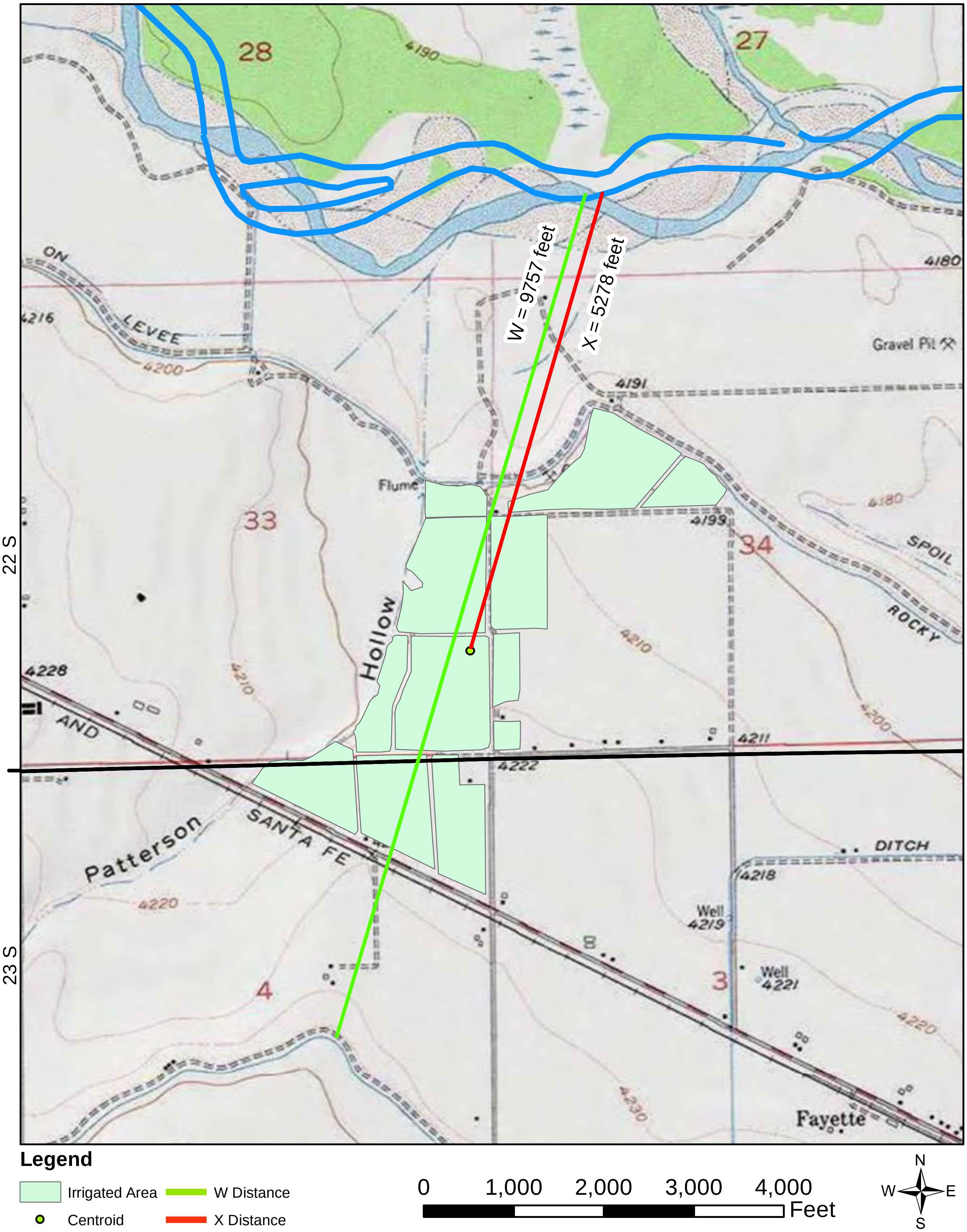

Job No.:	816.2
Date:	9/23/14
Drawn:	EP
Checked:	CML

Catlin Canal
Pilot Project Application

Diamond A West

Figure 27

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Legend

Irrigated Area

W Distance

Centroid

X Distance

0 1,000 2,000 3,000 4,000 Feet

N W E S

Job No.:	816.2
Date:	9/23/14
Drawn:	EP
Checked:	CML

Catlin Canal
Pilot Project Application

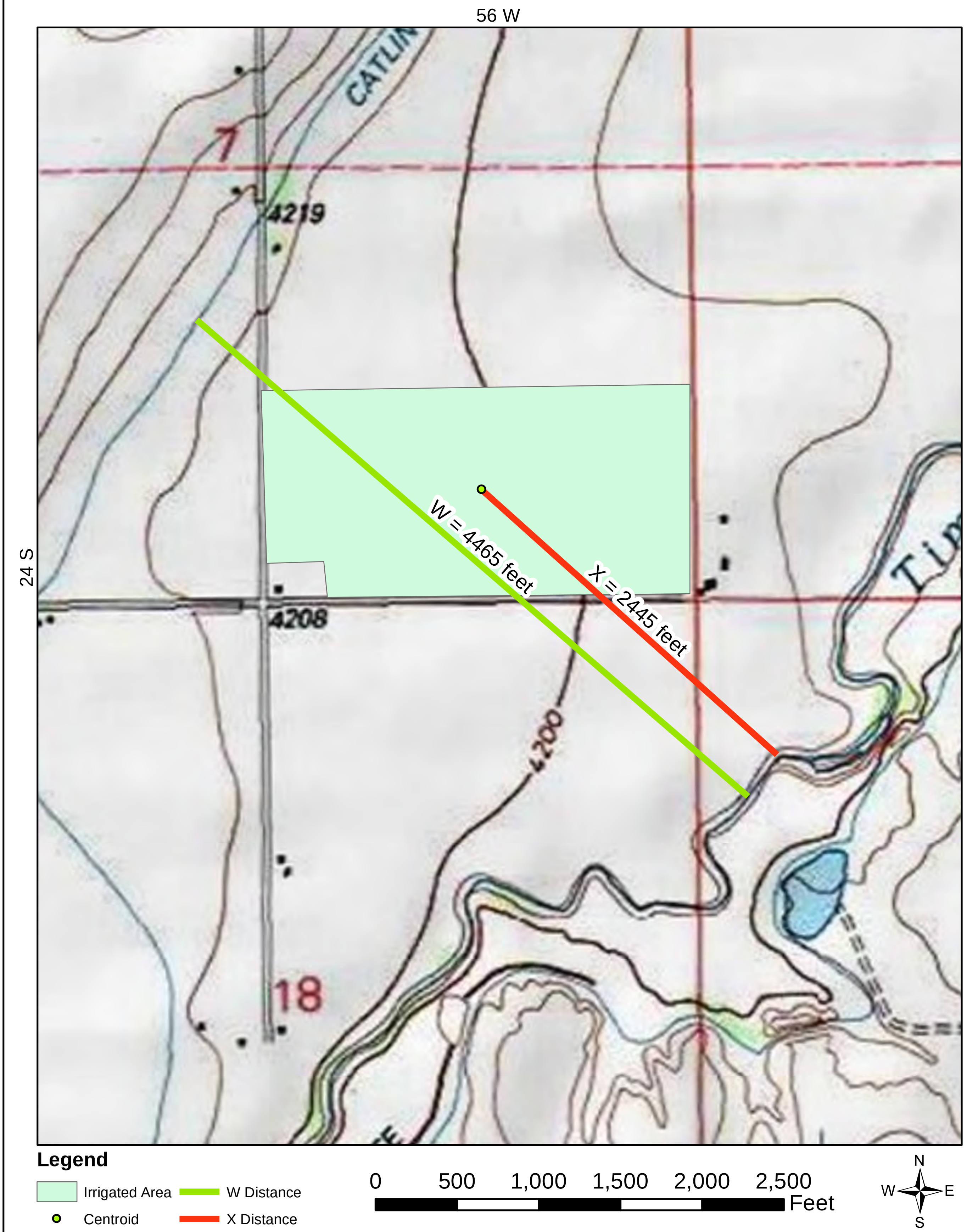
Hirakata Farms

Figure 28

MARTIN AND WOOD WATER CONSULTANTS, INC.

538 Commons Drive
Golden, CO 80401
(303) 526-2600
www.martinandwood.com

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd



Job No.: 816.2	Catlin Canal Pilot Project Application	HancockFarm Figure 29	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 9/23/14				
Drawn: EP				
Checked: CML				

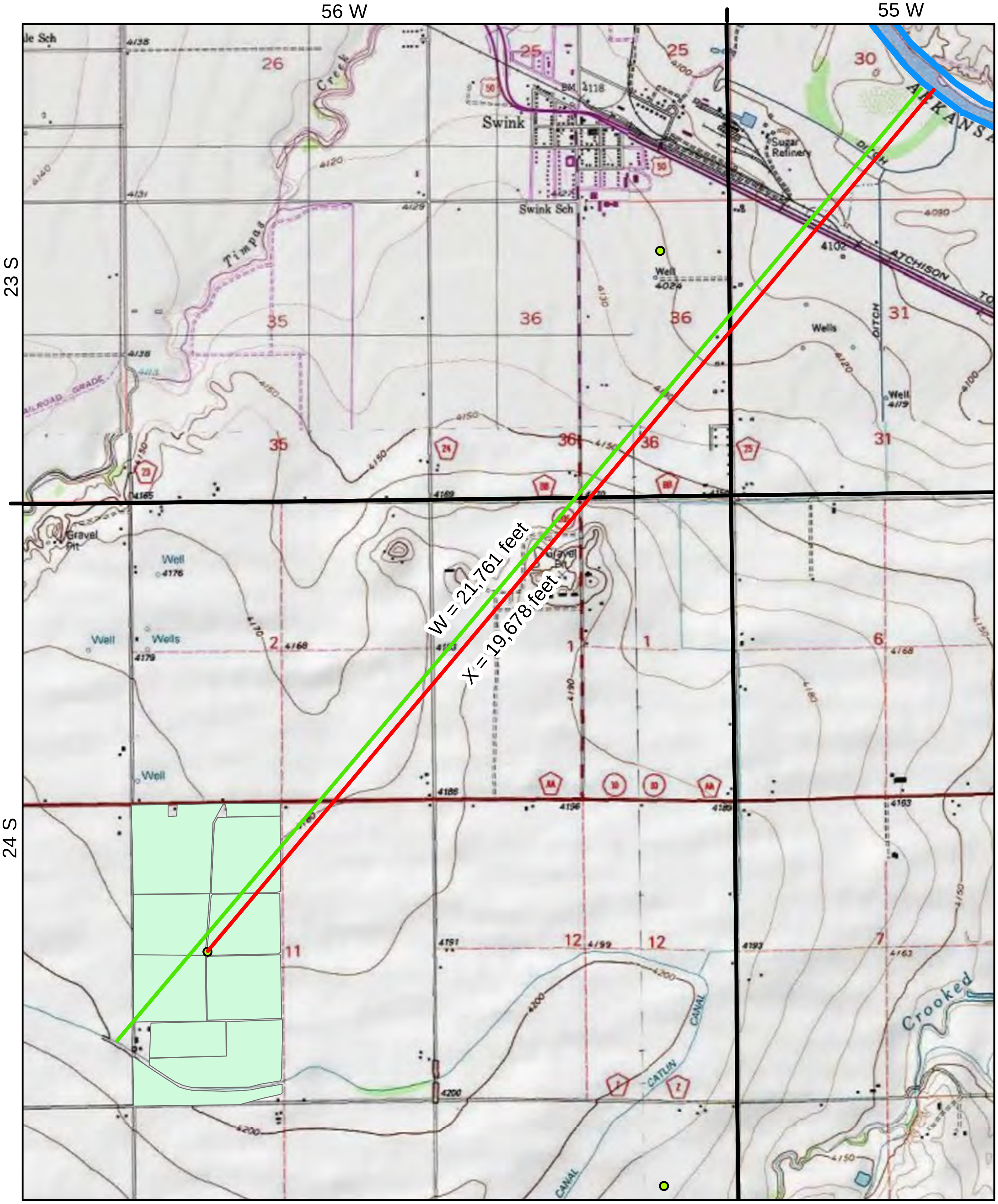
S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

56 W

55 W

23 S

24 S



Legend

Irrigated Area
W Distance
Centroid
X Distance

0 1,500 3,000 4,500 6,000 Feet

N
W E
S

Job No.: 816.2	Catlin Canal Pilot Project Application	Diamond A East Figure 30	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 9/23/14				
Drawn: EP				
Checked: CML				

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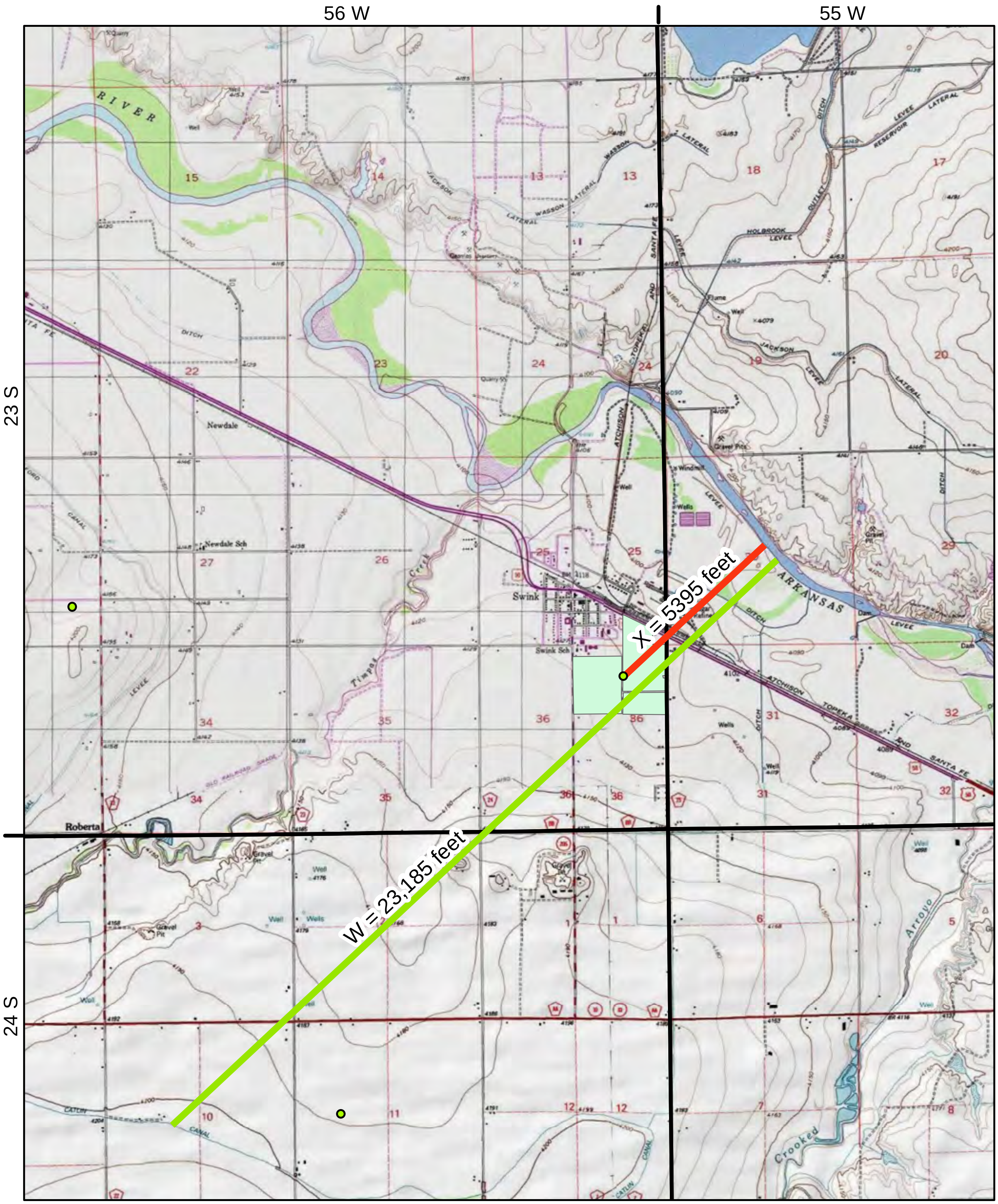

Legend

Irrigated Area — W Distance

Centroid — X Distance

0 3,000 6,000 9,000 12,000 Feet

N W E S

Job No.:	816.2
Date:	9/23/14
Drawn:	EP
Checked:	CML

Catlin Canal
Pilot Project Application

Hanagan Farm

Figure 31

MARTIN AND WOOD WATER CONSULTANTS, INC.

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S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

Legend

Schweizer Recharge Site

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.:	816.2
Date:	9/23/14
Drawn:	EP
Checked:	CML

Catlin Canal
Pilot Project Application

Schweizer Recharge Site

Figure 32

M&W
MARTIN AND WOOD WATER CONSULTANTS, INC.

538 Commons Drive
Golden, CO 80401
(303) 526-2600
www.martinandwood.com

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

Legend

- Hanagan Recharge Site
- Arkansas River

0 500 1,000 1,500 2,000 Feet

N
W E
S

Job No.: 816.2	Catlin Canal Pilot Project Application	Hanagan Recharge Site Figure 33	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com	
Date: 9/23/14					
Drawn: EP					
Checked: CML					

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

APPENDIX

B

Table 1 - Summary Period Average and Maximum Values for Selected Variables

Farm Name or Designation: Schweizer-05

Summary Period: 1984 - 2013

Notes:

Period	Farm Shares	Farm Acres	App. Eff.	Alfalfa (%)	Grass (%)	Corn_Grn (%)	Corn_Sil (%)	Spr_Grn (%)	Sorghum (%)	Win_Wht (%)	Vegetable (%)	Beans (%)	Beets (%)
Average	194.0	191.2	0.55	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Maximum	194.0	195.8	0.55	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%
Month	Jan (AF or %)	Feb (AF or %)	Mar (AF or %)	Apr (AF or %)	May (AF or %)	Jun (AF or %)	Jul (AF or %)	Aug (AF or %)	Sep (AF or %)	Oct (AF or %)	Nov (AF or %)	Dec (AF or %)	Total (AF or %)
River Headgate Diversions for All Sources Considered in Pilot Project Plan													
Average	0.0	71.2	6469.9	11612.6	12648.6	15409.4	14822.9	12853.2	8790.7	8183.5	3577.9	0.0	94439.9
Farm Headgate Delivery													
Average	0.0	0.6	57.9	103.9	113.2	137.9	132.6	115.0	78.7	73.2	32.0	0.0	845.1
Maximum	0.0	14.3	126.4	158.0	155.2	174.7	185.9	190.8	141.9	121.6	57.9	0.0	1162.2
Limit	0.0	6.4	111.6	157.1	148.0	169.8	177.6	164.0	125.1	114.6	53.9	0.0	1123.4
Farm Crop Potential Evapotranspiration													
Average	0.0	0.0	5.2	31.6	70.4	108.6	123.5	100.0	48.5	16.7	1.2	0.0	505.6
Farm Effective Precipitation													
Average	4.2	4.9	12.3	17.7	22.1	21.2	27.8	25.4	13.1	13.0	6.6	5.5	173.8
Farm Irrigation Water Requirement													
Average	0.0	0.0	1.8	17.1	48.4	87.4	95.7	74.6	35.5	7.5	0.4	0.0	368.2
Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture													
Average	0.0	0.0	0.9	16.1	45.6	81.9	83.9	62.7	30.5	6.1	0.3	0.0	328.0
Total Return Flows at Farm													
Average	0.0	0.6	54.2	87.8	70.5	64.7	61.4	53.2	43.7	54.9	26.3	0.0	517.3
Tailwater/Surface Runoff Return Flows at Farm													
Average	0.0	0.1	10.8	17.6	14.1	12.9	12.3	10.6	8.7	11.0	5.3	0.0	103.5
Deep Percolation/Ground Water Return Flows at Farm (unlagged)													
Average	0.0	0.5	43.4	70.2	56.4	51.8	49.2	42.6	34.9	43.9	21.0	0.0	413.8
Historical Depletions at Farm													
Average	0.0	0.0	3.7	16.2	42.7	73.2	71.2	61.8	35.0	18.3	5.7	0.0	327.8
Maximum	0.0	0.0	21.8	51.0	74.7	96.1	98.1	105.0	60.3	66.9	30.5	0.0	400.1
Limit	0.0	0.0	19.0	37.4	67.4	92.7	91.1	90.2	58.4	57.2	26.8	0.0	398.0
Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased													
Average	0.0	0.5	43.9	114.1	170.3	221.3	268.7	307.9	337.9	375.1	387.7	377.7	388.7
Maximum	0.0	11.5	112.6	214.2	293.2	354.4	415.7	478.9	546.5	615.4	639.5	623.5	639.5
Limit	0.0	5.1	92.2	195.5	278.1	338.7	398.7	448.0	503.6	568.5	591.1	576.1	591.1
Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries													
Average			70.6%	66.2%	59.6%	52.2%	48.2%	45.7%	44.8%	45.1%	44.7%	43.6%	44.9%
Maximum		80.0%	80.0%	80.0%	79.9%	72.2%	63.1%	56.3%	55.1%	55.7%	55.5%	54.1%	55.5%
Limit			80.0%	80.0%	74.6%	63.7%	57.2%	52.7%	52.6%	53.6%	53.4%	52.0%	53.4%
Deep Percolation/Ground Water Return Flows at Stream (lagged)													
Average	36.5	36.6	36.4	35.7	34.7	34.1	33.9	34.0	34.4	34.9	35.3	35.7	422.3
Total Return Flows at Stream													
Average	36.5	36.7	47.3	53.2	48.8	47.0	46.2	44.7	43.1	45.9	40.6	35.7	525.8
Historical Depletions at Stream including Depletion and Return Flow Factors													
Average	-36.5	-36.1	10.6	50.7	64.4	90.8	86.4	70.3	35.5	27.4	-8.5	-35.7	319.3
Maximum	-18.6	-18.9	51.3	98.9	107.3	121.8	127.5	130.6	78.8	91.8	33.9	-18.2	537.0
Limit	-20.9	-21.0	45.8	97.2	102.1	120.7	120.2	110.4	71.6	72.9	20.5	-19.3	531.6
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	6.3%	15.5%	37.7%	53.1%	53.7%	53.8%	44.5%	25.0%	17.9%		38.8%
TW Returns		20.0%	18.7%	16.9%	12.5%	9.4%	9.3%	9.2%	11.1%	15.0%	16.4%		12.2%
DP Returns		80.0%	74.9%	67.6%	49.8%	37.5%	37.1%	37.0%	44.4%	60.0%	65.7%		49.0%
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD													
Depletion Factors			18.4%	48.8%	56.9%	65.9%	65.2%	61.1%	45.1%	37.4%			37.8%
Return Flow Factors			81.6%	51.2%	43.1%	34.1%	34.8%	38.9%	54.9%	62.6%			62.2%
Winter RF	-4.3%	-4.3%									-1.0%	-4.2%	

Lease Fallow Tool LFTengine_v3 24-Sep-2014 12:46:35 C:\LFT\LFT_FarmDataTemplate_v3.xlsm Schweizer-05

Table 2 - River Headgate Diversions for All Sources Considered in Pilot Project Plan													
Farm Name or Designation: Schweizer-05													
Catlin Canal D1700552; Sources Included and Excluded:													
Notes: Explain period of record as being representative, and list source of data and rights included and excluded. Total Direct Flow plus Winter Water Diversions from Bill Tyner QA/QC Catlin1950-2012Final.xlsx updated to 2013													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0	0	4,431	9,541	13,503	18,362	19,304	15,254	10,719	6,294	2,985	0	100,393
1985	0	0	6,441	13,406	8,970	16,678	17,590	15,992	11,792	8,998	3,370	0	103,237
1986	0	129	11,801	14,638	16,316	13,574	16,005	14,802	9,335	8,490	2,832	0	107,922
1987	0	0	7,288	12,612	12,268	16,378	16,216	13,721	10,218	9,280	5,136	0	103,119
1988	0	0	5,502	10,504	10,903	16,524	12,428	13,305	10,136	9,502	4,645	0	93,449
1989	0	0	8,515	14,587	12,123	15,331	13,914	16,090	8,033	5,417	3,855	0	97,866
1990	0	0	3,669	13,968	10,867	15,668	14,461	14,013	7,242	8,301	3,504	0	91,693
1991	0	0	6,962	8,441	9,533	16,766	15,564	16,306	9,447	8,730	0	0	91,749
1992	0	0	6,518	17,517	15,363	12,754	15,149	14,806	12,147	9,761	4,157	0	108,171
1993	0	0	4,124	12,505	15,715	17,757	16,362	16,774	12,548	9,600	4,169	0	109,554
1994	0	0	9,115	16,704	13,905	19,523	17,529	14,367	11,807	10,531	4,437	0	117,917
1995	0	0	9,602	17,655	13,508	13,443	19,452	21,326	15,859	12,617	5,388	0	128,850
1996	0	1,603	14,126	17,384	15,965	18,970	17,944	14,981	11,528	12,203	5,174	0	129,879
1997	0	0	7,861	13,041	14,755	16,328	20,777	9,964	11,438	7,543	0	0	101,708
1998	0	0	4,084	15,413	17,345	17,724	18,166	12,442	13,415	9,398	3,989	0	111,978
1999	0	0	9,354	12,889	7,484	14,555	15,805	13,219	12,659	9,194	4,083	0	99,242
2000	0	405	11,480	13,831	14,110	15,331	14,266	11,067	5,173	8,007	4,122	0	97,792
2001	0	0	5,909	11,010	13,672	15,878	15,909	16,883	9,471	7,680	4,429	0	100,841
2002	0	0	5,693	2,536	1,794	5,613	6,423	0	0	0	390	0	22,449
2003	0	0	3,114	1,184	8,335	15,888	8,400	2,590	1,373	0	2,168	0	43,052
2004	0	0	1,568	10,358	15,182	13,986	12,575	11,641	3,054	5,403	6,467	0	80,235
2005	0	0	5,918	15,353	15,719	15,811	13,234	13,995	3,814	7,909	4,622	0	96,375
2006	0	0	4,471	3,739	10,880	15,847	13,708	13,145	9,689	9,988	3,399	0	84,866
2007	0	0	5,184	13,371	13,851	13,448	15,167	15,115	12,258	11,808	5,325	0	105,526
2008	0	0	8,776	17,500	15,073	18,441	16,950	13,707	11,543	10,314	4,431	0	116,732
2009	0	0	7,369	15,540	15,434	14,617	15,913	12,874	9,388	9,902	3,322	0	104,360
2010	0	0	4,521	12,398	15,345	16,368	14,372	13,760	3,023	7,081	6,207	0	93,073
2011	0	0	5,699	4,336	10,793	18,381	16,812	10,942	7,264	7,969	4,729	0	86,924
2012	0	0	4,014	6,143	10,993	7,089	6,015	1,545	0	0	0	0	35,798
2013	0	0	990	277	9,752	15,249	8,275	10,972	9,345	13,587	0	0	68,446
Average	0	71	6,470	11,613	12,649	15,409	14,823	12,853	8,791	8,184	3,578	0	94,440
Minimum	0	0	990	277	1,794	5,613	6,015	0	0	0	0	0	22,449
Maximum	0	1,603	14,126	17,655	17,345	19,523	20,777	21,326	15,859	13,587	6,467	0	129,879
Limit	0	712	12,469	17,557	16,542	18,978	19,844	18,328	13,978	12,802	6,021	0	125,549

Table 3 - River Headgate Diversions Pro-Rata by Share or Percent of Water Right for Pilot Project Farm

Farm Name or Designation: Schweizer-05

Catlin Canal D1700552; For Summary Period Pro-Rata Ownership: 1.0397%

Notes: Variable shares or prorata acres ownership shown in constants table

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	46.1	99.2	140.4	190.9	200.7	158.6	111.4	65.4	31.0	0.0	1043.7
1985	0.0	0.0	67.0	139.4	93.3	173.4	182.9	166.3	122.6	93.5	35.0	0.0	1073.3
1986	0.0	1.3	122.7	152.2	169.6	141.1	166.4	153.9	97.1	88.3	29.4	0.0	1122.0
1987	0.0	0.0	75.8	131.1	127.5	170.3	168.6	142.7	106.2	96.5	53.4	0.0	1072.1
1988	0.0	0.0	57.2	109.2	113.4	171.8	129.2	138.3	105.4	98.8	48.3	0.0	971.5
1989	0.0	0.0	88.5	151.7	126.0	159.4	144.7	167.3	83.5	56.3	40.1	0.0	1017.5
1990	0.0	0.0	38.1	145.2	113.0	162.9	150.3	145.7	75.3	86.3	36.4	0.0	953.3
1991	0.0	0.0	72.4	87.8	99.1	174.3	161.8	169.5	98.2	90.8	0.0	0.0	953.9
1992	0.0	0.0	67.8	182.1	159.7	132.6	157.5	153.9	126.3	101.5	43.2	0.0	1124.6
1993	0.0	0.0	42.9	130.0	163.4	184.6	170.1	174.4	130.5	99.8	43.3	0.0	1139.0
1994	0.0	0.0	94.8	173.7	144.6	203.0	182.2	149.4	122.7	109.5	46.1	0.0	1225.9
1995	0.0	0.0	99.8	183.6	140.4	139.8	202.2	221.7	164.9	131.2	56.0	0.0	1339.6
1996	0.0	16.7	146.9	180.7	166.0	197.2	186.6	155.8	119.9	126.9	53.8	0.0	1350.3
1997	0.0	0.0	81.7	135.6	153.4	169.8	216.0	103.6	118.9	78.4	0.0	0.0	1057.4
1998	0.0	0.0	42.5	160.2	180.3	184.3	188.9	129.4	139.5	97.7	41.5	0.0	1164.2
1999	0.0	0.0	97.2	134.0	77.8	151.3	164.3	137.4	131.6	95.6	42.4	0.0	1031.8
2000	0.0	4.2	119.4	143.8	146.7	159.4	148.3	115.1	53.8	83.2	42.9	0.0	1016.7
2001	0.0	0.0	61.4	114.5	142.1	165.1	165.4	175.5	98.5	79.8	46.0	0.0	1048.4
2002	0.0	0.0	59.2	26.4	18.7	58.4	66.8	0.0	0.0	0.0	4.1	0.0	233.4
2003	0.0	0.0	32.4	12.3	86.7	165.2	87.3	26.9	14.3	0.0	22.5	0.0	447.6
2004	0.0	0.0	16.3	107.7	157.8	145.4	130.7	121.0	31.8	56.2	67.2	0.0	834.2
2005	0.0	0.0	61.5	159.6	163.4	164.4	137.6	145.5	39.7	82.2	48.1	0.0	1002.0
2006	0.0	0.0	46.5	38.9	113.1	164.8	142.5	136.7	100.7	103.8	35.3	0.0	882.3
2007	0.0	0.0	53.9	139.0	144.0	139.8	157.7	157.1	127.4	122.8	55.4	0.0	1097.1
2008	0.0	0.0	91.2	181.9	156.7	191.7	176.2	142.5	120.0	107.2	46.1	0.0	1213.6
2009	0.0	0.0	76.6	161.6	160.5	152.0	165.4	133.9	97.6	103.0	34.5	0.0	1085.0
2010	0.0	0.0	47.0	128.9	159.5	170.2	149.4	143.1	31.4	73.6	64.5	0.0	967.6
2011	0.0	0.0	59.2	45.1	112.2	191.1	174.8	113.8	75.5	82.8	49.2	0.0	903.7
2012	0.0	0.0	41.7	63.9	114.3	73.7	62.5	16.1	0.0	0.0	0.0	0.0	372.2
2013	0.0	0.0	10.3	2.9	101.4	158.5	86.0	114.1	97.2	141.3	0.0	0.0	711.6
Average	0.0	0.7	67.3	120.7	131.5	160.2	154.1	133.6	91.4	85.1	37.2	0.0	981.9
Minimum	0.0	0.0	10.3	2.9	18.7	58.4	62.5	0.0	0.0	0.0	0.0	0.0	233.4
Maximum	0.0	16.7	146.9	183.6	180.3	203.0	216.0	221.7	164.9	141.3	67.2	0.0	1350.3
Limit	0.0	7.4	129.6	182.5	172.0	197.3	206.3	190.5	145.3	133.1	62.6	0.0	1305.3

Table 4 - Farm Headgate Delivery

Farm Name or Designation: Schweizer-05

Catlin Canal D1700552; For Summary Period Canal Loss: 10.4309%, Off-Farm Lateral Loss: 3.5%

Notes: Reference source of canal/off-farm loss data

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	39.6	85.4	120.8	164.3	172.7	136.5	95.9	56.3	26.7	0.0	898.3
1985	0.0	0.0	57.6	120.0	80.3	149.2	157.4	143.1	105.5	80.5	30.2	0.0	923.8
1986	0.0	1.2	105.6	131.0	146.0	121.5	143.2	132.4	83.5	76.0	25.3	0.0	965.7
1987	0.0	0.0	65.2	112.9	109.8	146.6	145.1	122.8	91.4	83.0	46.0	0.0	922.7
1988	0.0	0.0	49.2	94.0	97.6	147.9	111.2	119.1	90.7	85.0	41.6	0.0	836.2
1989	0.0	0.0	76.2	130.5	108.5	137.2	124.5	144.0	71.9	48.5	34.5	0.0	875.7
1990	0.0	0.0	32.8	125.0	97.2	140.2	129.4	125.4	64.8	74.3	31.4	0.0	820.5
1991	0.0	0.0	62.3	75.5	85.3	150.0	139.3	145.9	84.5	78.1	0.0	0.0	821.0
1992	0.0	0.0	58.3	156.7	137.5	114.1	135.6	132.5	108.7	87.3	37.2	0.0	967.9
1993	0.0	0.0	36.9	111.9	140.6	158.9	146.4	150.1	112.3	85.9	37.3	0.0	980.3
1994	0.0	0.0	81.6	149.5	124.4	174.7	156.9	128.6	105.6	94.2	39.7	0.0	1055.2
1995	0.0	0.0	85.9	158.0	120.9	120.3	174.1	190.8	141.9	112.9	48.2	0.0	1153.0
1996	0.0	14.3	126.4	155.6	142.9	169.7	160.6	134.1	103.2	109.2	46.3	0.0	1162.2
1997	0.0	0.0	70.3	116.7	132.0	146.1	185.9	89.2	102.4	67.5	0.0	0.0	910.1
1998	0.0	0.0	36.5	137.9	155.2	158.6	162.6	111.3	120.0	84.1	35.7	0.0	1002.0
1999	0.0	0.0	83.7	115.3	67.0	130.2	141.4	118.3	113.3	82.3	36.5	0.0	888.0
2000	0.0	3.6	102.7	123.8	126.3	137.2	127.7	99.0	46.3	71.7	36.9	0.0	875.1
2001	0.0	0.0	52.9	98.5	122.3	142.1	142.4	151.1	84.8	68.7	39.6	0.0	902.4
2002	0.0	0.0	50.9	22.7	16.1	50.2	57.5	0.0	0.0	0.0	3.5	0.0	200.9
2003	0.0	0.0	27.9	10.6	74.6	142.2	75.2	23.2	12.3	0.0	19.4	0.0	385.2
2004	0.0	0.0	14.0	92.7	135.9	125.2	112.5	104.2	27.3	48.3	57.9	0.0	718.0
2005	0.0	0.0	53.0	137.4	140.7	141.5	118.4	125.2	34.1	70.8	41.4	0.0	862.4
2006	0.0	0.0	40.0	33.5	97.4	141.8	122.7	117.6	86.7	89.4	30.4	0.0	759.4
2007	0.0	0.0	46.4	119.6	123.9	120.3	135.7	135.3	109.7	105.7	47.6	0.0	944.3
2008	0.0	0.0	78.5	156.6	134.9	165.0	151.7	122.6	103.3	92.3	39.6	0.0	1044.6
2009	0.0	0.0	65.9	139.1	138.1	130.8	142.4	115.2	84.0	88.6	29.7	0.0	933.8
2010	0.0	0.0	40.5	110.9	137.3	146.5	128.6	123.1	27.0	63.4	55.5	0.0	832.8
2011	0.0	0.0	51.0	38.8	96.6	164.5	150.4	97.9	65.0	71.3	42.3	0.0	777.8
2012	0.0	0.0	35.9	55.0	98.4	63.4	53.8	13.8	0.0	0.0	0.0	0.0	320.3
2013	0.0	0.0	8.9	2.5	87.3	136.5	74.0	98.2	83.6	121.6	0.0	0.0	612.5
Average	0.0	0.6	57.9	103.9	113.2	137.9	132.6	115.0	78.7	73.2	32.0	0.0	845.1
Minimum	0.0	0.0	8.9	2.5	16.1	50.2	53.8	0.0	0.0	0.0	0.0	0.0	200.9
Maximum	0.0	14.3	126.4	158.0	155.2	174.7	185.9	190.8	141.9	121.6	57.9	0.0	1162.2
Limit	0.0	6.4	111.6	157.1	148.0	169.8	177.6	164.0	125.1	114.6	53.9	0.0	1123.4

Table 5 - Farm Crop Acreages and Crop Distributions

Farm Name or Designation: Schweizer-05

For Summary Period Farm Acres: 191.21 acres, Crop Distribution:

Notes: Provide information on source of crop data. HI Model Crop Distribution for Otero County (unitized)

Year	Flood	Sprinkler	Drip	Alfalfa	Grass	Corn_Grn	Corn_Sil	Spr_Grn	Sorghum	Win_Wht	Vegetable	Beans	Beets
(Cal)	(Acres)	(Acres)	(Acres)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	187.1	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1985	187.3	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1986	187.4	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1987	187.6	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1988	187.8	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1989	188.0	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1990	188.2	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1991	188.3	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1992	188.5	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1993	188.7	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1994	189.1	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1995	189.5	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1996	189.9	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1997	190.3	0.0	0.0	39.10%	7.20%	35.00%	2.90%	1.30%	0.70%	7.20%	5.20%	1.40%	0.00%
1998	190.7	0.0	0.0	36.14%	5.61%	35.64%	1.50%	2.20%	0.60%	11.21%	5.41%	1.70%	0.00%
1999	191.1	0.0	0.0	35.80%	3.60%	36.40%	3.60%	1.30%	0.00%	11.80%	5.30%	2.20%	0.00%
2000	191.5	0.0	0.0	34.07%	3.30%	34.57%	4.60%	1.10%	2.70%	12.79%	5.29%	1.60%	0.00%
2001	191.9	0.0	0.0	42.16%	5.19%	29.87%	1.50%	1.90%	3.90%	8.79%	5.39%	1.30%	0.00%
2002	192.3	0.0	0.0	52.25%	3.00%	19.52%	9.61%	1.00%	2.00%	5.01%	5.81%	1.80%	0.00%
2003	192.7	0.0	0.0	68.33%	12.09%	0.80%	0.00%	0.00%	2.70%	7.49%	7.79%	0.80%	0.00%
2004	193.1	0.0	0.0	76.98%	0.00%	5.11%	0.00%	0.00%	0.60%	8.01%	9.31%	0.00%	0.00%
2005	193.5	0.0	0.0	53.70%	15.00%	15.50%	1.30%	0.00%	0.20%	8.60%	4.20%	1.50%	0.00%
2006	194.0	0.0	0.0	63.00%	20.80%	5.10%	1.20%	0.00%	0.00%	4.60%	4.80%	0.50%	0.00%
2007	194.4	0.0	0.0	50.80%	16.00%	18.10%	0.90%	0.00%	2.30%	7.80%	3.60%	0.50%	0.00%
2008	194.9	0.0	0.0	45.00%	15.60%	21.70%	0.60%	0.00%	1.70%	11.50%	3.50%	0.40%	0.00%
2009	195.3	0.0	0.0	44.70%	14.90%	20.30%	0.40%	0.00%	1.60%	14.20%	3.40%	0.50%	0.00%
2010	195.8	0.0	0.0	41.70%	15.00%	24.10%	0.50%	0.00%	1.60%	13.20%	3.30%	0.60%	0.00%
2011	195.8	0.0	0.0	48.97%	12.70%	19.48%	6.08%	0.76%	5.72%	3.97%	2.24%	0.09%	0.00%
2012	195.8	0.0	0.0	55.20%	18.71%	8.83%	3.75%	1.96%	6.08%	3.61%	1.86%	0.00%	0.00%
2013	195.8	0.0	0.0	66.29%	9.32%	1.41%	0.72%	0.00%	12.51%	6.35%	3.26%	0.14%	0.00%
Average	191.2	0.0	0.0	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Minimum	187.1	0.0	0.0	34.07%	0.00%	0.80%	0.00%	0.00%	0.00%	3.61%	1.86%	0.00%	0.00%
Maximum	195.8	0.0	0.0	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%

Table 6 - Farm Crop Potential Evapotranspiration

Farm Name or Designation: Schweizer-05

For Summary Period Farm Acres: 191.21 acres, PET:

Notes: Provide information on PET calculation method and climate stations. RECALCULATED - MBC TR21 PET (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167 and Crop Distribution from User Supplied Table (unitized)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	13.4	63.3	97.6	119.7	100.7	46.7	5.0	0.6	0.0	447.1
1985	0.0	0.0	3.8	32.3	66.4	102.1	116.6	95.0	34.3	5.7	0.1	0.0	456.4
1986	0.0	0.0	10.9	35.3	63.0	104.9	115.1	87.6	34.1	12.5	0.6	0.0	464.0
1987	0.0	0.0	1.0	28.3	64.7	106.0	123.2	91.8	37.6	12.2	0.7	0.0	465.5
1988	0.0	0.0	1.3	21.5	61.9	108.2	118.7	101.0	46.0	20.0	1.5	0.0	480.1
1989	0.0	0.0	7.6	34.1	71.3	95.3	118.6	91.8	35.1	16.4	1.1	0.0	471.3
1990	0.0	0.0	2.2	28.2	56.6	113.7	111.0	92.6	48.2	16.8	1.9	0.0	471.3
1991	0.0	0.0	3.3	27.8	71.3	109.6	113.5	96.5	42.5	19.3	0.0	0.0	483.8
1992	0.0	0.0	6.8	37.2	71.3	93.1	110.1	81.8	38.5	11.4	0.0	0.0	450.1
1993	0.0	0.0	2.0	26.4	61.0	99.7	122.5	93.4	40.2	18.3	0.0	0.0	463.5
1994	0.0	0.0	5.1	30.1	69.4	119.5	117.6	101.8	42.7	18.9	0.9	0.0	506.1
1995	0.0	0.0	2.4	14.2	50.6	85.9	110.6	112.3	56.2	13.4	1.3	0.0	447.0
1996	0.0	0.0	1.6	34.8	82.0	111.7	120.0	95.3	38.4	17.6	1.0	0.0	502.5
1997	0.0	0.0	3.8	14.6	62.5	99.4	125.0	99.5	56.7	17.5	0.1	0.0	479.1
1998	0.0	0.0	1.6	24.4	72.8	99.6	125.2	93.4	48.7	17.6	2.3	0.0	485.5
1999	0.0	0.0	0.0	3.1	57.6	94.8	125.3	103.1	54.1	5.8	3.4	0.0	447.3
2000	0.0	0.0	8.3	36.1	72.8	108.3	121.3	97.2	34.5	21.0	1.2	0.0	500.7
2001	0.0	0.0	3.2	37.8	67.8	116.1	135.2	98.8	40.3	10.2	1.9	0.0	511.4
2002	0.0	0.0	1.0	41.6	75.1	126.0	139.2	106.3	43.9	11.9	0.2	0.0	545.1
2003	0.0	0.0	8.8	50.2	84.3	105.0	142.3	109.5	59.0	25.0	1.0	0.0	585.2
2004	0.0	0.0	18.2	42.2	89.7	106.1	117.3	92.0	62.0	15.0	0.3	0.0	542.9
2005	0.0	0.0	1.6	30.9	71.4	105.6	123.3	105.5	66.2	29.3	3.2	0.0	537.0
2006	0.0	0.0	8.6	52.6	87.9	129.5	136.8	107.6	52.1	24.3	1.8	0.0	601.2
2007	0.0	0.0	10.6	34.0	74.1	107.3	126.9	117.6	64.0	26.6	2.6	0.0	563.6
2008	0.0	0.0	5.4	32.1	73.1	112.1	129.7	101.0	54.5	26.5	3.1	0.0	537.5
2009	0.0	0.0	7.2	40.7	78.1	103.0	111.5	90.2	47.0	9.6	0.0	0.0	487.2
2010	0.0	0.0	4.0	37.6	68.6	115.2	121.3	101.0	55.5	28.2	2.0	0.0	533.4
2011	0.0	0.0	6.3	35.8	64.6	120.8	141.5	120.8	49.2	18.6	0.9	0.0	558.4
2012	0.0	0.0	18.3	48.1	82.2	135.9	139.6	104.2	55.6	13.9	1.7	0.0	599.5
2013	0.0	0.0	1.1	22.7	76.3	124.6	126.0	110.5	72.4	11.2	0.4	0.0	545.2
Average	0.0	0.0	5.2	31.6	70.4	108.6	123.5	100.0	48.5	16.7	1.2	0.0	505.6
Minimum	0.0	0.0	0.0	3.1	50.6	85.9	110.1	81.8	34.1	5.0	0.0	0.0	447.0
Maximum	0.0	0.0	18.3	52.6	89.7	135.9	142.3	120.8	72.4	29.3	3.4	0.0	601.2

Table 7 - Farm Precipitation

Farm Name or Designation: Schweizer-05

Climate Station:

Notes: Provide information source of climate data and climate stations used. Precipitation (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	2.0	10.4	27.6	20.0	19.0	3.7	43.7	28.7	8.6	23.1	1.9	5.1	193.8
1985	13.3	4.8	10.1	35.9	45.6	9.4	32.5	7.0	8.7	18.6	12.2	3.7	201.8
1986	1.7	1.6	3.0	10.3	6.4	36.7	55.3	23.3	30.9	22.0	9.7	1.1	202.0
1987	2.7	16.4	8.0	6.1	57.4	34.1	12.8	18.6	8.9	1.6	5.5	8.8	180.7
1988	4.5	8.1	14.4	20.3	33.2	22.5	20.8	5.3	12.1	0.3	0.3	5.5	147.4
1989	2.0	4.1	5.2	8.9	24.4	29.8	14.3	29.6	25.8	2.8	0.8	3.1	150.9
1990	12.5	12.4	15.1	4.4	57.1	6.0	77.1	19.1	37.2	16.9	16.8	6.1	280.7
1991	6.6	1.6	22.8	12.6	11.1	22.6	32.8	14.3	18.8	11.5	18.8	9.3	182.7
1992	4.4	4.9	12.6	6.4	18.7	60.3	28.9	28.1	0.0	10.8	15.2	3.6	194.0
1993	2.2	12.0	23.4	25.3	23.4	6.8	24.5	24.5	5.3	12.7	18.6	0.3	179.1
1994	4.7	0.5	13.4	22.2	39.2	8.2	12.8	40.3	13.7	12.3	11.0	1.9	180.3
1995	1.4	2.7	15.8	29.8	63.5	45.3	23.7	6.5	10.7	0.0	0.0	0.2	199.6
1996	1.4	2.7	18.2	6.6	42.9	22.0	45.1	24.2	33.9	5.7	2.4	6.5	211.6
1997	6.2	9.2	4.3	28.2	4.0	40.3	29.0	81.5	21.6	33.8	12.5	18.6	289.1
1998	1.4	5.9	14.8	8.7	26.2	5.7	58.3	51.5	4.1	35.8	16.7	3.7	232.8
1999	3.2	0.3	19.0	73.7	34.4	15.4	108.1	44.4	8.0	8.6	2.5	0.6	318.3
2000	5.3	3.0	33.4	13.1	12.8	9.6	19.9	21.5	12.3	18.0	1.8	2.7	153.4
2001	11.0	4.2	5.4	14.6	60.3	35.3	30.5	4.3	8.3	0.3	10.9	6.7	191.9
2002	5.1	2.2	1.4	2.2	1.4	12.5	1.0	7.9	10.3	5.8	1.3	7.5	58.7
2003	0.0	8.0	14.3	37.3	19.9	36.6	8.2	8.7	7.2	1.6	3.2	3.5	148.5
2004	5.6	6.1	1.6	63.1	1.1	42.5	56.2	78.8	10.3	5.1	13.5	1.3	285.3
2005	7.1	3.9	25.2	13.7	7.9	17.1	7.4	35.0	22.4	32.9	0.6	4.0	177.2
2006	9.9	0.0	14.7	5.0	24.7	4.5	52.5	66.8	32.2	37.2	2.4	26.7	276.6
2007	5.7	2.1	1.8	35.8	24.0	53.0	6.3	33.7	13.8	7.8	0.6	6.6	191.2
2008	3.6	7.3	7.5	14.1	9.9	12.5	11.5	79.7	0.8	27.8	3.6	2.8	181.1
2009	0.0	2.3	13.5	11.1	20.7	26.5	44.4	14.2	10.3	55.3	6.2	3.1	207.5
2010	6.9	10.8	31.5	20.2	19.9	33.0	64.8	38.7	3.3	0.7	1.5	4.7	235.8
2011	2.0	3.9	7.8	5.7	13.1	27.4	26.9	17.3	9.6	5.1	12.2	25.1	156.2
2012	0.3	1.5	2.0	20.7	11.3	2.1	17.9	1.1	14.4	3.1	0.2	1.5	76.0
2013	1.0	1.5	6.0	10.8	3.3	14.7	9.1	23.7	15.5	6.0	4.4	1.5	97.4
Average	4.5	5.1	13.1	19.6	24.6	23.2	32.6	29.3	14.0	14.1	6.9	5.9	192.7
Minimum	0.0	0.0	1.4	2.2	1.1	2.1	1.0	1.1	0.0	0.0	0.0	0.2	58.7
Maximum	13.3	16.4	33.4	73.7	63.5	60.3	108.1	81.5	37.2	55.3	18.8	26.7	318.3

Table 8 - Farm Effective Precipitation

Farm Name or Designation: Schweizer-05

Method Used: USBR with HI model coefficients

Notes: USBR Methodology Used as Implemented in HI Model.

Year (Cal)	Jan (AF)	Feb (AF)	Mar (AF)	Apr (AF)	May (AF)	Jun (AF)	Jul (AF)	Aug (AF)	Sep (AF)	Oct (AF)	Nov (AF)	Dec (AF)	Total (AF)
1984	1.9	9.9	25.6	18.7	17.9	3.6	39.1	26.6	8.1	21.5	1.8	4.9	179.7
1985	12.6	4.6	9.6	32.7	40.7	8.9	29.9	6.7	8.3	17.5	11.6	3.6	186.7
1986	1.6	1.5	2.8	9.8	6.1	33.4	47.3	21.7	28.6	20.6	9.2	1.0	183.7
1987	2.5	15.6	7.6	5.8	48.6	31.2	12.2	17.5	8.5	1.5	5.2	8.3	164.5
1988	4.3	7.7	13.7	19.1	30.5	21.1	19.5	5.1	11.4	0.3	0.3	5.2	138.2
1989	1.9	3.9	4.9	8.5	22.8	27.6	13.5	27.4	24.0	2.7	0.7	3.0	141.0
1990	11.9	11.8	14.3	4.2	48.5	5.7	58.6	18.0	33.8	16.0	15.9	5.8	244.4
1991	6.3	1.5	21.3	11.9	10.6	21.1	30.2	13.6	17.7	10.9	17.7	8.8	171.6
1992	4.2	4.6	11.9	6.1	17.6	50.6	26.8	26.1	0.0	10.3	14.5	3.4	176.2
1993	2.1	11.4	21.9	23.6	21.9	6.4	22.9	22.9	5.1	12.1	17.5	0.3	167.9
1994	4.5	0.4	12.7	20.8	35.5	7.8	12.1	36.4	13.0	11.7	10.5	1.8	167.3
1995	1.4	2.6	15.0	27.7	52.6	40.5	22.1	6.2	10.2	0.0	0.0	0.2	178.4
1996	1.4	2.6	17.2	6.3	38.5	20.6	40.4	22.6	31.1	5.4	2.3	6.2	194.4
1997	5.9	8.7	4.1	26.2	3.8	36.4	26.9	60.4	20.2	31.0	11.9	17.5	253.0
1998	1.4	5.6	14.0	8.3	24.4	5.4	49.4	45.0	3.9	32.7	15.8	3.5	209.4
1999	3.0	0.3	17.9	57.5	31.6	14.7	64.7	39.8	7.6	8.2	2.4	0.6	248.2
2000	5.0	2.9	30.7	12.4	12.1	9.1	18.8	20.2	11.7	17.0	1.7	2.6	144.1
2001	10.5	3.9	5.2	13.8	50.8	32.4	28.3	4.1	7.9	0.3	10.3	6.4	173.9
2002	4.9	2.1	1.4	2.1	1.4	11.9	0.9	7.5	9.7	5.5	1.2	7.2	55.7
2003	0.0	7.6	13.6	33.9	18.7	33.4	7.8	8.2	6.9	1.5	3.1	3.4	138.1
2004	5.4	5.8	1.5	52.7	1.1	38.3	48.2	60.0	9.8	4.9	12.8	1.2	241.6
2005	6.7	3.7	23.4	13.0	7.5	16.2	7.0	32.1	21.0	30.4	0.6	3.8	165.5
2006	9.4	0.0	14.0	4.8	23.1	4.3	45.9	54.7	29.8	33.9	2.3	24.8	246.8
2007	5.4	2.0	1.7	32.8	22.4	46.2	6.0	31.0	13.1	7.4	0.6	6.3	174.9
2008	3.4	6.9	7.1	13.4	9.4	11.9	11.0	60.6	0.8	25.8	3.4	2.6	156.3
2009	0.0	2.2	12.8	10.5	19.4	24.7	39.9	13.5	9.7	47.8	5.9	2.9	189.3
2010	6.5	10.2	29.2	19.0	18.7	30.5	53.9	35.2	3.1	0.6	1.4	4.5	212.8
2011	1.9	3.7	7.4	5.4	12.4	25.5	25.0	16.4	9.1	4.8	11.6	23.4	146.8
2012	0.3	1.4	1.9	19.5	10.7	2.0	17.0	1.1	13.6	2.9	0.2	1.4	71.9
2013	0.9	1.4	5.7	10.2	3.1	14.0	8.7	22.1	14.7	5.7	4.2	1.4	92.2
Average	4.2	4.9	12.3	17.7	22.1	21.2	27.8	25.4	13.1	13.0	6.6	5.5	173.8
Minimum	0.0	0.0	1.4	2.1	1.1	2.0	0.9	1.1	0.0	0.0	0.0	0.2	55.7
Maximum	12.6	15.6	30.7	57.5	52.6	50.6	64.7	60.6	33.8	47.8	17.7	24.8	253.0

Table 9 - Farm Irrigation Water Requirement

Farm Name or Designation: Schweizer-05

Crop PET less effective precipitation

Notes:

Year (Cal)	Jan (AF)	Feb (AF)	Mar (AF)	Apr (AF)	May (AF)	Jun (AF)	Jul (AF)	Aug (AF)	Sep (AF)	Oct (AF)	Nov (AF)	Dec (AF)	Total (AF)
1984	0.0	0.0	0.0	0.0	45.4	94.0	80.6	74.1	38.5	0.0	0.0	0.0	332.7
1985	0.0	0.0	0.0	0.0	25.7	93.3	86.7	88.3	26.0	0.0	0.0	0.0	320.0
1986	0.0	0.0	8.1	25.5	56.9	71.5	67.8	65.9	5.5	0.0	0.0	0.0	301.2
1987	0.0	0.0	0.0	22.6	16.1	74.7	111.0	74.3	29.1	10.7	0.0	0.0	338.5
1988	0.0	0.0	0.0	2.4	31.4	87.1	99.2	95.9	34.6	19.7	1.2	0.0	371.5
1989	0.0	0.0	2.6	25.6	48.6	67.7	105.1	64.4	11.0	13.7	0.4	0.0	339.1
1990	0.0	0.0	0.0	24.1	8.1	108.1	52.3	74.6	14.4	0.8	0.0	0.0	282.4
1991	0.0	0.0	0.0	15.9	60.7	88.5	83.3	82.9	24.7	8.4	0.0	0.0	364.4
1992	0.0	0.0	0.0	31.0	53.7	42.5	83.3	55.7	38.5	1.1	0.0	0.0	305.8
1993	0.0	0.0	0.0	2.8	39.1	93.3	99.6	70.6	35.1	6.2	0.0	0.0	346.6
1994	0.0	0.0	0.0	9.3	33.9	111.7	105.5	65.4	29.7	7.2	0.0	0.0	362.6
1995	0.0	0.0	0.0	0.0	0.0	45.4	88.5	106.1	46.0	13.4	1.3	0.0	300.8
1996	0.0	0.0	0.0	28.5	43.5	91.1	79.7	72.7	7.3	12.2	0.0	0.0	335.0
1997	0.0	0.0	0.0	0.0	58.7	63.0	98.1	39.1	36.5	0.0	0.0	0.0	295.4
1998	0.0	0.0	0.0	16.1	48.4	94.2	75.8	48.4	44.8	0.0	0.0	0.0	327.6
1999	0.0	0.0	0.0	0.0	26.1	80.1	60.6	63.3	46.5	0.0	0.9	0.0	277.6
2000	0.0	0.0	0.0	23.7	60.7	99.2	102.6	77.0	22.8	3.9	0.0	0.0	389.9
2001	0.0	0.0	0.0	24.0	17.0	83.8	106.9	94.7	32.4	9.8	0.0	0.0	368.7
2002	0.0	0.0	0.0	39.4	73.7	114.1	138.3	98.9	34.2	6.4	0.0	0.0	505.0
2003	0.0	0.0	0.0	16.3	65.5	71.6	134.6	101.3	52.1	23.5	0.0	0.0	464.9
2004	0.0	0.0	16.7	0.0	88.7	67.9	69.2	32.0	52.3	10.1	0.0	0.0	336.8
2005	0.0	0.0	0.0	17.8	63.9	89.4	116.2	73.4	45.3	0.0	2.6	0.0	408.7
2006	0.0	0.0	0.0	47.8	64.8	125.2	90.9	52.9	22.4	0.0	0.0	0.0	404.0
2007	0.0	0.0	8.9	1.2	51.7	61.1	120.9	86.6	50.9	19.2	2.0	0.0	402.4
2008	0.0	0.0	0.0	18.7	63.7	100.2	118.7	40.4	53.7	0.7	0.0	0.0	396.2
2009	0.0	0.0	0.0	30.1	58.7	78.3	71.6	76.7	37.2	0.0	0.0	0.0	352.6
2010	0.0	0.0	0.0	18.6	49.9	84.7	67.3	65.8	52.4	27.6	0.6	0.0	367.0
2011	0.0	0.0	0.0	30.3	52.2	95.4	116.5	104.4	40.1	13.7	0.0	0.0	452.5
2012	0.0	0.0	16.5	28.7	71.5	133.9	122.7	103.1	41.9	10.9	1.6	0.0	530.7
2013	0.0	0.0	0.0	12.5	73.2	110.6	117.3	88.4	57.7	5.5	0.0	0.0	465.2
Average	0.0	0.0	1.8	17.1	48.4	87.4	95.7	74.6	35.5	7.5	0.4	0.0	368.2
Minimum	0.0	0.0	0.0	0.0	0.0	42.5	52.3	32.0	5.5	0.0	0.0	0.0	277.6
Maximum	0.0	0.0	16.7	47.8	88.7	133.9	138.3	106.1	57.7	27.6	2.6	0.0	530.7

Table 10 - Farm Headgate Delivery Available to Meet Crop Irrigation Requirement

Farm Name or Designation: Schweizer-05

For Summary Period, Average Application Efficiency: 55%, Maximum Application Efficiency: 55%

Notes: Does not include excess effective precipitation. Provide information source of efficiency data.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	21.8	47.0	66.5	90.4	95.0	75.1	52.8	31.0	14.7	0.0	494.1
1985	0.0	0.0	31.7	66.0	44.1	82.1	86.6	78.7	58.0	44.3	16.6	0.0	508.1
1986	0.0	0.6	58.1	72.0	80.3	66.8	78.8	72.8	45.9	41.8	13.9	0.0	531.1
1987	0.0	0.0	35.9	62.1	60.4	80.6	79.8	67.5	50.3	45.7	25.3	0.0	507.5
1988	0.0	0.0	27.1	51.7	53.7	81.3	61.2	65.5	49.9	46.8	22.9	0.0	459.9
1989	0.0	0.0	41.9	71.8	59.7	75.5	68.5	79.2	39.5	26.7	19.0	0.0	481.6
1990	0.0	0.0	18.1	68.7	53.5	77.1	71.2	69.0	35.6	40.9	17.2	0.0	451.3
1991	0.0	0.0	34.3	41.5	46.9	82.5	76.6	80.2	46.5	43.0	0.0	0.0	451.5
1992	0.0	0.0	32.1	86.2	75.6	62.8	74.6	72.9	59.8	48.0	20.5	0.0	532.4
1993	0.0	0.0	20.3	61.5	77.3	87.4	80.5	82.6	61.8	47.2	20.5	0.0	539.2
1994	0.0	0.0	44.9	82.2	68.4	96.1	86.3	70.7	58.1	51.8	21.8	0.0	580.3
1995	0.0	0.0	47.3	86.9	66.5	66.2	95.7	105.0	78.1	62.1	26.5	0.0	634.1
1996	0.0	7.9	69.5	85.6	78.6	93.4	88.3	73.7	56.7	60.1	25.5	0.0	639.2
1997	0.0	0.0	38.7	64.2	72.6	80.4	102.3	49.0	56.3	37.1	0.0	0.0	500.6
1998	0.0	0.0	20.1	75.9	85.4	87.2	89.4	61.2	66.0	46.3	19.6	0.0	551.1
1999	0.0	0.0	46.0	63.4	36.8	71.6	77.8	65.1	62.3	45.2	20.1	0.0	488.4
2000	0.0	2.0	56.5	68.1	69.4	75.5	70.2	54.5	25.5	39.4	20.3	0.0	481.3
2001	0.0	0.0	29.1	54.2	67.3	78.1	78.3	83.1	46.6	37.8	21.8	0.0	496.3
2002	0.0	0.0	28.0	12.5	8.8	27.6	31.6	0.0	0.0	0.0	1.9	0.0	110.5
2003	0.0	0.0	15.3	5.8	41.0	78.2	41.3	12.7	6.8	0.0	10.7	0.0	211.9
2004	0.0	0.0	7.7	51.0	74.7	68.8	61.9	57.3	15.0	26.6	31.8	0.0	394.9
2005	0.0	0.0	29.1	75.6	77.4	77.8	65.1	68.9	18.8	38.9	22.7	0.0	474.3
2006	0.0	0.0	22.0	18.4	53.5	78.0	67.5	64.7	47.7	49.2	16.7	0.0	417.7
2007	0.0	0.0	25.5	65.8	68.2	66.2	74.6	74.4	60.3	58.1	26.2	0.0	519.3
2008	0.0	0.0	43.2	86.1	74.2	90.8	83.4	67.5	56.8	50.8	21.8	0.0	574.5
2009	0.0	0.0	36.3	76.5	76.0	71.9	78.3	63.4	46.2	48.7	16.4	0.0	513.6
2010	0.0	0.0	22.2	61.0	75.5	80.6	70.7	67.7	14.9	34.8	30.5	0.0	458.1
2011	0.0	0.0	28.0	21.3	53.1	90.5	82.7	53.9	35.7	39.2	23.3	0.0	427.8
2012	0.0	0.0	19.8	30.2	54.1	34.9	29.6	7.6	0.0	0.0	0.0	0.0	176.2
2013	0.0	0.0	4.9	1.4	48.0	75.0	40.7	54.0	46.0	66.9	0.0	0.0	336.9
Average	0.0	0.4	31.8	57.2	62.3	75.8	73.0	63.3	43.3	40.3	17.6	0.0	464.8
Minimum	0.0	0.0	4.9	1.4	8.8	27.6	29.6	0.0	0.0	0.0	0.0	0.0	110.5
Maximum	0.0	7.9	69.5	86.9	85.4	96.1	102.3	105.0	78.1	66.9	31.8	0.0	639.2

Table 11 - Soil Moisture Filled (+) or Used (-)

Farm Name or Designation: Schweizer-05

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	1.9	9.9	17.6	0.0	0.0	-3.7	3.7	0.0	0.0	0.0	0.0	0.0	29.4
1985	0.0	0.0	0.0	0.0	0.0	-11.2	-0.1	-9.6	20.9	0.0	0.0	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	-4.7	4.7	0.0	0.0	0.0	0.0	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	-31.2	-6.6	21.2	16.6	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	-5.8	-37.3	-20.5	15.3	27.1	21.3	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	-36.6	14.8	21.7	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	-31.0	18.8	-5.6	17.8	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	-13.8	-6.0	-6.7	-2.7	21.8	7.3	0.0	0.0	0.0
1992	0.0	0.0	0.0	0.0	0.0	0.0	-8.7	8.7	0.0	0.0	0.0	0.0	0.0
1993	0.0	0.0	0.0	0.0	0.0	-5.9	-19.1	12.0	13.0	0.0	0.0	0.0	0.0
1994	0.0	0.0	0.0	0.0	0.0	-15.6	-19.2	5.3	28.4	1.1	0.0	0.0	0.0
1995	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.2	1.2	0.0	0.0	0.0	0.0
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	0.0	0.0	0.0	-7.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0
1999	0.0	0.0	0.0	0.0	0.0	-8.5	8.5	0.0	0.0	0.0	0.0	0.0	0.0
2000	0.0	0.0	0.0	0.0	0.0	-23.8	-29.1	-13.3	2.7	35.5	20.8	2.6	-4.7
2001	4.7	0.0	0.0	0.0	0.0	-5.6	-28.6	-10.7	14.2	27.9	2.8	0.0	4.7
2002	0.0	0.0	0.0	-27.0	-46.7	-18.6	-3.6	-0.2	0.0	0.0	3.0	7.2	-86.0
2003	0.0	7.6	20.1	-5.9	-10.6	6.6	-24.1	-3.3	-0.3	-0.1	12.7	3.4	6.1
2004	5.4	5.8	-3.7	61.5	-14.0	1.0	-7.3	25.3	-36.6	16.5	26.5	0.0	80.2
2005	0.0	0.0	0.0	0.0	0.0	-11.6	-46.0	-2.8	-12.8	40.0	20.1	3.8	-9.2
2006	9.2	0.0	0.0	-29.4	-11.0	-31.2	-8.1	11.8	25.3	42.6	0.0	0.0	9.2
2007	0.0	0.0	0.0	0.0	0.0	0.0	-45.3	-9.3	9.4	38.9	6.2	0.0	0.0
2008	0.0	0.0	0.0	0.0	0.0	-9.5	-34.6	27.1	3.1	13.9	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	-6.3	6.3	-13.4	9.0	4.4	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	-4.2	3.4	0.8	-37.5	7.2	29.9	0.3	0.0
2011	0.0	0.0	0.0	-9.0	1.0	-4.9	-32.8	-30.0	-1.5	25.5	34.0	17.7	0.0
2012	0.0	0.0	0.0	0.0	-17.4	-67.1	-11.4	-1.7	-0.1	0.0	0.0	1.4	-96.4
2013	0.9	1.4	9.5	-2.2	-3.7	-3.3	-3.1	-0.4	-0.1	61.4	3.8	1.4	65.6
Average	0.7	0.8	1.5	-0.4	-3.9	-9.3	-12.7	-0.8	4.5	12.2	6.0	1.3	0.0
Minimum	0.0	0.0	-3.7	-29.4	-46.7	-67.1	-46.0	-30.0	-37.5	-0.1	0.0	0.0	-96.4
Maximum	9.2	9.9	20.1	61.5	1.0	6.6	18.8	27.1	28.4	61.4	34.0	17.7	80.2

Table 12 - Soil Moisture Storage

Farm Name or Designation: Schweizer-05

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MaxSM
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	66.0	75.9	93.5	93.5	93.5	89.9	93.5	93.5	93.5	93.5	93.5	93.5	93.5
1985	93.6	93.6	93.6	93.6	93.6	82.5	82.3	72.7	93.6	93.6	93.6	93.6	93.6
1986	93.7	93.7	93.7	93.7	93.7	89.1	93.7	93.7	93.7	93.7	93.7	93.7	93.7
1987	93.8	93.8	93.8	93.8	93.8	93.8	62.6	56.0	77.2	93.8	93.8	93.8	93.8
1988	93.9	93.9	93.9	93.9	93.9	88.1	50.8	30.3	45.6	72.6	93.9	93.9	93.9
1989	94.0	94.0	94.0	94.0	94.0	94.0	57.4	72.3	94.0	94.0	94.0	94.0	94.0
1990	94.1	94.1	94.1	94.1	94.1	63.1	81.9	76.3	94.1	94.1	94.1	94.1	94.1
1991	94.2	94.2	94.2	94.2	80.4	74.4	67.7	65.1	86.8	94.2	94.2	94.2	94.2
1992	94.3	94.3	94.3	94.3	94.3	94.3	85.5	94.3	94.3	94.3	94.3	94.3	94.3
1993	94.4	94.4	94.4	94.4	94.4	88.5	69.4	81.4	94.4	94.4	94.4	94.4	94.4
1994	94.6	94.6	94.6	94.6	94.6	79.0	59.7	65.0	93.5	94.6	94.6	94.6	94.6
1995	94.8	94.8	94.8	94.8	94.8	94.8	94.8	93.6	94.8	94.8	94.8	94.8	94.8
1996	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
1997	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2
1998	95.4	95.4	95.4	95.4	95.4	88.4	95.4	95.4	95.4	95.4	95.4	95.4	95.4
1999	95.6	95.6	95.6	95.6	95.6	87.1	95.6	95.6	95.6	95.6	95.6	95.6	95.6
2000	95.8	95.8	95.8	95.8	95.8	72.0	42.9	29.6	32.2	67.7	88.5	91.0	95.8
2001	96.0	96.0	96.0	96.0	96.0	90.3	61.7	51.0	65.2	93.1	96.0	96.0	96.0
2002	96.2	96.2	96.2	69.2	22.5	3.9	0.3	0.0	0.0	0.0	3.0	10.2	96.2
2003	10.2	17.8	37.9	32.0	21.4	28.0	3.9	0.6	0.3	0.2	12.9	16.3	96.4
2004	21.7	27.5	23.8	85.2	71.3	72.2	65.0	90.2	53.6	70.1	96.6	96.6	96.6
2005	96.8	96.8	96.8	96.8	96.8	85.1	39.2	36.4	23.6	63.6	83.7	87.6	96.8
2006	97.0	97.0	97.0	67.6	56.5	25.4	17.3	29.1	54.4	97.0	97.0	97.0	97.0
2007	97.2	97.2	97.2	97.2	97.2	97.2	51.9	42.6	52.0	91.0	97.2	97.2	97.2
2008	97.4	97.4	97.4	97.4	97.4	88.0	53.4	80.4	83.5	97.4	97.4	97.4	97.4
2009	97.7	97.7	97.7	97.7	97.7	91.4	97.7	84.3	93.3	97.7	97.7	97.7	97.7
2010	97.9	97.9	97.9	97.9	97.9	93.7	97.1	97.9	60.4	67.7	97.6	97.9	97.9
2011	97.9	97.9	97.9	88.9	89.9	85.0	52.2	22.2	20.7	46.2	80.2	97.9	97.9
2012	97.9	97.9	97.9	97.9	80.5	13.4	2.0	0.3	0.1	0.1	0.1	1.5	97.9
2013	2.4	3.8	13.4	11.2	7.4	4.1	1.0	0.6	0.5	61.9	65.7	67.1	97.9
Average	86.1	87.0	88.4	88.0	84.1	74.9	62.2	61.3	65.9	78.1	84.1	85.4	95.6
Minimum	2.4	3.8	13.4	11.2	7.4	3.9	0.3	0.0	0.0	0.0	0.1	1.5	93.5
Maximum	97.9	97.9	97.9	97.9	97.9	97.2	97.7	97.9	95.6	97.7	97.7	97.9	97.9

Table 13 - Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture

Farm Name or Designation: Schweizer-05

Derived from Water Budget Balance. Does not include excess effective precipitation used by crop. Soil moisture limited to: 0.5 feet

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	45.4	94.0	80.6	74.1	38.5	0.0	0.0	0.0	332.7
1985	0.0	0.0	0.0	0.0	25.7	93.3	86.7	88.3	26.0	0.0	0.0	0.0	320.0
1986	0.0	0.0	8.1	25.5	56.9	71.5	67.8	65.9	5.5	0.0	0.0	0.0	301.2
1987	0.0	0.0	0.0	22.6	16.1	74.7	111.0	74.1	29.1	10.7	0.0	0.0	338.3
1988	0.0	0.0	0.0	2.4	31.4	87.1	98.4	86.0	34.6	19.7	1.2	0.0	360.8
1989	0.0	0.0	2.6	25.6	48.6	67.7	105.0	64.4	11.0	13.7	0.4	0.0	339.0
1990	0.0	0.0	0.0	24.1	8.1	108.1	52.3	74.6	14.4	0.8	0.0	0.0	282.4
1991	0.0	0.0	0.0	15.9	60.7	88.5	83.3	82.9	24.7	8.4	0.0	0.0	364.4
1992	0.0	0.0	0.0	31.0	53.7	42.5	83.3	55.7	38.5	1.1	0.0	0.0	305.8
1993	0.0	0.0	0.0	2.8	39.1	93.3	99.6	70.6	35.1	6.2	0.0	0.0	346.6
1994	0.0	0.0	0.0	9.3	33.9	111.7	105.5	65.4	29.7	7.2	0.0	0.0	362.6
1995	0.0	0.0	0.0	0.0	0.0	45.4	88.5	106.1	46.0	13.4	1.3	0.0	300.8
1996	0.0	0.0	0.0	28.5	43.5	91.1	79.7	72.7	7.3	12.2	0.0	0.0	335.0
1997	0.0	0.0	0.0	0.0	58.7	63.0	98.1	39.1	36.5	0.0	0.0	0.0	295.4
1998	0.0	0.0	0.0	16.1	48.4	94.2	75.8	48.4	44.8	0.0	0.0	0.0	327.6
1999	0.0	0.0	0.0	0.0	26.1	80.1	60.6	63.3	46.5	0.0	0.9	0.0	277.6
2000	0.0	0.0	0.0	23.7	60.7	99.2	99.3	67.8	22.8	3.9	0.0	0.0	377.5
2001	0.0	0.0	0.0	24.0	17.0	83.8	106.9	93.8	32.4	9.8	0.0	0.0	367.7
2002	0.0	0.0	0.0	39.4	55.5	46.2	35.3	0.2	0.0	0.0	0.0	0.0	176.7
2003	0.0	0.0	0.0	5.8	41.0	67.5	65.4	16.0	7.1	0.1	0.0	0.0	203.0
2004	0.0	0.0	7.7	0.0	74.7	58.5	69.2	32.0	51.7	10.1	0.0	0.0	303.8
2005	0.0	0.0	0.0	17.8	63.9	89.4	111.1	71.6	31.6	0.0	1.5	0.0	387.0
2006	0.0	0.0	0.0	47.8	64.6	109.2	75.5	52.9	22.4	0.0	0.0	0.0	372.3
2007	0.0	0.0	8.9	1.2	51.7	61.1	119.9	83.7	50.9	19.2	2.0	0.0	398.6
2008	0.0	0.0	0.0	18.7	63.7	100.2	118.0	40.4	53.7	0.7	0.0	0.0	395.5
2009	0.0	0.0	0.0	30.1	58.7	78.3	71.6	76.7	37.2	0.0	0.0	0.0	352.6
2010	0.0	0.0	0.0	18.6	49.9	84.7	67.3	65.8	52.4	27.6	0.6	0.0	367.0
2011	0.0	0.0	0.0	30.3	52.2	95.4	115.5	83.8	37.2	13.7	0.0	0.0	428.2
2012	0.0	0.0	0.0	20.0	71.5	102.0	41.0	9.3	0.1	0.0	0.0	0.0	244.0
2013	0.0	0.0	0.0	1.4	48.0	75.9	43.9	54.4	46.1	5.5	0.0	0.0	275.1
Average	0.0	0.0	0.9	16.1	45.6	81.9	83.9	62.7	30.5	6.1	0.3	0.0	328.0
Minimum	0.0	0.0	0.0	0.0	0.0	42.5	35.3	0.2	0.0	0.0	0.0	0.0	176.7
Maximum	0.0	0.0	8.9	47.8	74.7	111.7	119.9	106.1	53.7	27.6	2.0	0.0	428.2
Limit	0.0	0.0	8.2	39.4	70.2	109.6	117.8	96.1	52.6	22.2	1.6	0.0	407.4

Table 14 - Total Return Flows at Farm

Farm Name or Designation: Schweizer-05

Derived from Water Budget Balance. Does not include excess effective precipitation that deep percolates.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	17.8	77.7	75.5	73.9	88.5	62.3	57.4	56.3	26.7	0.0	536.2
1985	0.0	0.0	57.6	120.0	54.5	67.2	70.8	64.4	58.6	80.5	30.2	0.0	603.8
1986	0.0	1.2	97.5	105.5	89.1	54.7	70.7	66.6	78.0	76.0	25.3	0.0	664.5
1987	0.0	0.0	65.2	90.3	93.7	71.8	65.3	55.3	41.1	55.7	46.0	0.0	584.4
1988	0.0	0.0	49.2	91.6	66.1	66.5	50.0	53.6	40.8	38.3	19.1	0.0	475.4
1989	0.0	0.0	73.5	104.9	59.9	69.5	56.0	64.8	39.1	34.8	34.1	0.0	536.7
1990	0.0	0.0	32.8	100.9	89.1	63.1	58.2	56.4	32.6	73.5	31.4	0.0	538.1
1991	0.0	0.0	62.3	59.6	38.4	67.5	62.7	65.7	38.0	62.3	0.0	0.0	456.5
1992	0.0	0.0	58.3	125.7	83.8	71.6	61.0	68.1	70.2	86.3	37.2	0.0	662.2
1993	0.0	0.0	36.9	109.1	101.5	71.5	65.9	67.5	64.2	79.7	37.3	0.0	633.7
1994	0.0	0.0	81.6	140.1	90.6	78.6	70.6	57.9	47.5	86.0	39.7	0.0	692.5
1995	0.0	0.0	85.9	158.0	120.9	74.9	85.5	85.9	94.7	99.5	46.9	0.0	852.2
1996	0.0	14.3	126.4	127.1	99.4	78.6	80.9	61.3	95.9	97.0	46.3	0.0	827.2
1997	0.0	0.0	70.3	116.7	73.3	83.1	87.8	50.1	65.9	67.5	0.0	0.0	614.7
1998	0.0	0.0	36.5	121.8	106.8	71.4	79.8	63.0	75.3	84.1	35.7	0.0	674.4
1999	0.0	0.0	83.7	115.3	40.9	58.6	72.3	55.0	66.7	82.3	35.6	0.0	610.5
2000	0.0	3.6	102.7	100.1	65.5	61.7	57.4	44.6	20.8	32.2	16.6	0.0	505.4
2001	0.0	0.0	45.1	74.5	105.3	63.9	64.1	68.0	38.1	30.9	36.8	0.0	526.8
2002	0.0	0.0	50.9	10.2	7.2	22.6	25.9	0.0	0.0	0.0	1.6	0.0	118.4
2003	0.0	0.0	12.5	4.8	33.6	64.0	33.8	10.4	5.5	0.0	8.7	0.0	173.4
2004	0.0	0.0	6.3	41.7	61.1	56.3	50.6	46.9	12.3	21.8	31.4	0.0	328.5
2005	0.0	0.0	53.0	119.5	76.8	63.7	53.3	56.4	15.4	31.8	18.6	0.0	488.4
2006	0.0	0.0	27.0	15.1	43.8	63.8	55.2	52.9	39.0	46.8	30.4	0.0	374.0
2007	0.0	0.0	37.5	118.4	72.2	59.3	61.1	60.9	49.4	47.5	39.4	0.0	545.7
2008	0.0	0.0	78.5	137.9	71.2	74.3	68.3	55.2	46.5	77.6	39.6	0.0	649.1
2009	0.0	0.0	65.9	108.9	79.4	58.9	64.5	51.8	37.8	84.2	29.7	0.0	581.2
2010	0.0	0.0	40.5	92.3	87.4	65.9	57.9	56.5	12.2	28.5	25.0	0.0	466.2
2011	0.0	0.0	50.7	17.5	43.5	74.0	67.7	44.1	29.2	32.1	19.0	0.0	377.8
2012	0.0	0.0	16.2	26.3	44.3	28.5	24.2	6.2	0.0	0.0	0.0	0.0	145.7
2013	0.0	0.0	4.0	1.1	39.3	61.4	33.3	44.2	37.6	54.7	0.0	0.0	275.6
Average	0.0	0.6	54.2	87.8	70.5	64.7	61.4	53.2	43.7	54.9	26.3	0.0	517.3
Minimum	0.0	0.0	4.0	1.1	7.2	22.6	24.2	0.0	0.0	0.0	0.0	0.0	118.4
Maximum	0.0	14.3	126.4	158.0	120.9	83.1	88.5	85.9	95.9	99.5	46.9	0.0	852.2

Table 15 - Tailwater/Surface Runoff Return Flows at Farm

Farm Name or Designation: Schweizer-05

For Summary Period Tailwater from Water Budget: 16.3% of Total Return Flows, Tailwater Forced to: 20% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	3.6	15.5	15.1	14.8	17.7	12.5	11.5	11.3	5.3	0.0	107.2
1985	0.0	0.0	11.5	24.0	10.9	13.4	14.2	12.9	11.7	16.1	6.0	0.0	120.8
1986	0.0	0.2	19.5	21.1	17.8	10.9	14.1	13.3	15.6	15.2	5.1	0.0	132.9
1987	0.0	0.0	13.0	18.1	18.7	14.4	13.1	11.1	8.2	11.1	9.2	0.0	116.9
1988	0.0	0.0	9.8	18.3	13.2	13.3	10.0	10.7	8.2	7.7	3.8	0.0	95.1
1989	0.0	0.0	14.7	21.0	12.0	13.9	11.2	13.0	7.8	7.0	6.8	0.0	107.3
1990	0.0	0.0	6.6	20.2	17.8	12.6	11.6	11.3	6.5	14.7	6.3	0.0	107.6
1991	0.0	0.0	12.5	11.9	7.7	13.5	12.5	13.1	7.6	12.5	0.0	0.0	91.3
1992	0.0	0.0	11.7	25.1	16.8	14.3	12.2	13.6	14.0	17.3	7.4	0.0	132.4
1993	0.0	0.0	7.4	21.8	20.3	14.3	13.2	13.5	12.8	15.9	7.5	0.0	126.7
1994	0.0	0.0	16.3	28.0	18.1	15.7	14.1	11.6	9.5	17.2	7.9	0.0	138.5
1995	0.0	0.0	17.2	31.6	24.2	15.0	17.1	17.2	18.9	19.9	9.4	0.0	170.4
1996	0.0	2.9	25.3	25.4	19.9	15.7	16.2	12.3	19.2	19.4	9.3	0.0	165.4
1997	0.0	0.0	14.1	23.3	14.7	16.6	17.6	10.0	13.2	13.5	0.0	0.0	122.9
1998	0.0	0.0	7.3	24.4	21.4	14.3	16.0	12.6	15.1	16.8	7.1	0.0	134.9
1999	0.0	0.0	16.7	23.1	8.2	11.7	14.5	11.0	13.3	16.5	7.1	0.0	122.1
2000	0.0	0.7	20.5	20.0	13.1	12.3	11.5	8.9	4.2	6.4	3.3	0.0	101.1
2001	0.0	0.0	9.0	14.9	21.1	12.8	12.8	13.6	7.6	6.2	7.4	0.0	105.4
2002	0.0	0.0	10.2	2.0	1.4	4.5	5.2	0.0	0.0	0.0	0.3	0.0	23.7
2003	0.0	0.0	2.5	1.0	6.7	12.8	6.8	2.1	1.1	0.0	1.7	0.0	34.7
2004	0.0	0.0	1.3	8.3	12.2	11.3	10.1	9.4	2.5	4.4	6.3	0.0	65.7
2005	0.0	0.0	10.6	23.9	15.4	12.7	10.7	11.3	3.1	6.4	3.7	0.0	97.7
2006	0.0	0.0	5.4	3.0	8.8	12.8	11.0	10.6	7.8	9.4	6.1	0.0	74.8
2007	0.0	0.0	7.5	23.7	14.4	11.9	12.2	12.2	9.9	9.5	7.9	0.0	109.1
2008	0.0	0.0	15.7	27.6	14.2	14.9	13.7	11.0	9.3	15.5	7.9	0.0	129.8
2009	0.0	0.0	13.2	21.8	15.9	11.8	12.9	10.4	7.6	16.8	5.9	0.0	116.2
2010	0.0	0.0	8.1	18.5	17.5	13.2	11.6	11.3	2.4	5.7	5.0	0.0	93.2
2011	0.0	0.0	10.1	3.5	8.7	14.8	13.5	8.8	5.8	6.4	3.8	0.0	75.6
2012	0.0	0.0	3.2	5.3	8.9	5.7	4.8	1.2	0.0	0.0	0.0	0.0	29.1
2013	0.0	0.0	0.8	0.2	7.9	12.3	6.7	8.8	7.5	10.9	0.0	0.0	55.1
Average	0.0	0.1	10.8	17.6	14.1	12.9	12.3	10.6	8.7	11.0	5.3	0.0	103.5
Minimum	0.0	0.0	0.8	0.2	1.4	4.5	4.8	0.0	0.0	0.0	0.0	0.0	23.7
Maximum	0.0	2.9	25.3	31.6	24.2	16.6	17.7	17.2	19.2	19.9	9.4	0.0	170.4
TW RF Factors: Average Monthly Tailwater / Surface Returns as a percent of Average Monthly Farm Headgate Delivery													
		20.0%	18.7%	16.9%	12.5%	9.4%	9.3%	9.2%	11.1%	15.0%	16.4%		12.2%

Table 16 - Deep Percolation/Ground Water Return Flows at Farm (unlagged)

Farm Name or Designation: Schweizer-05

For Summary Period Deep Percolation from Water Budget: 83.7% of Total Return Flows, Deep Percolation Forced to: 80% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	14.3	62.2	60.4	59.2	70.8	49.9	45.9	45.1	21.4	0.0	429.0
1985	0.0	0.0	46.1	96.0	43.6	53.7	56.7	51.5	46.9	64.4	24.1	0.0	483.0
1986	0.0	0.9	78.0	84.4	71.3	43.7	56.6	53.3	62.4	60.8	20.3	0.0	531.6
1987	0.0	0.0	52.2	72.2	75.0	57.5	52.2	44.2	32.9	44.5	36.8	0.0	467.5
1988	0.0	0.0	39.4	73.3	52.9	53.2	40.0	42.9	32.7	30.6	15.3	0.0	380.3
1989	0.0	0.0	58.8	83.9	47.9	55.6	44.8	51.8	31.3	27.8	27.3	0.0	429.4
1990	0.0	0.0	26.3	80.7	71.3	50.5	46.6	45.1	26.1	58.8	25.1	0.0	430.5
1991	0.0	0.0	49.8	47.7	30.7	54.0	50.1	52.5	30.4	49.9	0.0	0.0	365.2
1992	0.0	0.0	46.7	100.6	67.0	57.3	48.8	54.5	56.2	69.0	29.8	0.0	529.7
1993	0.0	0.0	29.5	87.3	81.2	57.2	52.7	54.0	51.3	63.8	29.8	0.0	506.9
1994	0.0	0.0	65.2	112.1	72.5	62.9	56.5	46.3	38.0	68.8	31.8	0.0	554.0
1995	0.0	0.0	68.7	126.4	96.7	59.9	68.4	68.7	75.8	79.6	37.5	0.0	681.7
1996	0.0	11.5	101.1	101.6	79.5	62.9	64.7	49.1	76.7	77.6	37.0	0.0	661.8
1997	0.0	0.0	56.3	93.4	58.7	66.5	70.2	40.0	52.7	54.0	0.0	0.0	491.8
1998	0.0	0.0	29.2	97.5	85.4	57.1	63.9	50.4	60.2	67.3	28.6	0.0	539.6
1999	0.0	0.0	67.0	92.3	32.7	46.9	57.9	44.0	53.4	65.8	28.5	0.0	488.4
2000	0.0	2.9	82.2	80.0	52.4	49.4	46.0	35.6	16.7	25.8	13.3	0.0	404.3
2001	0.0	0.0	36.1	59.6	84.3	51.1	51.2	54.4	30.5	24.7	29.5	0.0	421.5
2002	0.0	0.0	40.8	8.2	5.8	18.1	20.7	0.0	0.0	0.0	1.3	0.0	94.7
2003	0.0	0.0	10.0	3.8	26.8	51.2	27.1	8.3	4.4	0.0	7.0	0.0	138.7
2004	0.0	0.0	5.1	33.4	48.9	45.1	40.5	37.5	9.8	17.4	25.1	0.0	262.8
2005	0.0	0.0	42.4	95.6	61.4	50.9	42.6	45.1	12.3	25.5	14.9	0.0	390.7
2006	0.0	0.0	21.6	12.0	35.0	51.0	44.2	42.3	31.2	37.4	24.3	0.0	299.2
2007	0.0	0.0	30.0	94.8	57.8	47.4	48.9	48.7	39.5	38.0	31.6	0.0	436.6
2008	0.0	0.0	62.8	110.3	56.9	59.4	54.6	44.2	37.2	62.1	31.7	0.0	519.3
2009	0.0	0.0	52.8	87.1	63.5	47.1	51.6	41.5	30.2	67.4	23.8	0.0	465.0
2010	0.0	0.0	32.4	73.9	69.9	52.7	46.3	45.2	9.7	22.8	20.0	0.0	372.9
2011	0.0	0.0	40.6	14.0	34.8	59.2	54.2	35.2	23.4	25.7	15.2	0.0	302.2
2012	0.0	0.0	12.9	21.0	35.4	22.8	19.4	5.0	0.0	0.0	0.0	0.0	116.6
2013	0.0	0.0	3.2	0.9	31.4	49.1	26.7	35.3	30.1	43.8	0.0	0.0	220.5
Average	0.0	0.5	43.4	70.2	56.4	51.8	49.2	42.6	34.9	43.9	21.0	0.0	413.8
Minimum	0.0	0.0	3.2	0.9	5.8	18.1	19.4	0.0	0.0	0.0	0.0	0.0	94.7
Maximum	0.0	11.5	101.1	126.4	96.7	66.5	70.8	68.7	76.7	79.6	37.5	0.0	681.7
DP RF Factors: Average Monthly Deep Percolation / Groundwater Returns as a percent of Average Monthly Farm Headgate Delivery													
		80.0%	74.9%	67.6%	49.8%	37.5%	37.1%	37.0%	44.4%	60.0%	65.7%		49.0%

Table 17 - Historical Depletions at Farm

Farm Name or Designation: Schweizer-05

Farm Headgate Delivery less Total Unlagged Return Flows at Farm. Includes Depletion and Return Flow Factors.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	21.8	7.6	45.4	90.4	84.3	74.1	38.5	0.0	0.0	0.0	362.1
1985	0.0	0.0	0.0	0.0	25.7	82.1	86.6	78.7	46.9	0.0	0.0	0.0	320.0
1986	0.0	0.0	8.1	25.5	56.9	66.8	72.5	65.9	5.5	0.0	0.0	0.0	301.2
1987	0.0	0.0	0.0	22.6	16.1	74.7	79.8	67.5	50.3	27.4	0.0	0.0	338.3
1988	0.0	0.0	0.0	2.4	31.4	81.3	61.2	65.5	49.9	46.8	22.4	0.0	360.8
1989	0.0	0.0	2.6	25.6	48.6	67.7	68.5	79.2	32.8	13.7	0.4	0.0	339.0
1990	0.0	0.0	0.0	24.1	8.1	77.1	71.2	69.0	32.2	0.8	0.0	0.0	282.4
1991	0.0	0.0	0.0	15.9	46.9	82.5	76.6	80.2	46.5	15.8	0.0	0.0	364.4
1992	0.0	0.0	0.0	31.0	53.7	42.5	74.6	64.4	38.5	1.1	0.0	0.0	305.8
1993	0.0	0.0	0.0	2.8	39.1	87.4	80.5	82.6	48.1	6.2	0.0	0.0	346.6
1994	0.0	0.0	0.0	9.3	33.9	96.1	86.3	70.7	58.1	8.3	0.0	0.0	362.6
1995	0.0	0.0	0.0	0.0	0.0	45.4	88.5	105.0	47.2	13.4	1.3	0.0	300.8
1996	0.0	0.0	0.0	28.5	43.5	91.1	79.7	72.7	7.3	12.2	0.0	0.0	335.0
1997	0.0	0.0	0.0	0.0	58.7	63.0	98.1	39.1	36.5	0.0	0.0	0.0	295.4
1998	0.0	0.0	0.0	16.1	48.4	87.2	82.7	48.4	44.8	0.0	0.0	0.0	327.6
1999	0.0	0.0	0.0	0.0	26.1	71.6	69.1	63.3	46.5	0.0	0.9	0.0	277.6
2000	0.0	0.0	0.0	23.7	60.7	75.5	70.2	54.5	25.5	39.4	20.3	0.0	369.7
2001	0.0	0.0	7.8	24.0	17.0	78.1	78.3	83.1	46.6	37.8	2.8	0.0	375.5
2002	0.0	0.0	0.0	12.5	8.8	27.6	31.6	0.0	0.0	0.0	1.9	0.0	82.5
2003	0.0	0.0	15.3	5.8	41.0	78.2	41.3	12.7	6.8	0.0	10.7	0.0	211.9
2004	0.0	0.0	7.7	51.0	74.7	68.8	61.9	57.3	15.0	26.6	26.5	0.0	389.5
2005	0.0	0.0	0.0	17.8	63.9	77.8	65.1	68.9	18.8	38.9	22.7	0.0	374.0
2006	0.0	0.0	13.1	18.4	53.5	78.0	67.5	64.7	47.7	42.6	0.0	0.0	385.4
2007	0.0	0.0	8.9	1.2	51.7	61.1	74.6	74.4	60.3	58.1	8.2	0.0	398.6
2008	0.0	0.0	0.0	18.7	63.7	90.8	83.4	67.5	56.8	14.6	0.0	0.0	395.5
2009	0.0	0.0	0.0	30.1	58.7	71.9	77.9	63.4	46.2	4.4	0.0	0.0	352.6
2010	0.0	0.0	0.0	18.6	49.9	80.6	70.7	66.6	14.9	34.8	30.5	0.0	366.7
2011	0.0	0.0	0.3	21.3	53.1	90.5	82.7	53.9	35.7	39.2	23.3	0.0	400.1
2012	0.0	0.0	19.8	28.7	54.1	34.9	29.6	7.6	0.0	0.0	0.0	0.0	174.6
2013	0.0	0.0	4.9	1.4	48.0	75.0	40.7	54.0	46.0	66.9	0.0	0.0	336.9
Average	0.0	0.0	3.7	16.2	42.7	73.2	71.2	61.8	35.0	18.3	5.7	0.0	327.8
Minimum	0.0	0.0	0.0	0.0	0.0	27.6	29.6	0.0	0.0	0.0	0.0	0.0	82.5
Maximum	0.0	0.0	21.8	51.0	74.7	96.1	98.1	105.0	60.3	66.9	30.5	0.0	400.1
Limit	0.0	0.0	19.0	37.4	67.4	92.7	91.1	90.2	58.4	57.2	26.8	0.0	398.0
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	6.3%	15.5%	37.7%	53.1%	53.7%	53.8%	44.5%	25.0%	17.9%		38.8%
TW Returns		20.0%	18.7%	16.9%	12.5%	9.4%	9.3%	9.2%	11.1%	15.0%	16.4%		12.2%
DP Returns		80.0%	74.9%	67.6%	49.8%	37.5%	37.1%	37.0%	44.4%	60.0%	65.7%		49.0%
Sum		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		100.0%

Table 18 - Percent Tailwater/Surface Runoff Return Flows of Farm Headgate Delivery

Farm Name or Designation: Schweizer-05

Tailwater/Surface Runoff Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984			9.0%	18.2%	12.5%	9.0%	10.2%	9.1%	12.0%	20.0%	20.0%		11.9%
1985			20.0%	20.0%	13.6%	9.0%	9.0%	9.0%	11.1%	20.0%	20.0%		13.1%
1986		20.0%	18.5%	16.1%	12.2%	9.0%	9.9%	10.1%	18.7%	20.0%	20.0%		13.8%
1987			20.0%	16.0%	17.1%	9.8%	9.0%	9.0%	9.0%	13.4%	20.0%		12.7%
1988			20.0%	19.5%	13.6%	9.0%	9.0%	9.0%	9.0%	9.0%	9.2%		11.4%
1989			19.3%	16.1%	11.0%	10.1%	9.0%	9.0%	10.9%	14.3%	19.8%		12.3%
1990			20.0%	16.1%	18.3%	9.0%	9.0%	9.0%	10.1%	19.8%	20.0%		13.1%
1991			20.0%	15.8%	9.0%	9.0%	9.0%	9.0%	9.0%	16.0%			11.1%
1992			20.0%	16.0%	12.2%	12.5%	9.0%	10.3%	12.9%	19.8%	20.0%		13.7%
1993			20.0%	19.5%	14.4%	9.0%	9.0%	9.0%	11.4%	18.6%	20.0%		12.9%
1994			20.0%	18.8%	14.6%	9.0%	9.0%	9.0%	9.0%	18.2%	20.0%		13.1%
1995			20.0%	20.0%	20.0%	12.5%	9.8%	9.0%	13.3%	17.6%	19.4%		14.8%
1996		20.0%	20.0%	16.3%	13.9%	9.3%	10.1%	9.2%	18.6%	17.8%	20.0%		14.2%
1997			20.0%	20.0%	11.1%	11.4%	9.4%	11.2%	12.9%	20.0%			13.5%
1998			20.0%	17.7%	13.8%	9.0%	9.8%	11.3%	12.5%	20.0%	20.0%		13.5%
1999			20.0%	20.0%	12.2%	9.0%	10.2%	9.3%	11.8%	20.0%	19.5%		13.7%
2000		20.0%	20.0%	16.2%	10.4%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		11.6%
2001			17.1%	15.1%	17.2%	9.0%	9.0%	9.0%	9.0%	9.0%	18.6%		11.7%
2002			20.0%	9.0%	9.0%	9.0%	9.0%				9.0%		11.8%
2003			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%		9.0%
2004			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	10.9%		9.1%
2005			20.0%	17.4%	10.9%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		11.3%
2006			13.5%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	10.5%	20.0%		9.8%
2007			16.2%	19.8%	11.7%	9.8%	9.0%	9.0%	9.0%	9.0%	16.6%		11.6%
2008			20.0%	17.6%	10.6%	9.0%	9.0%	9.0%	9.0%	16.8%	20.0%		12.4%
2009			20.0%	15.7%	11.5%	9.0%	9.1%	9.0%	9.0%	19.0%	20.0%		12.4%
2010			20.0%	16.6%	12.7%	9.0%	9.0%	9.2%	9.0%	9.0%	9.0%		11.2%
2011			19.9%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.7%
2012			9.0%	9.6%	9.0%	9.0%	9.0%	9.0%					9.1%
2013			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%			9.0%
Average		20.0%	17.6%	15.6%	12.2%	9.4%	9.2%	9.3%	10.7%	14.9%	16.5%		12.0%
Minimum		20.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%
Maximum		20.0%	20.0%	20.0%	20.0%	12.5%	10.2%	11.3%	18.7%	20.0%	20.0%		14.8%

Table 19 - Percent Deep Percolation/Ground Water Return Flows of Farm Headgate Delivery

Farm Name or Designation: Schweizer-05

Deep Percolation/Ground Water Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			36.0%	72.8%	50.0%	36.0%	41.0%	36.5%	47.9%	80.0%	80.0%		47.8%
1985			80.0%	80.0%	54.4%	36.0%	36.0%	36.0%	44.4%	80.0%	80.0%		52.3%
1986		80.0%	73.9%	64.4%	48.8%	36.0%	39.5%	40.2%	74.7%	80.0%	80.0%		55.0%
1987			80.0%	64.0%	68.3%	39.2%	36.0%	36.0%	36.0%	53.6%	80.0%		50.7%
1988			80.0%	78.0%	54.2%	36.0%	36.0%	36.0%	36.0%	36.0%	36.8%		45.5%
1989			77.2%	64.3%	44.2%	40.5%	36.0%	36.0%	43.5%	57.4%	79.2%		49.0%
1990			80.0%	64.6%	73.3%	36.0%	36.0%	36.0%	40.2%	79.2%	80.0%		52.5%
1991			80.0%	63.2%	36.0%	36.0%	36.0%	36.0%	36.0%	63.8%			44.5%
1992			80.0%	64.2%	48.7%	50.2%	36.0%	41.1%	51.7%	79.0%	80.0%		54.7%
1993			80.0%	78.0%	57.7%	36.0%	36.0%	36.0%	45.7%	74.3%	80.0%		51.7%
1994			80.0%	75.0%	58.2%	36.0%	36.0%	36.0%	36.0%	73.0%	80.0%		52.5%
1995			80.0%	80.0%	80.0%	49.8%	39.3%	36.0%	53.4%	70.5%	77.8%		59.1%
1996		80.0%	80.0%	65.3%	55.6%	37.1%	40.3%	36.6%	74.4%	71.0%	80.0%		56.9%
1997			80.0%	80.0%	44.4%	45.5%	37.8%	44.9%	51.5%	80.0%			54.0%
1998			80.0%	70.7%	55.1%	36.0%	39.3%	45.2%	50.2%	80.0%	80.0%		53.8%
1999			80.0%	80.0%	48.9%	36.0%	40.9%	37.2%	47.1%	80.0%	77.9%		55.0%
2000		80.0%	80.0%	64.7%	41.5%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		46.2%
2001			68.2%	60.5%	68.9%	36.0%	36.0%	36.0%	36.0%	36.0%	74.3%		46.7%
2002			80.0%	36.0%	36.0%	36.0%	36.0%				36.0%		47.2%
2003			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%		36.0%
2004			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	43.4%		36.6%
2005			80.0%	69.6%	43.7%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		45.3%
2006			53.9%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	41.9%	80.0%		39.4%
2007			64.6%	79.2%	46.6%	39.4%	36.0%	36.0%	36.0%	36.0%	66.2%		46.2%
2008			80.0%	70.5%	42.2%	36.0%	36.0%	36.0%	36.0%	67.3%	80.0%		49.7%
2009			80.0%	62.7%	46.0%	36.0%	36.2%	36.0%	36.0%	76.0%	80.0%		49.8%
2010			80.0%	66.6%	50.9%	36.0%	36.0%	36.7%	36.0%	36.0%	36.0%		44.8%
2011			79.5%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		38.9%
2012			36.0%	38.3%	36.0%	36.0%	36.0%	36.0%					36.4%
2013			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%			36.0%
Average		80.0%	70.6%	62.4%	49.0%	37.7%	36.9%	37.1%	42.9%	59.7%	65.8%		47.8%
Minimum		80.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%
Maximum		80.0%	80.0%	80.0%	80.0%	50.2%	41.0%	45.2%	74.7%	80.0%	80.0%		59.1%

Table 20 - Percent Historic On-Farm Depletions of Farm Headgate Delivery

Farm Name or Designation: Schweizer-05

Historic On-Farm Depletions divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			55.0%	8.9%	37.5%	55.0%	48.8%	54.3%	40.1%	0.0%	0.0%		40.3%
1985			0.0%	0.0%	32.1%	55.0%	55.0%	55.0%	44.4%	0.0%	0.0%		34.6%
1986		0.0%	7.7%	19.5%	39.0%	55.0%	50.6%	49.7%	6.6%	0.0%	0.0%		31.2%
1987			0.0%	20.0%	14.6%	51.0%	55.0%	55.0%	55.0%	32.9%	0.0%		36.7%
1988			0.0%	2.5%	32.2%	55.0%	55.0%	55.0%	55.0%	55.0%	54.0%		43.2%
1989			3.5%	19.6%	44.8%	49.3%	55.0%	55.0%	45.6%	28.3%	1.0%		38.7%
1990			0.0%	19.3%	8.3%	55.0%	55.0%	55.0%	49.7%	1.1%	0.0%		34.4%
1991			0.0%	21.0%	55.0%	55.0%	55.0%	55.0%	55.0%	20.2%			44.4%
1992			0.0%	19.8%	39.1%	37.3%	55.0%	48.6%	35.4%	1.2%	0.0%		31.6%
1993			0.0%	2.5%	27.8%	55.0%	55.0%	55.0%	42.9%	7.2%	0.0%		35.4%
1994			0.0%	6.2%	27.2%	55.0%	55.0%	55.0%	55.0%	8.8%	0.0%		34.4%
1995			0.0%	0.0%	0.0%	37.7%	50.9%	55.0%	33.3%	11.9%	2.8%		26.1%
1996		0.0%	0.0%	18.3%	30.4%	53.7%	49.6%	54.2%	7.0%	11.2%	0.0%		28.8%
1997			0.0%	0.0%	44.5%	43.1%	52.8%	43.9%	35.6%	0.0%			32.5%
1998			0.0%	11.7%	31.2%	55.0%	50.9%	43.5%	37.3%	0.0%	0.0%		32.7%
1999			0.0%	0.0%	38.9%	55.0%	48.9%	53.5%	41.1%	0.0%	2.6%		31.3%
2000		0.0%	0.0%	19.2%	48.1%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		42.2%
2001			14.7%	24.4%	13.9%	55.0%	55.0%	55.0%	55.0%	55.0%	7.1%		41.6%
2002			0.0%	55.0%	55.0%	55.0%	55.0%				55.0%		41.1%
2003			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%		55.0%
2004			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	45.7%		54.3%
2005			0.0%	13.0%	45.4%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		43.4%
2006			32.6%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	47.6%	0.0%		50.8%
2007			19.2%	1.0%	41.7%	50.8%	55.0%	55.0%	55.0%	55.0%	17.2%		42.2%
2008			0.0%	11.9%	47.2%	55.0%	55.0%	55.0%	55.0%	15.9%	0.0%		37.9%
2009			0.0%	21.7%	42.5%	55.0%	54.7%	55.0%	55.0%	5.0%	0.0%		37.8%
2010			0.0%	16.8%	36.3%	55.0%	55.0%	54.1%	55.0%	55.0%	55.0%		44.0%
2011			0.6%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		51.4%
2012			55.0%	52.2%	55.0%	55.0%	55.0%	55.0%					54.5%
2013			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%			55.0%
Average		0.0%	11.8%	22.0%	38.8%	52.9%	53.9%	53.7%	46.4%	25.4%	17.7%		40.2%
Minimum		0.0%	0.0%			37.3%	48.8%	43.5%	6.6%	0.0%	0.0%		26.1%
Maximum		0.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%

Table 21 - Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased

Farm Name or Designation: Schweizer-05

Remaining return flows from cumulative calendar year diversions. Amount remaining after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	14.3	76.5	136.8	195.5	265.1	312.6	354.4	393.5	**406.8**	396.9	406.8
1985	0.0	0.0	46.1	142.1	185.5	238.4	293.0	340.8	382.2	439.2	**454.0**	442.8	454.0
1986	0.0	0.9	78.9	163.3	234.3	276.8	330.7	379.4	435.1	487.2	**496.8**	484.0	496.8
1987	0.0	0.0	52.2	124.4	199.2	255.8	306.0	346.4	373.6	410.5	**437.7**	426.4	437.7
1988	0.0	0.0	39.4	112.7	165.4	218.0	256.3	295.9	323.8	347.8	**355.0**	345.4	355.0
1989	0.0	0.0	58.8	142.7	190.5	245.1	287.7	335.7	361.3	381.7	**399.7**	388.9	399.7
1990	0.0	0.0	26.3	107.0	178.2	228.1	273.0	315.0	336.1	388.1	**404.6**	394.5	404.6
1991	0.0	0.0	49.8	97.5	128.1	181.4	229.9	279.7	306.0	**350.2**	342.9	334.1	350.2
1992	0.0	0.0	46.7	147.2	214.0	270.5	317.0	367.4	417.5	478.3	**497.9**	485.7	497.9
1993	0.0	0.0	29.5	116.8	197.9	254.5	305.4	355.9	401.7	457.9	**478.0**	466.4	478.0
1994	0.0	0.0	65.2	177.3	249.5	311.3	365.1	406.5	437.4	496.7	**516.9**	503.4	516.9
1995	0.0	0.0	68.7	195.1	291.5	350.3	415.7	478.9	546.5	615.4	**639.5**	623.5	639.5
1996	0.0	11.5	112.6	214.2	293.2	354.4	415.5	458.6	526.8	593.3	**617.0**	601.3	617.0
1997	0.0	0.0	56.3	149.6	208.1	273.6	341.5	377.4	423.9	**469.5**	459.0	446.5	469.5
1998	0.0	0.0	29.2	126.7	212.0	268.5	330.4	377.0	431.3	490.5	**508.7**	496.3	508.7
1999	0.0	0.0	67.0	159.2	191.7	237.5	293.0	332.9	380.6	438.8	**457.9**	446.7	457.9
2000	0.0	2.9	85.1	165.1	217.2	265.3	308.6	339.7	350.0	367.6	**371.1**	360.0	371.1
2001	0.0	0.0	36.1	95.7	179.8	230.4	280.0	331.2	356.7	374.5	**395.2**	384.7	395.2
2002	0.0	0.0	40.8	48.9	54.6	72.2	92.0	90.6	88.8	86.5	**85.0**	82.0	85.0
2003	0.0	0.0	10.0	13.8	40.7	91.7	118.4	126.0	128.8	126.4	**130.1**	126.3	130.1
2004	0.0	0.0	5.1	38.4	87.3	132.2	172.0	208.1	215.3	228.8	**248.8**	242.6	248.8
2005	0.0	0.0	42.4	138.0	199.2	249.4	289.9	331.2	337.9	355.8	**361.6**	351.0	361.6
2006	0.0	0.0	21.6	33.6	68.6	119.3	162.8	203.8	232.7	266.5	**285.9**	279.6	285.9
2007	0.0	0.0	30.0	124.7	182.4	229.2	276.2	321.5	355.8	386.9	**409.6**	399.2	409.6
2008	0.0	0.0	62.8	173.1	229.8	288.2	340.1	379.7	410.2	463.5	**484.5**	471.9	484.5
2009	0.0	0.0	52.8	139.9	203.2	249.4	298.8	336.4	360.8	420.6	**434.9**	423.8	434.9
2010	0.0	0.0	32.4	106.2	176.0	228.1	272.8	314.8	319.5	335.5	**347.0**	337.2	347.0
2011	0.0	0.0	40.6	54.5	89.1	147.9	200.9	234.3	254.6	275.7	**285.0**	277.7	285.0
2012	0.0	0.0	12.9	34.0	69.3	91.9	110.7	**114.5**	112.6	109.9	106.7	103.0	114.5
2013	0.0	0.0	3.2	4.1	35.5	84.6	111.0	145.8	174.5	**216.0**	212.6	208.1	216.0
Average	0.0	0.5	43.9	114.1	170.3	221.3	268.7	307.9	337.9	375.1	387.7	377.7	388.7
Minimum	0.0	0.0	3.2	4.1	35.5	72.2	92.0	90.6	88.8	86.5	85.0	82.0	85.0
Maximum	0.0	11.5	112.6	214.2	293.2	354.4	415.7	478.9	546.5	615.4	639.5	623.5	639.5
Limit	0.0	5.1	92.2	195.5	278.1	338.7	398.7	448.0	503.6	568.5	591.1	576.1	591.1

Table 22 - Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries

Farm Name or Designation: Schweizer-05

Remaining return flows from cumulative calendar year diversions divided by cumulative FHGD. Amount after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			36.0%	61.2%	55.6%	47.7%	45.5%	43.5%	43.5%	45.1%	**45.3%**	44.2%	45.3%
1985			80.0%	80.0%	71.9%	58.6%	51.9%	48.2%	47.0%	49.1%	**49.1%**	47.9%	49.1%
1986		80.0%	73.9%	68.7%	61.0%	54.8%	51.0%	48.6%	50.3%	51.8%	**51.4%**	50.1%	51.4%
1987			80.0%	69.9%	69.2%	58.9%	52.8%	49.3%	47.1%	46.8%	**47.4%**	46.2%	47.4%
1988			80.0%	78.7%	68.7%	56.1%	51.3%	47.8%	45.6%	43.8%	**42.5%**	41.3%	42.5%
1989			77.2%	69.0%	60.4%	54.2%	49.9%	46.6%	45.6%	45.4%	**45.6%**	44.4%	45.6%
1990			80.0%	67.8%	69.9%	57.7%	52.0%	48.5%	47.0%	49.2%	**49.3%**	48.1%	49.3%
1991			80.0%	70.8%	57.4%	48.6%	44.9%	42.5%	41.2%	**42.7%**	41.8%	40.7%	42.7%
1992			80.0%	68.5%	60.7%	58.0%	52.6%	50.0%	49.5%	51.4%	**51.4%**	50.2%	51.4%
1993			80.0%	78.5%	68.4%	56.8%	51.3%	47.8%	46.9%	48.6%	**48.8%**	47.6%	48.8%
1994			80.0%	76.8%	70.2%	58.7%	53.1%	49.8%	47.5%	48.9%	**49.0%**	47.7%	49.0%
1995			80.0%	80.0%	79.9%	72.2%	63.1%	56.3%	55.1%	55.7%	**55.5%**	54.1%	55.5%
1996		80.0%	80.0%	72.3%	66.8%	58.2%	54.0%	50.8%	52.3%	53.2%	**53.1%**	51.7%	53.1%
1997			80.0%	80.0%	65.2%	58.8%	52.5%	51.0%	50.3%	**51.6%**	50.4%	49.1%	51.6%
1998			80.0%	72.6%	64.3%	55.0%	50.8%	49.5%	48.9%	50.8%	**50.8%**	49.5%	50.8%
1999			80.0%	80.0%	72.1%	59.9%	54.5%	50.8%	49.5%	51.5%	**51.6%**	50.3%	51.6%
2000		80.0%	80.0%	71.7%	60.9%	53.8%	49.7%	47.2%	45.7%	43.9%	**42.4%**	41.1%	42.4%
2001			68.2%	63.2%	65.7%	55.4%	50.2%	46.7%	44.9%	43.4%	**43.8%**	42.6%	43.8%
2002			80.0%	66.4%	60.8%	51.6%	46.6%	45.9%	45.0%	43.8%	**42.3%**	40.8%	42.3%
2003			36.0%	36.0%	36.0%	35.9%	35.8%	35.6%	35.2%	34.5%	**33.8%**	32.8%	33.8%
2004			36.0%	36.0%	36.0%	35.9%	35.8%	35.6%	35.2%	34.7%	**34.7%**	33.8%	34.7%
2005			80.0%	72.5%	60.2%	52.8%	49.1%	46.3%	45.0%	43.3%	**41.9%**	40.7%	41.9%
2006			53.9%	45.7%	40.1%	38.2%	37.4%	36.9%	36.4%	36.6%	**37.6%**	36.8%	37.6%
2007			64.6%	75.1%	62.9%	55.8%	50.6%	47.2%	45.0%	43.1%	**43.4%**	42.3%	43.4%
2008			80.0%	73.6%	62.1%	53.9%	49.5%	46.9%	44.9%	46.1%	**46.4%**	45.2%	46.4%
2009			80.0%	68.2%	59.2%	52.6%	48.5%	46.0%	44.2%	46.5%	**46.6%**	45.4%	46.6%
2010			80.0%	70.2%	61.0%	52.4%	48.4%	45.8%	44.8%	43.2%	**41.7%**	40.5%	41.7%
2011			79.5%	60.7%	47.8%	42.1%	40.1%	39.1%	38.3%	37.5%	**36.6%**	35.7%	36.6%
2012			36.0%	37.4%	36.6%	36.4%	36.1%	**35.7%**	35.1%	34.3%	33.3%	32.2%	35.7%
2013			36.0%	36.0%	36.0%	36.0%	35.9%	35.8%	35.5%	**35.3%**	34.7%	34.0%	35.3%
Average		80.0%	70.6%	66.2%	59.6%	52.2%	48.2%	45.7%	44.8%	45.1%	44.7%	43.6%	44.9%
Minimum		80.0%	36.0%	36.0%	36.0%	35.9%	35.8%	35.6%	35.1%	34.3%	33.3%	32.2%	33.8%
Maximum		80.0%	80.0%	80.0%	79.9%	72.2%	63.1%	56.3%	55.1%	55.7%	55.5%	54.1%	55.5%
Limit			80.0%	80.0%	74.6%	63.7%	57.2%	52.7%	52.6%	53.6%	53.4%	52.0%	53.4%

Table 23 - Transferrable Depletions Given Calculated On-Farm Depletion Factors

Farm Name or Designation: Schweizer-05

Farm Headgate Deliveries multiplied by Avg Monthly On-Farm Depletion Factors limited by Avg-Max-3 Monthly and Annual On-Farm Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	0.0	0.0	2.5	13.3	45.6	87.2	91.1	73.4	42.7	14.1	4.8	0.0	374.6
1985	0.0	0.0	3.7	18.6	30.3	79.2	84.5	76.9	46.9	20.1	5.4	0.0	365.7
1986	0.0	0.0	6.7	20.4	55.1	64.5	76.9	71.2	37.2	19.0	4.5	0.0	355.4
1987	0.0	0.0	4.1	17.5	41.4	77.8	77.9	66.0	40.7	20.7	8.2	0.0	354.4
1988	0.0	0.0	3.1	14.6	36.8	78.5	59.7	64.0	40.3	21.2	7.4	0.0	325.8
1989	0.0	0.0	4.8	20.3	40.9	72.8	66.8	77.4	32.0	12.1	6.2	0.0	333.4
1990	0.0	0.0	2.1	19.4	36.7	74.4	69.5	67.4	28.8	18.6	5.6	0.0	322.5
1991	0.0	0.0	4.0	11.7	32.2	79.6	74.8	78.4	37.6	19.5	0.0	0.0	337.8
1992	0.0	0.0	3.7	24.4	51.9	60.6	72.8	71.2	48.4	21.8	6.7	0.0	361.3
1993	0.0	0.0	2.3	17.4	53.1	84.3	78.6	80.7	50.0	21.5	6.7	0.0	394.5
1994	0.0	0.0	5.2	23.2	47.0	92.7	84.2	69.1	47.0	23.5	6.2	0.0	398.0
1995	0.0	0.0	5.5	24.6	45.6	63.8	91.1	90.2	58.4	18.9	0.0	0.0	398.0
1996	0.0	0.0	8.0	24.2	53.9	90.1	86.2	72.1	45.9	17.7	0.0	0.0	398.0
1997	0.0	0.0	4.5	18.1	49.8	77.6	91.1	47.9	45.5	16.9	0.0	0.0	351.4
1998	0.0	0.0	2.3	21.4	58.6	84.2	87.3	59.8	53.4	21.0	6.4	0.0	394.4
1999	0.0	0.0	5.3	17.9	25.3	69.1	75.9	63.6	50.4	20.6	6.5	0.0	334.6
2000	0.0	0.0	6.5	19.2	47.6	72.8	68.5	53.2	20.6	17.9	6.6	0.0	313.1
2001	0.0	0.0	3.4	15.3	46.2	75.4	76.4	81.2	37.7	17.2	7.1	0.0	359.8
2002	0.0	0.0	3.2	3.5	6.1	26.7	30.8	0.0	0.0	0.0	0.6	0.0	71.0
2003	0.0	0.0	1.8	1.6	28.1	75.5	40.3	12.5	5.5	0.0	3.5	0.0	168.8
2004	0.0	0.0	0.9	14.4	51.3	66.4	60.4	56.0	12.2	12.1	10.4	0.0	284.0
2005	0.0	0.0	3.4	21.4	53.1	75.1	63.6	67.3	15.2	17.7	7.4	0.0	324.0
2006	0.0	0.0	2.5	5.2	36.7	75.3	65.8	63.2	38.6	22.3	5.4	0.0	315.2
2007	0.0	0.0	2.9	18.6	46.8	63.9	72.8	72.7	48.8	26.4	8.5	0.0	361.5
2008	0.0	0.0	5.0	24.3	50.9	87.6	81.4	65.9	45.9	23.1	7.1	0.0	391.3
2009	0.0	0.0	4.2	21.6	52.1	69.4	76.4	61.9	37.4	22.1	5.3	0.0	350.5
2010	0.0	0.0	2.6	17.2	51.8	77.7	69.0	66.2	12.0	15.8	9.9	0.0	322.4
2011	0.0	0.0	3.2	6.0	36.4	87.3	80.7	52.6	28.9	17.8	7.6	0.0	320.7
2012	0.0	0.0	2.3	8.5	37.1	33.7	28.9	7.4	0.0	0.0	0.0	0.0	117.9
2013	0.0	0.0	0.6	0.4	32.9	72.4	39.7	52.8	37.2	30.4	0.0	0.0	266.4
Average	0.0	0.0	3.7	16.2	42.7	73.2	70.8	61.4	34.8	17.7	5.1	0.0	325.5
Minimum	0.0	0.0	0.6	0.4	6.1	26.7	28.9	0.0	0.0	0.0	0.0	0.0	71.0
Maximum	0.0	0.0	8.0	24.6	58.6	92.7	91.1	90.2	58.4	30.4	10.4	0.0	398.0

Table 24 - Comparison of Historic On-Farm Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Schweizer-05

Historic On-Farm Depletions less Transferrable Depletions Given Calculated On-Farm Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	19.3	-5.6	-0.2	3.2	-6.8	0.8	-4.2	-14.1	-4.8	0.0	-12.5
1985	0.0	0.0	-3.7	-18.6	-4.6	2.9	2.1	1.8	-0.0	-20.1	-5.4	0.0	-45.7
1986	0.0	0.0	1.4	5.1	1.8	2.3	-4.4	-5.3	-31.7	-19.0	-4.5	0.0	-54.2
1987	0.0	0.0	-4.1	5.0	-25.3	-3.1	1.9	1.5	9.6	6.6	-8.2	0.0	-16.1
1988	0.0	0.0	-3.1	-12.2	-5.4	2.8	1.5	1.5	9.5	25.5	15.0	0.0	35.1
1989	0.0	0.0	-2.2	5.3	7.6	-5.1	1.7	1.8	0.8	1.6	-5.8	0.0	5.7
1990	0.0	0.0	-2.1	4.6	-28.6	2.7	1.7	1.6	3.4	-17.8	-5.6	0.0	-40.1
1991	0.0	0.0	-4.0	4.2	14.7	2.9	1.8	1.8	8.9	-3.7	0.0	0.0	26.6
1992	0.0	0.0	-3.7	6.7	1.8	-18.1	1.8	-6.8	-9.9	-20.8	-6.7	0.0	-55.6
1993	0.0	0.0	-2.3	-14.6	-14.0	3.0	1.9	1.9	-1.8	-15.3	-6.7	0.0	-47.9
1994	0.0	0.0	-5.2	-13.9	-13.1	3.4	2.1	1.6	11.1	-15.3	-6.2	0.0	-35.4
1995	0.0	0.0	-5.5	-24.6	-45.6	-18.5	-2.5	14.8	-11.2	-5.5	1.3	0.0	-97.2
1996	0.0	-0.0	-8.0	4.3	-10.4	1.0	-6.5	0.7	-38.6	-5.4	0.0	0.0	-63.1
1997	0.0	0.0	-4.5	-18.1	8.9	-14.5	7.0	-8.8	-9.1	-16.9	0.0	0.0	-56.0
1998	0.0	0.0	-2.3	-5.4	-10.2	3.0	-4.5	-11.5	-8.6	-21.0	-6.4	0.0	-66.9
1999	0.0	0.0	-5.3	-17.9	0.8	2.5	-6.8	-0.3	-3.9	-20.6	-5.6	0.0	-57.1
2000	0.0	0.0	-6.5	4.5	13.1	2.6	1.7	1.2	4.9	21.5	13.7	0.0	56.6
2001	0.0	0.0	4.4	8.7	-29.2	2.7	1.9	1.9	8.9	20.6	-4.3	0.0	15.7
2002	0.0	0.0	-3.2	9.0	2.8	1.0	0.8	0.0	0.0	0.0	1.3	0.0	11.5
2003	0.0	0.0	13.6	4.2	12.9	2.7	1.0	0.3	1.3	0.0	7.2	0.0	43.1
2004	0.0	0.0	6.8	36.6	23.5	2.4	1.5	1.3	2.9	14.5	16.1	0.0	105.5
2005	0.0	0.0	-3.4	-3.5	10.8	2.7	1.6	1.6	3.6	21.2	15.3	0.0	50.0
2006	0.0	0.0	10.5	13.2	16.8	2.7	1.6	1.5	9.1	20.2	-5.4	0.0	70.2
2007	0.0	0.0	6.0	-17.4	4.9	-2.8	1.8	1.7	11.5	31.7	-0.3	0.0	37.1
2008	0.0	0.0	-5.0	-5.7	12.8	3.2	2.0	1.5	10.9	-8.4	-7.1	0.0	4.2
2009	0.0	0.0	-4.2	8.5	6.6	2.5	1.5	1.4	8.8	-17.7	-5.3	0.0	2.1
2010	0.0	0.0	-2.6	1.4	-1.9	2.8	1.7	0.4	2.8	19.0	20.6	0.0	44.3
2011	0.0	0.0	-2.9	15.3	16.7	3.2	2.0	1.2	6.8	21.4	15.7	0.0	79.3
2012	0.0	0.0	17.5	20.1	17.0	1.2	0.7	0.2	0.0	0.0	0.0	0.0	56.7
2013	0.0	0.0	4.3	1.0	15.1	2.6	1.0	1.2	8.8	36.5	0.0	0.0	70.5
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.2	0.6	0.6	0.0	2.2
Minimum	0.0	-0.0	-8.0	-24.6	-45.6	-18.5	-6.8	-11.5	-38.6	-21.0	-8.2	0.0	-97.2
Maximum	0.0	0.0	19.3	36.6	23.5	3.4	7.0	14.8	11.5	36.5	20.6	0.0	105.5

Table 25 - Deep Percolation/Ground Water Return Flows at Stream (lagged)

Farm Name or Designation: Schweizer-05

Deep Percolation Lagged to Stream using URF

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	28.7	29.1	29.2	28.9	28.3	27.7	27.5	27.7	28.2	29.2	30.2	31.1	345.9
1985	32.0	32.5	32.6	32.2	31.6	31.3	31.5	31.9	32.4	33.2	34.0	34.9	390.1
1986	35.7	36.3	36.4	36.0	35.5	35.5	35.9	36.6	37.3	38.2	39.0	39.8	442.2
1987	40.7	41.1	41.1	40.6	39.7	39.1	39.0	39.2	39.7	40.2	40.6	41.0	481.9
1988	41.3	41.5	41.2	40.6	39.6	38.8	38.5	38.4	38.5	38.7	38.9	39.1	475.0
1989	39.2	39.0	38.5	37.7	36.6	35.9	35.8	35.9	36.3	36.7	37.1	37.5	446.4
1990	37.8	37.8	37.5	36.7	35.5	34.8	34.5	34.6	35.0	35.5	35.9	36.3	432.0
1991	36.8	37.0	36.9	36.1	35.1	34.4	34.1	33.8	33.9	34.0	34.3	34.7	421.1
1992	35.1	35.1	34.8	34.0	33.0	32.3	32.4	33.0	33.7	34.6	35.4	36.3	409.7
1993	37.3	37.9	38.2	37.7	36.9	36.3	36.2	36.6	37.3	38.0	38.8	39.6	450.8
1994	40.4	40.9	40.9	40.3	39.4	39.0	39.3	40.0	40.8	41.7	42.4	43.0	487.9
1995	43.7	44.0	43.9	43.3	42.3	41.8	42.2	43.1	44.2	45.3	46.4	47.6	527.7
1996	48.8	49.6	49.8	49.2	48.5	48.4	48.8	49.4	50.2	51.0	51.6	52.5	597.7
1997	53.3	53.7	53.6	52.8	51.5	50.6	50.1	50.1	50.3	50.6	50.8	51.1	618.6
1998	51.3	51.0	50.3	49.1	47.5	46.2	45.7	45.7	46.0	46.4	46.8	47.4	573.5
1999	48.1	48.3	48.2	47.2	46.0	45.2	44.9	44.8	44.9	45.0	45.1	45.4	553.1
2000	45.8	46.0	45.7	44.8	43.5	42.8	42.8	42.9	43.0	43.1	43.0	42.9	526.4
2001	42.7	42.2	41.4	39.9	38.5	37.4	36.8	36.8	37.1	37.4	37.7	38.1	466.1
2002	38.4	38.4	38.1	37.2	36.1	35.1	34.1	33.1	32.2	31.3	30.4	29.6	414.1
2003	28.6	27.7	26.7	25.6	24.2	23.0	22.0	21.3	21.0	20.8	20.6	20.4	281.9
2004	20.1	19.7	19.2	18.4	17.4	16.8	16.5	16.4	16.8	17.3	17.7	18.2	214.5
2005	18.6	18.9	19.0	18.5	18.0	18.0	18.5	19.5	20.7	21.9	22.9	23.7	238.3
2006	24.3	24.6	24.6	24.1	23.4	22.6	22.1	21.9	21.9	22.3	22.8	23.3	277.8
2007	23.9	24.4	24.5	24.1	23.8	23.8	24.2	24.9	26.0	27.0	28.0	28.9	303.6
2008	29.7	30.3	30.4	30.2	29.8	29.8	30.3	31.3	32.4	33.5	34.6	35.4	377.8
2009	36.2	36.8	36.9	36.5	35.9	35.5	35.6	36.0	36.6	37.3	37.8	38.3	439.3
2010	38.8	39.1	39.0	38.3	37.1	36.4	36.1	36.3	36.7	37.2	37.6	37.8	450.3
2011	37.8	37.5	37.0	36.1	35.2	34.3	33.5	33.0	32.8	32.9	33.1	33.2	416.5
2012	33.3	33.2	32.8	32.0	30.8	29.8	28.9	28.3	27.8	27.4	26.8	26.1	357.1
2013	25.5	24.7	23.9	22.8	21.4	20.4	19.5	18.9	18.7	18.8	18.9	19.3	252.8
Average	36.5	36.6	36.4	35.7	34.7	34.1	33.9	34.0	34.4	34.9	35.3	35.7	422.3
Minimum	18.6	18.9	19.0	18.4	17.4	16.8	16.5	16.4	16.8	17.3	17.7	18.2	214.5
Maximum	53.3	53.7	53.6	52.8	51.5	50.6	50.1	50.1	50.3	51.0	51.6	52.5	618.6
Lagged DP RF Factors: Average Monthly Lagged Deep Perc. / GW Returns as a percent of Average Monthly Farm Headgate Delivery													
			62.9%	34.3%	30.7%	24.7%	25.6%	29.6%	43.8%	47.6%			50.0%

Table 26 - Total Return Flows at Stream

Farm Name or Designation: Schweizer-05

Lagged Deep Percolation plus Direct Tailwater/Surface Runoff Return Flows

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	28.7	29.1	32.8	44.4	43.4	42.5	45.2	40.1	39.7	40.4	35.6	31.1	453.1
1985	32.0	32.5	44.2	56.2	42.6	44.8	45.6	44.8	44.1	49.3	40.0	34.9	510.8
1986	35.7	36.5	55.9	57.1	53.3	46.4	50.0	49.9	53.0	53.4	44.1	39.8	575.1
1987	40.7	41.1	54.1	58.6	58.5	53.5	52.0	50.3	47.9	51.4	49.8	41.0	598.8
1988	41.3	41.5	51.1	58.9	52.8	52.1	48.5	49.1	46.7	46.4	42.7	39.1	570.1
1989	39.2	39.0	53.2	58.6	48.6	49.8	47.0	48.9	44.1	43.7	44.0	37.5	553.7
1990	37.8	37.8	44.1	56.9	53.3	47.4	46.1	45.9	41.6	50.2	42.1	36.3	539.6
1991	36.8	37.0	49.4	48.0	42.8	47.9	46.6	47.0	41.5	46.5	34.3	34.7	512.4
1992	35.1	35.1	46.5	59.1	49.7	46.7	44.6	46.6	47.8	51.8	42.8	36.3	542.2
1993	37.3	37.9	45.5	59.6	57.2	50.6	49.4	50.1	50.1	54.0	46.2	39.6	577.5
1994	40.4	40.9	57.2	68.3	57.5	54.7	53.4	51.5	50.3	58.9	50.4	43.0	626.4
1995	43.7	44.0	61.1	74.9	66.5	56.8	59.3	60.3	63.1	65.2	55.8	47.6	698.2
1996	48.8	52.5	75.1	74.6	68.4	64.2	64.9	61.7	69.4	70.4	60.8	52.5	763.2
1997	53.3	53.7	67.7	76.1	66.1	67.2	67.7	60.2	63.5	64.1	50.8	51.1	741.5
1998	51.3	51.0	57.6	73.5	68.9	60.5	61.6	58.3	61.1	63.3	54.0	47.4	708.4
1999	48.1	48.3	64.9	70.3	54.1	56.9	59.4	55.8	58.2	61.5	52.2	45.4	675.2
2000	45.8	46.7	66.3	64.8	56.6	55.2	54.2	51.8	47.2	49.6	46.4	42.9	627.5
2001	42.7	42.2	50.4	54.9	59.5	50.2	49.6	50.4	44.7	43.6	45.1	38.1	571.4
2002	38.4	38.4	48.3	39.3	37.5	39.6	39.3	33.1	32.2	31.3	30.7	29.6	437.8
2003	28.6	27.7	29.2	26.5	30.9	35.8	28.8	23.4	22.1	20.8	22.3	20.4	316.5
2004	20.1	19.7	20.5	26.7	29.6	28.1	26.6	25.8	19.2	21.6	24.0	18.2	280.2
2005	18.6	18.9	29.6	42.4	33.3	30.7	29.2	30.8	23.7	28.3	26.6	23.7	335.9
2006	24.3	24.6	29.9	27.1	32.2	35.4	33.2	32.4	29.7	31.6	28.9	23.3	352.6
2007	23.9	24.4	32.0	47.8	38.3	35.6	36.4	37.1	35.8	36.5	35.9	28.9	412.8
2008	29.7	30.3	46.1	57.7	44.1	44.7	44.0	42.3	41.7	49.1	42.5	35.4	507.6
2009	36.2	36.8	50.1	58.3	51.8	47.3	48.5	46.4	44.1	54.1	43.8	38.3	555.6
2010	38.8	39.1	47.0	56.7	54.6	49.6	47.7	47.6	39.1	42.9	42.6	37.8	543.6
2011	37.8	37.5	47.1	39.6	43.9	49.1	47.0	41.8	38.7	39.4	36.9	33.2	492.1
2012	33.3	33.2	36.0	37.2	39.6	35.5	33.8	29.6	27.8	27.4	26.8	26.1	386.2
2013	25.5	24.7	24.7	23.0	29.3	32.7	26.2	27.7	26.2	29.7	18.9	19.3	307.9
Average	36.5	36.7	47.3	53.2	48.8	47.0	46.2	44.7	43.1	45.9	40.6	35.7	525.8
Minimum	18.6	18.9	20.5	23.0	29.3	28.1	26.2	23.4	19.2	20.8	18.9	18.2	280.2
Maximum	53.3	53.7	75.1	76.1	68.9	67.2	67.7	61.7	69.4	70.4	60.8	52.5	763.2
Lagged Total Returns as a percent of Farm Headgate Delivery Average													
			81.6%	51.2%	43.1%	34.1%	34.8%	38.9%	54.9%	62.6%			62.2%

Table 27 - Historical Depletions at Stream including Depletion and Return Flow Factors

Farm Name or Designation: Schweizer-05

Farm Headgate Delivery less Total Lagged Return Flows at Stream

Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	-28.7	-29.1	6.9	41.0	77.4	121.8	127.5	96.3	56.2	15.9	-8.8	-31.1	445.2
1985	-32.0	-32.5	13.5	63.8	37.7	104.5	111.8	98.3	61.4	31.2	-9.9	-34.9	412.9
1986	-35.7	-35.4	49.7	73.9	92.7	75.0	93.2	82.5	30.6	22.6	-18.7	-39.8	390.6
1987	-40.7	-41.1	11.1	54.2	51.3	93.1	93.1	72.5	43.5	31.7	-3.8	-41.0	323.9
1988	-41.3	-41.5	-1.8	35.1	44.8	95.8	62.7	70.0	44.0	38.7	-1.2	-39.1	266.1
1989	-39.2	-39.0	23.0	71.9	59.9	87.3	77.5	95.1	27.8	4.8	-9.5	-37.5	322.0
1990	-37.8	-37.8	-11.3	68.1	43.9	92.8	83.3	79.5	23.2	24.1	-10.8	-36.3	280.9
1991	-36.8	-37.0	12.9	27.5	42.5	102.1	92.7	98.9	43.1	31.6	-34.3	-34.7	308.6
1992	-35.1	-35.1	11.8	97.6	87.8	67.5	90.9	85.9	60.9	35.5	-5.6	-36.3	425.8
1993	-37.3	-37.9	-8.7	52.3	83.4	108.3	97.0	100.0	62.2	31.9	-8.9	-39.6	402.8
1994	-40.4	-40.9	24.3	81.2	67.0	120.0	103.5	77.0	55.4	35.4	-10.6	-43.0	428.7
1995	-43.7	-44.0	24.8	83.1	54.4	63.5	114.8	130.6	78.8	47.7	-7.5	-47.6	454.8
1996	-48.8	-38.1	51.3	81.0	74.4	105.6	95.6	72.4	33.8	38.8	-14.5	-52.5	399.0
1997	-53.3	-53.7	2.6	40.6	65.9	78.9	118.2	29.0	38.8	3.4	-50.8	-51.1	168.6
1998	-51.3	-51.0	-21.1	64.4	86.4	98.1	100.9	53.1	59.0	20.8	-18.3	-47.4	293.6
1999	-48.1	-48.3	18.8	45.0	12.8	73.3	82.1	62.4	55.0	20.8	-15.7	-45.4	212.8
2000	-45.8	-43.1	36.4	59.0	69.6	82.0	73.4	47.2	-0.9	22.1	-9.5	-42.9	247.6
2001	-42.7	-42.2	2.5	43.7	62.8	91.9	92.7	100.7	40.0	25.1	-5.5	-38.1	330.9
2002	-38.4	-38.4	2.6	-16.6	-21.4	10.6	18.2	-33.1	-32.2	-31.3	-27.2	-29.6	-236.9
2003	-28.6	-27.7	-1.3	-15.9	43.7	106.4	46.4	-0.2	-9.8	-20.8	-2.9	-20.4	68.7
2004	-20.1	-19.7	-6.5	66.0	106.2	97.1	85.9	78.3	8.1	26.7	33.9	-18.2	437.8
2005	-18.6	-18.9	23.4	95.0	107.3	110.8	89.2	94.4	10.4	42.5	14.7	-23.7	526.5
2006	-24.3	-24.6	10.1	6.3	65.2	106.4	89.5	85.2	57.0	57.8	1.5	-23.3	406.8
2007	-23.9	-24.4	14.4	71.8	85.7	84.7	99.3	98.1	73.9	69.1	11.7	-28.9	531.5
2008	-29.7	-30.3	32.4	98.9	90.8	120.3	107.7	80.3	61.6	43.2	-2.8	-35.4	537.0
2009	-36.2	-36.8	15.9	80.7	86.3	83.5	93.9	68.8	39.9	34.5	-14.0	-38.3	378.3
2010	-38.8	-39.1	-6.6	54.2	82.7	96.9	80.9	75.5	-12.1	20.4	12.9	-37.8	289.3
2011	-37.8	-37.5	3.9	-0.8	52.7	115.4	103.4	56.1	26.3	32.0	5.4	-33.2	285.8
2012	-33.3	-33.2	-0.1	17.7	58.8	28.0	20.0	-15.7	-27.8	-27.4	-26.8	-26.1	-65.9
2013	-25.5	-24.7	-15.8	-20.5	58.0	103.8	47.9	70.4	57.4	91.8	-18.9	-19.3	304.6
Average	-36.5	-36.1	10.6	50.7	64.4	90.8	86.4	70.3	35.5	27.4	-8.5	-35.7	319.3
Minimum	-53.3	-53.7	-21.1	-20.5	-21.4	10.6	18.2	-33.1	-32.2	-31.3	-50.8	-52.5	-236.9
Maximum	-18.6	-18.9	51.3	98.9	107.3	121.8	127.5	130.6	78.8	91.8	33.9	-18.2	537.0
Limit	-20.9	-21.0	45.8	97.2	102.1	120.7	120.2	110.4	71.6	72.9	20.5	-19.3	531.6
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Depletion Factors			18.4%	48.8%	56.9%	65.9%	65.2%	61.1%	45.1%	37.4%			37.8%
Return Flow Factors			81.6%	51.2%	43.1%	34.1%	34.8%	38.9%	54.9%	62.6%			62.2%
Winter RF	-4.3%	-4.3%									-1.0%	-4.2%	
Sum			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			100.0%

Table 28 - Transferrable Depletions Given Calculated Stream Depletion Factors

Farm Name or Designation: Schweizer-05

Farm Headgate Deliveries multiplied by Avg Monthly Stream Depletion Factors limited by Avg-Max-3 Monthly and Annual Stream Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	7.3	41.6	68.7	108.3	112.6	83.5	43.3	21.0	0.0	0.0	486.3
1985	0.0	0.0	10.6	58.5	45.6	98.3	102.6	87.5	47.6	30.1	0.0	0.0	480.8
1986	0.0	0.0	19.4	63.9	83.0	80.0	93.3	81.0	37.7	28.4	0.0	0.0	486.7
1987	0.0	0.0	12.0	55.0	62.4	96.6	94.6	75.1	41.3	31.0	0.0	0.0	467.9
1988	0.0	0.0	9.0	45.8	55.5	97.4	72.5	72.8	40.9	31.8	0.0	0.0	425.7
1989	0.0	0.0	14.0	63.7	61.7	90.4	81.1	88.0	32.5	18.1	0.0	0.0	449.5
1990	0.0	0.0	6.0	60.9	55.3	92.4	84.3	76.7	29.3	27.7	0.0	0.0	432.6
1991	0.0	0.0	11.4	36.8	48.5	98.8	90.8	89.2	38.2	29.2	0.0	0.0	443.0
1992	0.0	0.0	10.7	76.4	78.2	75.2	88.3	81.0	49.1	32.6	0.0	0.0	491.6
1993	0.0	0.0	6.8	54.6	80.0	104.7	95.4	91.8	50.7	32.1	0.0	0.0	516.0
1994	0.0	0.0	15.0	72.9	70.7	115.1	102.2	78.6	47.7	29.4	0.0	0.0	531.6
1995	0.0	0.0	15.8	77.0	68.7	79.3	113.4	110.4	64.1	2.9	0.0	0.0	531.6
1996	0.0	0.0	23.2	75.9	81.2	111.8	104.7	82.0	46.6	6.3	0.0	0.0	531.6
1997	0.0	0.0	12.9	56.9	75.1	96.3	120.2	54.5	46.2	25.2	0.0	0.0	487.3
1998	0.0	0.0	6.7	67.3	88.2	104.5	105.9	68.1	54.2	31.4	0.0	0.0	526.3
1999	0.0	0.0	15.4	56.2	38.1	85.8	92.2	72.3	51.1	30.7	0.0	0.0	441.9
2000	0.0	0.0	18.9	60.4	71.8	90.4	83.2	60.5	20.9	26.8	0.0	0.0	432.8
2001	0.0	0.0	9.7	48.0	69.6	93.6	92.8	92.4	38.3	25.7	0.0	0.0	470.0
2002	0.0	0.0	9.4	11.1	9.1	33.1	37.5	0.0	0.0	0.0	0.0	0.0	100.1
2003	0.0	0.0	5.1	5.2	42.4	93.7	49.0	14.2	5.5	0.0	0.0	0.0	215.1
2004	0.0	0.0	2.6	45.2	77.2	82.5	73.3	63.7	12.3	18.1	0.0	0.0	374.9
2005	0.0	0.0	9.7	67.0	80.0	93.2	77.2	76.6	15.4	26.4	0.0	0.0	445.5
2006	0.0	0.0	7.4	16.3	55.4	93.4	79.9	71.9	39.1	33.4	0.0	0.0	396.8
2007	0.0	0.0	8.5	58.3	70.5	79.3	88.5	82.7	49.5	39.5	0.0	0.0	476.8
2008	0.0	0.0	14.4	76.4	76.7	108.7	98.8	75.0	46.6	34.5	0.0	0.0	531.1
2009	0.0	0.0	12.1	67.8	78.5	86.2	92.8	70.4	37.9	33.1	0.0	0.0	478.9
2010	0.0	0.0	7.4	54.1	78.1	96.5	83.8	75.3	12.2	23.7	0.0	0.0	431.1
2011	0.0	0.0	9.4	18.9	54.9	108.4	98.0	59.9	29.3	26.6	0.0	0.0	405.5
2012	0.0	0.0	6.6	26.8	55.9	41.8	35.1	8.5	0.0	0.0	0.0	0.0	174.7
2013	0.0	0.0	1.6	1.2	49.6	89.9	48.3	60.0	37.8	45.4	0.0	0.0	333.8
Average	0.0	0.0	10.6	50.7	64.4	90.8	86.4	70.1	35.5	24.7	0.0	0.0	433.3
Minimum	0.0	0.0	1.6	1.2	9.1	33.1	35.1	0.0	0.0	0.0	0.0	0.0	100.1
Maximum	0.0	0.0	23.2	77.0	88.2	115.1	120.2	110.4	64.1	45.4	0.0	0.0	531.6

Table 29 - Comparison of Historic Stream Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Schweizer-05

Historic Stream Depletions less Transferrable Depletions Given Calculated Stream Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	-0.4	-0.7	8.7	13.5	14.9	12.9	12.9	-5.2	0.0	0.0	56.7
1985	0.0	0.0	2.9	5.3	-7.9	6.1	9.2	10.8	13.8	1.2	0.0	0.0	41.3
1986	0.0	0.0	30.3	10.0	9.6	-5.0	-0.1	1.6	-7.1	-5.8	0.0	0.0	33.5
1987	0.0	0.0	-0.9	-0.8	-11.1	-3.5	-1.5	-2.5	2.2	0.6	0.0	0.0	-17.4
1988	0.0	0.0	-10.9	-10.7	-10.7	-1.6	-9.7	-2.8	3.1	6.9	0.0	0.0	-36.5
1989	0.0	0.0	9.0	8.2	-1.8	-3.0	-3.6	7.1	-4.7	-13.3	0.0	0.0	-2.2
1990	0.0	0.0	-17.3	7.2	-11.4	0.4	-1.1	2.8	-6.0	-3.7	0.0	0.0	-29.0
1991	0.0	0.0	1.5	-9.3	-6.0	3.3	1.9	9.7	4.9	2.5	0.0	0.0	8.5
1992	0.0	0.0	1.1	21.2	9.6	-7.7	2.6	4.9	11.8	2.9	0.0	0.0	46.4
1993	0.0	0.0	-15.4	-2.2	3.5	3.6	1.6	8.2	11.5	-0.2	0.0	0.0	10.6
1994	0.0	0.0	9.3	8.3	-3.8	4.9	1.2	-1.6	7.7	6.0	0.0	0.0	32.0
1995	0.0	0.0	9.0	6.1	-14.3	-15.7	1.3	20.2	14.7	44.7	0.0	0.0	66.0
1996	0.0	0.0	28.1	5.1	-6.8	-6.2	-9.0	-9.6	-12.8	32.5	0.0	0.0	21.3
1997	0.0	0.0	-10.3	-16.3	-9.2	-17.3	-2.0	-25.5	-7.4	-21.8	0.0	0.0	-109.8
1998	0.0	0.0	-27.8	-2.8	-1.9	-6.4	-5.0	-15.0	4.8	-10.6	0.0	0.0	-64.7
1999	0.0	0.0	3.4	-11.2	-25.2	-12.5	-10.1	-9.9	3.9	-10.0	0.0	0.0	-71.6
2000	0.0	0.0	17.6	-1.4	-2.2	-8.4	-9.8	-13.3	-21.8	-4.7	0.0	0.0	-44.0
2001	0.0	0.0	-7.3	-4.4	-6.7	-1.7	-0.1	8.3	1.7	-0.6	0.0	0.0	-10.6
2002	0.0	0.0	-6.7	-27.6	-30.6	-22.5	-19.3	-33.1	-32.2	-31.3	0.0	0.0	-203.4
2003	0.0	0.0	-6.5	-21.1	1.3	12.7	-2.6	-14.4	-15.4	-20.8	0.0	0.0	-66.8
2004	0.0	0.0	-9.0	20.8	29.0	14.6	12.6	14.7	-4.3	8.7	0.0	0.0	87.0
2005	0.0	0.0	13.6	28.0	27.3	17.6	12.0	17.9	-5.0	16.1	0.0	0.0	127.5
2006	0.0	0.0	2.7	-10.0	9.8	13.0	9.6	13.3	17.9	24.4	0.0	0.0	80.6
2007	0.0	0.0	5.9	13.5	15.2	5.4	10.9	15.4	24.3	29.7	0.0	0.0	120.3
2008	0.0	0.0	18.0	22.5	14.1	11.6	8.8	5.3	14.9	8.8	0.0	0.0	104.1
2009	0.0	0.0	3.8	12.9	7.8	-2.6	1.1	-1.6	1.9	1.4	0.0	0.0	24.7
2010	0.0	0.0	-14.0	0.1	4.6	0.4	-2.9	0.2	-24.3	-3.2	0.0	0.0	-39.1
2011	0.0	0.0	-5.5	-19.7	-2.2	7.0	5.3	-3.8	-3.0	5.3	0.0	0.0	-16.6
2012	0.0	0.0	-6.7	-9.1	2.8	-13.8	-15.0	-24.2	-27.8	-27.4	0.0	0.0	-121.1
2013	0.0	0.0	-17.5	-21.7	8.4	13.9	-0.4	10.4	19.6	46.4	0.0	0.0	59.2
Average	0.0	0.0	-0.0	-0.0	0.0	-0.0	0.0	0.2	0.0	2.7	0.0	0.0	2.9
Minimum	0.0	0.0	-27.8	-27.6	-30.6	-22.5	-19.3	-33.1	-32.2	-31.3	0.0	0.0	-203.4
Maximum	0.0	0.0	30.3	28.0	29.0	17.6	14.9	20.2	24.3	46.4	0.0	0.0	127.5

Table 30 - Other Input Data Used For Analysis

Farm Name or Designation: Schweizer-05

Notes:

Year (Cal)	Farm Shares	Ditch Shares	Ditch (acres)	Canal Loss	Off-Farm Lat Loss	On-Farm Lat Loss	SEVA Loss	Flood AppEff	Sprinkler AppEff	Drip AppEff	Flood Tailwater	Force Tailwater	Spray Loss	AWC (%)	RootDepth (ft)
1984	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1985	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1986	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1987	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1988	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1989	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1990	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1991	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1992	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1993	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1994	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1995	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1996	194	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1997	194	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1998	194	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1999	194	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2000	194	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2001	194	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2002	194	18660	13301	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2003	194	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2004	194	18660	15021	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2005	194	18660	17281	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2006	194	18660	17491	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2007	194	18660	17380	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2008	194	18660	16321	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2009	194	18660	17480	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2010	194	18660	17657	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2011	194	18660	17493	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2012	194	18660	17348	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2013	194	18660	14240	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Average	194	18660	16579.97	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Minimum	194	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Maximum	194	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4

APPENDIX

C

Table 1 - Summary Period Average and Maximum Values for Selected Variables

Farm Name or Designation: Diamond A West-10

Summary Period: 1984 - 2013

Notes:

Period	Farm Shares	Farm Acres	App. Eff.	Alfalfa (%)	Grass (%)	Corn_Grn (%)	Corn_Sil (%)	Spr_Grn (%)	Sorghum (%)	Win_Wht (%)	Vegetable (%)	Beans (%)	Beets (%)
Average	223.3	173.3	0.55	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Maximum	223.3	195.0	0.55	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%
Month	Jan (AF or %)	Feb (AF or %)	Mar (AF or %)	Apr (AF or %)	May (AF or %)	Jun (AF or %)	Jul (AF or %)	Aug (AF or %)	Sep (AF or %)	Oct (AF or %)	Nov (AF or %)	Dec (AF or %)	Total (AF or %)
River Headgate Diversions for All Sources Considered in Pilot Project Plan													
Average	0.0	71.2	6469.9	11612.6	12648.6	15409.4	14822.9	12853.2	8790.7	8183.5	3577.9	0.0	94439.9
Farm Headgate Delivery													
Average	0.0	0.7	66.6	119.6	130.3	158.7	152.7	132.4	90.5	84.3	36.9	0.0	972.7
Maximum	0.0	16.5	145.5	181.8	178.7	201.1	214.0	219.7	163.3	139.9	66.6	0.0	1337.7
Limit	0.0	7.3	128.4	180.8	170.4	195.5	204.4	188.8	144.0	131.9	62.0	0.0	1293.1
Farm Crop Potential Evapotranspiration													
Average	0.0	0.0	4.6	28.3	63.5	98.1	111.7	90.4	43.5	14.9	1.1	0.0	456.1
Farm Effective Precipitation													
Average	3.9	4.5	11.3	16.0	20.5	19.2	25.4	22.7	12.0	11.7	6.1	4.9	158.2
Farm Irrigation Water Requirement													
Average	0.0	0.0	1.5	15.2	43.0	78.9	86.2	67.7	31.5	6.7	0.3	0.0	331.2
Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture													
Average	0.0	0.0	1.4	14.7	41.9	76.5	79.7	60.1	28.3	5.6	0.3	0.0	308.4
Total Return Flows at Farm													
Average	0.0	0.7	64.5	104.2	89.3	84.4	78.8	71.5	62.4	72.9	35.7	0.0	664.4
Tailwater/Surface Runoff Return Flows at Farm													
Average	0.0	0.1	12.9	20.8	17.9	16.9	15.8	14.3	12.5	14.6	7.1	0.0	132.9
Deep Percolation/Ground Water Return Flows at Farm (unlagged)													
Average	0.0	0.6	51.6	83.4	71.5	67.5	63.0	57.2	49.9	58.3	28.6	0.0	531.5
Historical Depletions at Farm													
Average	0.0	0.0	2.1	15.4	40.9	74.3	73.9	60.9	28.1	11.4	1.2	0.0	308.3
Maximum	0.0	0.0	17.6	58.7	73.9	106.2	99.3	99.7	57.4	76.7	12.3	0.0	387.4
Limit	0.0	0.0	13.3	38.4	64.7	99.6	96.9	93.6	52.9	54.3	8.4	0.0	377.0
Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased													
Average	0.0	0.6	52.2	134.7	202.6	262.6	314.2	356.8	389.5	428.6	436.3	414.2	438.8
Maximum	0.0	13.2	129.4	249.1	340.7	415.6	485.4	542.9	613.1	677.5	688.3	653.5	688.3
Limit	0.0	5.9	106.3	225.6	319.2	388.1	454.7	514.3	572.4	633.5	643.9	611.4	643.9
Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries													
Average			74.1%	68.5%	61.6%	53.8%	48.9%	45.9%	44.6%	44.5%	43.6%	41.4%	43.9%
Maximum		80.0%	80.0%	79.6%	78.3%	70.4%	61.8%	55.5%	53.7%	53.3%	51.9%	49.2%	51.9%
Limit			80.0%	79.6%	73.8%	63.8%	57.6%	53.4%	51.9%	51.9%	50.6%	48.1%	50.8%
Deep Percolation/Ground Water Return Flows at Stream (lagged)													
Average	47.3	45.0	42.3	40.4	40.7	42.6	44.5	46.0	47.1	47.6	47.9	48.1	539.6
Total Return Flows at Stream													
Average	47.3	45.2	55.2	61.2	58.6	59.5	60.3	60.3	59.6	62.2	55.1	48.1	672.5
Historical Depletions at Stream including Depletion and Return Flow Factors													
Average	-47.3	-44.4	11.4	58.4	71.7	99.2	92.4	72.1	31.0	22.1	-18.2	-48.1	300.2
Maximum	-23.0	-21.9	58.6	112.9	120.9	136.9	139.6	136.0	77.8	100.7	25.7	-24.0	493.8
Limit	-26.8	-25.6	52.7	108.9	113.1	131.3	129.6	117.3	69.1	69.3	9.8	-26.7	479.9
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	3.2%	12.9%	31.4%	46.8%	48.4%	46.0%	31.1%	13.6%	3.2%		31.7%
TW Returns		20.0%	19.4%	17.4%	13.7%	10.6%	10.3%	10.8%	13.8%	17.3%	19.4%		13.7%
DP Returns		80.0%	77.4%	69.7%	54.9%	42.5%	41.3%	43.2%	55.2%	69.1%	77.5%		54.6%
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD													
Depletion Factors			17.1%	48.8%	55.0%	62.5%	60.5%	54.4%	34.2%	26.2%			30.9%
Return Flow Factors			82.9%	51.2%	45.0%	37.5%	39.5%	45.6%	65.8%	73.8%			69.1%
Winter RF	-4.9%	-4.6%									-1.9%	-4.9%	

Table 2 - River Headgate Diversions for All Sources Considered in Pilot Project Plan

Farm Name or Designation: Diamond A West-10

Catlin Canal D1700552; Sources Included and Excluded:

Notes: Explain period of record as being representative, and list source of data and rights included and excluded. Total Direct Flow plus Winter Water Diversions from Bill Tyner QA/QC Catlin1950-2012Final.xlsx updated to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0	0	4,431	9,541	13,503	18,362	19,304	15,254	10,719	6,294	2,985	0	100,393
1985	0	0	6,441	13,406	8,970	16,678	17,590	15,992	11,792	8,998	3,370	0	103,237
1986	0	129	11,801	14,638	16,316	13,574	16,005	14,802	9,335	8,490	2,832	0	107,922
1987	0	0	7,288	12,612	12,268	16,378	16,216	13,721	10,218	9,280	5,136	0	103,119
1988	0	0	5,502	10,504	10,903	16,524	12,428	13,305	10,136	9,502	4,645	0	93,449
1989	0	0	8,515	14,587	12,123	15,331	13,914	16,090	8,033	5,417	3,855	0	97,866
1990	0	0	3,669	13,968	10,867	15,668	14,461	14,013	7,242	8,301	3,504	0	91,693
1991	0	0	6,962	8,441	9,533	16,766	15,564	16,306	9,447	8,730	0	0	91,749
1992	0	0	6,518	17,517	15,363	12,754	15,149	14,806	12,147	9,761	4,157	0	108,171
1993	0	0	4,124	12,505	15,715	17,757	16,362	16,774	12,548	9,600	4,169	0	109,554
1994	0	0	9,115	16,704	13,905	19,523	17,529	14,367	11,807	10,531	4,437	0	117,917
1995	0	0	9,602	17,655	13,508	13,443	19,452	21,326	15,859	12,617	5,388	0	128,850
1996	0	1,603	14,126	17,384	15,965	18,970	17,944	14,981	11,528	12,203	5,174	0	129,879
1997	0	0	7,861	13,041	14,755	16,328	20,777	9,964	11,438	7,543	0	0	101,708
1998	0	0	4,084	15,413	17,345	17,724	18,166	12,442	13,415	9,398	3,989	0	111,978
1999	0	0	9,354	12,889	7,484	14,555	15,805	13,219	12,659	9,194	4,083	0	99,242
2000	0	405	11,480	13,831	14,110	15,331	14,266	11,067	5,173	8,007	4,122	0	97,792
2001	0	0	5,909	11,010	13,672	15,878	15,909	16,883	9,471	7,680	4,429	0	100,841
2002	0	0	5,693	2,536	1,794	5,613	6,423	0	0	0	390	0	22,449
2003	0	0	3,114	1,184	8,335	15,888	8,400	2,590	1,373	0	2,168	0	43,052
2004	0	0	1,568	10,358	15,182	13,986	12,575	11,641	3,054	5,403	6,467	0	80,235
2005	0	0	5,918	15,353	15,719	15,811	13,234	13,995	3,814	7,909	4,622	0	96,375
2006	0	0	4,471	3,739	10,880	15,847	13,708	13,145	9,689	9,988	3,399	0	84,866
2007	0	0	5,184	13,371	13,851	13,448	15,167	15,115	12,258	11,808	5,325	0	105,526
2008	0	0	8,776	17,500	15,073	18,441	16,950	13,707	11,543	10,314	4,431	0	116,732
2009	0	0	7,369	15,540	15,434	14,617	15,913	12,874	9,388	9,902	3,322	0	104,360
2010	0	0	4,521	12,398	15,345	16,368	14,372	13,760	3,023	7,081	6,207	0	93,073
2011	0	0	5,699	4,336	10,793	18,381	16,812	10,942	7,264	7,969	4,729	0	86,924
2012	0	0	4,014	6,143	10,993	7,089	6,015	1,545	0	0	0	0	35,798
2013	0	0	990	277	9,752	15,249	8,275	10,972	9,345	13,587	0	0	68,446
Average	0	71	6,470	11,613	12,649	15,409	14,823	12,853	8,791	8,184	3,578	0	94,440
Minimum	0	0	990	277	1,794	5,613	6,015	0	0	0	0	0	22,449
Maximum	0	1,603	14,126	17,655	17,345	19,523	20,777	21,326	15,859	13,587	6,467	0	129,879
Limit	0	712	12,469	17,557	16,542	18,978	19,844	18,328	13,978	12,802	6,021	0	125,549

Table 3 - River Headgate Diversions Pro-Rata by Share or Percent of Water Right for Pilot Project Farm

Farm Name or Designation: Diamond A West-10

Catlin Canal D1700552; For Summary Period Pro-Rata Ownership: 1.1967%

Notes: Variable shares or prorata acres ownership shown in constants table

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	53.0	114.2	161.6	219.7	231.0	182.5	128.3	75.3	35.7	0.0	1201.4
1985	0.0	0.0	77.1	160.4	107.3	199.6	210.5	191.4	141.1	107.7	40.3	0.0	1235.4
1986	0.0	1.5	141.2	175.2	195.2	162.4	191.5	177.1	111.7	101.6	33.9	0.0	1291.5
1987	0.0	0.0	87.2	150.9	146.8	196.0	194.1	164.2	122.3	111.1	61.5	0.0	1234.0
1988	0.0	0.0	65.8	125.7	130.5	197.7	148.7	159.2	121.3	113.7	55.6	0.0	1118.3
1989	0.0	0.0	101.9	174.6	145.1	183.5	166.5	192.5	96.1	64.8	46.1	0.0	1171.1
1990	0.0	0.0	43.9	167.1	130.0	187.5	173.1	167.7	86.7	99.3	41.9	0.0	1097.3
1991	0.0	0.0	83.3	101.0	114.1	200.6	186.3	195.1	113.1	104.5	0.0	0.0	1097.9
1992	0.0	0.0	78.0	209.6	183.8	152.6	181.3	177.2	145.4	116.8	49.7	0.0	1294.5
1993	0.0	0.0	49.3	149.6	188.1	212.5	195.8	200.7	150.2	114.9	49.9	0.0	1311.0
1994	0.0	0.0	109.1	199.9	166.4	233.6	209.8	171.9	141.3	126.0	53.1	0.0	1411.1
1995	0.0	0.0	114.9	211.3	161.6	160.9	232.8	255.2	189.8	151.0	64.5	0.0	1541.9
1996	0.0	19.2	169.0	208.0	191.1	227.0	214.7	179.3	138.0	146.0	61.9	0.0	1554.2
1997	0.0	0.0	94.1	156.1	176.6	195.4	248.6	119.2	136.9	90.3	0.0	0.0	1217.1
1998	0.0	0.0	48.9	184.4	207.6	212.1	217.4	148.9	160.5	112.5	47.7	0.0	1340.0
1999	0.0	0.0	111.9	154.2	89.6	174.2	189.1	158.2	151.5	110.0	48.9	0.0	1187.6
2000	0.0	4.8	137.4	165.5	168.9	183.5	170.7	132.4	61.9	95.8	49.3	0.0	1170.3
2001	0.0	0.0	70.7	131.8	163.6	190.0	190.4	202.0	113.3	91.9	53.0	0.0	1206.7
2002	0.0	0.0	68.1	30.3	21.5	67.2	76.9	0.0	0.0	0.0	4.7	0.0	268.6
2003	0.0	0.0	37.3	14.2	99.7	190.1	100.5	31.0	16.4	0.0	25.9	0.0	515.2
2004	0.0	0.0	18.8	124.0	181.7	167.4	150.5	139.3	36.5	64.7	77.4	0.0	960.1
2005	0.0	0.0	70.8	183.7	188.1	189.2	158.4	167.5	45.6	94.6	55.3	0.0	1153.3
2006	0.0	0.0	53.5	44.7	130.2	189.6	164.0	157.3	115.9	119.5	40.7	0.0	1015.6
2007	0.0	0.0	62.0	160.0	165.7	160.9	181.5	180.9	146.7	141.3	63.7	0.0	1262.8
2008	0.0	0.0	105.0	209.4	180.4	220.7	202.8	164.0	138.1	123.4	53.0	0.0	1396.9
2009	0.0	0.0	88.2	186.0	184.7	174.9	190.4	154.1	112.3	118.5	39.8	0.0	1248.9
2010	0.0	0.0	54.1	148.4	183.6	195.9	172.0	164.7	36.2	84.7	74.3	0.0	1113.8
2011	0.0	0.0	68.2	51.9	129.2	220.0	201.2	130.9	86.9	95.4	56.6	0.0	1040.2
2012	0.0	0.0	48.0	73.5	131.5	84.8	72.0	18.5	0.0	0.0	0.0	0.0	428.4
2013	0.0	0.0	11.8	3.3	116.7	182.5	99.0	131.3	111.8	162.6	0.0	0.0	819.1
Average	0.0	0.9	77.4	139.0	151.4	184.4	177.4	153.8	105.2	97.9	42.8	0.0	1130.1
Minimum	0.0	0.0	11.8	3.3	21.5	67.2	72.0	0.0	0.0	0.0	0.0	0.0	268.6
Maximum	0.0	19.2	169.0	211.3	207.6	233.6	248.6	255.2	189.8	162.6	77.4	0.0	1554.2
Limit	0.0	8.5	149.2	210.1	198.0	227.1	237.5	219.3	167.3	153.2	72.0	0.0	1502.4

Table 4 - Farm Headgate Delivery

Farm Name or Designation: Diamond A West-10

Catlin Canal D1700552; For Summary Period Canal Loss: 10.4309%, Off-Farm Lateral Loss: 3.5%

Notes: Reference source of canal/off-farm loss data

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	45.6	98.3	139.1	189.1	198.8	157.1	110.4	64.8	30.7	0.0	1034.0
1985	0.0	0.0	66.3	138.1	92.4	171.8	181.2	164.7	121.5	92.7	34.7	0.0	1063.3
1986	0.0	1.3	121.5	150.8	168.0	139.8	164.8	152.5	96.1	87.4	29.2	0.0	1111.6
1987	0.0	0.0	75.1	129.9	126.4	168.7	167.0	141.3	105.2	95.6	52.9	0.0	1062.1
1988	0.0	0.0	56.7	108.2	112.3	170.2	128.0	137.0	104.4	97.9	47.8	0.0	962.5
1989	0.0	0.0	87.7	150.2	124.9	157.9	143.3	165.7	82.7	55.8	39.7	0.0	1008.0
1990	0.0	0.0	37.8	143.9	111.9	161.4	148.9	144.3	74.6	85.5	36.1	0.0	944.4
1991	0.0	0.0	71.7	86.9	98.2	172.7	160.3	167.9	97.3	89.9	0.0	0.0	945.0
1992	0.0	0.0	67.1	180.4	158.2	131.4	156.0	152.5	125.1	100.5	42.8	0.0	1114.1
1993	0.0	0.0	42.5	128.8	161.9	182.9	168.5	172.8	129.2	98.9	42.9	0.0	1128.4
1994	0.0	0.0	93.9	172.0	143.2	201.1	180.5	148.0	121.6	108.5	45.7	0.0	1214.5
1995	0.0	0.0	98.9	181.8	139.1	138.5	200.4	219.7	163.3	129.9	55.5	0.0	1327.1
1996	0.0	16.5	145.5	179.1	164.4	195.4	184.8	154.3	118.7	125.7	53.3	0.0	1337.7
1997	0.0	0.0	81.0	134.3	152.0	168.2	214.0	102.6	117.8	77.7	0.0	0.0	1047.6
1998	0.0	0.0	42.1	158.7	178.7	182.6	187.1	128.2	138.2	96.8	41.1	0.0	1153.3
1999	0.0	0.0	96.3	132.7	77.1	149.9	162.8	136.2	130.4	94.7	42.1	0.0	1022.2
2000	0.0	4.2	118.2	142.5	145.3	157.9	146.9	114.0	53.3	82.5	42.5	0.0	1007.2
2001	0.0	0.0	60.9	113.4	140.8	163.5	163.9	173.9	97.6	79.1	45.6	0.0	1038.6
2002	0.0	0.0	58.6	26.1	18.5	57.8	66.2	0.0	0.0	0.0	4.0	0.0	231.2
2003	0.0	0.0	32.1	12.2	85.8	163.6	86.5	26.7	14.1	0.0	22.3	0.0	443.4
2004	0.0	0.0	16.2	106.7	156.4	144.1	129.5	119.9	31.5	55.6	66.6	0.0	826.4
2005	0.0	0.0	61.0	158.1	161.9	162.9	136.3	144.1	39.3	81.5	47.6	0.0	992.6
2006	0.0	0.0	46.0	38.5	112.1	163.2	141.2	135.4	99.8	102.9	35.0	0.0	874.1
2007	0.0	0.0	53.4	137.7	142.7	138.5	156.2	155.7	126.3	121.6	54.8	0.0	1086.9
2008	0.0	0.0	90.4	180.2	155.2	189.9	174.6	141.2	118.9	106.2	45.6	0.0	1202.3
2009	0.0	0.0	75.9	160.1	159.0	150.5	163.9	132.6	96.7	102.0	34.2	0.0	1074.9
2010	0.0	0.0	46.6	127.7	158.1	168.6	148.0	141.7	31.1	72.9	63.9	0.0	958.6
2011	0.0	0.0	58.7	44.7	111.2	189.3	173.2	112.7	74.8	82.1	48.7	0.0	895.3
2012	0.0	0.0	41.3	63.3	113.2	73.0	62.0	15.9	0.0	0.0	0.0	0.0	368.7
2013	0.0	0.0	10.2	2.9	100.4	157.1	85.2	113.0	96.2	139.9	0.0	0.0	705.0
Average	0.0	0.7	66.6	119.6	130.3	158.7	152.7	132.4	90.5	84.3	36.9	0.0	972.7
Minimum	0.0	0.0	10.2	2.9	18.5	57.8	62.0	0.0	0.0	0.0	0.0	0.0	231.2
Maximum	0.0	16.5	145.5	181.8	178.7	201.1	214.0	219.7	163.3	139.9	66.6	0.0	1337.7
Limit	0.0	7.3	128.4	180.8	170.4	195.5	204.4	188.8	144.0	131.9	62.0	0.0	1293.1

Table 5 - Farm Crop Acreages and Crop Distributions

Farm Name or Designation: Diamond A West-10

For Summary Period Farm Acres: 173.325 acres, Crop Distribution:

Notes: Provide information on source of crop data. HI Model Crop Distribution for Otero County (unitized)

Year	Flood	Sprinkler	Drip	Alfalfa	Grass	Corn_Grn	Corn_Sil	Spr_Grn	Sorghum	Win_Wht	Vegetable	Beans	Beets
(Cal)	(Acres)	(Acres)	(Acres)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	195.0	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1985	193.6	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1986	192.1	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1987	190.6	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1988	189.2	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1989	187.7	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1990	186.2	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1991	184.7	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1992	183.3	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1993	181.8	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1994	179.9	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1995	178.0	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1996	176.1	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1997	174.2	0.0	0.0	39.10%	7.20%	35.00%	2.90%	1.30%	0.70%	7.20%	5.20%	1.40%	0.00%
1998	172.3	0.0	0.0	36.14%	5.61%	35.64%	1.50%	2.20%	0.60%	11.21%	5.41%	1.70%	0.00%
1999	170.4	0.0	0.0	35.80%	3.60%	36.40%	3.60%	1.30%	0.00%	11.80%	5.30%	2.20%	0.00%
2000	168.5	0.0	0.0	34.07%	3.30%	34.57%	4.60%	1.10%	2.70%	12.79%	5.29%	1.60%	0.00%
2001	166.6	0.0	0.0	42.16%	5.19%	29.87%	1.50%	1.90%	3.90%	8.79%	5.39%	1.30%	0.00%
2002	164.7	0.0	0.0	52.25%	3.00%	19.52%	9.61%	1.00%	2.00%	5.01%	5.81%	1.80%	0.00%
2003	162.8	0.0	0.0	68.33%	12.09%	0.80%	0.00%	0.00%	2.70%	7.49%	7.79%	0.80%	0.00%
2004	160.9	0.0	0.0	76.98%	0.00%	5.11%	0.00%	0.00%	0.60%	8.01%	9.31%	0.00%	0.00%
2005	159.0	0.0	0.0	53.70%	15.00%	15.50%	1.30%	0.00%	0.20%	8.60%	4.20%	1.50%	0.00%
2006	159.3	0.0	0.0	63.00%	20.80%	5.10%	1.20%	0.00%	0.00%	4.60%	4.80%	0.50%	0.00%
2007	159.7	0.0	0.0	50.80%	16.00%	18.10%	0.90%	0.00%	2.30%	7.80%	3.60%	0.50%	0.00%
2008	160.0	0.0	0.0	45.00%	15.60%	21.70%	0.60%	0.00%	1.70%	11.50%	3.50%	0.40%	0.00%
2009	160.4	0.0	0.0	44.70%	14.90%	20.30%	0.40%	0.00%	1.60%	14.20%	3.40%	0.50%	0.00%
2010	160.7	0.0	0.0	41.70%	15.00%	24.10%	0.50%	0.00%	1.60%	13.20%	3.30%	0.60%	0.00%
2011	160.7	0.0	0.0	48.97%	12.70%	19.48%	6.08%	0.76%	5.72%	3.97%	2.24%	0.09%	0.00%
2012	160.7	0.0	0.0	55.20%	18.71%	8.83%	3.75%	1.96%	6.08%	3.61%	1.86%	0.00%	0.00%
2013	160.7	0.0	0.0	66.29%	9.32%	1.41%	0.72%	0.00%	12.51%	6.35%	3.26%	0.14%	0.00%
Average	173.3	0.0	0.0	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Minimum	159.0	0.0	0.0	34.07%	0.00%	0.80%	0.00%	0.00%	0.00%	3.61%	1.86%	0.00%	0.00%
Maximum	195.0	0.0	0.0	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%

Table 6 - Farm Crop Potential Evapotranspiration

Farm Name or Designation: Diamond A West-10

For Summary Period Farm Acres: 173.325 acres, PET:

Notes: Provide information on PET calculation method and climate stations. RECALCULATED - MBC TR21 PET (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167 and Crop Distribution from User Supplied Table (unitized)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	14.0	65.9	101.7	124.8	105.0	48.6	5.2	0.7	0.0	466.1
1985	0.0	0.0	3.9	33.4	68.7	105.6	120.5	98.2	35.4	5.9	0.1	0.0	471.8
1986	0.0	0.0	11.2	36.2	64.5	107.5	118.0	89.8	35.0	12.8	0.7	0.0	475.6
1987	0.0	0.0	1.0	28.8	65.7	107.7	125.2	93.3	38.2	12.4	0.7	0.0	472.9
1988	0.0	0.0	1.3	21.6	62.4	109.0	119.6	101.7	46.4	20.1	1.5	0.0	483.6
1989	0.0	0.0	7.5	34.1	71.2	95.1	118.5	91.6	35.0	16.4	1.1	0.0	470.5
1990	0.0	0.0	2.2	27.9	56.0	112.6	109.8	91.6	47.7	16.6	1.9	0.0	466.4
1991	0.0	0.0	3.2	27.3	69.9	107.5	111.3	94.6	41.6	19.0	0.0	0.0	474.5
1992	0.0	0.0	6.6	36.1	69.3	90.5	107.0	79.5	37.4	11.1	0.0	0.0	437.6
1993	0.0	0.0	2.0	25.4	58.8	96.0	118.0	90.0	38.8	17.6	0.0	0.0	446.5
1994	0.0	0.0	4.9	28.7	66.0	113.6	111.9	96.9	40.6	18.0	0.9	0.0	481.4
1995	0.0	0.0	2.3	13.3	47.6	80.7	103.9	105.5	52.8	12.6	1.3	0.0	419.9
1996	0.0	0.0	1.5	32.3	76.1	103.6	111.3	88.4	35.6	16.4	0.9	0.0	466.0
1997	0.0	0.0	3.5	13.3	57.2	91.0	114.4	91.1	51.9	16.0	0.1	0.0	438.6
1998	0.0	0.0	1.4	22.0	65.8	90.0	113.1	84.4	44.0	15.9	2.1	0.0	438.7
1999	0.0	0.0	0.0	2.8	51.4	84.5	111.8	91.9	48.2	5.2	3.0	0.0	398.9
2000	0.0	0.0	7.3	31.8	64.1	95.3	106.7	85.5	30.3	18.4	1.1	0.0	440.6
2001	0.0	0.0	2.8	32.8	58.9	100.8	117.4	85.8	35.0	8.8	1.7	0.0	444.0
2002	0.0	0.0	0.9	35.6	64.3	107.9	119.3	91.1	37.6	10.2	0.1	0.0	466.9
2003	0.0	0.0	7.4	42.4	71.2	88.7	120.3	92.5	49.8	21.2	0.8	0.0	494.4
2004	0.0	0.0	15.2	35.1	74.8	88.4	97.8	76.7	51.7	12.5	0.2	0.0	452.4
2005	0.0	0.0	1.3	25.4	58.7	86.8	101.3	86.7	54.4	24.0	2.7	0.0	441.3
2006	0.0	0.0	7.1	43.2	72.2	106.4	112.3	88.4	42.8	19.9	1.5	0.0	493.9
2007	0.0	0.0	8.7	27.9	60.9	88.1	104.2	96.6	52.6	21.8	2.1	0.0	462.9
2008	0.0	0.0	4.4	26.4	60.0	92.0	106.5	83.0	44.7	21.8	2.5	0.0	441.4
2009	0.0	0.0	5.9	33.4	64.1	84.5	91.5	74.0	38.6	7.9	0.0	0.0	400.0
2010	0.0	0.0	3.3	30.9	56.3	94.5	99.5	82.9	45.5	23.2	1.7	0.0	437.8
2011	0.0	0.0	5.2	29.4	53.0	99.2	116.1	99.1	40.4	15.2	0.7	0.0	458.3
2012	0.0	0.0	15.0	39.5	67.4	111.5	114.6	85.5	45.6	11.4	1.4	0.0	492.0
2013	0.0	0.0	0.9	18.6	62.6	102.3	103.4	90.7	59.5	9.2	0.3	0.0	447.5
Average	0.0	0.0	4.6	28.3	63.5	98.1	111.7	90.4	43.5	14.9	1.1	0.0	456.1
Minimum	0.0	0.0	0.0	2.8	47.6	80.7	91.5	74.0	30.3	5.2	0.0	0.0	398.9
Maximum	0.0	0.0	15.2	43.2	76.1	113.6	125.2	105.5	59.5	24.0	3.0	0.0	494.4

Table 7 - Farm Precipitation

Farm Name or Designation: Diamond A West-10

Climate Station:

Notes: Provide information source of climate data and climate stations used. Precipitation (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	2.1	10.9	28.8	20.8	19.8	3.9	45.5	29.9	8.9	24.1	2.0	5.4	202.0
1985	13.7	5.0	10.5	37.1	47.1	9.7	33.6	7.3	9.0	19.2	12.6	3.9	208.6
1986	1.8	1.6	3.0	10.6	6.6	37.6	56.7	23.9	31.7	22.6	9.9	1.1	207.0
1987	2.7	16.7	8.1	6.2	58.3	34.6	13.0	18.9	9.1	1.6	5.6	8.9	183.6
1988	4.6	8.2	14.5	20.5	33.4	22.7	21.0	5.4	12.1	0.3	0.3	5.5	148.5
1989	2.0	4.1	5.2	8.9	24.4	29.7	14.2	29.6	25.8	2.8	0.8	3.1	150.6
1990	12.4	12.3	14.9	4.3	56.5	5.9	76.3	18.9	36.8	16.8	16.6	6.1	277.8
1991	6.5	1.5	22.3	12.3	10.9	22.2	32.2	14.0	18.5	11.2	18.5	9.1	179.2
1992	4.3	4.7	12.2	6.3	18.2	58.6	28.1	27.3	0.0	10.5	14.8	3.5	188.6
1993	2.1	11.5	22.6	24.4	22.6	6.5	23.6	23.6	5.2	12.3	17.9	0.3	172.6
1994	4.5	0.4	12.7	21.1	37.3	7.8	12.1	38.4	13.0	11.7	10.5	1.8	171.5
1995	1.3	2.5	14.8	28.0	59.6	42.6	22.3	6.1	10.1	0.0	0.0	0.1	187.5
1996	1.3	2.5	16.9	6.2	39.8	20.4	41.8	22.5	31.4	5.3	2.2	6.0	196.2
1997	5.7	8.4	3.9	25.8	3.6	36.9	26.6	74.6	19.7	30.9	11.5	17.0	264.6
1998	1.3	5.3	13.4	7.9	23.7	5.2	52.7	46.5	3.7	32.3	15.1	3.3	210.3
1999	2.8	0.3	16.9	65.7	30.7	13.8	96.4	39.6	7.1	7.7	2.3	0.6	283.9
2000	4.6	2.7	29.3	11.5	11.2	8.4	17.6	19.0	10.8	15.9	1.5	2.4	134.9
2001	9.6	3.6	4.7	12.6	52.3	30.7	26.5	3.7	7.2	0.3	9.4	5.8	166.6
2002	4.4	1.9	1.2	1.9	1.2	10.7	0.8	6.7	8.8	4.9	1.1	6.5	50.2
2003	0.0	6.8	12.1	31.5	16.8	30.9	6.9	7.3	6.1	1.4	2.7	3.0	125.5
2004	4.7	5.1	1.3	52.6	0.9	35.4	46.8	65.7	8.6	4.3	11.3	1.1	237.7
2005	5.8	3.2	20.7	11.3	6.5	14.0	6.1	28.8	18.4	27.0	0.5	3.3	145.6
2006	8.1	0.0	12.1	4.1	20.3	3.7	43.2	54.8	26.4	30.5	2.0	21.9	227.2
2007	4.7	1.7	1.5	29.4	19.7	43.5	5.2	27.7	11.3	6.4	0.5	5.5	157.0
2008	2.9	6.0	6.1	11.6	8.1	10.3	9.5	65.5	0.7	22.8	2.9	2.3	148.7
2009	0.0	1.9	11.1	9.1	17.0	21.8	36.5	11.6	8.4	45.4	5.1	2.5	170.4
2010	5.6	8.8	25.8	16.6	16.3	27.1	53.2	31.7	2.7	0.5	1.2	3.9	193.5
2011	1.6	3.2	6.4	4.7	10.7	22.5	22.1	14.2	7.9	4.2	10.0	20.6	128.2
2012	0.3	1.2	1.6	17.0	9.2	1.7	14.7	0.9	11.8	2.5	0.1	1.2	62.4
2013	0.8	1.2	5.0	8.8	2.7	12.1	7.5	19.4	12.7	5.0	3.6	1.2	79.9
Average	4.1	4.8	12.0	17.6	22.9	21.0	29.8	26.1	12.8	12.7	6.4	5.2	175.3
Minimum	0.0	0.0	1.2	1.9	0.9	1.7	0.8	0.9	0.0	0.0	0.0	0.1	50.2
Maximum	13.7	16.7	29.3	65.7	59.6	58.6	96.4	74.6	36.8	45.4	18.5	21.9	283.9

Table 8 - Farm Effective Precipitation

Farm Name or Designation: Diamond A West-10

Method Used: USBR with HI model coefficients

Notes: USBR Methodology Used as Implemented in HI Model.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	2.0	10.3	26.7	19.5	18.7	3.7	40.8	27.7	8.5	22.5	1.9	5.1	187.4
1985	13.0	4.8	10.0	33.8	42.1	9.2	30.9	6.9	8.6	18.1	12.0	3.7	192.9
1986	1.7	1.5	2.9	10.0	6.2	34.2	48.4	22.3	29.3	21.1	9.4	1.1	188.2
1987	2.6	15.8	7.7	5.9	49.4	31.7	12.4	17.8	8.6	1.5	5.3	8.5	167.1
1988	4.3	7.8	13.8	19.2	30.7	21.2	19.7	5.1	11.5	0.3	0.3	5.2	139.2
1989	1.9	3.9	4.9	8.5	22.7	27.5	13.5	27.4	24.0	2.7	0.7	3.0	140.7
1990	11.8	11.6	14.2	4.1	48.0	5.6	58.0	17.8	33.4	15.9	15.7	5.7	241.9
1991	6.1	1.5	20.9	11.7	10.4	20.7	29.6	13.3	17.4	10.7	17.4	8.6	168.3
1992	4.1	4.5	11.6	5.9	17.1	49.2	26.1	25.4	0.0	10.0	14.1	3.3	171.3
1993	2.0	10.9	21.1	22.7	21.1	6.2	22.0	22.0	4.9	11.7	16.8	0.3	161.7
1994	4.3	0.4	12.1	19.8	33.8	7.4	11.5	34.7	12.4	11.1	10.0	1.7	159.2
1995	1.3	2.4	14.1	26.0	49.5	38.1	20.8	5.8	9.6	0.0	0.0	0.1	167.5
1996	1.3	2.4	15.9	5.9	35.7	19.1	37.4	20.9	28.8	5.0	2.1	5.7	180.3
1997	5.4	8.0	3.7	24.0	3.4	33.3	24.6	55.3	18.5	28.4	10.9	16.0	231.6
1998	1.2	5.0	12.7	7.5	22.0	4.9	44.7	40.6	3.5	29.5	14.3	3.1	189.2
1999	2.7	0.3	15.9	51.2	28.1	13.1	57.7	35.5	6.7	7.3	2.2	0.5	221.3
2000	4.4	2.5	27.0	10.9	10.7	8.0	16.5	17.8	10.3	15.0	1.5	2.3	126.8
2001	9.1	3.4	4.5	12.0	44.1	28.1	24.6	3.6	6.9	0.3	9.0	5.5	150.9
2002	4.2	1.8	1.2	1.8	1.2	10.2	0.8	6.4	8.3	4.7	1.0	6.1	47.7
2003	0.0	6.4	11.5	28.7	15.8	28.2	6.6	7.0	5.8	1.3	2.6	2.8	116.7
2004	4.5	4.8	1.3	43.9	0.9	31.9	40.1	50.0	8.2	4.1	10.7	1.0	201.3
2005	5.5	3.0	19.3	10.7	6.2	13.3	5.8	26.4	17.2	24.9	0.5	3.1	136.0
2006	7.7	0.0	11.5	3.9	18.9	3.5	37.7	44.9	24.4	27.9	1.9	20.4	202.7
2007	4.4	1.6	1.4	26.9	18.4	37.9	4.9	25.5	10.7	6.1	0.5	5.2	143.6
2008	2.8	5.7	5.8	11.0	7.7	9.8	9.0	49.8	0.6	21.2	2.8	2.2	128.4
2009	0.0	1.8	10.5	8.6	15.9	20.3	32.8	11.0	8.0	39.2	4.8	2.4	155.4
2010	5.3	8.4	23.9	15.6	15.4	25.0	44.3	28.9	2.5	0.5	1.1	3.7	174.7
2011	1.5	3.1	6.1	4.5	10.2	20.9	20.6	13.4	7.5	3.9	9.5	19.2	120.5
2012	0.3	1.1	1.5	16.0	8.8	1.7	13.9	0.9	11.2	2.4	0.1	1.1	59.0
2013	0.8	1.1	4.7	8.4	2.5	11.4	7.1	18.1	12.1	4.7	3.4	1.1	75.6
Average	3.9	4.5	11.3	16.0	20.5	19.2	25.4	22.7	12.0	11.7	6.1	4.9	158.2
Minimum	0.0	0.0	1.2	1.8	0.9	1.7	0.8	0.9	0.0	0.0	0.0	0.1	47.7
Maximum	13.0	15.8	27.0	51.2	49.5	49.2	58.0	55.3	33.4	39.2	17.4	20.4	241.9

Table 9 - Farm Irrigation Water Requirement

Farm Name or Designation: Diamond A West-10

Crop PET less effective precipitation

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	47.3	98.0	84.0	77.3	40.1	0.0	0.0	0.0	346.8
1985	0.0	0.0	0.0	0.0	26.6	96.4	89.6	91.3	26.8	0.0	0.0	0.0	330.8
1986	0.0	0.0	8.3	26.1	58.3	73.2	69.5	67.5	5.6	0.0	0.0	0.0	308.7
1987	0.0	0.0	0.0	22.9	16.3	75.9	112.8	75.4	29.6	10.9	0.0	0.0	343.9
1988	0.0	0.0	0.0	2.4	31.6	87.8	99.9	96.6	34.8	19.8	1.2	0.0	374.2
1989	0.0	0.0	2.6	25.6	48.5	67.6	104.9	64.3	11.0	13.7	0.4	0.0	338.6
1990	0.0	0.0	0.0	23.8	8.0	107.0	51.8	73.8	14.3	0.8	0.0	0.0	279.5
1991	0.0	0.0	0.0	15.6	59.5	86.8	81.7	81.3	24.2	8.3	0.0	0.0	357.5
1992	0.0	0.0	0.0	30.2	52.2	41.3	81.0	54.1	37.4	1.0	0.0	0.0	297.3
1993	0.0	0.0	0.0	2.7	37.7	89.8	96.0	68.0	33.9	5.9	0.0	0.0	334.0
1994	0.0	0.0	0.0	8.9	32.2	106.2	100.4	62.2	28.2	6.8	0.0	0.0	345.0
1995	0.0	0.0	0.0	0.0	0.0	42.6	83.1	99.7	43.3	12.6	1.3	0.0	282.6
1996	0.0	0.0	0.0	26.4	40.3	84.5	73.9	67.4	6.7	11.3	0.0	0.0	310.6
1997	0.0	0.0	0.0	0.0	53.7	57.7	89.8	35.8	33.4	0.0	0.0	0.0	270.4
1998	0.0	0.0	0.0	14.5	43.7	85.1	68.4	43.7	40.4	0.0	0.0	0.0	295.9
1999	0.0	0.0	0.0	0.0	23.2	71.4	54.1	56.4	41.5	0.0	0.8	0.0	247.5
2000	0.0	0.0	0.0	20.9	53.4	87.3	90.2	67.7	20.1	3.5	0.0	0.0	343.1
2001	0.0	0.0	0.0	20.8	14.8	72.7	92.8	82.2	28.1	8.5	0.0	0.0	320.1
2002	0.0	0.0	0.0	33.8	63.1	97.7	118.5	84.7	29.3	5.5	0.0	0.0	432.5
2003	0.0	0.0	0.0	13.8	55.4	60.5	113.7	85.6	44.0	19.9	0.0	0.0	392.8
2004	0.0	0.0	13.9	0.0	73.9	56.6	57.6	26.7	43.5	8.4	0.0	0.0	280.6
2005	0.0	0.0	0.0	14.7	52.5	73.5	95.5	60.3	37.2	0.0	2.2	0.0	335.8
2006	0.0	0.0	0.0	39.3	53.2	102.9	74.7	43.5	18.4	0.0	0.0	0.0	331.9
2007	0.0	0.0	7.3	1.0	42.5	50.2	99.3	71.1	41.8	15.8	1.6	0.0	330.5
2008	0.0	0.0	0.0	15.3	52.3	82.3	97.5	33.2	44.1	0.6	0.0	0.0	325.3
2009	0.0	0.0	0.0	24.8	48.2	64.2	58.8	63.0	30.6	0.0	0.0	0.0	289.5
2010	0.0	0.0	0.0	15.3	41.0	69.6	55.3	54.0	43.0	22.7	0.5	0.0	301.2
2011	0.0	0.0	0.0	24.9	42.8	78.3	95.6	85.7	32.9	11.3	0.0	0.0	371.4
2012	0.0	0.0	13.5	23.5	58.7	109.9	100.7	84.6	34.4	9.0	1.3	0.0	435.5
2013	0.0	0.0	0.0	10.2	60.1	90.8	96.3	72.5	47.4	4.5	0.0	0.0	381.8
Average	0.0	0.0	1.5	15.2	43.0	78.9	86.2	67.7	31.5	6.7	0.3	0.0	331.2
Minimum	0.0	0.0	0.0	0.0	0.0	41.3	51.8	26.7	5.6	0.0	0.0	0.0	247.5
Maximum	0.0	0.0	13.9	39.3	73.9	109.9	118.5	99.7	47.4	22.7	2.2	0.0	435.5

Table 10 - Farm Headgate Delivery Available to Meet Crop Irrigation Requirement

Farm Name or Designation: Diamond A West-10

For Summary Period, Average Application Efficiency: 55%, Maximum Application Efficiency: 55%

Notes: Does not include excess effective precipitation. Provide information source of efficiency data.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	25.1	54.0	76.5	104.0	109.4	86.4	60.7	35.7	16.9	0.0	568.7
1985	0.0	0.0	36.5	75.9	50.8	94.5	99.6	90.6	66.8	51.0	19.1	0.0	584.8
1986	0.0	0.7	66.9	82.9	92.4	76.9	90.7	83.8	52.9	48.1	16.0	0.0	611.4
1987	0.0	0.0	41.3	71.4	69.5	92.8	91.9	77.7	57.9	52.6	29.1	0.0	584.2
1988	0.0	0.0	31.2	59.5	61.8	93.6	70.4	75.4	57.4	53.8	26.3	0.0	529.4
1989	0.0	0.0	48.2	82.6	68.7	86.8	78.8	91.1	45.5	30.7	21.8	0.0	554.4
1990	0.0	0.0	20.8	79.1	61.6	88.8	81.9	79.4	41.0	47.0	19.9	0.0	519.4
1991	0.0	0.0	39.4	47.8	54.0	95.0	88.2	92.4	53.5	49.5	0.0	0.0	519.7
1992	0.0	0.0	36.9	99.2	87.0	72.3	85.8	83.9	68.8	55.3	23.5	0.0	612.8
1993	0.0	0.0	23.4	70.8	89.0	100.6	92.7	95.0	71.1	54.4	23.6	0.0	620.6
1994	0.0	0.0	51.6	94.6	78.8	110.6	99.3	81.4	66.9	59.7	25.1	0.0	668.0
1995	0.0	0.0	54.4	100.0	76.5	76.1	110.2	120.8	89.8	71.5	30.5	0.0	729.9
1996	0.0	9.1	80.0	98.5	90.4	107.5	101.7	84.9	65.3	69.1	29.3	0.0	735.7
1997	0.0	0.0	44.5	73.9	83.6	92.5	117.7	56.4	64.8	42.7	0.0	0.0	576.2
1998	0.0	0.0	23.1	87.3	98.3	100.4	102.9	70.5	76.0	53.2	22.6	0.0	634.3
1999	0.0	0.0	53.0	73.0	42.4	82.5	89.5	74.9	71.7	52.1	23.1	0.0	562.2
2000	0.0	2.3	65.0	78.4	79.9	86.8	80.8	62.7	29.3	45.4	23.3	0.0	554.0
2001	0.0	0.0	33.5	62.4	77.5	89.9	90.1	95.6	53.7	43.5	25.1	0.0	571.2
2002	0.0	0.0	32.2	14.4	10.2	31.8	36.4	0.0	0.0	0.0	2.2	0.0	127.2
2003	0.0	0.0	17.6	6.7	47.2	90.0	47.6	14.7	7.8	0.0	12.3	0.0	243.9
2004	0.0	0.0	8.9	58.7	86.0	79.2	71.2	65.9	17.3	30.6	36.6	0.0	454.5
2005	0.0	0.0	33.5	87.0	89.0	89.6	75.0	79.3	21.6	44.8	26.2	0.0	546.0
2006	0.0	0.0	25.3	21.2	61.6	89.8	77.7	74.5	54.9	56.6	19.3	0.0	480.7
2007	0.0	0.0	29.4	75.7	78.5	76.2	85.9	85.6	69.4	66.9	30.2	0.0	597.8
2008	0.0	0.0	49.7	99.1	85.4	104.5	96.0	77.6	65.4	58.4	25.1	0.0	661.3
2009	0.0	0.0	41.7	88.0	87.4	82.8	90.1	72.9	53.2	56.1	18.8	0.0	591.2
2010	0.0	0.0	25.6	70.2	86.9	92.7	81.4	77.9	17.1	40.1	35.2	0.0	527.2
2011	0.0	0.0	32.3	24.6	61.1	104.1	95.2	62.0	41.1	45.1	26.8	0.0	492.4
2012	0.0	0.0	22.7	34.8	62.3	40.2	34.1	8.8	0.0	0.0	0.0	0.0	202.8
2013	0.0	0.0	5.6	1.6	55.2	86.4	46.9	62.2	52.9	77.0	0.0	0.0	387.7
Average	0.0	0.4	36.7	65.8	71.7	87.3	84.0	72.8	49.8	46.4	20.3	0.0	535.0
Minimum	0.0	0.0	5.6	1.6	10.2	31.8	34.1	0.0	0.0	0.0	0.0	0.0	127.2
Maximum	0.0	9.1	80.0	100.0	98.3	110.6	117.7	120.8	89.8	77.0	36.6	0.0	735.7

Table 11 - Soil Moisture Filled (+) or Used (-)

Farm Name or Designation: Diamond A West-10

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985	0.0	0.0	0.0	0.0	0.0	-1.9	1.9	-0.7	0.7	0.0	0.0	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	-20.9	2.3	18.7	0.0	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	0.0	-29.5	-19.2	22.6	26.1	0.0	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	-26.1	26.1	0.0	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	-18.2	18.2	0.0	0.0	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	-5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1992	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993	0.0	0.0	0.0	0.0	0.0	0.0	-3.3	3.3	0.0	0.0	0.0	0.0	0.0
1994	0.0	0.0	0.0	0.0	0.0	0.0	-1.1	1.1	0.0	0.0	0.0	0.0	0.0
1995	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1999	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2000	0.0	0.0	0.0	0.0	0.0	-0.5	-9.4	-5.1	9.2	5.7	0.0	0.0	0.0
2001	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	2.7	0.0	0.0	0.0	0.0	0.0
2002	0.0	0.0	0.0	-19.4	-40.6	-17.2	-4.5	-0.6	0.0	0.0	3.1	6.1	-73.1
2003	0.0	6.4	21.7	-4.7	-4.7	29.5	-43.7	-11.1	-1.3	-0.4	14.0	2.8	8.5
2004	4.5	4.8	-2.5	56.1	0.0	0.0	0.0	0.0	-26.2	22.2	4.0	0.0	62.9
2005	0.0	0.0	0.0	0.0	0.0	0.0	-20.5	19.0	-15.6	17.2	0.0	0.0	0.0
2006	0.0	0.0	0.0	-18.1	8.4	-13.1	3.0	19.9	0.0	0.0	0.0	0.0	0.0
2007	0.0	0.0	0.0	0.0	0.0	0.0	-13.3	13.3	0.0	0.0	0.0	0.0	0.0
2008	0.0	0.0	0.0	0.0	0.0	0.0	-1.5	1.5	0.0	0.0	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-25.9	17.5	8.4	0.0	0.0
2011	0.0	0.0	0.0	-0.3	0.3	0.0	-0.4	-23.7	8.3	15.8	0.0	0.0	0.0
2012	0.0	0.0	0.0	0.0	0.0	-58.1	-17.5	-4.0	-0.4	-0.1	0.0	1.1	-78.9
2013	0.8	1.1	9.4	-2.0	-1.0	-0.8	-5.8	-0.6	5.6	72.2	0.0	0.0	78.9
Average	0.2	0.4	1.0	0.4	-1.4	-2.5	-5.9	0.8	-0.1	5.9	1.0	0.3	-0.1
Minimum	0.0	0.0	-2.5	-19.4	-40.6	-58.1	-43.7	-23.7	-26.2	-0.4	0.0	0.0	-78.9
Maximum	4.5	6.4	21.7	56.1	8.4	29.5	18.2	26.1	22.6	72.2	14.0	6.1	78.9

Table 12 - Soil Moisture Storage

Farm Name or Designation: Diamond A West-10

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MaxSM
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5
1985	96.8	96.8	96.8	96.8	96.8	94.9	96.8	96.1	96.8	96.8	96.8	96.8	96.8
1986	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0
1987	95.3	95.3	95.3	95.3	95.3	95.3	74.4	76.6	95.3	95.3	95.3	95.3	95.3
1988	94.6	94.6	94.6	94.6	94.6	94.6	65.0	45.8	68.4	94.6	94.6	94.6	94.6
1989	93.8	93.8	93.8	93.8	93.8	93.8	67.7	93.8	93.8	93.8	93.8	93.8	93.8
1990	93.1	93.1	93.1	93.1	93.1	74.9	93.1	93.1	93.1	93.1	93.1	93.1	93.1
1991	92.4	92.4	92.4	92.4	86.8	92.4	92.4	92.4	92.4	92.4	92.4	92.4	92.4
1992	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6
1993	90.9	90.9	90.9	90.9	90.9	90.9	87.6	90.9	90.9	90.9	90.9	90.9	90.9
1994	90.0	90.0	90.0	90.0	90.0	90.0	88.9	90.0	90.0	90.0	90.0	90.0	90.0
1995	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0
1996	88.1	88.1	88.1	88.1	88.1	88.1	88.1	88.1	88.1	88.1	88.1	88.1	88.1
1997	87.1	87.1	87.1	87.1	87.1	87.1	87.1	87.1	87.1	87.1	87.1	87.1	87.1
1998	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
1999	85.2	85.2	85.2	85.2	85.2	85.2	85.2	85.2	85.2	85.2	85.2	85.2	85.2
2000	84.3	84.3	84.3	84.3	84.3	83.8	74.4	69.3	78.5	84.3	84.3	84.3	84.3
2001	83.3	83.3	83.3	83.3	83.3	83.3	80.6	83.3	83.3	83.3	83.3	83.3	83.3
2002	82.4	82.4	82.4	62.9	22.3	5.1	0.6	0.1	0.0	0.0	3.2	9.3	82.4
2003	9.2	15.6	37.3	32.6	27.8	57.4	13.7	2.6	1.3	0.9	14.9	17.7	81.4
2004	22.0	26.8	24.3	80.5	80.5	80.5	80.5	80.5	54.2	76.4	80.5	80.5	80.5
2005	79.5	79.5	79.5	79.5	79.5	79.5	59.0	77.9	62.3	79.5	79.5	79.5	79.5
2006	79.7	79.7	79.7	61.6	69.9	56.8	59.8	79.7	79.7	79.7	79.7	79.7	79.7
2007	79.8	79.8	79.8	79.8	79.8	79.8	66.5	79.8	79.8	79.8	79.8	79.8	79.8
2008	80.0	80.0	80.0	80.0	80.0	80.0	78.5	80.0	80.0	80.0	80.0	80.0	80.0
2009	80.2	80.2	80.2	80.2	80.2	80.2	80.2	80.2	80.2	80.2	80.2	80.2	80.2
2010	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	54.5	71.9	80.4	80.4	80.4
2011	80.4	80.4	80.4	80.0	80.4	80.4	80.0	56.3	64.6	80.4	80.4	80.4	80.4
2012	80.4	80.4	80.4	80.4	80.4	22.2	4.8	0.7	0.4	0.3	0.3	1.4	80.4
2013	2.2	3.3	12.8	10.8	9.8	9.0	3.2	2.6	8.1	80.4	80.4	80.4	80.4
Average	79.7	80.1	81.1	81.5	80.0	77.5	71.6	72.4	72.3	78.2	79.1	79.5	86.7
Minimum	2.2	3.3	12.8	10.8	9.8	5.1	0.6	0.1	0.0	0.0	0.3	1.4	79.5
Maximum	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5

Table 13 - Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture

Farm Name or Designation: Diamond A West-10

Derived from Water Budget Balance. Does not include excess effective precipitation used by crop. Soil moisture limited to: 0.5 feet

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	47.3	98.0	84.0	77.3	40.1	0.0	0.0	0.0	346.8
1985	0.0	0.0	0.0	0.0	26.6	96.4	89.6	91.3	26.8	0.0	0.0	0.0	330.8
1986	0.0	0.0	8.3	26.1	58.3	73.2	69.5	67.5	5.6	0.0	0.0	0.0	308.7
1987	0.0	0.0	0.0	22.9	16.3	75.9	112.8	75.4	29.6	10.9	0.0	0.0	343.9
1988	0.0	0.0	0.0	2.4	31.6	87.8	99.9	94.6	34.8	19.8	1.2	0.0	372.2
1989	0.0	0.0	2.6	25.6	48.5	67.6	104.9	64.3	11.0	13.7	0.4	0.0	338.6
1990	0.0	0.0	0.0	23.8	8.0	107.0	51.8	73.8	14.3	0.8	0.0	0.0	279.5
1991	0.0	0.0	0.0	15.6	59.5	86.8	81.7	81.3	24.2	8.3	0.0	0.0	357.5
1992	0.0	0.0	0.0	30.2	52.2	41.3	81.0	54.1	37.4	1.0	0.0	0.0	297.3
1993	0.0	0.0	0.0	2.7	37.7	89.8	96.0	68.0	33.9	5.9	0.0	0.0	334.0
1994	0.0	0.0	0.0	8.9	32.2	106.2	100.4	62.2	28.2	6.8	0.0	0.0	345.0
1995	0.0	0.0	0.0	0.0	0.0	42.6	83.1	99.7	43.3	12.6	1.3	0.0	282.6
1996	0.0	0.0	0.0	26.4	40.3	84.5	73.9	67.4	6.7	11.3	0.0	0.0	310.6
1997	0.0	0.0	0.0	0.0	53.7	57.7	89.8	35.8	33.4	0.0	0.0	0.0	270.4
1998	0.0	0.0	0.0	14.5	43.7	85.1	68.4	43.7	40.4	0.0	0.0	0.0	295.9
1999	0.0	0.0	0.0	0.0	23.2	71.4	54.1	56.4	41.5	0.0	0.8	0.0	247.5
2000	0.0	0.0	0.0	20.9	53.4	87.3	90.2	67.7	20.1	3.5	0.0	0.0	343.1
2001	0.0	0.0	0.0	20.8	14.8	72.7	92.8	82.2	28.1	8.5	0.0	0.0	320.1
2002	0.0	0.0	0.0	33.8	50.8	49.0	40.9	0.6	0.0	0.0	0.0	0.0	175.0
2003	0.0	0.0	0.0	6.7	47.2	52.5	91.3	25.8	9.1	0.4	0.0	0.0	233.0
2004	0.0	0.0	8.9	0.0	65.1	56.6	57.6	26.7	43.5	8.4	0.0	0.0	266.8
2005	0.0	0.0	0.0	14.7	52.5	73.5	95.5	60.3	37.2	0.0	2.2	0.0	335.8
2006	0.0	0.0	0.0	39.3	53.2	102.9	74.7	43.5	18.4	0.0	0.0	0.0	331.9
2007	0.0	0.0	7.3	1.0	42.5	50.2	99.3	71.1	41.8	15.8	1.6	0.0	330.5
2008	0.0	0.0	0.0	15.3	52.3	82.3	97.5	33.2	44.1	0.6	0.0	0.0	325.3
2009	0.0	0.0	0.0	24.8	48.2	64.2	58.8	63.0	30.6	0.0	0.0	0.0	289.5
2010	0.0	0.0	0.0	15.3	41.0	69.6	55.3	54.0	43.0	22.7	0.5	0.0	301.2
2011	0.0	0.0	0.0	24.9	42.8	78.3	95.6	85.7	32.9	11.3	0.0	0.0	371.4
2012	0.0	0.0	13.5	23.5	58.7	98.3	51.5	12.8	0.4	0.1	0.0	0.0	258.7
2013	0.0	0.0	0.0	1.6	55.2	86.4	49.6	62.7	47.4	4.5	0.0	0.0	307.4
Average	0.0	0.0	1.4	14.7	41.9	76.5	79.7	60.1	28.3	5.6	0.3	0.0	308.4
Minimum	0.0	0.0	0.0	0.0	0.0	41.3	40.9	0.6	0.0	0.0	0.0	0.0	175.0
Maximum	0.0	0.0	13.5	39.3	65.1	107.0	112.8	99.7	47.4	22.7	2.2	0.0	372.2
Limit	0.0	0.0	10.2	34.4	61.1	105.4	106.0	95.2	45.0	19.4	1.7	0.0	367.0

Table 14 - Total Return Flows at Farm

Farm Name or Designation: Diamond A West-10

Derived from Water Budget Balance. Does not include excess effective precipitation that deep percolates.

Notes:

Year (Cal)	Jan (AF)	Feb (AF)	Mar (AF)	Apr (AF)	May (AF)	Jun (AF)	Jul (AF)	Aug (AF)	Sep (AF)	Oct (AF)	Nov (AF)	Dec (AF)	Total (AF)
1984	0.0	0.0	45.6	98.3	91.8	91.1	114.8	79.8	70.3	64.8	30.7	0.0	687.2
1985	0.0	0.0	66.3	138.1	65.8	77.3	89.6	74.1	93.9	92.7	34.7	0.0	732.6
1986	0.0	1.3	113.2	124.6	109.7	66.6	95.3	85.0	90.5	87.4	29.2	0.0	802.9
1987	0.0	0.0	75.1	107.0	110.0	92.8	75.2	63.6	57.0	84.7	52.9	0.0	718.2
1988	0.0	0.0	56.7	105.8	80.7	82.4	57.6	61.7	47.0	51.9	46.7	0.0	590.3
1989	0.0	0.0	85.1	124.7	76.4	90.3	64.5	75.3	71.7	42.1	39.3	0.0	669.4
1990	0.0	0.0	37.8	120.0	103.9	72.6	78.9	70.5	60.3	84.7	36.1	0.0	664.9
1991	0.0	0.0	71.7	71.3	44.2	80.3	78.6	86.6	73.1	81.6	0.0	0.0	587.5
1992	0.0	0.0	67.1	150.2	106.0	90.0	75.0	98.4	87.7	99.5	42.8	0.0	816.9
1993	0.0	0.0	42.5	126.1	124.2	93.0	75.8	101.5	95.4	92.9	42.9	0.0	794.4
1994	0.0	0.0	93.9	163.2	111.0	94.8	81.2	84.7	93.4	101.6	45.7	0.0	869.5
1995	0.0	0.0	98.9	181.8	139.1	95.8	117.2	120.0	120.1	117.3	54.2	0.0	1044.6
1996	0.0	16.5	145.5	152.6	124.1	110.9	110.9	86.9	112.0	114.3	53.3	0.0	1027.1
1997	0.0	0.0	81.0	134.3	98.2	110.5	124.2	66.8	84.4	77.7	0.0	0.0	777.1
1998	0.0	0.0	42.1	144.2	134.9	97.5	118.7	84.4	97.7	96.8	41.1	0.0	857.4
1999	0.0	0.0	96.3	132.7	53.9	78.5	108.7	79.7	88.9	94.7	41.2	0.0	774.7
2000	0.0	4.2	118.2	121.6	91.9	71.1	66.1	51.3	24.0	73.3	42.5	0.0	664.1
2001	0.0	0.0	60.9	92.6	126.1	90.8	73.7	88.9	69.4	70.5	45.6	0.0	718.5
2002	0.0	0.0	58.6	11.8	8.3	26.0	29.8	0.0	0.0	0.0	1.8	0.0	136.3
2003	0.0	0.0	14.4	5.5	38.6	73.6	38.9	12.0	6.4	0.0	10.1	0.0	199.5
2004	0.0	0.0	7.3	48.0	82.5	87.5	71.9	93.2	14.2	25.0	62.6	0.0	492.1
2005	0.0	0.0	61.0	143.5	109.4	89.4	61.3	64.9	17.7	64.3	45.5	0.0	656.8
2006	0.0	0.0	46.0	17.3	50.4	73.4	63.5	72.1	81.4	102.9	35.0	0.0	542.2
2007	0.0	0.0	46.1	136.7	100.2	88.3	70.3	71.2	84.4	105.9	53.2	0.0	756.4
2008	0.0	0.0	90.4	164.9	102.9	107.6	78.6	106.5	74.8	105.6	45.6	0.0	877.0
2009	0.0	0.0	75.9	135.3	110.8	86.3	105.1	69.6	66.1	102.0	34.2	0.0	785.4
2010	0.0	0.0	46.6	112.4	117.1	99.0	92.8	87.7	14.0	32.8	55.0	0.0	657.4
2011	0.0	0.0	58.7	20.1	68.0	111.1	77.9	50.7	33.7	55.0	48.7	0.0	523.9
2012	0.0	0.0	27.8	39.7	54.6	32.9	27.9	7.2	0.0	0.0	0.0	0.0	190.0
2013	0.0	0.0	4.6	1.3	45.2	70.7	38.4	50.9	43.3	63.3	0.0	0.0	317.5
Average	0.0	0.7	64.5	104.2	89.3	84.4	78.8	71.5	62.4	72.9	35.7	0.0	664.4
Minimum	0.0	0.0	4.6	1.3	8.3	26.0	27.9	0.0	0.0	0.0	0.0	0.0	136.3
Maximum	0.0	16.5	145.5	181.8	139.1	111.1	124.2	120.0	120.1	117.3	62.6	0.0	1044.6

Table 15 - Tailwater/Surface Runoff Return Flows at Farm

Farm Name or Designation: Diamond A West-10

For Summary Period Tailwater from Water Budget: 14.6% of Total Return Flows, Tailwater Forced to: 20% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	9.1	19.7	18.4	18.2	23.0	16.0	14.1	13.0	6.1	0.0	137.4
1985	0.0	0.0	13.3	27.6	13.2	15.5	17.9	14.8	18.8	18.5	6.9	0.0	146.5
1986	0.0	0.3	22.6	24.9	21.9	13.3	19.1	17.0	18.1	17.5	5.8	0.0	160.6
1987	0.0	0.0	15.0	21.4	22.0	18.6	15.0	12.7	11.4	16.9	10.6	0.0	143.6
1988	0.0	0.0	11.3	21.2	16.1	16.5	11.5	12.3	9.4	10.4	9.3	0.0	118.1
1989	0.0	0.0	17.0	24.9	15.3	18.1	12.9	15.1	14.3	8.4	7.9	0.0	133.9
1990	0.0	0.0	7.6	24.0	20.8	14.5	15.8	14.1	12.1	16.9	7.2	0.0	133.0
1991	0.0	0.0	14.3	14.3	8.8	16.1	15.7	17.3	14.6	16.3	0.0	0.0	117.5
1992	0.0	0.0	13.4	30.0	21.2	18.0	15.0	19.7	17.5	19.9	8.6	0.0	163.4
1993	0.0	0.0	8.5	25.2	24.8	18.6	15.2	20.3	19.1	18.6	8.6	0.0	158.9
1994	0.0	0.0	18.8	32.6	22.2	19.0	16.2	16.9	18.7	20.3	9.1	0.0	173.9
1995	0.0	0.0	19.8	36.4	27.8	19.2	23.4	24.0	24.0	23.5	10.8	0.0	208.9
1996	0.0	3.3	29.1	30.5	24.8	22.2	22.2	17.4	22.4	22.9	10.7	0.0	205.4
1997	0.0	0.0	16.2	26.9	19.6	22.1	24.8	13.4	16.9	15.5	0.0	0.0	155.4
1998	0.0	0.0	8.4	28.8	27.0	19.5	23.7	16.9	19.5	19.4	8.2	0.0	171.5
1999	0.0	0.0	19.3	26.5	10.8	15.7	21.7	15.9	17.8	18.9	8.2	0.0	154.9
2000	0.0	0.8	23.6	24.3	18.4	14.2	13.2	10.3	4.8	14.7	8.5	0.0	132.8
2001	0.0	0.0	12.2	18.5	25.2	18.2	14.7	17.8	13.9	14.1	9.1	0.0	143.7
2002	0.0	0.0	11.7	2.4	1.7	5.2	6.0	0.0	0.0	0.0	0.4	0.0	27.3
2003	0.0	0.0	2.9	1.1	7.7	14.7	7.8	2.4	1.3	0.0	2.0	0.0	39.9
2004	0.0	0.0	1.5	9.6	16.5	17.5	14.4	18.6	2.8	5.0	12.5	0.0	98.4
2005	0.0	0.0	12.2	28.7	21.9	17.9	12.3	13.0	3.5	12.9	9.1	0.0	131.4
2006	0.0	0.0	9.2	3.5	10.1	14.7	12.7	14.4	16.3	20.6	7.0	0.0	108.4
2007	0.0	0.0	9.2	27.3	20.0	17.7	14.1	14.2	16.9	21.2	10.6	0.0	151.3
2008	0.0	0.0	18.1	33.0	20.6	21.5	15.7	21.3	15.0	21.1	9.1	0.0	175.4
2009	0.0	0.0	15.2	27.1	22.2	17.3	21.0	13.9	13.2	20.4	6.8	0.0	157.1
2010	0.0	0.0	9.3	22.5	23.4	19.8	18.6	17.5	2.8	6.6	11.0	0.0	131.5
2011	0.0	0.0	11.7	4.0	13.6	22.2	15.6	10.1	6.7	11.0	9.7	0.0	104.8
2012	0.0	0.0	5.6	7.9	10.9	6.6	5.6	1.4	0.0	0.0	0.0	0.0	38.0
2013	0.0	0.0	0.9	0.3	9.0	14.1	7.7	10.2	8.7	12.7	0.0	0.0	63.5
Average	0.0	0.1	12.9	20.8	17.9	16.9	15.8	14.3	12.5	14.6	7.1	0.0	132.9
Minimum	0.0	0.0	0.9	0.3	1.7	5.2	5.6	0.0	0.0	0.0	0.0	0.0	27.3
Maximum	0.0	3.3	29.1	36.4	27.8	22.2	24.8	24.0	24.0	23.5	12.5	0.0	208.9
TW RF Factors: Average Monthly Tailwater / Surface Returns as a percent of Average Monthly Farm Headgate Delivery													
		20.0%	19.4%	17.4%	13.7%	10.6%	10.3%	10.8%	13.8%	17.3%	19.4%		13.7%

Table 16 - Deep Percolation/Ground Water Return Flows at Farm (unlagged)

Farm Name or Designation: Diamond A West-10

For Summary Period Deep Percolation from Water Budget: 85.4% of Total Return Flows, Deep Percolation Forced to: 80% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	36.5	78.6	73.4	72.9	91.8	63.8	56.2	51.9	24.6	0.0	549.8
1985	0.0	0.0	53.1	110.5	52.6	61.8	71.7	59.3	75.1	74.1	27.8	0.0	586.0
1986	0.0	1.1	90.6	99.7	87.8	53.3	76.3	68.0	72.4	70.0	23.3	0.0	642.3
1987	0.0	0.0	60.1	85.6	88.0	74.2	60.1	50.9	45.6	67.7	42.3	0.0	574.6
1988	0.0	0.0	45.3	84.6	64.5	65.9	46.1	49.3	37.6	41.5	37.3	0.0	472.3
1989	0.0	0.0	68.0	99.7	61.1	72.3	51.6	60.3	57.4	33.7	31.5	0.0	535.5
1990	0.0	0.0	30.2	96.0	83.1	58.1	63.1	56.4	48.2	67.8	28.9	0.0	531.9
1991	0.0	0.0	57.4	57.1	35.3	64.3	62.9	69.3	58.4	65.3	0.0	0.0	470.0
1992	0.0	0.0	53.7	120.2	84.8	72.0	60.0	78.7	70.2	79.6	34.3	0.0	653.5
1993	0.0	0.0	34.0	100.9	99.3	74.4	60.7	81.2	76.3	74.4	34.3	0.0	635.5
1994	0.0	0.0	75.1	130.5	88.8	75.9	65.0	67.7	74.7	81.3	36.6	0.0	695.6
1995	0.0	0.0	79.1	145.5	111.3	76.7	93.8	96.0	96.1	93.9	43.4	0.0	835.7
1996	0.0	13.2	116.4	122.1	99.3	88.7	88.8	69.5	89.6	91.5	42.6	0.0	821.7
1997	0.0	0.0	64.8	107.5	78.6	88.4	99.4	53.5	67.5	62.2	0.0	0.0	621.7
1998	0.0	0.0	33.7	115.4	107.9	78.0	94.9	67.6	78.2	77.4	32.9	0.0	685.9
1999	0.0	0.0	77.1	106.2	43.1	62.8	87.0	63.8	71.1	75.8	33.0	0.0	619.7
2000	0.0	3.3	94.6	97.3	73.5	56.8	52.9	41.0	19.2	58.7	34.0	0.0	531.3
2001	0.0	0.0	48.7	74.1	100.8	72.6	59.0	71.2	55.5	56.4	36.5	0.0	574.8
2002	0.0	0.0	46.9	9.4	6.7	20.8	23.8	0.0	0.0	0.0	1.4	0.0	109.0
2003	0.0	0.0	11.5	4.4	30.9	58.9	31.1	9.6	5.1	0.0	8.0	0.0	159.6
2004	0.0	0.0	5.8	38.4	66.0	70.0	57.5	74.6	11.3	20.0	50.1	0.0	393.7
2005	0.0	0.0	48.8	114.8	87.5	71.5	49.1	51.9	14.1	51.4	36.4	0.0	525.5
2006	0.0	0.0	36.8	13.9	40.3	58.8	50.8	57.7	65.1	82.3	28.0	0.0	433.7
2007	0.0	0.0	36.9	109.4	80.2	70.7	56.2	57.0	67.5	84.7	42.6	0.0	605.1
2008	0.0	0.0	72.3	131.9	82.3	86.1	62.8	85.2	59.8	84.5	36.5	0.0	701.6
2009	0.0	0.0	60.7	108.2	88.6	69.0	84.1	55.7	52.9	81.6	27.4	0.0	628.3
2010	0.0	0.0	37.3	89.9	93.7	79.2	74.2	70.2	11.2	26.3	44.0	0.0	525.9
2011	0.0	0.0	47.0	16.1	54.4	88.8	62.3	40.6	26.9	44.0	39.0	0.0	419.1
2012	0.0	0.0	22.3	31.8	43.7	26.3	22.3	5.7	0.0	0.0	0.0	0.0	152.0
2013	0.0	0.0	3.7	1.0	36.2	56.5	30.7	40.7	34.6	50.6	0.0	0.0	254.0
Average	0.0	0.6	51.6	83.4	71.5	67.5	63.0	57.2	49.9	58.3	28.6	0.0	531.5
Minimum	0.0	0.0	3.7	1.0	6.7	20.8	22.3	0.0	0.0	0.0	0.0	0.0	109.0
Maximum	0.0	13.2	116.4	145.5	111.3	88.8	99.4	96.0	96.1	93.9	50.1	0.0	835.7
DP RF Factors: Average Monthly Deep Percolation / Groundwater Returns as a percent of Average Monthly Farm Headgate Delivery													
		80.0%	77.4%	69.7%	54.9%	42.5%	41.3%	43.2%	55.2%	69.1%	77.5%		54.6%

Table 17 - Historical Depletions at Farm

Farm Name or Designation: Diamond A West-10

Farm Headgate Delivery less Total Unlagged Return Flows at Farm. Includes Depletion and Return Flow Factors.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	47.3	98.0	84.0	77.3	40.1	0.0	0.0	0.0	346.8
1985	0.0	0.0	0.0	0.0	26.6	94.5	91.6	90.6	27.5	0.0	0.0	0.0	330.8
1986	0.0	0.0	8.3	26.1	58.3	73.2	69.5	67.5	5.6	0.0	0.0	0.0	308.7
1987	0.0	0.0	0.0	22.9	16.3	75.9	91.9	77.7	48.2	10.9	0.0	0.0	343.9
1988	0.0	0.0	0.0	2.4	31.6	87.8	70.4	75.4	57.4	46.0	1.2	0.0	372.2
1989	0.0	0.0	2.6	25.6	48.5	67.6	78.8	90.4	11.0	13.7	0.4	0.0	338.6
1990	0.0	0.0	0.0	23.8	8.0	88.8	70.0	73.8	14.3	0.8	0.0	0.0	279.5
1991	0.0	0.0	0.0	15.6	54.0	92.4	81.7	81.3	24.2	8.3	0.0	0.0	357.5
1992	0.0	0.0	0.0	30.2	52.2	41.3	81.0	54.1	37.4	1.0	0.0	0.0	297.3
1993	0.0	0.0	0.0	2.7	37.7	89.8	92.7	71.3	33.9	5.9	0.0	0.0	334.0
1994	0.0	0.0	0.0	8.9	32.2	106.2	99.3	63.3	28.2	6.8	0.0	0.0	345.0
1995	0.0	0.0	0.0	0.0	0.0	42.6	83.1	99.7	43.3	12.6	1.3	0.0	282.6
1996	0.0	0.0	0.0	26.4	40.3	84.5	73.9	67.4	6.7	11.3	0.0	0.0	310.6
1997	0.0	0.0	0.0	0.0	53.7	57.7	89.8	35.8	33.4	0.0	0.0	0.0	270.4
1998	0.0	0.0	0.0	14.5	43.7	85.1	68.4	43.7	40.4	0.0	0.0	0.0	295.9
1999	0.0	0.0	0.0	0.0	23.2	71.4	54.1	56.4	41.5	0.0	0.8	0.0	247.5
2000	0.0	0.0	0.0	20.9	53.4	86.8	80.8	62.7	29.3	9.2	0.0	0.0	343.1
2001	0.0	0.0	0.0	20.8	14.8	72.7	90.1	84.9	28.1	8.5	0.0	0.0	320.1
2002	0.0	0.0	0.0	14.4	10.2	31.8	36.4	0.0	0.0	0.0	2.2	0.0	94.9
2003	0.0	0.0	17.6	6.7	47.2	90.0	47.6	14.7	7.8	0.0	12.3	0.0	243.9
2004	0.0	0.0	8.9	58.7	73.9	56.6	57.6	26.7	17.3	30.6	4.0	0.0	334.3
2005	0.0	0.0	0.0	14.7	52.5	73.5	75.0	79.3	21.6	17.2	2.2	0.0	335.8
2006	0.0	0.0	0.0	21.2	61.6	89.8	77.7	63.3	18.4	0.0	0.0	0.0	331.9
2007	0.0	0.0	7.3	1.0	42.5	50.2	85.9	84.5	41.8	15.8	1.6	0.0	330.5
2008	0.0	0.0	0.0	15.3	52.3	82.3	96.0	34.6	44.1	0.6	0.0	0.0	325.3
2009	0.0	0.0	0.0	24.8	48.2	64.2	58.8	63.0	30.6	0.0	0.0	0.0	289.5
2010	0.0	0.0	0.0	15.3	41.0	69.6	55.3	54.0	17.1	40.1	8.9	0.0	301.2
2011	0.0	0.0	0.0	24.6	43.2	78.3	95.2	62.0	41.1	27.1	0.0	0.0	371.4
2012	0.0	0.0	13.5	23.5	58.7	40.2	34.1	8.8	0.0	0.0	0.0	0.0	178.7
2013	0.0	0.0	5.6	1.6	55.2	86.4	46.9	62.2	52.9	76.7	0.0	0.0	387.4
Average	0.0	0.0	2.1	15.4	40.9	74.3	73.9	60.9	28.1	11.4	1.2	0.0	308.3
Minimum	0.0	0.0	0.0	0.0	0.0	31.8	34.1	0.0	0.0	0.0	0.0	0.0	94.9
Maximum	0.0	0.0	17.6	58.7	73.9	106.2	99.3	99.7	57.4	76.7	12.3	0.0	387.4
Limit	0.0	0.0	13.3	38.4	64.7	99.6	96.9	93.6	52.9	54.3	8.4	0.0	377.0
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	3.2%	12.9%	31.4%	46.8%	48.4%	46.0%	31.1%	13.6%	3.2%		31.7%
TW Returns		20.0%	19.4%	17.4%	13.7%	10.6%	10.3%	10.8%	13.8%	17.3%	19.4%		13.7%
DP Returns		80.0%	77.4%	69.7%	54.9%	42.5%	41.3%	43.2%	55.2%	69.1%	77.5%		54.6%
Sum		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		100.0%

Table 18 - Percent Tailwater/Surface Runoff Return Flows of Farm Headgate Delivery

Farm Name or Designation: Diamond A West-10

Tailwater/Surface Runoff Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984			20.0%	20.0%	13.2%	9.6%	11.5%	10.2%	12.7%	20.0%	20.0%		13.3%
1985			20.0%	20.0%	14.2%	9.0%	9.9%	9.0%	15.5%	20.0%	20.0%		13.8%
1986		20.0%	18.6%	16.5%	13.1%	9.5%	11.6%	11.1%	18.8%	20.0%	20.0%		14.4%
1987			20.0%	16.5%	17.4%	11.0%	9.0%	9.0%	10.8%	17.7%	20.0%		13.5%
1988			20.0%	19.6%	14.4%	9.7%	9.0%	9.0%	9.0%	10.6%	19.5%		12.3%
1989			19.4%	16.6%	12.2%	11.4%	9.0%	9.1%	17.3%	15.1%	19.8%		13.3%
1990			20.0%	16.7%	18.6%	9.0%	10.6%	9.8%	16.2%	19.8%	20.0%		14.1%
1991			20.0%	16.4%	9.0%	9.3%	9.8%	10.3%	15.0%	18.2%			12.4%
1992			20.0%	16.7%	13.4%	13.7%	9.6%	12.9%	14.0%	19.8%	20.0%		14.7%
1993			20.0%	19.6%	15.3%	10.2%	9.0%	11.7%	14.8%	18.8%	20.0%		14.1%
1994			20.0%	19.0%	15.5%	9.4%	9.0%	11.4%	15.4%	18.7%	20.0%		14.3%
1995			20.0%	20.0%	20.0%	13.8%	11.7%	10.9%	14.7%	18.1%	19.5%		15.7%
1996		20.0%	20.0%	17.0%	15.1%	11.4%	12.0%	11.3%	18.9%	18.2%	20.0%		15.4%
1997			20.0%	20.0%	12.9%	13.1%	11.6%	13.0%	14.3%	20.0%			14.8%
1998			20.0%	18.2%	15.1%	10.7%	12.7%	13.2%	14.1%	20.0%	20.0%		14.9%
1999			20.0%	20.0%	14.0%	10.5%	13.4%	11.7%	13.6%	20.0%	19.6%		15.2%
2000		20.0%	20.0%	17.1%	12.6%	9.0%	9.0%	9.0%	9.0%	17.8%	20.0%		13.2%
2001			20.0%	16.3%	17.9%	11.1%	9.0%	10.2%	14.2%	17.8%	20.0%		13.8%
2002			20.0%	9.0%	9.0%	9.0%	9.0%				9.0%		11.8%
2003			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%		9.0%
2004			9.0%	9.0%	10.5%	12.1%	11.1%	15.6%	9.0%	9.0%	18.8%		11.9%
2005			20.0%	18.1%	13.5%	11.0%	9.0%	9.0%	9.0%	15.8%	19.1%		13.2%
2006			20.0%	9.0%	9.0%	9.0%	9.0%	10.6%	16.3%	20.0%	20.0%		12.4%
2007			17.3%	19.9%	14.0%	12.8%	9.0%	9.1%	13.4%	17.4%	19.4%		13.9%
2008			20.0%	18.3%	13.3%	11.3%	9.0%	15.1%	12.6%	19.9%	20.0%		14.6%
2009			20.0%	16.9%	13.9%	11.5%	12.8%	10.5%	13.7%	20.0%	20.0%		14.6%
2010			20.0%	17.6%	14.8%	11.7%	12.5%	12.4%	9.0%	9.0%	17.2%		13.7%
2011			20.0%	9.0%	12.2%	11.7%	9.0%	9.0%	9.0%	13.4%	20.0%		11.7%
2012			13.5%	12.6%	9.6%	9.0%	9.0%	9.0%					10.3%
2013			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%			9.0%
Average		20.0%	18.5%	16.1%	13.4%	10.6%	10.2%	10.7%	13.2%	17.2%	18.9%		13.3%
Minimum		20.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%
Maximum		20.0%	20.0%	20.0%	20.0%	13.8%	13.4%	15.6%	18.9%	20.0%	20.0%		15.7%

Table 19 - Percent Deep Percolation/Ground Water Return Flows of Farm Headgate Delivery

Farm Name or Designation: Diamond A West-10

Deep Percolation/Ground Water Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			80.0%	80.0%	52.8%	38.5%	46.2%	40.6%	50.9%	80.0%	80.0%		53.2%
1985			80.0%	80.0%	57.0%	36.0%	39.6%	36.0%	61.9%	80.0%	80.0%		55.1%
1986		80.0%	74.5%	66.1%	52.2%	38.1%	46.3%	44.6%	75.3%	80.0%	80.0%		57.8%
1987			80.0%	65.9%	69.7%	44.0%	36.0%	36.0%	43.3%	70.9%	80.0%		54.1%
1988			80.0%	78.2%	57.5%	38.7%	36.0%	36.0%	36.0%	42.4%	78.0%		49.1%
1989			77.6%	66.4%	48.9%	45.8%	36.0%	36.4%	69.4%	60.4%	79.3%		53.1%
1990			80.0%	66.8%	74.3%	36.0%	42.4%	39.1%	64.7%	79.3%	80.0%		56.3%
1991			80.0%	65.7%	36.0%	37.2%	39.2%	41.3%	60.1%	72.6%			49.7%
1992			80.0%	66.6%	53.6%	54.8%	38.5%	51.6%	56.1%	79.2%	80.0%		58.7%
1993			80.0%	78.3%	61.4%	40.7%	36.0%	47.0%	59.0%	75.2%	80.0%		56.3%
1994			80.0%	75.9%	62.0%	37.7%	36.0%	45.8%	61.4%	75.0%	80.0%		57.3%
1995			80.0%	80.0%	80.0%	55.4%	46.8%	43.7%	58.8%	72.2%	78.2%		63.0%
1996		80.0%	80.0%	68.2%	60.4%	45.4%	48.0%	45.0%	75.5%	72.8%	80.0%		61.4%
1997			80.0%	80.0%	51.7%	52.6%	46.4%	52.1%	57.3%	80.0%			59.3%
1998			80.0%	72.7%	60.4%	42.7%	50.7%	52.7%	56.6%	80.0%	80.0%		59.5%
1999			80.0%	80.0%	55.9%	41.9%	53.4%	46.9%	54.5%	80.0%	78.4%		60.6%
2000		80.0%	80.0%	68.3%	50.6%	36.0%	36.0%	36.0%	36.0%	71.1%	80.0%		52.7%
2001			80.0%	65.3%	71.6%	44.4%	36.0%	40.9%	56.9%	71.4%	80.0%		55.3%
2002			80.0%	36.0%	36.0%	36.0%	36.0%				36.0%		47.2%
2003			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%		36.0%
2004			36.0%	36.0%	42.2%	48.6%	44.4%	62.2%	36.0%	36.0%	75.1%		47.6%
2005			80.0%	72.6%	54.1%	43.9%	36.0%	36.0%	36.0%	63.2%	76.4%		52.9%
2006			80.0%	36.0%	36.0%	36.0%	36.0%	42.6%	65.3%	80.0%	80.0%		49.6%
2007			69.0%	79.4%	56.2%	51.0%	36.0%	36.6%	53.5%	69.6%	77.7%		55.7%
2008			80.0%	73.2%	53.0%	45.3%	36.0%	60.4%	50.3%	79.6%	80.0%		58.4%
2009			80.0%	67.6%	55.8%	45.9%	51.3%	42.0%	54.7%	80.0%	80.0%		58.5%
2010			80.0%	70.4%	59.3%	47.0%	50.1%	49.5%	36.0%	36.0%	68.8%		54.9%
2011			80.0%	36.0%	48.9%	46.9%	36.0%	36.0%	36.0%	53.6%	80.0%		46.8%
2012			53.8%	50.3%	38.6%	36.0%	36.0%	36.0%					41.2%
2013			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.2%			36.0%
Average		80.0%	74.1%	64.5%	53.6%	42.5%	40.6%	42.9%	52.6%	68.8%	75.5%		53.2%
Minimum		80.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%
Maximum		80.0%	80.0%	80.0%	80.0%	55.4%	53.4%	62.2%	75.5%	80.0%	80.0%		63.0%

Table 20 - Percent Historic On-Farm Depletions of Farm Headgate Delivery

Farm Name or Designation: Diamond A West-10

Historic On-Farm Depletions divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			0.0%	0.0%	34.0%	51.8%	42.3%	49.2%	36.4%	0.0%	0.0%		33.5%
1985			0.0%	0.0%	28.8%	55.0%	50.5%	55.0%	22.7%	0.0%	0.0%		31.1%
1986		0.0%	6.8%	17.3%	34.7%	52.4%	42.2%	44.3%	5.9%	0.0%	0.0%		27.8%
1987			0.0%	17.6%	12.9%	45.0%	55.0%	55.0%	45.8%	11.4%	0.0%		32.4%
1988			0.0%	2.2%	28.2%	51.6%	55.0%	55.0%	55.0%	47.0%	2.5%		38.7%
1989			3.0%	17.0%	38.8%	42.8%	55.0%	54.5%	13.3%	24.5%	0.9%		33.6%
1990			0.0%	16.6%	7.2%	55.0%	47.0%	51.1%	19.2%	0.9%	0.0%		29.6%
1991			0.0%	17.9%	55.0%	53.5%	51.0%	48.4%	24.9%	9.2%			37.8%
1992			0.0%	16.7%	33.0%	31.5%	51.9%	35.5%	29.9%	1.0%	0.0%		26.7%
1993			0.0%	2.1%	23.3%	49.1%	55.0%	41.3%	26.2%	6.0%	0.0%		29.6%
1994			0.0%	5.2%	22.5%	52.8%	55.0%	42.8%	23.2%	6.3%	0.0%		28.4%
1995			0.0%	0.0%	0.0%	30.8%	41.5%	45.4%	26.5%	9.7%	2.3%		21.3%
1996		0.0%	0.0%	14.8%	24.5%	43.2%	40.0%	43.7%	5.7%	9.0%	0.0%		23.2%
1997			0.0%	0.0%	35.4%	34.3%	42.0%	34.9%	28.3%	0.0%			25.8%
1998			0.0%	9.1%	24.5%	46.6%	36.6%	34.1%	29.3%	0.0%	0.0%		25.7%
1999			0.0%	0.0%	30.1%	47.7%	33.2%	41.4%	31.8%	0.0%	2.0%		24.2%
2000		0.0%	0.0%	14.6%	36.8%	55.0%	55.0%	55.0%	55.0%	11.1%	0.0%		34.1%
2001			0.0%	18.4%	10.5%	44.5%	55.0%	48.8%	28.9%	10.8%	0.0%		30.8%
2002			0.0%	55.0%	55.0%	55.0%	55.0%				55.0%		41.1%
2003			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%		55.0%
2004			55.0%	55.0%	47.3%	39.3%	44.5%	22.2%	55.0%	55.0%	6.1%		40.4%
2005			0.0%	9.3%	32.4%	45.1%	55.0%	55.0%	55.0%	21.1%	4.5%		33.8%
2006			0.0%	55.0%	55.0%	55.0%	55.0%	46.8%	18.4%	0.0%	0.0%		38.0%
2007			13.7%	0.7%	29.8%	36.2%	55.0%	54.3%	33.1%	13.0%	2.9%		30.4%
2008			0.0%	8.5%	33.7%	43.3%	55.0%	24.5%	37.1%	0.6%	0.0%		27.1%
2009			0.0%	15.5%	30.3%	42.7%	35.9%	47.5%	31.6%	0.0%	0.0%		26.9%
2010			0.0%	12.0%	25.9%	41.3%	37.3%	38.1%	55.0%	55.0%	14.0%		31.4%
2011			0.0%	55.0%	38.8%	41.3%	55.0%	55.0%	55.0%	33.0%	0.0%		41.5%
2012			32.7%	37.2%	51.8%	55.0%	55.0%	55.0%					48.5%
2013			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	54.8%			55.0%
Average		0.0%	7.4%	19.4%	33.0%	46.9%	49.2%	46.3%	34.2%	14.1%	5.6%		33.4%
Minimum			0.0%			30.8%	33.2%	22.2%	5.7%	0.0%	0.0%		21.3%
Maximum		0.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%

Table 21 - Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased

Farm Name or Designation: Diamond A West-10

Remaining return flows from cumulative calendar year diversions. Amount remaining after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	36.5	114.5	185.2	251.5	332.9	382.3	420.4	451.6	**453.7**	430.3	453.7
1985	0.0	0.0	53.1	162.7	211.3	264.7	324.4	368.7	426.2	480.1	**485.1**	460.5	485.1
1986	0.0	1.1	91.6	189.9	272.1	314.8	376.2	426.3	478.2	525.1	**523.1**	496.3	523.1
1987	0.0	0.0	60.0	144.7	228.8	294.7	342.1	376.7	403.6	451.1	**471.7**	448.5	471.7
1988	0.0	0.0	45.3	129.3	190.5	249.3	284.6	320.3	342.2	366.5	**385.7**	366.7	385.7
1989	0.0	0.0	68.0	166.7	223.3	286.6	325.5	370.1	409.5	423.2	**433.4**	411.4	433.4
1990	0.0	0.0	30.2	125.8	206.1	257.1	309.0	351.0	382.2	431.0	**439.3**	417.1	439.3
1991	0.0	0.0	57.3	113.5	145.5	203.6	257.9	315.8	360.0	**408.2**	388.8	368.1	408.2
1992	0.0	0.0	53.7	173.0	253.7	316.3	362.2	423.4	473.4	530.1	**539.0**	511.8	539.0
1993	0.0	0.0	34.0	134.3	230.6	297.3	345.3	410.0	467.0	519.0	**528.4**	501.6	528.4
1994	0.0	0.0	75.1	204.4	288.0	352.7	401.7	450.0	502.6	559.5	**569.3**	540.7	569.3
1995	0.0	0.0	79.1	223.3	329.0	393.3	469.1	542.9	613.1	677.5	**688.3**	653.5	688.3
1996	0.0	13.2	129.4	249.1	340.7	415.6	485.4	531.8	595.1	657.7	**668.8**	635.3	668.8
1997	0.0	0.0	64.8	171.2	245.3	324.3	409.7	444.8	490.4	**528.3**	502.3	475.5	528.3
1998	0.0	0.0	33.6	148.5	253.2	322.6	403.7	452.9	509.1	561.8	**567.4**	538.5	567.4
1999	0.0	0.0	77.0	182.1	220.2	273.5	347.9	396.0	448.3	502.6	**511.6**	485.8	511.6
2000	0.0	3.3	97.8	193.5	261.3	307.5	345.9	369.9	370.4	409.7	**423.8**	403.0	423.8
2001	0.0	0.0	48.7	122.0	219.5	284.8	331.7	387.2	424.2	459.8	**473.7**	449.8	473.7
2002	0.0	0.0	46.9	55.6	60.0	77.8	98.1	93.7	88.7	83.8	**80.7**	76.5	80.7
2003	0.0	0.0	11.5	15.8	46.1	103.7	131.8	135.9	134.0	126.6	**127.5**	120.9	127.5
2004	0.0	0.0	5.8	44.1	109.2	176.2	227.4	292.2	290.6	295.4	**329.7**	313.7	329.7
2005	0.0	0.0	48.7	162.8	246.4	308.9	344.3	379.3	374.5	406.0	**422.2**	401.5	422.2
2006	0.0	0.0	36.8	50.1	88.6	144.2	189.7	239.3	293.8	362.8	**374.6**	355.8	374.6
2007	0.0	0.0	36.8	145.6	222.5	285.2	329.1	370.3	419.7	484.1	**504.0**	479.1	504.0
2008	0.0	0.0	72.3	203.1	280.3	355.4	402.5	468.2	505.6	565.1	**574.5**	545.6	574.5
2009	0.0	0.0	60.7	168.0	252.3	312.0	382.2	420.2	452.5	511.4	**514.3**	488.3	514.3
2010	0.0	0.0	37.2	126.6	217.3	289.1	351.2	405.3	397.1	402.2	**425.0**	403.8	425.0
2011	0.0	0.0	46.9	62.3	114.4	199.2	254.5	284.2	297.4	326.1	**348.8**	331.7	348.8
2012	0.0	0.0	22.3	53.7	95.9	118.9	136.0	**135.2**	128.0	120.8	114.2	108.1	135.2
2013	0.0	0.0	3.7	4.6	40.6	96.3	124.3	159.9	187.5	**229.2**	218.7	207.1	229.2
Average	0.0	0.6	52.2	134.7	202.6	262.6	314.2	356.8	389.5	428.6	436.3	414.2	438.8
Minimum	0.0	0.0	3.7	4.6	40.6	77.8	98.1	93.7	88.7	83.8	80.7	76.5	80.7
Maximum	0.0	13.2	129.4	249.1	340.7	415.6	485.4	542.9	613.1	677.5	688.3	653.5	688.3
Limit	0.0	5.9	106.3	225.6	319.2	388.1	454.7	514.3	572.4	633.5	643.9	611.4	643.9

Table 22 - Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries

Farm Name or Designation: Diamond A West-10

Remaining return flows from cumulative calendar year diversions divided by cumulative FHGD. Amount after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			80.0%	79.6%	65.4%	53.3%	49.6%	46.2%	44.8%	45.0%	**43.9%**	41.6%	43.9%
1985			80.0%	79.6%	71.2%	56.5%	49.9%	45.3%	45.5%	46.7%	**45.6%**	43.3%	45.6%
1986		80.0%	74.5%	69.4%	61.6%	54.1%	50.4%	47.4%	48.1%	48.5%	**47.1%**	44.7%	47.1%
1987			80.0%	70.6%	69.0%	58.9%	51.3%	46.6%	44.2%	44.7%	**44.4%**	42.2%	44.4%
1988			80.0%	78.4%	68.7%	55.7%	49.5%	45.0%	41.9%	40.1%	**40.1%**	38.1%	40.1%
1989			77.6%	70.1%	61.6%	55.0%	49.0%	44.6%	44.9%	43.7%	**43.0%**	40.8%	43.0%
1990			80.0%	69.2%	70.2%	56.5%	51.2%	46.9%	46.4%	47.5%	**46.5%**	44.2%	46.5%
1991			80.0%	71.6%	56.7%	47.4%	43.7%	41.7%	42.1%	**43.2%**	41.1%	39.0%	43.2%
1992			80.0%	69.9%	62.5%	58.9%	52.3%	50.1%	48.8%	49.5%	**48.4%**	45.9%	48.4%
1993			80.0%	78.4%	69.2%	57.6%	50.4%	47.8%	47.3%	47.8%	**46.8%**	44.5%	46.8%
1994			80.0%	76.9%	70.4%	57.8%	50.8%	47.9%	47.4%	47.9%	**46.9%**	44.5%	46.9%
1995			80.0%	79.6%	78.3%	70.4%	61.8%	55.5%	53.7%	53.3%	**51.9%**	49.2%	51.9%
1996		80.0%	79.8%	73.0%	67.4%	59.3%	54.8%	51.1%	51.4%	51.2%	**50.0%**	47.5%	50.0%
1997			80.0%	79.5%	66.8%	60.6%	54.7%	52.2%	50.6%	**50.4%**	47.9%	45.4%	50.4%
1998			80.0%	73.9%	66.7%	57.4%	53.9%	51.6%	50.1%	50.5%	**49.2%**	46.7%	49.2%
1999			80.0%	79.5%	71.9%	60.0%	56.2%	52.5%	50.6%	51.3%	**50.0%**	47.5%	50.0%
2000		80.0%	79.9%	73.1%	63.7%	54.1%	48.4%	44.6%	42.0%	42.5%	**42.1%**	40.0%	42.1%
2001			80.0%	70.0%	69.7%	59.5%	51.6%	47.4%	46.4%	46.3%	**45.6%**	43.3%	45.6%
2002			80.0%	65.6%	58.2%	48.3%	43.2%	41.2%	39.1%	36.9%	**34.9%**	33.1%	34.9%
2003			36.0%	35.6%	35.4%	35.3%	34.6%	33.4%	31.8%	30.1%	**28.8%**	27.3%	28.8%
2004			36.0%	35.9%	39.1%	41.6%	41.1%	43.4%	41.3%	38.9%	**39.9%**	38.0%	39.9%
2005			80.0%	74.3%	64.7%	56.8%	50.6%	46.0%	43.4%	43.0%	**42.5%**	40.4%	42.5%
2006			80.0%	59.3%	45.1%	40.1%	37.9%	37.6%	39.9%	43.2%	**42.9%**	40.7%	42.9%
2007			69.0%	76.2%	66.7%	60.4%	52.4%	47.2%	46.1%	46.9%	**46.4%**	44.1%	46.4%
2008			80.0%	75.0%	65.8%	57.7%	50.9%	50.3%	48.1%	48.9%	**47.8%**	45.4%	47.8%
2009			80.0%	71.2%	63.9%	57.2%	53.9%	49.9%	48.2%	49.1%	**47.9%**	45.4%	47.9%
2010			80.0%	72.6%	65.4%	57.7%	54.1%	51.3%	48.3%	44.9%	**44.3%**	42.1%	44.3%
2011			80.0%	60.3%	53.3%	49.3%	44.1%	41.2%	38.9%	38.5%	**39.0%**	37.1%	39.0%
2012			53.8%	51.3%	44.0%	40.9%	38.6%	**36.7%**	34.7%	32.8%	31.0%	29.3%	36.7%
2013			36.0%	35.6%	35.8%	35.6%	35.0%	34.1%	33.2%	**32.5%**	31.0%	29.4%	32.5%
Average		80.0%	74.1%	68.5%	61.6%	53.8%	48.9%	45.9%	44.6%	44.5%	43.6%	41.4%	43.9%
Minimum		80.0%	36.0%	35.6%	35.4%	35.3%	34.6%	33.4%	31.8%	30.1%	28.8%	27.3%	28.8%
Maximum		80.0%	80.0%	79.6%	78.3%	70.4%	61.8%	55.5%	53.7%	53.3%	51.9%	49.2%	51.9%
Limit			80.0%	79.6%	73.8%	63.8%	57.6%	53.4%	51.9%	51.9%	50.6%	48.1%	50.8%

Table 23 - Transferrable Depletions Given Calculated On-Farm Depletion Factors

Farm Name or Designation: Diamond A West-10

Farm Headgate Deliveries multiplied by Avg Monthly On-Farm Depletion Factors limited by Avg-Max-3 Monthly and Annual On-Farm Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	0.0	0.0	1.5	12.7	43.7	88.5	96.3	72.2	34.3	8.8	1.0	0.0	358.9
1985	0.0	0.0	2.1	17.8	29.0	80.4	87.7	75.7	37.7	12.6	1.1	0.0	344.2
1986	0.0	0.0	3.9	19.4	52.8	65.5	79.8	70.1	29.9	11.9	0.9	0.0	334.1
1987	0.0	0.0	2.4	16.7	39.7	79.0	80.9	65.0	32.7	13.0	1.7	0.0	331.0
1988	0.0	0.0	1.8	13.9	35.3	79.7	62.0	63.0	32.4	13.3	1.5	0.0	302.9
1989	0.0	0.0	2.8	19.4	39.2	73.9	69.4	76.2	25.7	7.6	1.3	0.0	315.4
1990	0.0	0.0	1.2	18.5	35.2	75.6	72.1	66.4	23.2	11.6	1.1	0.0	304.9
1991	0.0	0.0	2.3	11.2	30.9	80.8	77.6	77.2	30.2	12.2	0.0	0.0	322.5
1992	0.0	0.0	2.1	23.3	49.7	61.5	75.5	70.1	38.9	13.6	1.3	0.0	336.1
1993	0.0	0.0	1.4	16.6	50.9	85.6	81.6	79.4	40.1	13.4	1.4	0.0	370.4
1994	0.0	0.0	3.0	22.2	45.0	94.1	87.4	68.0	37.8	14.7	1.4	0.0	373.7
1995	0.0	0.0	3.2	23.4	43.7	64.8	96.9	93.6	50.7	0.7	0.0	0.0	377.0
1996	0.0	0.0	4.7	23.1	51.7	91.5	89.5	71.0	36.9	8.8	0.0	0.0	377.0
1997	0.0	0.0	2.6	17.3	47.8	78.7	96.9	47.2	36.6	10.5	0.0	0.0	337.6
1998	0.0	0.0	1.3	20.5	56.1	85.5	90.6	58.9	42.9	13.1	1.3	0.0	370.3
1999	0.0	0.0	3.1	17.1	24.2	70.2	78.8	62.6	40.5	12.8	1.3	0.0	310.7
2000	0.0	0.0	3.8	18.4	45.7	73.9	71.1	52.4	16.5	11.2	1.3	0.0	294.4
2001	0.0	0.0	1.9	14.6	44.3	76.6	79.3	80.0	30.3	10.7	1.4	0.0	339.1
2002	0.0	0.0	1.9	3.4	5.8	27.1	32.0	0.0	0.0	0.0	0.1	0.0	70.3
2003	0.0	0.0	1.0	1.6	27.0	76.6	41.9	12.3	4.4	0.0	0.7	0.0	165.4
2004	0.0	0.0	0.5	13.7	49.1	67.4	62.7	55.1	9.8	7.5	2.1	0.0	268.1
2005	0.0	0.0	1.9	20.4	50.9	76.2	66.0	66.3	12.2	11.1	1.5	0.0	306.5
2006	0.0	0.0	1.5	5.0	35.2	76.4	68.4	62.3	31.0	14.0	1.1	0.0	294.7
2007	0.0	0.0	1.7	17.7	44.8	64.8	75.6	71.6	39.2	16.5	1.7	0.0	333.8
2008	0.0	0.0	2.9	23.2	48.8	88.9	84.5	64.9	36.9	14.4	1.4	0.0	366.0
2009	0.0	0.0	2.4	20.6	50.0	70.5	79.4	61.0	30.0	13.8	1.1	0.0	328.8
2010	0.0	0.0	1.5	16.5	49.7	78.9	71.7	65.2	9.7	9.9	2.0	0.0	305.0
2011	0.0	0.0	1.9	5.8	34.9	88.6	83.8	51.8	23.2	11.1	1.5	0.0	302.8
2012	0.0	0.0	1.3	8.2	35.6	34.2	30.0	7.3	0.0	0.0	0.0	0.0	116.6
2013	0.0	0.0	0.3	0.4	31.6	73.5	41.3	52.0	29.9	19.0	0.0	0.0	247.9
Average	0.0	0.0	2.1	15.4	40.9	74.3	73.7	60.6	28.1	10.6	1.0	0.0	306.9
Minimum	0.0	0.0	0.3	0.4	5.8	27.1	30.0	0.0	0.0	0.0	0.0	0.0	70.3
Maximum	0.0	0.0	4.7	23.4	56.1	94.1	96.9	93.6	50.7	19.0	2.1	0.0	377.0

Table 24 - Comparison of Historic On-Farm Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Diamond A West-10

Historic On-Farm Depletions less Transferrable Depletions Given Calculated On-Farm Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	-1.5	-12.7	3.6	9.5	-12.2	5.1	5.9	-8.8	-1.0	0.0	-12.1
1985	0.0	0.0	-2.1	-17.8	-2.4	14.1	3.8	14.8	-10.2	-12.6	-1.1	0.0	-13.5
1986	0.0	0.0	4.4	6.7	5.5	7.8	-10.3	-2.6	-24.2	-11.9	-0.9	0.0	-25.5
1987	0.0	0.0	-2.4	6.2	-23.4	-3.1	11.0	12.7	15.5	-2.1	-1.7	0.0	12.9
1988	0.0	0.0	-1.8	-11.6	-3.6	8.1	8.4	12.4	25.0	32.7	-0.3	0.0	69.2
1989	0.0	0.0	-0.2	6.2	9.2	-6.3	9.4	14.2	-14.7	6.1	-0.9	0.0	23.1
1990	0.0	0.0	-1.2	5.3	-27.2	13.2	-2.1	7.4	-8.9	-10.8	-1.1	0.0	-25.4
1991	0.0	0.0	-2.3	4.4	23.1	11.5	4.1	4.1	-6.0	-3.9	0.0	0.0	35.0
1992	0.0	0.0	-2.1	6.9	2.5	-20.2	5.4	-16.0	-1.4	-12.6	-1.3	0.0	-38.9
1993	0.0	0.0	-1.4	-13.9	-13.2	4.2	11.1	-8.2	-6.3	-7.5	-1.4	0.0	-36.4
1994	0.0	0.0	-3.0	-13.3	-12.8	12.1	11.9	-4.7	-9.5	-7.9	-1.4	0.0	-28.7
1995	0.0	0.0	-3.2	-23.4	-43.7	-22.2	-13.7	6.1	-7.5	11.9	1.3	0.0	-94.5
1996	0.0	-0.0	-4.7	3.4	-11.4	-7.0	-15.6	-3.5	-30.1	2.5	0.0	0.0	-66.4
1997	0.0	0.0	-2.6	-17.3	6.0	-21.0	-7.0	-11.4	-3.2	-10.5	0.0	0.0	-67.2
1998	0.0	0.0	-1.3	-5.9	-12.4	-0.4	-22.1	-15.2	-2.5	-13.1	-1.3	0.0	-74.3
1999	0.0	0.0	-3.1	-17.1	-1.0	1.3	-24.8	-6.2	1.0	-12.8	-0.5	0.0	-63.2
2000	0.0	-0.0	-3.8	2.5	7.8	12.9	9.7	10.3	12.8	-2.0	-1.3	0.0	48.7
2001	0.0	0.0	-1.9	6.2	-29.5	-3.8	10.8	5.0	-2.1	-2.2	-1.4	0.0	-19.0
2002	0.0	0.0	-1.9	11.0	4.4	4.7	4.4	0.0	0.0	0.0	2.1	0.0	24.7
2003	0.0	0.0	16.6	5.1	20.2	13.4	5.7	2.4	3.4	0.0	11.6	0.0	78.4
2004	0.0	0.0	8.4	44.9	24.7	-10.9	-5.1	-28.5	7.5	23.1	1.9	0.0	66.2
2005	0.0	0.0	-1.9	-5.7	1.6	-2.7	9.0	13.0	9.4	6.1	0.7	0.0	29.3
2006	0.0	0.0	-1.5	16.2	26.4	13.4	9.3	1.1	-12.6	-14.0	-1.1	0.0	37.2
2007	0.0	0.0	5.6	-16.8	-2.4	-14.7	10.3	12.9	2.6	-0.7	-0.1	0.0	-3.3
2008	0.0	0.0	-2.9	-7.9	3.5	-6.6	11.5	-30.3	7.2	-13.8	-1.4	0.0	-40.7
2009	0.0	0.0	-2.4	4.1	-1.8	-6.2	-20.6	2.0	0.5	-13.8	-1.1	0.0	-39.3
2010	0.0	0.0	-1.5	-1.2	-8.7	-9.4	-16.4	-11.2	7.5	30.2	6.9	0.0	-3.7
2011	0.0	0.0	-1.9	18.8	8.2	-10.4	11.4	10.2	17.9	15.9	-1.5	0.0	68.6
2012	0.0	0.0	12.2	15.4	23.1	6.0	4.1	1.4	0.0	0.0	0.0	0.0	62.1
2013	0.0	0.0	5.3	1.2	23.7	12.9	5.6	10.2	23.0	57.7	0.0	0.0	139.5
Average	0.0	0.0	0.0	-0.0	-0.0	0.0	0.2	0.2	-0.0	0.8	0.1	0.0	1.4
Minimum	0.0	-0.0	-4.7	-23.4	-43.7	-22.2	-24.8	-30.3	-30.1	-14.0	-1.7	0.0	-94.5
Maximum	0.0	0.0	16.6	44.9	26.4	14.1	11.9	14.8	25.0	57.7	11.6	0.0	139.5

Table 25 - Deep Percolation/Ground Water Return Flows at Stream (lagged)

Farm Name or Designation: Diamond A West-10

Deep Percolation Lagged to Stream using URF

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	37.5	35.5	33.3	31.8	32.0	34.0	36.3	38.8	41.3	42.9	43.6	43.6	450.6
1985	42.4	40.2	37.7	36.1	37.1	39.6	41.3	42.7	44.1	45.3	46.7	47.6	500.6
1986	46.7	44.3	41.6	40.5	42.4	45.4	47.8	49.1	50.4	51.5	52.6	52.9	565.4
1987	51.5	48.9	46.0	44.0	44.4	46.6	48.9	50.6	51.3	51.2	51.3	51.6	586.2
1988	50.8	48.6	45.9	43.7	43.7	45.4	46.9	47.9	48.3	48.1	47.8	47.5	564.5
1989	46.5	44.5	42.0	40.5	41.6	44.0	45.7	47.0	47.7	48.2	48.4	47.9	543.9
1990	46.6	44.3	41.7	39.4	39.5	41.7	44.0	45.5	46.4	46.8	47.3	47.7	531.1
1991	46.7	44.5	41.6	39.7	39.8	40.5	41.0	42.1	43.3	44.6	45.7	46.0	515.6
1992	44.3	41.8	39.1	37.4	38.5	41.8	44.7	46.5	47.8	49.0	50.2	51.1	532.1
1993	50.2	47.7	44.7	42.3	42.2	44.6	47.5	49.4	50.8	52.2	53.5	54.2	579.2
1994	53.1	50.4	47.3	45.2	46.7	50.1	52.8	54.4	55.2	56.0	56.9	57.6	625.7
1995	56.5	53.7	50.5	48.5	50.0	54.1	57.6	59.7	61.6	63.3	65.0	66.0	686.4
1996	64.6	61.4	57.8	56.3	58.4	61.7	64.3	66.0	67.1	67.6	68.7	69.3	763.1
1997	67.8	64.6	60.7	57.8	57.8	59.8	61.7	63.5	64.9	65.1	65.1	64.2	753.0
1998	61.5	58.1	54.8	52.0	51.7	54.4	57.5	59.6	61.3	62.2	63.0	63.3	699.4
1999	61.8	58.7	55.1	52.7	53.3	55.1	55.8	56.6	57.7	58.5	59.3	59.8	684.4
2000	58.5	55.7	52.3	50.4	51.5	53.8	55.2	55.5	55.2	54.0	52.8	52.5	647.4
2001	51.3	49.0	46.0	43.9	43.8	45.6	48.2	50.0	50.9	51.6	52.0	52.1	584.5
2002	50.9	48.5	45.6	43.3	42.2	40.7	39.0	37.9	36.9	35.2	33.6	32.1	485.8
2003	30.7	29.3	28.0	26.5	25.4	24.9	25.3	26.6	27.0	26.3	25.1	24.0	319.1
2004	23.0	21.9	20.6	19.3	19.0	20.1	22.4	24.9	27.1	28.6	28.4	28.2	283.5
2005	28.1	27.0	25.0	23.9	25.3	29.0	32.5	34.7	35.8	35.8	35.2	35.2	367.5
2006	34.7	33.1	31.0	29.4	28.6	28.3	28.9	30.2	31.6	33.1	35.1	36.9	380.8
2007	36.7	35.0	32.7	31.2	32.1	35.1	38.1	40.2	41.5	42.6	44.1	45.5	454.7
2008	45.1	43.1	40.5	39.1	40.8	44.5	47.5	49.7	51.2	52.5	53.5	54.2	561.9
2009	53.2	50.6	47.6	45.6	46.2	48.8	51.2	52.9	54.3	54.8	55.0	55.4	615.5
2010	54.1	51.4	48.4	45.7	45.4	47.3	50.0	52.1	53.7	53.9	52.4	51.1	605.5
2011	49.8	47.6	44.9	43.2	42.5	42.1	43.1	45.1	46.3	46.2	45.7	45.5	541.8
2012	44.7	42.8	40.4	38.2	37.0	36.8	37.0	36.7	35.8	34.2	32.4	30.8	447.0
2013	29.4	28.0	26.4	24.8	23.6	22.9	23.7	24.9	25.9	26.6	27.4	27.9	311.3
Average	47.3	45.0	42.3	40.4	40.7	42.6	44.5	46.0	47.1	47.6	47.9	48.1	539.6
Minimum	23.0	21.9	20.6	19.3	19.0	20.1	22.4	24.9	25.9	26.3	25.1	24.0	283.5
Maximum	67.8	64.6	60.7	57.8	58.4	61.7	64.3	66.0	67.1	67.6	68.7	69.3	763.1
Lagged DP RF Factors: Average Monthly Lagged Deep Perc. / GW Returns as a percent of Average Monthly Farm Headgate Delivery													
			63.5%	33.8%	31.3%	26.8%	29.2%	34.8%	52.0%	56.5%			55.5%

Table 26 - Total Return Flows at Stream

Farm Name or Designation: Diamond A West-10

Lagged Deep Percolation plus Direct Tailwater/Surface Runoff Return Flows

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	37.5	35.5	42.4	51.4	50.4	52.2	59.3	54.8	55.4	55.9	49.7	43.6	588.0
1985	42.4	40.2	50.9	63.7	50.2	55.1	59.3	57.5	62.8	63.8	53.6	47.6	647.1
1986	46.7	44.6	64.3	65.4	64.3	58.7	66.9	66.1	68.5	69.0	58.4	52.9	725.9
1987	51.5	48.9	61.0	65.4	66.4	65.1	63.9	63.3	62.7	68.2	61.8	51.6	729.8
1988	50.8	48.6	57.2	64.9	59.9	61.9	58.4	60.2	57.7	58.5	57.1	47.5	682.6
1989	46.5	44.5	59.0	65.4	56.8	62.0	58.6	62.1	62.0	56.6	56.3	47.9	677.8
1990	46.6	44.3	49.3	63.5	60.3	56.3	59.8	59.6	58.4	63.8	54.5	47.7	664.0
1991	46.7	44.5	56.0	54.0	48.6	56.6	56.7	59.4	58.0	60.9	45.7	46.0	633.1
1992	44.3	41.8	52.6	67.5	59.7	59.8	59.7	66.2	65.3	68.9	58.8	51.1	695.5
1993	50.2	47.7	53.2	67.5	67.0	63.2	62.7	69.7	69.8	70.8	62.1	54.2	738.1
1994	53.1	50.4	66.0	77.9	68.9	69.0	69.1	71.4	73.9	76.3	66.1	57.6	799.6
1995	56.5	53.7	70.3	84.8	77.8	73.3	81.0	83.7	85.6	86.8	75.9	66.0	895.3
1996	64.6	64.7	86.9	86.8	83.3	83.9	86.5	83.4	89.5	90.5	79.4	69.3	968.6
1997	67.8	64.6	76.9	84.6	77.5	81.9	86.5	76.9	81.8	80.6	65.1	64.2	908.5
1998	61.5	58.1	63.2	80.8	78.7	73.9	81.2	76.5	80.8	81.5	71.3	63.3	870.9
1999	61.8	58.7	74.4	79.2	64.1	70.8	77.6	72.6	75.5	77.4	67.5	59.8	839.3
2000	58.5	56.5	76.0	74.7	69.9	68.0	68.4	65.8	60.0	68.7	61.3	52.5	780.2
2001	51.3	49.0	58.2	62.4	69.0	63.8	63.0	67.8	64.8	65.7	61.1	52.1	728.2
2002	50.9	48.5	57.3	45.6	43.8	45.9	45.0	37.9	36.9	35.2	34.0	32.1	513.1
2003	30.7	29.3	30.8	27.6	33.1	39.6	33.1	29.0	28.2	26.3	27.1	24.0	359.0
2004	23.0	21.9	22.0	28.9	35.5	37.6	36.7	43.5	30.0	33.6	40.9	28.2	381.9
2005	28.1	27.0	37.2	52.6	47.2	46.9	44.7	47.6	39.3	48.6	44.3	35.2	498.9
2006	34.7	33.1	40.2	32.8	38.7	43.0	41.6	44.6	47.9	53.7	42.1	36.9	489.3
2007	36.7	35.0	41.9	58.6	52.1	52.8	52.1	54.5	58.4	63.8	54.7	45.5	605.9
2008	45.1	43.1	58.6	72.1	61.4	66.0	63.2	71.0	66.2	73.7	62.7	54.2	737.3
2009	53.2	50.6	62.8	72.6	68.3	66.0	72.2	66.8	67.5	75.2	61.9	55.4	772.6
2010	54.1	51.4	57.7	68.2	68.8	67.1	68.5	69.6	56.5	60.4	63.4	51.1	737.0
2011	49.8	47.6	56.7	47.2	56.1	64.3	58.7	55.2	53.0	57.2	55.4	45.5	646.6
2012	44.7	42.8	46.0	46.1	47.9	43.4	42.6	38.1	35.8	34.2	32.4	30.8	485.0
2013	29.4	28.0	27.3	25.1	32.6	37.0	31.3	35.1	34.5	39.2	27.4	27.9	374.8
Average	47.3	45.2	55.2	61.2	58.6	59.5	60.3	60.3	59.6	62.2	55.1	48.1	672.5
Minimum	23.0	21.9	22.0	25.1	32.6	37.0	31.3	29.0	28.2	26.3	27.1	24.0	359.0
Maximum	67.8	64.7	86.9	86.8	83.3	83.9	86.5	83.7	89.5	90.5	79.4	69.3	968.6
Lagged Total Returns as a percent of Farm Headgate Delivery Average													
			82.9%	51.2%	45.0%	37.5%	39.5%	45.6%	65.8%	73.8%			69.1%

Table 27 - Historical Depletions at Stream including Depletion and Return Flow Factors

Farm Name or Designation: Diamond A West-10

Farm Headgate Delivery less Total Lagged Return Flows at Stream

Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	-37.5	-35.5	3.2	46.9	88.7	136.9	139.6	102.3	55.0	9.0	-19.0	-43.6	446.0
1985	-42.4	-40.2	15.4	74.4	42.2	116.7	121.9	107.2	58.6	28.9	-18.9	-47.6	416.2
1986	-46.7	-43.3	57.3	85.4	103.7	81.1	98.0	86.3	27.6	18.4	-29.3	-52.9	385.6
1987	-51.5	-48.9	14.1	64.5	59.9	103.6	103.1	78.0	42.5	27.4	-8.9	-51.6	332.3
1988	-50.8	-48.6	-0.5	43.3	52.4	108.3	69.6	76.8	46.7	39.4	-9.3	-47.5	279.9
1989	-46.5	-44.5	28.7	84.8	68.0	95.9	84.7	103.7	20.7	-0.8	-16.6	-47.9	330.2
1990	-46.6	-44.3	-11.5	80.4	51.7	105.1	89.1	84.7	16.1	21.7	-18.4	-47.7	280.4
1991	-46.7	-44.5	15.7	32.9	49.6	116.1	103.6	108.6	39.3	29.0	-45.7	-46.0	311.9
1992	-44.3	-41.8	14.6	112.9	98.6	71.6	96.4	86.3	59.8	31.7	-16.0	-51.1	418.7
1993	-50.2	-47.7	-10.8	61.3	94.9	119.7	105.8	103.0	59.4	28.1	-19.1	-54.2	390.3
1994	-53.1	-50.4	27.8	94.2	74.4	132.0	111.4	76.6	47.7	32.2	-20.4	-57.6	414.9
1995	-56.5	-53.7	28.6	97.0	61.3	65.2	119.3	136.0	77.8	43.2	-20.4	-66.0	431.8
1996	-64.6	-48.2	58.6	92.3	81.2	111.5	98.4	70.9	29.3	35.2	-26.1	-69.3	369.2
1997	-67.8	-64.6	4.1	49.7	74.5	86.3	127.5	25.7	36.0	-3.0	-65.1	-64.2	139.1
1998	-61.5	-58.1	-21.1	77.9	100.0	108.7	105.9	51.6	57.3	15.2	-30.2	-63.3	282.5
1999	-61.8	-58.7	21.9	53.5	13.0	79.1	85.2	63.6	54.9	17.3	-25.5	-59.8	182.8
2000	-58.5	-52.3	42.3	67.8	75.4	89.9	78.5	48.2	-6.7	13.8	-18.9	-52.5	227.0
2001	-51.3	-49.0	2.6	51.0	71.8	99.7	100.9	106.1	32.7	13.4	-15.5	-52.1	310.4
2002	-50.9	-48.5	1.3	-19.5	-25.3	11.9	21.2	-37.9	-36.9	-35.2	-30.0	-32.1	-281.9
2003	-30.7	-29.3	1.2	-15.4	52.7	124.1	53.4	-2.3	-14.1	-26.3	-4.8	-24.0	84.4
2004	-23.0	-21.9	-5.9	77.8	120.9	106.4	92.8	76.4	1.5	22.1	25.7	-28.2	444.5
2005	-28.1	-27.0	23.7	105.6	114.7	116.0	91.6	96.5	0.0	32.8	3.3	-35.2	493.8
2006	-34.7	-33.1	5.9	5.7	73.4	120.3	99.6	90.8	51.9	49.2	-7.1	-36.9	384.8
2007	-36.7	-35.0	11.5	79.2	90.6	85.7	104.1	101.2	67.9	57.9	0.1	-45.5	480.9
2008	-45.1	-43.1	31.8	108.2	93.8	124.0	111.3	70.2	52.7	32.6	-17.0	-54.2	465.0
2009	-53.2	-50.6	13.1	87.4	90.6	84.5	91.7	65.8	29.2	26.8	-27.7	-55.4	302.3
2010	-54.1	-51.4	-11.1	59.5	89.2	101.5	79.5	72.1	-25.4	12.5	0.5	-51.1	221.6
2011	-49.8	-47.6	2.0	-2.5	55.1	125.0	114.5	57.5	21.8	24.9	-6.7	-45.5	248.7
2012	-44.7	-42.8	-4.7	17.1	65.3	29.6	19.4	-22.2	-35.8	-34.2	-32.4	-30.8	-116.3
2013	-29.4	-28.0	-17.2	-22.2	67.8	120.0	53.9	77.9	61.7	100.7	-27.4	-27.9	330.2
Average	-47.3	-44.4	11.4	58.4	71.7	99.2	92.4	72.1	31.0	22.1	-18.2	-48.1	300.2
Minimum	-67.8	-64.6	-21.1	-22.2	-25.3	11.9	19.4	-37.9	-36.9	-35.2	-65.1	-69.3	-281.9
Maximum	-23.0	-21.9	58.6	112.9	120.9	136.9	139.6	136.0	77.8	100.7	25.7	-24.0	493.8
Limit	-26.8	-25.6	52.7	108.9	113.1	131.3	129.6	117.3	69.1	69.3	9.8	-26.7	479.9
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Depletion Factors			17.1%	48.8%	55.0%	62.5%	60.5%	54.4%	34.2%	26.2%			30.9%
Return Flow Factors			82.9%	51.2%	45.0%	37.5%	39.5%	45.6%	65.8%	73.8%			69.1%
Winter RF	-4.9%	-4.6%									-1.9%	-4.9%	
Sum			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			100.0%

Table 28 - Transferrable Depletions Given Calculated Stream Depletion Factors

Farm Name or Designation: Diamond A West-10

Farm Headgate Deliveries multiplied by Avg Monthly Stream Depletion Factors limited by Avg-Max-3 Monthly and Annual Stream Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	7.8	48.0	76.5	118.2	120.3	85.5	23.6	0.0	0.0	0.0	479.9
1985	0.0	0.0	11.4	67.4	50.8	107.4	109.6	89.7	41.6	2.1	0.0	0.0	479.9
1986	0.0	0.0	20.8	73.6	92.4	87.4	99.8	83.0	22.9	0.0	0.0	0.0	479.9
1987	0.0	0.0	12.9	63.4	69.5	105.5	101.1	76.9	36.0	14.7	0.0	0.0	479.9
1988	0.0	0.0	9.7	52.8	61.8	106.4	77.5	74.6	35.7	25.7	0.0	0.0	444.1
1989	0.0	0.0	15.0	73.3	68.7	98.7	86.7	90.2	28.3	14.6	0.0	0.0	475.6
1990	0.0	0.0	6.5	70.2	61.6	100.9	90.1	78.6	25.5	22.4	0.0	0.0	455.8
1991	0.0	0.0	12.3	42.4	54.0	108.0	97.0	91.4	33.3	23.6	0.0	0.0	462.0
1992	0.0	0.0	11.5	88.0	87.0	82.1	94.4	83.0	33.8	0.0	0.0	0.0	479.9
1993	0.0	0.0	7.3	62.8	89.0	114.3	102.0	94.0	10.4	0.0	0.0	0.0	479.9
1994	0.0	0.0	16.1	83.9	78.8	125.7	109.3	66.1	0.0	0.0	0.0	0.0	479.9
1995	0.0	0.0	17.0	88.7	76.5	86.6	121.2	89.9	0.0	0.0	0.0	0.0	479.9
1996	0.0	0.0	25.0	87.4	90.5	122.1	111.8	43.1	0.0	0.0	0.0	0.0	479.9
1997	0.0	0.0	13.9	65.5	83.6	105.1	129.5	55.9	26.4	0.0	0.0	0.0	479.9
1998	0.0	0.0	7.2	77.5	98.3	114.1	113.2	69.6	0.0	0.0	0.0	0.0	479.9
1999	0.0	0.0	16.5	64.8	42.4	93.7	98.5	74.1	44.6	24.9	0.0	0.0	459.5
2000	0.0	0.0	20.3	69.5	79.9	98.7	88.9	62.0	18.2	21.6	0.0	0.0	459.3
2001	0.0	0.0	10.4	55.3	77.5	102.2	99.2	94.7	33.4	7.2	0.0	0.0	479.9
2002	0.0	0.0	10.1	12.7	10.2	36.1	40.0	0.0	0.0	0.0	0.0	0.0	109.1
2003	0.0	0.0	5.5	6.0	47.2	102.3	52.4	14.5	4.8	0.0	0.0	0.0	232.7
2004	0.0	0.0	2.8	52.1	86.0	90.1	78.4	65.3	10.8	14.6	0.0	0.0	399.9
2005	0.0	0.0	10.5	77.2	89.1	101.8	82.5	78.5	13.4	21.4	0.0	0.0	474.2
2006	0.0	0.0	7.9	18.8	61.6	102.0	85.4	73.7	34.2	27.0	0.0	0.0	410.6
2007	0.0	0.0	9.2	67.2	78.5	86.6	94.5	84.7	43.2	16.0	0.0	0.0	479.9
2008	0.0	0.0	15.5	88.0	85.4	118.7	105.6	66.7	0.0	0.0	0.0	0.0	479.9
2009	0.0	0.0	13.0	78.1	87.4	94.1	99.2	72.2	33.1	2.8	0.0	0.0	479.9
2010	0.0	0.0	8.0	62.3	86.9	105.4	89.6	77.1	10.7	19.1	0.0	0.0	459.1
2011	0.0	0.0	10.1	21.8	61.1	118.4	104.8	61.3	25.6	21.5	0.0	0.0	424.6
2012	0.0	0.0	7.1	30.9	62.3	45.6	37.5	8.7	0.0	0.0	0.0	0.0	192.0
2013	0.0	0.0	1.7	1.4	55.2	98.2	51.6	61.5	32.9	36.7	0.0	0.0	339.3
Average	0.0	0.0	11.4	58.4	71.7	99.2	92.4	68.9	20.7	10.5	0.0	0.0	433.2
Minimum	0.0	0.0	1.7	1.4	10.2	36.1	37.5	0.0	0.0	0.0	0.0	0.0	109.1
Maximum	0.0	0.0	25.0	88.7	98.3	125.7	129.5	94.7	44.6	36.7	0.0	0.0	479.9

Table 29 - Comparison of Historic Stream Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Diamond A West-10

Historic Stream Depletions less Transferrable Depletions Given Calculated Stream Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	-4.6	-1.1	12.2	18.7	19.3	16.8	31.5	9.0	0.0	0.0	101.7
1985	0.0	0.0	4.0	7.0	-8.7	9.3	12.3	17.6	17.0	26.8	0.0	0.0	85.4
1986	0.0	0.0	36.4	11.8	11.3	-6.3	-1.8	3.3	4.7	18.4	0.0	0.0	77.8
1987	0.0	0.0	1.2	1.1	-9.6	-1.9	2.0	1.1	6.5	12.7	0.0	0.0	13.3
1988	0.0	0.0	-10.2	-9.5	-9.3	1.9	-7.9	2.2	11.0	13.7	0.0	0.0	-8.1
1989	0.0	0.0	13.7	11.5	-0.7	-2.8	-2.0	13.5	-7.6	-15.5	0.0	0.0	10.0
1990	0.0	0.0	-18.0	10.2	-9.9	4.2	-1.0	6.2	-9.4	-0.7	0.0	0.0	-18.3
1991	0.0	0.0	3.4	-9.5	-4.4	8.2	6.6	17.1	6.1	5.4	0.0	0.0	32.8
1992	0.0	0.0	3.1	24.9	11.5	-10.5	1.9	3.3	26.0	31.7	0.0	0.0	91.9
1993	0.0	0.0	-18.0	-1.5	5.8	5.4	3.9	9.0	49.0	28.1	0.0	0.0	81.6
1994	0.0	0.0	11.7	10.2	-4.4	6.3	2.2	10.5	47.7	32.2	0.0	0.0	116.4
1995	0.0	0.0	11.6	8.3	-15.2	-21.4	-1.9	46.1	77.8	43.2	0.0	0.0	148.4
1996	0.0	0.0	33.6	4.9	-9.3	-10.6	-13.5	27.8	29.3	35.2	0.0	0.0	97.4
1997	0.0	0.0	-9.8	-15.8	-9.1	-18.8	-2.0	-30.1	9.6	-3.0	0.0	0.0	-79.1
1998	0.0	0.0	-28.3	0.5	1.7	-5.4	-7.3	-18.0	57.3	15.2	0.0	0.0	15.7
1999	0.0	0.0	5.4	-11.2	-29.4	-14.6	-13.3	-10.5	10.3	-7.6	0.0	0.0	-71.0
2000	0.0	0.0	22.0	-1.8	-4.5	-8.8	-10.4	-13.8	-24.9	-7.8	0.0	0.0	-50.1
2001	0.0	0.0	-7.8	-4.3	-5.7	-2.5	1.7	11.5	-0.7	6.1	0.0	0.0	-1.6
2002	0.0	0.0	-8.7	-32.3	-35.5	-24.2	-18.8	-37.9	-36.9	-35.2	0.0	0.0	-229.5
2003	0.0	0.0	-4.3	-21.4	5.5	21.8	1.1	-16.8	-18.9	-26.3	0.0	0.0	-59.4
2004	0.0	0.0	-8.7	25.7	34.9	16.4	14.4	11.1	-9.3	7.5	0.0	0.0	92.0
2005	0.0	0.0	13.3	28.4	25.6	14.2	9.1	18.1	-13.5	11.4	0.0	0.0	106.6
2006	0.0	0.0	-2.0	-13.1	11.7	18.2	14.1	17.1	17.8	22.2	0.0	0.0	86.0
2007	0.0	0.0	2.3	12.0	12.1	-0.9	9.5	16.5	24.7	41.8	0.0	0.0	118.0
2008	0.0	0.0	16.3	20.2	8.4	5.2	5.7	3.5	52.7	32.6	0.0	0.0	144.6
2009	0.0	0.0	0.1	9.3	3.2	-9.6	-7.5	-6.4	-3.9	24.0	0.0	0.0	9.2
2010	0.0	0.0	-19.1	-2.8	2.3	-3.9	-10.1	-5.0	-36.0	-6.7	0.0	0.0	-81.3
2011	0.0	0.0	-8.0	-24.3	-6.1	6.7	9.7	-3.9	-3.8	3.3	0.0	0.0	-26.4
2012	0.0	0.0	-11.8	-13.7	3.0	-16.0	-18.1	-30.9	-35.8	-34.2	0.0	0.0	-157.5
2013	0.0	0.0	-18.9	-23.6	12.6	21.8	2.3	16.4	28.8	64.0	0.0	0.0	103.4
Average	0.0	0.0	0.0	-0.0	-0.0	-0.0	0.0	3.2	10.2	11.6	0.0	0.0	25.0
Minimum	0.0	0.0	-28.3	-32.3	-35.5	-24.2	-18.8	-37.9	-36.9	-35.2	0.0	0.0	-229.5
Maximum	0.0	0.0	36.4	28.4	34.9	21.8	19.3	46.1	77.8	64.0	0.0	0.0	148.4

Table 30 - Other Input Data Used For Analysis

Farm Name or Designation: Diamond A West-10

Notes:

Year (Cal)	Farm Shares	Ditch Shares	Ditch (acres)	Canal Loss	Off-Farm Lat Loss	On-Farm Lat Loss	SEVA Loss	Flood AppEff	Sprinkler AppEff	Drip AppEff	Flood Tailwater	Force Tailwater	Spray Loss	AWC (%)	RootDepth (ft)
1984	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1985	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1986	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1987	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1988	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1989	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1990	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1991	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1992	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1993	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1994	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1995	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1996	223.3	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1997	223.3	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1998	223.3	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1999	223.3	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2000	223.3	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2001	223.3	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2002	223.3	18660	13301	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2003	223.3	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2004	223.3	18660	15021	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2005	223.3	18660	17281	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2006	223.3	18660	17491	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2007	223.3	18660	17380	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2008	223.3	18660	16321	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2009	223.3	18660	17480	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2010	223.3	18660	17657	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2011	223.3	18660	17493	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2012	223.3	18660	17348	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2013	223.3	18660	14240	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Average	223.3	18660	16579.97	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Minimum	223.3	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Maximum	223.3	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4

APPENDIX

D

Table 1 - Summary Period Average and Maximum Values for Selected Variables

Farm Name or Designation: Hirakata Farms-02

Summary Period: 1984 - 2013

Notes:

Period	Farm	Farm	App.	Alfalfa	Grass	Corn_Grn	Corn_Sil	Spr_Grn	Sorghum	Win_Wht	Vegetable	Beans	Beets
	Shares	Acres	Eff.	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Average	151.0	146.5	0.55	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Maximum	151.0	151.6	0.55	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)
River Headgate Diversions for All Sources Considered in Pilot Project Plan													
Average	0.0	71.2	6469.9	11612.6	12648.6	15409.4	14822.9	12853.2	8790.7	8183.5	3577.9	0.0	94439.9
Farm Headgate Delivery													
Average	0.0	0.5	45.1	80.9	88.1	107.3	103.2	89.5	61.2	57.0	24.9	0.0	657.8
Maximum	0.0	11.2	98.4	123.0	120.8	136.0	144.7	148.5	110.5	94.6	45.0	0.0	904.6
Limit	0.0	5.0	86.8	122.3	115.2	132.2	138.2	127.6	97.4	89.2	41.9	0.0	874.4
Farm Crop Potential Evapotranspiration													
Average	0.0	0.0	4.0	24.3	54.0	83.2	94.7	76.7	37.2	12.8	0.9	0.0	387.7
Farm Effective Precipitation													
Average	3.3	3.7	9.4	13.6	16.9	16.2	21.3	19.5	10.0	10.0	5.0	4.2	133.1
Farm Irrigation Water Requirement													
Average	0.0	0.0	1.4	13.1	37.2	67.0	73.4	57.2	27.2	5.7	0.3	0.0	282.4
Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture													
Average	0.0	0.0	0.7	12.4	35.1	62.8	64.3	48.1	23.3	4.7	0.2	0.0	251.7
Total Return Flows at Farm													
Average	0.0	0.5	42.3	68.5	55.2	50.7	48.2	41.9	35.2	43.1	20.6	0.0	406.2
Tailwater/Surface Runoff Return Flows at Farm													
Average	0.0	0.1	8.5	13.7	11.0	10.1	9.6	8.4	7.0	8.6	4.1	0.0	81.2
Deep Percolation/Ground Water Return Flows at Farm (unlagged)													
Average	0.0	0.4	33.8	54.8	44.2	40.5	38.6	33.5	28.2	34.5	16.5	0.0	324.9
Historical Depletions at Farm													
Average	0.0	0.0	2.8	12.4	32.9	56.7	55.0	47.6	26.0	13.9	4.3	0.0	251.6
Maximum	0.0	0.0	17.0	39.7	58.2	74.8	73.6	78.7	47.0	52.0	23.4	0.0	311.1
Limit	0.0	0.0	14.8	28.7	52.5	71.9	70.3	68.6	44.2	44.6	20.8	0.0	309.3
Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased													
Average	0.0	0.4	34.2	89.0	133.1	173.5	211.6	244.1	270.6	302.5	315.6	311.4	316.0
Maximum	0.0	8.9	87.6	167.5	230.4	281.4	332.8	384.1	442.3	500.6	524.4	517.5	524.4
Limit	0.0	4.0	71.7	152.6	217.8	266.9	316.8	359.1	409.7	464.8	487.2	480.7	487.2
Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries													
Average			70.7%	66.4%	59.8%	52.6%	48.7%	46.5%	46.0%	46.7%	46.8%	46.1%	46.9%
Maximum		80.0%	80.0%	80.0%	80.0%	72.8%	64.3%	58.1%	57.3%	58.2%	58.4%	57.7%	58.4%
Limit			80.0%	80.0%	74.7%	64.3%	58.5%	54.5%	54.7%	56.0%	56.3%	55.6%	56.3%
Deep Percolation/Ground Water Return Flows at Stream (lagged)													
Average	27.8	28.0	28.1	27.9	27.6	27.3	27.0	27.0	27.0	27.1	27.3	27.5	329.8
Total Return Flows at Stream													
Average	27.8	28.1	36.6	41.6	38.6	37.4	36.7	35.4	34.0	35.8	31.4	27.5	411.1
Historical Depletions at Stream including Depletion and Return Flow Factors													
Average	-27.8	-27.7	8.5	39.2	49.5	69.9	66.6	54.2	27.2	21.2	-6.5	-27.5	246.7
Maximum	-17.0	-17.1	41.9	79.0	80.9	96.7	102.0	101.7	61.9	67.9	23.6	-16.8	451.2
Limit	-18.0	-18.2	37.0	74.8	77.8	95.2	94.2	86.0	57.4	56.1	15.5	-17.6	422.2
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	6.2%	15.3%	37.3%	52.8%	53.3%	53.2%	42.5%	24.4%	17.4%		38.2%
TW Returns		20.0%	18.8%	16.9%	12.5%	9.4%	9.3%	9.4%	11.5%	15.1%	16.5%		12.4%
DP Returns		80.0%	75.1%	67.7%	50.1%	37.8%	37.4%	37.5%	46.0%	60.5%	66.1%		49.4%
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD													
Depletion Factors			18.8%	48.5%	56.1%	65.2%	64.5%	60.5%	44.4%	37.3%			37.5%
Return Flow Factors			81.2%	51.5%	43.9%	34.8%	35.5%	39.5%	55.6%	62.7%			62.5%
Winter RF	-4.2%	-4.2%									-1.0%	-4.2%	

Lease Fallow Tool LFTengine_v3 24-Sep-2014 12:47:19 C:\LFT\LFT_FarmDataTemplate_v3.xlsm Hirakata Farms-02

Table 2 - River Headgate Diversions for All Sources Considered in Pilot Project Plan

Farm Name or Designation: Hirakata Farms-02

Catlin Canal D1700552; Sources Included and Excluded:

Notes: Explain period of record as being representative, and list source of data and rights included and excluded. Total Direct Flow plus Winter Water Diversions from Bill Tyner QA/QC Catlin1950-2012Final.xlsx updated to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0	0	4,431	9,541	13,503	18,362	19,304	15,254	10,719	6,294	2,985	0	100,393
1985	0	0	6,441	13,406	8,970	16,678	17,590	15,992	11,792	8,998	3,370	0	103,237
1986	0	129	11,801	14,638	16,316	13,574	16,005	14,802	9,335	8,490	2,832	0	107,922
1987	0	0	7,288	12,612	12,268	16,378	16,216	13,721	10,218	9,280	5,136	0	103,119
1988	0	0	5,502	10,504	10,903	16,524	12,428	13,305	10,136	9,502	4,645	0	93,449
1989	0	0	8,515	14,587	12,123	15,331	13,914	16,090	8,033	5,417	3,855	0	97,866
1990	0	0	3,669	13,968	10,867	15,668	14,461	14,013	7,242	8,301	3,504	0	91,693
1991	0	0	6,962	8,441	9,533	16,766	15,564	16,306	9,447	8,730	0	0	91,749
1992	0	0	6,518	17,517	15,363	12,754	15,149	14,806	12,147	9,761	4,157	0	108,171
1993	0	0	4,124	12,505	15,715	17,757	16,362	16,774	12,548	9,600	4,169	0	109,554
1994	0	0	9,115	16,704	13,905	19,523	17,529	14,367	11,807	10,531	4,437	0	117,917
1995	0	0	9,602	17,655	13,508	13,443	19,452	21,326	15,859	12,617	5,388	0	128,850
1996	0	1,603	14,126	17,384	15,965	18,970	17,944	14,981	11,528	12,203	5,174	0	129,879
1997	0	0	7,861	13,041	14,755	16,328	20,777	9,964	11,438	7,543	0	0	101,708
1998	0	0	4,084	15,413	17,345	17,724	18,166	12,442	13,415	9,398	3,989	0	111,978
1999	0	0	9,354	12,889	7,484	14,555	15,805	13,219	12,659	9,194	4,083	0	99,242
2000	0	405	11,480	13,831	14,110	15,331	14,266	11,067	5,173	8,007	4,122	0	97,792
2001	0	0	5,909	11,010	13,672	15,878	15,909	16,883	9,471	7,680	4,429	0	100,841
2002	0	0	5,693	2,536	1,794	5,613	6,423	0	0	0	390	0	22,449
2003	0	0	3,114	1,184	8,335	15,888	8,400	2,590	1,373	0	2,168	0	43,052
2004	0	0	1,568	10,358	15,182	13,986	12,575	11,641	3,054	5,403	6,467	0	80,235
2005	0	0	5,918	15,353	15,719	15,811	13,234	13,995	3,814	7,909	4,622	0	96,375
2006	0	0	4,471	3,739	10,880	15,847	13,708	13,145	9,689	9,988	3,399	0	84,866
2007	0	0	5,184	13,371	13,851	13,448	15,167	15,115	12,258	11,808	5,325	0	105,526
2008	0	0	8,776	17,500	15,073	18,441	16,950	13,707	11,543	10,314	4,431	0	116,732
2009	0	0	7,369	15,540	15,434	14,617	15,913	12,874	9,388	9,902	3,322	0	104,360
2010	0	0	4,521	12,398	15,345	16,368	14,372	13,760	3,023	7,081	6,207	0	93,073
2011	0	0	5,699	4,336	10,793	18,381	16,812	10,942	7,264	7,969	4,729	0	86,924
2012	0	0	4,014	6,143	10,993	7,089	6,015	1,545	0	0	0	0	35,798
2013	0	0	990	277	9,752	15,249	8,275	10,972	9,345	13,587	0	0	68,446
Average	0	71	6,470	11,613	12,649	15,409	14,823	12,853	8,791	8,184	3,578	0	94,440
Minimum	0	0	990	277	1,794	5,613	6,015	0	0	0	0	0	22,449
Maximum	0	1,603	14,126	17,655	17,345	19,523	20,777	21,326	15,859	13,587	6,467	0	129,879
Limit	0	712	12,469	17,557	16,542	18,978	19,844	18,328	13,978	12,802	6,021	0	125,549

Table 3 - River Headgate Diversions Pro-Rata by Share or Percent of Water Right for Pilot Project Farm

Farm Name or Designation: Hirakata Farms-02

Catlin Canal D1700552; For Summary Period Pro-Rata Ownership: 0.80922%

Notes: Variable shares or prorata acres ownership shown in constants table

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	35.9	77.2	109.3	148.6	156.2	123.4	86.7	50.9	24.2	0.0	812.4
1985	0.0	0.0	52.1	108.5	72.6	135.0	142.3	129.4	95.4	72.8	27.3	0.0	835.4
1986	0.0	1.0	95.5	118.5	132.0	109.8	129.5	119.8	75.5	68.7	22.9	0.0	873.3
1987	0.0	0.0	59.0	102.1	99.3	132.5	131.2	111.0	82.7	75.1	41.6	0.0	834.5
1988	0.0	0.0	44.5	85.0	88.2	133.7	100.6	107.7	82.0	76.9	37.6	0.0	756.2
1989	0.0	0.0	68.9	118.0	98.1	124.1	112.6	130.2	65.0	43.8	31.2	0.0	791.9
1990	0.0	0.0	29.7	113.0	87.9	126.8	117.0	113.4	58.6	67.2	28.4	0.0	742.0
1991	0.0	0.0	56.3	68.3	77.1	135.7	125.9	131.9	76.4	70.6	0.0	0.0	742.5
1992	0.0	0.0	52.7	141.7	124.3	103.2	122.6	119.8	98.3	79.0	33.6	0.0	875.3
1993	0.0	0.0	33.4	101.2	127.2	143.7	132.4	135.7	101.5	77.7	33.7	0.0	886.5
1994	0.0	0.0	73.8	135.2	112.5	158.0	141.8	116.3	95.5	85.2	35.9	0.0	954.2
1995	0.0	0.0	77.7	142.9	109.3	108.8	157.4	172.6	128.3	102.1	43.6	0.0	1042.7
1996	0.0	13.0	114.3	140.7	129.2	153.5	145.2	121.2	93.3	98.7	41.9	0.0	1051.0
1997	0.0	0.0	63.6	105.5	119.4	132.1	168.1	80.6	92.6	61.0	0.0	0.0	823.0
1998	0.0	0.0	33.1	124.7	140.4	143.4	147.0	100.7	108.6	76.1	32.3	0.0	906.1
1999	0.0	0.0	75.7	104.3	60.6	117.8	127.9	107.0	102.4	74.4	33.0	0.0	803.1
2000	0.0	3.3	92.9	111.9	114.2	124.1	115.4	89.6	41.9	64.8	33.4	0.0	791.3
2001	0.0	0.0	47.8	89.1	110.6	128.5	128.7	136.6	76.6	62.1	35.8	0.0	816.0
2002	0.0	0.0	46.1	20.5	14.5	45.4	52.0	0.0	0.0	0.0	3.2	0.0	181.7
2003	0.0	0.0	25.2	9.6	67.4	128.6	68.0	21.0	11.1	0.0	17.5	0.0	348.4
2004	0.0	0.0	12.7	83.8	122.9	113.2	101.8	94.2	24.7	43.7	52.3	0.0	649.3
2005	0.0	0.0	47.9	124.2	127.2	127.9	107.1	113.2	30.9	64.0	37.4	0.0	779.9
2006	0.0	0.0	36.2	30.3	88.0	128.2	110.9	106.4	78.4	80.8	27.5	0.0	686.7
2007	0.0	0.0	41.9	108.2	112.1	108.8	122.7	122.3	99.2	95.6	43.1	0.0	853.9
2008	0.0	0.0	71.0	141.6	122.0	149.2	137.2	110.9	93.4	83.5	35.9	0.0	944.6
2009	0.0	0.0	59.6	125.7	124.9	118.3	128.8	104.2	76.0	80.1	26.9	0.0	844.5
2010	0.0	0.0	36.6	100.3	124.2	132.5	116.3	111.3	24.5	57.3	50.2	0.0	753.2
2011	0.0	0.0	46.1	35.1	87.3	148.7	136.0	88.5	58.8	64.5	38.3	0.0	703.4
2012	0.0	0.0	32.5	49.7	89.0	57.4	48.7	12.5	0.0	0.0	0.0	0.0	289.7
2013	0.0	0.0	8.0	2.2	78.9	123.4	67.0	88.8	75.6	109.9	0.0	0.0	553.9
Average	0.0	0.6	52.4	94.0	102.4	124.7	119.9	104.0	71.1	66.2	29.0	0.0	764.2
Minimum	0.0	0.0	8.0	2.2	14.5	45.4	48.7	0.0	0.0	0.0	0.0	0.0	181.7
Maximum	0.0	13.0	114.3	142.9	140.4	158.0	168.1	172.6	128.3	109.9	52.3	0.0	1051.0
Limit	0.0	5.8	100.9	142.1	133.9	153.6	160.6	148.3	113.1	103.6	48.7	0.0	1016.0

Table 4 - Farm Headgate Delivery

Farm Name or Designation: Hirakata Farms-02

Catlin Canal D1700552; For Summary Period Canal Loss: 10.4309%, Off-Farm Lateral Loss: 3.5%

Notes: Reference source of canal/off-farm loss data

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	30.9	66.5	94.0	127.9	134.4	106.2	74.7	43.8	20.8	0.0	699.2
1985	0.0	0.0	44.9	93.4	62.5	116.2	122.5	111.4	82.1	62.7	23.5	0.0	719.0
1986	0.0	0.9	82.2	102.0	113.6	94.5	111.5	103.1	65.0	59.1	19.7	0.0	751.7
1987	0.0	0.0	50.8	87.8	85.4	114.1	112.9	95.6	71.2	64.6	35.8	0.0	718.2
1988	0.0	0.0	38.3	73.2	75.9	115.1	86.6	92.7	70.6	66.2	32.4	0.0	650.9
1989	0.0	0.0	59.3	101.6	84.4	106.8	96.9	112.1	56.0	37.7	26.8	0.0	681.6
1990	0.0	0.0	25.6	97.3	75.7	109.1	100.7	97.6	50.4	57.8	24.4	0.0	638.6
1991	0.0	0.0	48.5	58.8	66.4	116.8	108.4	113.6	65.8	60.8	0.0	0.0	639.0
1992	0.0	0.0	45.4	122.0	107.0	88.8	105.5	103.1	84.6	68.0	29.0	0.0	753.4
1993	0.0	0.0	28.7	87.1	109.5	123.7	114.0	116.8	87.4	66.9	29.0	0.0	763.0
1994	0.0	0.0	63.5	116.3	96.8	136.0	122.1	100.1	82.2	73.3	30.9	0.0	821.3
1995	0.0	0.0	66.9	123.0	94.1	93.6	135.5	148.5	110.5	87.9	37.5	0.0	897.4
1996	0.0	11.2	98.4	121.1	111.2	132.1	125.0	104.3	80.3	85.0	36.0	0.0	904.6
1997	0.0	0.0	54.8	90.8	102.8	113.7	144.7	69.4	79.7	52.5	0.0	0.0	708.4
1998	0.0	0.0	28.4	107.3	120.8	123.4	126.5	86.7	93.4	65.5	27.8	0.0	779.9
1999	0.0	0.0	65.1	89.8	52.1	101.4	110.1	92.1	88.2	64.0	28.4	0.0	691.2
2000	0.0	2.8	80.0	96.3	98.3	106.8	99.4	77.1	36.0	55.8	28.7	0.0	681.1
2001	0.0	0.0	41.2	76.7	95.2	110.6	110.8	117.6	66.0	53.5	30.8	0.0	702.3
2002	0.0	0.0	39.6	17.7	12.5	39.1	44.7	0.0	0.0	0.0	2.7	0.0	156.4
2003	0.0	0.0	21.7	8.2	58.0	110.7	58.5	18.0	9.6	0.0	15.1	0.0	299.9
2004	0.0	0.0	10.9	72.1	105.7	97.4	87.6	81.1	21.3	37.6	45.0	0.0	558.8
2005	0.0	0.0	41.2	106.9	109.5	110.1	92.2	97.5	26.6	55.1	32.2	0.0	671.2
2006	0.0	0.0	31.1	26.0	75.8	110.4	95.5	91.6	67.5	69.6	23.7	0.0	591.1
2007	0.0	0.0	36.1	93.1	96.5	93.7	105.6	105.3	85.4	82.2	37.1	0.0	735.0
2008	0.0	0.0	61.1	121.9	105.0	128.4	118.1	95.5	80.4	71.8	30.9	0.0	813.0
2009	0.0	0.0	51.3	108.2	107.5	101.8	110.8	89.7	65.4	69.0	23.1	0.0	726.9
2010	0.0	0.0	31.5	86.3	106.9	114.0	100.1	95.8	21.1	49.3	43.2	0.0	648.2
2011	0.0	0.0	39.7	30.2	75.2	128.0	117.1	76.2	50.6	55.5	32.9	0.0	605.4
2012	0.0	0.0	28.0	42.8	76.6	49.4	41.9	10.8	0.0	0.0	0.0	0.0	249.3
2013	0.0	0.0	6.9	1.9	67.9	106.2	57.6	76.4	65.1	94.6	0.0	0.0	476.7
Average	0.0	0.5	45.1	80.9	88.1	107.3	103.2	89.5	61.2	57.0	24.9	0.0	657.8
Minimum	0.0	0.0	6.9	1.9	12.5	39.1	41.9	0.0	0.0	0.0	0.0	0.0	156.4
Maximum	0.0	11.2	98.4	123.0	120.8	136.0	144.7	148.5	110.5	94.6	45.0	0.0	904.6
Limit	0.0	5.0	86.8	122.3	115.2	132.2	138.2	127.6	97.4	89.2	41.9	0.0	874.4

Table 5 - Farm Crop Acreages and Crop Distributions

Farm Name or Designation: Hirakata Farms-02

For Summary Period Farm Acres: 146.5483 acres, Crop Distribution:

Notes: Provide information on source of crop data. HI Model Crop Distribution for Otero County (unitized)

Year	Flood	Sprinkler	Drip	Alfalfa	Grass	Corn_Grn	Corn_Sil	Spr_Grn	Sorghum	Win_Wht	Vegetable	Beans	Beets
(Cal)	(Acres)	(Acres)	(Acres)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	150.2	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1985	148.9	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1986	147.5	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1987	146.2	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1988	144.9	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1989	143.6	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1990	142.3	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1991	140.9	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1992	139.6	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1993	138.3	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1994	139.4	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1995	140.5	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1996	141.6	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1997	142.7	0.0	0.0	39.10%	7.20%	35.00%	2.90%	1.30%	0.70%	7.20%	5.20%	1.40%	0.00%
1998	143.8	0.0	0.0	36.14%	5.61%	35.64%	1.50%	2.20%	0.60%	11.21%	5.41%	1.70%	0.00%
1999	145.0	0.0	0.0	35.80%	3.60%	36.40%	3.60%	1.30%	0.00%	11.80%	5.30%	2.20%	0.00%
2000	146.1	0.0	0.0	34.07%	3.30%	34.57%	4.60%	1.10%	2.70%	12.79%	5.29%	1.60%	0.00%
2001	147.2	0.0	0.0	42.16%	5.19%	29.87%	1.50%	1.90%	3.90%	8.79%	5.39%	1.30%	0.00%
2002	148.3	0.0	0.0	52.25%	3.00%	19.52%	9.61%	1.00%	2.00%	5.01%	5.81%	1.80%	0.00%
2003	149.4	0.0	0.0	68.33%	12.09%	0.80%	0.00%	0.00%	2.70%	7.49%	7.79%	0.80%	0.00%
2004	150.5	0.0	0.0	76.98%	0.00%	5.11%	0.00%	0.00%	0.60%	8.01%	9.31%	0.00%	0.00%
2005	151.6	0.0	0.0	53.70%	15.00%	15.50%	1.30%	0.00%	0.20%	8.60%	4.20%	1.50%	0.00%
2006	151.4	0.0	0.0	63.00%	20.80%	5.10%	1.20%	0.00%	0.00%	4.60%	4.80%	0.50%	0.00%
2007	151.3	0.0	0.0	50.80%	16.00%	18.10%	0.90%	0.00%	2.30%	7.80%	3.60%	0.50%	0.00%
2008	151.1	0.0	0.0	45.00%	15.60%	21.70%	0.60%	0.00%	1.70%	11.50%	3.50%	0.40%	0.00%
2009	151.0	0.0	0.0	44.70%	14.90%	20.30%	0.40%	0.00%	1.60%	14.20%	3.40%	0.50%	0.00%
2010	150.8	0.0	0.0	41.70%	15.00%	24.10%	0.50%	0.00%	1.60%	13.20%	3.30%	0.60%	0.00%
2011	150.8	0.0	0.0	48.97%	12.70%	19.48%	6.08%	0.76%	5.72%	3.97%	2.24%	0.09%	0.00%
2012	150.8	0.0	0.0	55.20%	18.71%	8.83%	3.75%	1.96%	6.08%	3.61%	1.86%	0.00%	0.00%
2013	150.8	0.0	0.0	66.29%	9.32%	1.41%	0.72%	0.00%	12.51%	6.35%	3.26%	0.14%	0.00%
Average	146.5	0.0	0.0	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Minimum	138.3	0.0	0.0	34.07%	0.00%	0.80%	0.00%	0.00%	0.00%	3.61%	1.86%	0.00%	0.00%
Maximum	151.6	0.0	0.0	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%

Table 6 - Farm Crop Potential Evapotranspiration

Farm Name or Designation: Hirakata Farms-02

For Summary Period Farm Acres: 146.5483 acres, PET:

Notes: Provide information on PET calculation method and climate stations. RECALCULATED - MBC TR21 PET (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167 and Crop Distribution from User Supplied Table (unitized)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	10.8	50.8	78.3	96.1	80.9	37.5	4.0	0.5	0.0	358.9
1985	0.0	0.0	3.0	25.7	52.8	81.2	92.7	75.5	27.2	4.6	0.1	0.0	362.8
1986	0.0	0.0	8.6	27.8	49.6	82.5	90.6	69.0	26.9	9.8	0.5	0.0	365.3
1987	0.0	0.0	0.8	22.1	50.4	82.6	96.0	71.5	29.3	9.5	0.5	0.0	362.8
1988	0.0	0.0	1.0	16.6	47.8	83.5	91.6	77.9	35.5	15.4	1.1	0.0	370.4
1989	0.0	0.0	5.8	26.1	54.5	72.8	90.6	70.1	26.8	12.5	0.8	0.0	360.0
1990	0.0	0.0	1.7	21.3	42.8	86.0	83.9	70.0	36.5	12.7	1.5	0.0	356.3
1991	0.0	0.0	2.5	20.8	53.3	82.1	84.9	72.2	31.8	14.5	0.0	0.0	362.0
1992	0.0	0.0	5.0	27.5	52.8	69.0	81.5	60.6	28.5	8.4	0.0	0.0	333.3
1993	0.0	0.0	1.5	19.3	44.7	73.1	89.8	68.5	29.5	13.4	0.0	0.0	339.7
1994	0.0	0.0	3.8	22.2	51.1	88.1	86.7	75.1	31.5	13.9	0.7	0.0	373.1
1995	0.0	0.0	1.8	10.5	37.5	63.7	82.0	83.3	41.7	9.9	1.0	0.0	331.5
1996	0.0	0.0	1.2	26.0	61.2	83.3	89.5	71.1	28.6	13.2	0.8	0.0	374.8
1997	0.0	0.0	2.8	10.9	46.9	74.6	93.8	74.6	42.5	13.1	0.1	0.0	359.4
1998	0.0	0.0	1.2	18.4	54.9	75.1	94.4	70.4	36.7	13.3	1.8	0.0	366.2
1999	0.0	0.0	0.0	2.4	43.7	71.9	95.1	78.2	41.0	4.4	2.6	0.0	339.3
2000	0.0	0.0	6.3	27.6	55.6	82.6	92.5	74.1	26.3	16.0	0.9	0.0	381.9
2001	0.0	0.0	2.4	29.0	52.0	89.1	103.7	75.8	30.9	7.8	1.5	0.0	392.2
2002	0.0	0.0	0.8	32.1	57.9	97.1	107.4	82.0	33.9	9.2	0.1	0.0	420.3
2003	0.0	0.0	6.8	38.9	65.3	81.4	110.3	84.9	45.7	19.4	0.8	0.0	453.7
2004	0.0	0.0	14.2	32.9	69.9	82.7	91.5	71.7	48.4	11.7	0.2	0.0	423.1
2005	0.0	0.0	1.3	24.2	55.9	82.8	96.6	82.6	51.9	22.9	2.5	0.0	420.7
2006	0.0	0.0	6.7	41.1	68.6	101.1	106.8	84.0	40.7	19.0	1.4	0.0	469.4
2007	0.0	0.0	8.3	26.4	57.6	83.5	98.7	91.5	49.8	20.7	2.0	0.0	438.5
2008	0.0	0.0	4.2	24.9	56.7	86.9	100.6	78.3	42.3	20.6	2.4	0.0	416.8
2009	0.0	0.0	5.6	31.4	60.4	79.6	86.2	69.7	36.3	7.4	0.0	0.0	376.5
2010	0.0	0.0	3.1	29.0	52.9	88.7	93.4	77.8	42.7	21.7	1.5	0.0	410.8
2011	0.0	0.0	4.8	27.5	49.7	93.1	109.0	93.0	37.9	14.3	0.7	0.0	430.0
2012	0.0	0.0	14.1	37.1	63.3	104.7	107.5	80.3	42.8	10.7	1.3	0.0	461.7
2013	0.0	0.0	0.8	17.5	58.8	96.0	97.1	85.1	55.8	8.6	0.3	0.0	419.9
Average	0.0	0.0	4.0	24.3	54.0	83.2	94.7	76.7	37.2	12.8	0.9	0.0	387.7
Minimum	0.0	0.0	0.0	2.4	37.5	63.7	81.5	60.6	26.3	4.0	0.0	0.0	331.5
Maximum	0.0	0.0	14.2	41.1	69.9	104.7	110.3	93.0	55.8	22.9	2.6	0.0	469.4

Table 7 - Farm Precipitation

Farm Name or Designation: Hirakata Farms-02

Climate Station:

Notes: Provide information source of climate data and climate stations used. Precipitation (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	1.6	8.4	22.2	16.0	15.3	3.0	35.0	23.0	6.9	18.5	1.5	4.1	155.6
1985	10.5	3.8	8.1	28.5	36.2	7.4	25.8	5.6	6.9	14.8	9.7	3.0	160.4
1986	1.4	1.2	2.3	8.1	5.0	28.9	43.5	18.3	24.3	17.3	7.6	0.9	159.0
1987	2.1	12.8	6.2	4.8	44.7	26.6	10.0	14.5	6.9	1.2	4.3	6.8	140.9
1988	3.5	6.3	11.1	15.7	25.6	17.4	16.1	4.1	9.3	0.2	0.2	4.2	113.7
1989	1.6	3.1	3.9	6.8	18.7	22.7	10.9	22.6	19.7	2.2	0.6	2.4	115.2
1990	9.5	9.4	11.4	3.3	43.2	4.5	58.3	14.5	28.1	12.8	12.7	4.6	212.2
1991	4.9	1.2	17.0	9.4	8.3	16.9	24.5	10.7	14.1	8.6	14.1	6.9	136.7
1992	3.3	3.6	9.3	4.8	13.8	44.7	21.4	20.8	0.0	8.0	11.3	2.7	143.7
1993	1.6	8.8	17.2	18.6	17.2	5.0	18.0	18.0	3.9	9.3	13.6	0.2	131.3
1994	3.5	0.3	9.9	16.4	28.9	6.0	9.4	29.7	10.1	9.1	8.1	1.4	132.9
1995	1.1	2.0	11.7	22.1	47.1	33.6	17.6	4.8	8.0	0.0	0.0	0.1	148.0
1996	1.1	2.0	13.6	5.0	32.0	16.4	33.6	18.1	25.3	4.2	1.8	4.8	157.8
1997	4.6	6.9	3.2	21.2	3.0	30.2	21.8	61.1	16.2	25.3	9.4	13.9	216.8
1998	1.1	4.4	11.1	6.6	19.8	4.3	44.0	38.8	3.1	27.0	12.6	2.8	175.6
1999	2.4	0.2	14.4	55.9	26.1	11.7	82.0	33.7	6.0	6.5	1.9	0.5	241.5
2000	4.0	2.3	25.4	10.0	9.7	7.3	15.2	16.4	9.4	13.8	1.3	2.1	117.0
2001	8.5	3.2	4.2	11.2	46.2	27.1	23.4	3.3	6.4	0.2	8.3	5.2	147.2
2002	4.0	1.7	1.1	1.7	1.1	9.6	0.7	6.1	7.9	4.4	1.0	5.8	45.2
2003	0.0	6.2	11.1	28.9	15.4	28.4	6.3	6.7	5.6	1.2	2.5	2.7	115.1
2004	4.4	4.8	1.3	49.2	0.9	33.1	43.8	61.5	8.0	4.0	10.5	1.0	222.4
2005	5.6	3.0	19.7	10.7	6.2	13.4	5.8	27.4	17.6	25.8	0.5	3.2	138.8
2006	7.7	0.0	11.5	3.9	19.3	3.5	41.0	52.1	25.1	29.0	1.9	20.8	215.9
2007	4.4	1.6	1.4	27.9	18.7	41.2	4.9	26.2	10.7	6.1	0.5	5.2	148.8
2008	2.8	5.7	5.8	11.0	7.7	9.7	8.9	61.8	0.6	21.5	2.8	2.1	140.4
2009	0.0	1.8	10.4	8.6	16.0	20.5	34.3	10.9	7.9	42.8	4.8	2.4	160.4
2010	5.3	8.3	24.3	15.6	15.3	25.4	49.9	29.8	2.5	0.5	1.1	3.6	181.6
2011	1.5	3.0	6.0	4.4	10.1	21.1	20.7	13.3	7.4	3.9	9.4	19.4	120.3
2012	0.3	1.1	1.5	16.0	8.7	1.6	13.8	0.9	11.1	2.4	0.1	1.1	58.6
2013	0.8	1.1	4.6	8.3	2.5	11.3	7.0	18.2	11.9	4.6	3.4	1.1	75.0
Average	3.4	3.9	10.0	15.0	18.8	17.8	24.9	22.4	10.7	10.8	5.3	4.5	147.6
Minimum	0.0	0.0	1.1	1.7	0.9	1.6	0.7	0.9	0.0	0.0	0.0	0.1	45.2
Maximum	10.5	12.8	25.4	55.9	47.1	44.7	82.0	61.8	28.1	42.8	14.1	20.8	241.5

Table 8 - Farm Effective Precipitation

Farm Name or Designation: Hirakata Farms-02

Method Used: USBR with HI model coefficients

Notes: USBR Methodology Used as Implemented in HI Model.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	1.5	8.0	20.6	15.0	14.4	2.9	31.4	21.4	6.5	17.3	1.4	3.9	144.3
1985	10.0	3.7	7.7	26.0	32.4	7.1	23.8	5.3	6.6	13.9	9.2	2.8	148.4
1986	1.3	1.2	2.2	7.7	4.8	26.3	37.2	17.1	22.5	16.2	7.2	0.8	144.6
1987	2.0	12.1	5.9	4.5	37.9	24.4	9.5	13.7	6.6	1.2	4.1	6.5	128.2
1988	3.3	6.0	10.6	14.7	23.5	16.3	15.1	3.9	8.8	0.2	0.2	4.0	106.6
1989	1.5	3.0	3.8	6.5	17.4	21.1	10.3	21.0	18.4	2.0	0.6	2.3	107.7
1990	9.0	8.9	10.8	3.2	36.6	4.3	44.3	13.6	25.6	12.1	12.0	4.4	184.8
1991	4.7	1.1	15.9	8.9	7.9	15.8	22.6	10.2	13.3	8.1	13.3	6.6	128.4
1992	3.1	3.4	8.8	4.5	13.0	37.5	19.8	19.3	0.0	7.6	10.7	2.5	130.5
1993	1.5	8.3	16.0	17.3	16.0	4.7	16.8	16.8	3.7	8.9	12.8	0.2	123.0
1994	3.3	0.3	9.4	15.3	26.2	5.7	8.9	26.9	9.6	8.6	7.7	1.3	123.3
1995	1.0	1.9	11.1	20.5	39.0	30.1	16.4	4.6	7.6	0.0	0.0	0.1	132.3
1996	1.0	1.9	12.8	4.7	28.7	15.4	30.1	16.8	23.2	4.0	1.7	4.6	145.0
1997	4.4	6.6	3.1	19.6	2.8	27.3	20.2	45.3	15.2	23.3	8.9	13.1	189.8
1998	1.0	4.2	10.6	6.3	18.4	4.1	37.3	33.9	3.0	24.6	11.9	2.6	158.0
1999	2.3	0.2	13.5	43.6	23.9	11.1	49.1	30.2	5.7	6.2	1.8	0.5	188.3
2000	3.8	2.2	23.4	9.5	9.3	6.9	14.3	15.4	8.9	13.0	1.3	2.0	109.9
2001	8.0	3.0	4.0	10.6	38.9	24.8	21.7	3.1	6.1	0.2	7.9	4.9	133.3
2002	3.8	1.6	1.1	1.6	1.1	9.2	0.7	5.8	7.5	4.2	0.9	5.5	43.0
2003	0.0	5.9	10.5	26.3	14.5	25.9	6.0	6.4	5.3	1.2	2.4	2.6	107.1
2004	4.2	4.5	1.2	41.0	0.8	29.8	37.5	46.8	7.6	3.8	10.0	1.0	188.3
2005	5.3	2.9	18.4	10.2	5.9	12.7	5.5	25.1	16.4	23.8	0.5	3.0	129.7
2006	7.3	0.0	10.9	3.7	18.0	3.4	35.8	42.7	23.2	26.5	1.8	19.4	192.7
2007	4.2	1.6	1.3	25.5	17.4	35.9	4.7	24.2	10.2	5.7	0.5	4.9	136.1
2008	2.6	5.4	5.5	10.4	7.3	9.2	8.5	47.0	0.6	20.0	2.6	2.0	121.2
2009	0.0	1.7	9.9	8.1	15.0	19.1	30.8	10.4	7.5	36.9	4.5	2.3	146.3
2010	5.0	7.9	22.5	14.7	14.4	23.5	41.5	27.1	2.4	0.5	1.1	3.5	163.9
2011	1.4	2.9	5.7	4.2	9.6	19.6	19.3	12.6	7.0	3.7	9.0	18.0	113.0
2012	0.2	1.1	1.4	15.0	8.2	1.6	13.1	0.8	10.5	2.3	0.1	1.1	55.4
2013	0.7	1.1	4.4	7.9	2.4	10.7	6.7	17.0	11.3	4.4	3.2	1.1	71.0
Average	3.3	3.7	9.4	13.6	16.9	16.2	21.3	19.5	10.0	10.0	5.0	4.2	133.1
Minimum	0.0	0.0	1.1	1.6	0.8	1.6	0.7	0.8	0.0	0.0	0.0	0.1	43.0
Maximum	10.0	12.1	23.4	43.6	39.0	37.5	49.1	47.0	25.6	36.9	13.3	19.4	192.7

Table 9 - Farm Irrigation Water Requirement

Farm Name or Designation: Hirakata Farms-02

Crop PET less effective precipitation

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	36.4	75.5	64.7	59.5	30.9	0.0	0.0	0.0	267.0
1985	0.0	0.0	0.0	0.0	20.5	74.1	68.9	70.2	20.6	0.0	0.0	0.0	254.4
1986	0.0	0.0	6.4	20.1	44.8	56.3	53.4	51.8	4.3	0.0	0.0	0.0	237.1
1987	0.0	0.0	0.0	17.6	12.5	58.2	86.5	57.9	22.7	8.4	0.0	0.0	263.8
1988	0.0	0.0	0.0	1.8	24.2	67.2	76.6	74.0	26.7	15.2	0.9	0.0	286.7
1989	0.0	0.0	2.0	19.6	37.1	51.7	80.3	49.2	8.4	10.5	0.3	0.0	259.0
1990	0.0	0.0	0.0	18.2	6.1	81.7	39.6	56.4	10.9	0.6	0.0	0.0	213.5
1991	0.0	0.0	0.0	11.9	45.4	66.2	62.3	62.0	18.5	6.3	0.0	0.0	272.7
1992	0.0	0.0	0.0	23.0	39.8	31.5	61.7	41.2	28.5	0.8	0.0	0.0	226.5
1993	0.0	0.0	0.0	2.0	28.7	68.3	73.0	51.7	25.8	4.5	0.0	0.0	254.1
1994	0.0	0.0	0.0	6.9	25.0	82.3	77.8	48.2	21.9	5.3	0.0	0.0	267.3
1995	0.0	0.0	0.0	0.0	0.0	33.6	65.6	78.7	34.1	9.9	1.0	0.0	223.1
1996	0.0	0.0	0.0	21.3	32.4	68.0	59.4	54.2	5.4	9.1	0.0	0.0	249.8
1997	0.0	0.0	0.0	0.0	44.0	47.3	73.6	29.3	27.4	0.0	0.0	0.0	221.6
1998	0.0	0.0	0.0	12.1	36.5	71.0	57.1	36.5	33.8	0.0	0.0	0.0	247.1
1999	0.0	0.0	0.0	0.0	19.8	60.8	46.0	48.0	35.3	0.0	0.7	0.0	210.5
2000	0.0	0.0	0.0	18.1	46.3	75.7	78.2	58.7	17.4	3.0	0.0	0.0	297.4
2001	0.0	0.0	0.0	18.4	13.0	64.3	82.0	72.7	24.9	7.6	0.0	0.0	282.8
2002	0.0	0.0	0.0	30.4	56.8	88.0	106.7	76.2	26.4	5.0	0.0	0.0	389.4
2003	0.0	0.0	0.0	12.6	50.8	55.5	104.3	78.5	40.4	18.2	0.0	0.0	360.4
2004	0.0	0.0	13.0	0.0	69.1	52.9	53.9	24.9	40.7	7.9	0.0	0.0	262.5
2005	0.0	0.0	0.0	14.0	50.1	70.1	91.1	57.5	35.5	0.0	2.1	0.0	320.2
2006	0.0	0.0	0.0	37.3	50.6	97.8	71.0	41.3	17.5	0.0	0.0	0.0	315.5
2007	0.0	0.0	6.9	0.9	40.2	47.5	94.0	67.4	39.6	14.9	1.5	0.0	313.1
2008	0.0	0.0	0.0	14.5	49.4	77.7	92.1	31.3	41.7	0.6	0.0	0.0	307.2
2009	0.0	0.0	0.0	23.3	45.3	60.5	55.3	59.3	28.8	0.0	0.0	0.0	272.5
2010	0.0	0.0	0.0	14.3	38.4	65.3	51.9	50.7	40.4	21.3	0.5	0.0	282.7
2011	0.0	0.0	0.0	23.4	40.2	73.4	89.7	80.4	30.9	10.6	0.0	0.0	348.5
2012	0.0	0.0	12.7	22.1	55.0	103.1	94.5	79.4	32.3	8.4	1.2	0.0	408.7
2013	0.0	0.0	0.0	9.6	56.4	85.2	90.4	68.1	44.4	4.2	0.0	0.0	358.3
Average	0.0	0.0	1.4	13.1	37.2	67.0	73.4	57.2	27.2	5.7	0.3	0.0	282.4
Minimum	0.0	0.0	0.0	0.0	0.0	31.5	39.6	24.9	4.3	0.0	0.0	0.0	210.5
Maximum	0.0	0.0	13.0	37.3	69.1	103.1	106.7	80.4	44.4	21.3	2.1	0.0	408.7

Table 10 - Farm Headgate Delivery Available to Meet Crop Irrigation Requirement

Farm Name or Designation: Hirakata Farms-02

For Summary Period, Average Application Efficiency: 55%, Maximum Application Efficiency: 55%

Notes: Does not include excess effective precipitation. Provide information source of efficiency data.

Year (Cal)	Jan (AF)	Feb (AF)	Mar (AF)	Apr (AF)	May (AF)	Jun (AF)	Jul (AF)	Aug (AF)	Sep (AF)	Oct (AF)	Nov (AF)	Dec (AF)	Total (AF)
1984	0.0	0.0	17.0	36.5	51.7	70.3	73.9	58.4	41.1	24.1	11.4	0.0	384.6
1985	0.0	0.0	24.7	51.4	34.4	63.9	67.4	61.3	45.2	34.5	12.9	0.0	395.5
1986	0.0	0.5	45.2	56.1	62.5	52.0	61.3	56.7	35.8	32.5	10.8	0.0	413.4
1987	0.0	0.0	27.9	48.3	47.0	62.7	62.1	52.6	39.1	35.5	19.7	0.0	395.0
1988	0.0	0.0	21.1	40.2	41.8	63.3	47.6	51.0	38.8	36.4	17.8	0.0	358.0
1989	0.0	0.0	32.6	55.9	46.4	58.7	53.3	61.6	30.8	20.8	14.8	0.0	374.9
1990	0.0	0.0	14.1	53.5	41.6	60.0	55.4	53.7	27.7	31.8	13.4	0.0	351.2
1991	0.0	0.0	26.7	32.3	36.5	64.2	59.6	62.5	36.2	33.4	0.0	0.0	351.5
1992	0.0	0.0	25.0	67.1	58.8	48.9	58.0	56.7	46.5	37.4	15.9	0.0	414.4
1993	0.0	0.0	15.8	47.9	60.2	68.0	62.7	64.3	48.1	36.8	16.0	0.0	419.7
1994	0.0	0.0	34.9	64.0	53.3	74.8	67.1	55.0	45.2	40.3	17.0	0.0	451.7
1995	0.0	0.0	36.8	67.6	51.7	51.5	74.5	81.7	60.8	48.3	20.6	0.0	493.6
1996	0.0	6.1	54.1	66.6	61.2	72.7	68.7	57.4	44.2	46.7	19.8	0.0	497.5
1997	0.0	0.0	30.1	50.0	56.5	62.5	79.6	38.2	43.8	28.9	0.0	0.0	389.6
1998	0.0	0.0	15.6	59.0	66.4	67.9	69.6	47.7	51.4	36.0	15.3	0.0	429.0
1999	0.0	0.0	35.8	49.4	28.7	55.8	60.5	50.6	48.5	35.2	15.6	0.0	380.2
2000	0.0	1.6	44.0	53.0	54.1	58.7	54.6	42.4	19.8	30.7	15.8	0.0	374.6
2001	0.0	0.0	22.6	42.2	52.4	60.8	60.9	64.7	36.3	29.4	17.0	0.0	386.3
2002	0.0	0.0	21.8	9.7	6.9	21.5	24.6	0.0	0.0	0.0	1.5	0.0	86.0
2003	0.0	0.0	11.9	4.5	31.9	60.9	32.2	9.9	5.3	0.0	8.3	0.0	164.9
2004	0.0	0.0	6.0	39.7	58.2	53.6	48.2	44.6	11.7	20.7	24.8	0.0	307.4
2005	0.0	0.0	22.7	58.8	60.2	60.6	50.7	53.6	14.6	30.3	17.7	0.0	369.2
2006	0.0	0.0	17.1	14.3	41.7	60.7	52.5	50.4	37.1	38.3	13.0	0.0	325.1
2007	0.0	0.0	19.9	51.2	53.1	51.5	58.1	57.9	47.0	45.2	20.4	0.0	404.2
2008	0.0	0.0	33.6	67.0	57.7	70.6	64.9	52.5	44.2	39.5	17.0	0.0	447.2
2009	0.0	0.0	28.2	59.5	59.1	56.0	61.0	49.3	36.0	37.9	12.7	0.0	399.8
2010	0.0	0.0	17.3	47.5	58.8	62.7	55.1	52.7	11.6	27.1	23.8	0.0	356.5
2011	0.0	0.0	21.8	16.6	41.3	70.4	64.4	41.9	27.8	30.5	18.1	0.0	333.0
2012	0.0	0.0	15.4	23.5	42.1	27.2	23.0	5.9	0.0	0.0	0.0	0.0	137.1
2013	0.0	0.0	3.8	1.1	37.4	58.4	31.7	42.0	35.8	52.0	0.0	0.0	262.2
Average	0.0	0.3	24.8	44.5	48.5	59.0	56.8	49.2	33.7	31.3	13.7	0.0	361.8
Minimum	0.0	0.0	3.8	1.1	6.9	21.5	23.0	0.0	0.0	0.0	0.0	0.0	86.0
Maximum	0.0	6.1	54.1	67.6	66.4	74.8	79.6	81.7	60.8	52.0	24.8	0.0	497.5

Table 11 - Soil Moisture Filled (+) or Used (-)

Farm Name or Designation: Hirakata Farms-02

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	1.5	8.0	13.6	0.0	0.0	-5.2	5.2	-1.1	1.1	0.0	0.0	0.0	23.1
1985	0.0	0.0	0.0	0.0	0.0	-10.2	-1.6	-9.0	20.8	0.0	0.0	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	-4.3	4.3	0.0	0.0	0.0	0.0	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	-24.4	-5.2	16.5	13.1	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	-3.9	-28.5	-15.9	12.1	21.2	15.0	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	-27.0	12.5	14.5	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	-21.7	15.8	-2.7	8.6	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	-8.9	-2.0	-2.7	0.4	13.2	0.0	0.0	0.0	0.0
1992	0.0	0.0	0.0	0.0	0.0	0.0	-3.7	3.7	0.0	0.0	0.0	0.0	0.0
1993	0.0	0.0	0.0	0.0	0.0	-0.3	-10.3	10.7	0.0	0.0	0.0	0.0	0.0
1994	0.0	0.0	0.0	0.0	0.0	-7.5	-10.6	6.8	11.4	0.0	0.0	0.0	0.0
1995	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	0.0	0.0	0.0	-3.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0
1999	0.0	0.0	0.0	0.0	0.0	-5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
2000	0.0	0.0	0.0	0.0	0.0	-17.0	-21.7	-10.2	2.4	27.7	16.1	2.0	-0.7
2001	0.7	0.0	0.0	0.0	0.0	-3.4	-21.0	-7.6	11.4	20.7	0.0	0.0	0.7
2002	0.0	0.0	0.0	-20.7	-36.0	-14.3	-2.8	-0.2	0.0	0.0	2.3	5.5	-66.3
2003	0.0	5.9	15.6	-4.6	-8.2	5.4	-19.0	-2.6	-0.3	-0.1	9.9	2.6	4.8
2004	4.2	4.5	-2.9	47.9	-11.0	0.7	-5.7	19.6	-28.5	12.8	20.9	0.0	62.5
2005	0.0	0.0	0.0	0.0	0.0	-9.5	-36.1	-2.3	-9.9	31.2	15.7	3.0	-8.0
2006	7.3	0.0	0.7	-23.0	-8.7	-24.3	-6.3	9.1	19.6	33.7	0.0	0.0	8.0
2007	0.0	0.0	0.0	0.0	0.0	0.0	-35.2	-7.2	7.3	30.3	4.8	0.0	0.0
2008	0.0	0.0	0.0	0.0	0.0	-7.1	-26.7	21.2	2.6	10.0	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	-4.5	4.5	-10.0	7.2	2.8	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	-2.6	2.6	0.0	-28.7	5.9	22.9	0.0	0.0
2011	0.0	0.0	0.0	-6.8	1.2	-3.0	-24.9	-23.9	-1.1	19.9	26.4	12.1	0.0
2012	0.0	0.0	0.0	0.0	-12.9	-51.9	-9.0	-1.4	-0.1	0.0	0.0	1.1	-74.2
2013	0.7	1.1	7.4	-1.7	-2.8	-2.5	-2.5	-0.3	-0.1	47.8	2.9	1.1	51.1
Average	0.5	0.6	1.1	-0.3	-2.9	-6.6	-9.3	-0.5	2.7	9.2	4.6	0.9	0.0
Minimum	0.0	0.0	-2.9	-23.0	-36.0	-51.9	-36.1	-23.9	-28.7	-0.1	0.0	0.0	-74.2
Maximum	7.3	8.0	15.6	47.9	1.2	5.4	15.8	21.2	20.8	47.8	26.4	12.1	62.5

Table 12 - Soil Moisture Storage

Farm Name or Designation: Hirakata Farms-02

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MaxSM
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	53.6	61.5	75.1	75.1	75.1	69.9	75.1	74.0	75.1	75.1	75.1	75.1	75.1
1985	74.4	74.4	74.4	74.4	74.4	64.2	62.6	53.7	74.4	74.4	74.4	74.4	74.4
1986	73.8	73.8	73.8	73.8	73.8	69.5	73.8	73.8	73.8	73.8	73.8	73.8	73.8
1987	73.1	73.1	73.1	73.1	73.1	73.1	48.7	43.5	60.0	73.1	73.1	73.1	73.1
1988	72.5	72.5	72.5	72.5	72.5	68.5	40.0	24.1	36.2	57.4	72.5	72.5	72.5
1989	71.8	71.8	71.8	71.8	71.8	71.8	44.8	57.3	71.8	71.8	71.8	71.8	71.8
1990	71.1	71.1	71.1	71.1	71.1	49.4	65.3	62.5	71.1	71.1	71.1	71.1	71.1
1991	70.5	70.5	70.5	70.5	61.6	59.5	56.9	57.3	70.5	70.5	70.5	70.5	70.5
1992	69.8	69.8	69.8	69.8	69.8	69.8	66.1	69.8	69.8	69.8	69.8	69.8	69.8
1993	69.2	69.2	69.2	69.2	69.2	68.8	58.5	69.2	69.2	69.2	69.2	69.2	69.2
1994	69.7	69.7	69.7	69.7	69.7	62.2	51.5	58.3	69.7	69.7	69.7	69.7	69.7
1995	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3
1996	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8
1997	71.4	71.4	71.4	71.4	71.4	71.4	71.4	71.4	71.4	71.4	71.4	71.4	71.4
1998	71.9	71.9	71.9	71.9	71.9	68.8	71.9	71.9	71.9	71.9	71.9	71.9	71.9
1999	72.5	72.5	72.5	72.5	72.5	67.5	72.5	72.5	72.5	72.5	72.5	72.5	72.5
2000	73.0	73.0	73.0	73.0	73.0	56.1	34.4	24.2	26.6	54.3	70.4	72.4	73.0
2001	73.6	73.6	73.6	73.6	73.6	70.2	49.1	41.5	52.9	73.6	73.6	73.6	73.6
2002	74.1	74.1	74.1	53.4	17.4	3.1	0.2	0.0	0.0	0.0	2.3	7.8	74.1
2003	7.9	13.8	29.5	24.9	16.7	22.0	3.1	0.5	0.2	0.2	10.1	12.7	74.7
2004	16.9	21.5	18.6	66.4	55.5	56.1	50.4	70.0	41.5	54.3	75.2	75.2	75.2
2005	75.8	75.8	75.8	75.8	75.8	66.3	30.2	27.9	18.0	49.2	64.8	67.8	75.8
2006	75.1	75.1	75.7	52.7	44.0	19.6	13.4	22.4	42.1	75.7	75.7	75.7	75.7
2007	75.6	75.6	75.6	75.6	75.6	75.6	40.4	33.2	40.5	70.8	75.6	75.6	75.6
2008	75.6	75.6	75.6	75.6	75.6	68.5	41.8	63.0	65.6	75.6	75.6	75.6	75.6
2009	75.5	75.5	75.5	75.5	75.5	71.0	75.5	65.5	72.7	75.5	75.5	75.5	75.5
2010	75.4	75.4	75.4	75.4	75.4	72.8	75.4	75.4	46.7	52.5	75.4	75.4	75.4
2011	75.4	75.4	75.4	68.6	69.8	66.8	41.9	18.0	16.9	36.9	63.3	75.4	75.4
2012	75.4	75.4	75.4	75.4	62.5	10.6	1.6	0.2	0.1	0.1	0.1	1.2	75.4
2013	1.9	3.0	10.3	8.6	5.8	3.3	0.8	0.5	0.4	48.2	51.2	52.2	75.4
Average	65.9	66.6	67.7	67.4	64.5	57.9	48.6	48.1	50.8	60.0	64.5	65.5	73.3
Minimum	1.9	3.0	10.3	8.6	5.8	3.1	0.2	0.0	0.0	0.0	0.1	1.2	69.2
Maximum	75.8	75.8	75.8	75.8	75.8	75.6	75.5	75.4	75.1	75.7	75.7	75.7	75.8

Table 13 - Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture

Farm Name or Designation: Hirakata Farms-02

Derived from Water Budget Balance. Does not include excess effective precipitation used by crop. Soil moisture limited to: 0.5 feet

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	36.4	75.5	64.7	59.5	30.9	0.0	0.0	0.0	267.0
1985	0.0	0.0	0.0	0.0	20.5	74.1	68.9	70.2	20.6	0.0	0.0	0.0	254.4
1986	0.0	0.0	6.4	20.1	44.8	56.3	53.4	51.8	4.3	0.0	0.0	0.0	237.1
1987	0.0	0.0	0.0	17.6	12.5	58.2	86.5	57.8	22.7	8.4	0.0	0.0	263.7
1988	0.0	0.0	0.0	1.8	24.2	67.2	76.1	66.9	26.7	15.2	0.9	0.0	279.1
1989	0.0	0.0	2.0	19.6	37.1	51.7	80.3	49.2	8.4	10.5	0.3	0.0	259.0
1990	0.0	0.0	0.0	18.2	6.1	81.7	39.6	56.4	10.9	0.6	0.0	0.0	213.5
1991	0.0	0.0	0.0	11.9	45.4	66.2	62.3	62.0	18.5	6.3	0.0	0.0	272.7
1992	0.0	0.0	0.0	23.0	39.8	31.5	61.7	41.2	28.5	0.8	0.0	0.0	226.5
1993	0.0	0.0	0.0	2.0	28.7	68.3	73.0	51.7	25.8	4.5	0.0	0.0	254.1
1994	0.0	0.0	0.0	6.9	25.0	82.3	77.8	48.2	21.9	5.3	0.0	0.0	267.3
1995	0.0	0.0	0.0	0.0	0.0	33.6	65.6	78.7	34.1	9.9	1.0	0.0	223.1
1996	0.0	0.0	0.0	21.3	32.4	68.0	59.4	54.2	5.4	9.1	0.0	0.0	249.8
1997	0.0	0.0	0.0	0.0	44.0	47.3	73.6	29.3	27.4	0.0	0.0	0.0	221.6
1998	0.0	0.0	0.0	12.1	36.5	71.0	57.1	36.5	33.8	0.0	0.0	0.0	247.1
1999	0.0	0.0	0.0	0.0	19.8	60.8	46.0	48.0	35.3	0.0	0.7	0.0	210.5
2000	0.0	0.0	0.0	18.1	46.3	75.7	76.3	52.6	17.4	3.0	0.0	0.0	289.4
2001	0.0	0.0	0.0	18.4	13.0	64.3	82.0	72.3	24.9	7.6	0.0	0.0	282.4
2002	0.0	0.0	0.0	30.4	42.9	35.8	27.4	0.2	0.0	0.0	0.0	0.0	136.8
2003	0.0	0.0	0.0	4.5	31.9	52.3	51.1	12.5	5.5	0.1	0.0	0.0	158.0
2004	0.0	0.0	6.0	0.0	58.2	45.6	53.9	24.9	40.2	7.9	0.0	0.0	236.8
2005	0.0	0.0	0.0	14.0	50.1	70.1	86.8	55.9	24.5	0.0	1.2	0.0	302.5
2006	0.0	0.0	0.0	37.3	50.4	85.0	58.8	41.3	17.5	0.0	0.0	0.0	290.4
2007	0.0	0.0	6.9	0.9	40.2	47.5	93.3	65.1	39.6	14.9	1.5	0.0	310.1
2008	0.0	0.0	0.0	14.5	49.4	77.7	91.6	31.3	41.7	0.6	0.0	0.0	306.7
2009	0.0	0.0	0.0	23.3	45.3	60.5	55.3	59.3	28.8	0.0	0.0	0.0	272.5
2010	0.0	0.0	0.0	14.3	38.4	65.3	51.9	50.7	40.3	21.3	0.5	0.0	282.6
2011	0.0	0.0	0.0	23.4	40.2	73.4	89.3	65.8	28.9	10.6	0.0	0.0	331.6
2012	0.0	0.0	0.0	17.0	55.0	79.0	32.1	7.3	0.1	0.0	0.0	0.0	190.6
2013	0.0	0.0	0.0	1.1	37.4	59.0	34.2	42.4	35.9	4.2	0.0	0.0	214.1
Average	0.0	0.0	0.7	12.4	35.1	62.8	64.3	48.1	23.3	4.7	0.2	0.0	251.7
Minimum	0.0	0.0	0.0	0.0	0.0	31.5	27.4	0.2	0.0	0.0	0.0	0.0	136.8
Maximum	0.0	0.0	6.9	37.3	58.2	85.0	93.3	78.7	41.7	21.3	1.5	0.0	331.6
Limit	0.0	0.0	6.4	30.4	54.5	83.0	91.4	73.7	40.7	17.1	1.2	0.0	316.1

Table 14 - Total Return Flows at Farm

Farm Name or Designation: Hirakata Farms-02

Derived from Water Budget Balance. Does not include excess effective precipitation that deep percolates.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	13.9	60.4	57.6	57.6	64.6	47.8	42.7	43.8	20.8	0.0	409.1
1985	0.0	0.0	44.9	93.4	42.0	52.3	55.1	50.1	40.7	62.7	23.5	0.0	464.7
1986	0.0	0.9	75.8	81.9	68.8	42.5	53.8	51.2	60.7	59.1	19.7	0.0	514.6
1987	0.0	0.0	50.8	70.3	72.9	55.8	50.8	43.0	32.0	43.1	35.8	0.0	454.5
1988	0.0	0.0	38.3	71.3	51.7	51.8	39.0	41.7	31.8	29.8	16.4	0.0	371.8
1989	0.0	0.0	57.3	82.0	47.3	55.1	43.6	50.4	33.0	27.3	26.6	0.0	422.6
1990	0.0	0.0	25.6	79.1	69.6	49.1	45.3	43.9	30.9	57.2	24.4	0.0	425.1
1991	0.0	0.0	48.5	46.9	29.9	52.5	48.8	51.1	34.1	54.5	0.0	0.0	366.3
1992	0.0	0.0	45.4	99.0	67.2	57.3	47.5	58.2	56.1	67.2	29.0	0.0	526.9
1993	0.0	0.0	28.7	85.1	80.8	55.7	51.3	54.4	61.6	62.3	29.0	0.0	509.0
1994	0.0	0.0	63.5	109.5	71.9	61.2	54.9	45.0	49.0	68.0	30.9	0.0	553.9
1995	0.0	0.0	66.9	123.0	94.1	60.0	69.8	69.8	76.3	77.9	36.5	0.0	674.4
1996	0.0	11.2	98.4	99.8	78.8	64.2	65.6	50.1	74.9	75.9	36.0	0.0	654.8
1997	0.0	0.0	54.8	90.8	58.7	66.4	71.1	40.1	52.3	52.5	0.0	0.0	486.8
1998	0.0	0.0	28.4	95.2	84.3	55.6	66.2	50.2	59.7	65.5	27.8	0.0	532.8
1999	0.0	0.0	65.1	89.8	32.4	45.6	59.1	44.1	52.9	64.0	27.7	0.0	480.7
2000	0.0	2.8	80.0	78.2	52.0	48.0	44.7	34.7	16.2	25.1	12.9	0.0	394.7
2001	0.0	0.0	38.2	58.3	82.2	49.8	49.9	52.9	29.7	25.3	30.8	0.0	416.9
2002	0.0	0.0	39.6	7.9	5.6	17.6	20.1	0.0	0.0	0.0	1.2	0.0	92.2
2003	0.0	0.0	9.8	3.7	26.1	49.8	26.3	8.1	4.3	0.0	6.8	0.0	134.9
2004	0.0	0.0	4.9	32.5	47.6	43.8	39.4	36.5	9.6	16.9	24.1	0.0	255.3
2005	0.0	0.0	41.2	93.0	59.4	49.6	41.5	43.9	12.0	24.8	14.5	0.0	379.7
2006	0.0	0.0	20.2	11.7	34.1	49.7	43.0	41.2	30.4	35.9	23.7	0.0	289.8
2007	0.0	0.0	29.2	92.2	56.2	46.1	47.5	47.4	38.4	37.0	30.8	0.0	424.8
2008	0.0	0.0	61.1	107.4	55.6	57.8	53.1	43.0	36.2	61.3	30.9	0.0	506.3
2009	0.0	0.0	51.3	84.9	62.1	45.8	51.0	40.4	29.4	66.2	23.1	0.0	454.3
2010	0.0	0.0	31.5	72.0	68.4	51.3	45.7	45.1	9.5	22.2	19.9	0.0	365.6
2011	0.0	0.0	39.7	13.6	33.8	57.6	52.7	34.3	22.8	25.0	14.8	0.0	294.3
2012	0.0	0.0	12.6	20.7	34.5	22.2	18.9	4.8	0.0	0.0	0.0	0.0	113.7
2013	0.0	0.0	3.1	0.9	30.6	47.8	25.9	34.4	29.3	42.6	0.0	0.0	214.5
Average	0.0	0.5	42.3	68.5	55.2	50.7	48.2	41.9	35.2	43.1	20.6	0.0	406.2
Minimum	0.0	0.0	3.1	0.9	5.6	17.6	18.9	0.0	0.0	0.0	0.0	0.0	92.2
Maximum	0.0	11.2	98.4	123.0	94.1	66.4	71.1	69.8	76.3	77.9	36.5	0.0	674.4

Table 15 - Tailwater/Surface Runoff Return Flows at Farm

Farm Name or Designation: Hirakata Farms-02

For Summary Period Tailwater from Water Budget: 16.2% of Total Return Flows, Tailwater Forced to: 20% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	2.8	12.1	11.5	11.5	12.9	9.6	8.5	8.8	4.2	0.0	81.8
1985	0.0	0.0	9.0	18.7	8.4	10.5	11.0	10.0	8.1	12.5	4.7	0.0	92.9
1986	0.0	0.2	15.2	16.4	13.8	8.5	10.8	10.2	12.1	11.8	3.9	0.0	102.9
1987	0.0	0.0	10.2	14.1	14.6	11.2	10.2	8.6	6.4	8.6	7.2	0.0	90.9
1988	0.0	0.0	7.7	14.3	10.3	10.4	7.8	8.3	6.4	6.0	3.3	0.0	74.4
1989	0.0	0.0	11.5	16.4	9.5	11.0	8.7	10.1	6.6	5.5	5.3	0.0	84.5
1990	0.0	0.0	5.1	15.8	13.9	9.8	9.1	8.8	6.2	11.4	4.9	0.0	85.0
1991	0.0	0.0	9.7	9.4	6.0	10.5	9.8	10.2	6.8	10.9	0.0	0.0	73.3
1992	0.0	0.0	9.1	19.8	13.4	11.5	9.5	11.6	11.2	13.4	5.8	0.0	105.4
1993	0.0	0.0	5.7	17.0	16.2	11.1	10.3	10.9	12.3	12.5	5.8	0.0	101.8
1994	0.0	0.0	12.7	21.9	14.4	12.2	11.0	9.0	9.8	13.6	6.2	0.0	110.8
1995	0.0	0.0	13.4	24.6	18.8	12.0	14.0	14.0	15.3	15.6	7.3	0.0	134.9
1996	0.0	2.2	19.7	20.0	15.8	12.8	13.1	10.0	15.0	15.2	7.2	0.0	131.0
1997	0.0	0.0	11.0	18.2	11.7	13.3	14.2	8.0	10.5	10.5	0.0	0.0	97.4
1998	0.0	0.0	5.7	19.0	16.9	11.1	13.2	10.0	11.9	13.1	5.6	0.0	106.6
1999	0.0	0.0	13.0	18.0	6.5	9.1	11.8	8.8	10.6	12.8	5.5	0.0	96.1
2000	0.0	0.6	16.0	15.6	10.4	9.6	8.9	6.9	3.2	5.0	2.6	0.0	78.9
2001	0.0	0.0	7.6	11.7	16.4	10.0	10.0	10.6	5.9	5.1	6.2	0.0	83.4
2002	0.0	0.0	7.9	1.6	1.1	3.5	4.0	0.0	0.0	0.0	0.2	0.0	18.4
2003	0.0	0.0	2.0	0.7	5.2	10.0	5.3	1.6	0.9	0.0	1.4	0.0	27.0
2004	0.0	0.0	1.0	6.5	9.5	8.8	7.9	7.3	1.9	3.4	4.8	0.0	51.1
2005	0.0	0.0	8.2	18.6	11.9	9.9	8.3	8.8	2.4	5.0	2.9	0.0	75.9
2006	0.0	0.0	4.0	2.3	6.8	9.9	8.6	8.2	6.1	7.2	4.7	0.0	58.0
2007	0.0	0.0	5.8	18.4	11.2	9.2	9.5	9.5	7.7	7.4	6.2	0.0	85.0
2008	0.0	0.0	12.2	21.5	11.1	11.6	10.6	8.6	7.2	12.3	6.2	0.0	101.3
2009	0.0	0.0	10.3	17.0	12.4	9.2	10.2	8.1	5.9	13.2	4.6	0.0	90.9
2010	0.0	0.0	6.3	14.4	13.7	10.3	9.1	9.0	1.9	4.4	4.0	0.0	73.1
2011	0.0	0.0	7.9	2.7	6.8	11.5	10.5	6.9	4.6	5.0	3.0	0.0	58.9
2012	0.0	0.0	2.5	4.1	6.9	4.4	3.8	1.0	0.0	0.0	0.0	0.0	22.7
2013	0.0	0.0	0.6	0.2	6.1	9.6	5.2	6.9	5.9	8.5	0.0	0.0	42.9
Average	0.0	0.1	8.5	13.7	11.0	10.1	9.6	8.4	7.0	8.6	4.1	0.0	81.2
Minimum	0.0	0.0	0.6	0.2	1.1	3.5	3.8	0.0	0.0	0.0	0.0	0.0	18.4
Maximum	0.0	2.2	19.7	24.6	18.8	13.3	14.2	14.0	15.3	15.6	7.3	0.0	134.9
TW RF Factors: Average Monthly Tailwater / Surface Returns as a percent of Average Monthly Farm Headgate Delivery													
		20.0%	18.8%	16.9%	12.5%	9.4%	9.3%	9.4%	11.5%	15.1%	16.5%		12.4%

Table 16 - Deep Percolation/Ground Water Return Flows at Farm (unlagged)

Farm Name or Designation: Hirakata Farms-02

For Summary Period Deep Percolation from Water Budget: 83.8% of Total Return Flows, Deep Percolation Forced to: 80% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	11.1	48.3	46.1	46.0	51.7	38.2	34.1	35.1	16.6	0.0	327.3
1985	0.0	0.0	35.9	74.7	33.6	41.8	44.1	40.1	32.6	50.1	18.8	0.0	371.7
1986	0.0	0.7	60.6	65.5	55.1	34.0	43.1	41.0	48.5	47.3	15.8	0.0	411.7
1987	0.0	0.0	40.6	56.2	58.3	44.7	40.7	34.4	25.6	34.5	28.6	0.0	363.6
1988	0.0	0.0	30.7	57.1	41.4	41.4	31.2	33.4	25.4	23.8	13.2	0.0	297.4
1989	0.0	0.0	45.8	65.6	37.9	44.1	34.9	40.3	26.4	21.8	21.3	0.0	338.1
1990	0.0	0.0	20.4	63.3	55.7	39.3	36.3	35.1	24.7	45.8	19.5	0.0	340.1
1991	0.0	0.0	38.8	37.5	23.9	42.0	39.0	40.9	27.3	43.6	0.0	0.0	293.0
1992	0.0	0.0	36.3	79.2	53.8	45.9	38.0	46.6	44.9	53.8	23.2	0.0	421.5
1993	0.0	0.0	23.0	68.0	64.6	44.5	41.0	43.6	49.3	49.9	23.2	0.0	407.2
1994	0.0	0.0	50.8	87.6	57.5	49.0	44.0	36.0	39.2	54.4	24.7	0.0	443.1
1995	0.0	0.0	53.5	98.4	75.3	48.0	55.9	55.9	61.1	62.3	29.2	0.0	539.5
1996	0.0	8.9	78.7	79.9	63.0	51.3	52.5	40.1	59.9	60.7	28.8	0.0	523.8
1997	0.0	0.0	43.8	72.7	47.0	53.2	56.9	32.1	41.8	42.0	0.0	0.0	389.4
1998	0.0	0.0	22.8	76.2	67.4	44.4	53.0	40.1	47.7	52.4	22.2	0.0	426.3
1999	0.0	0.0	52.1	71.8	25.9	36.5	47.3	35.3	42.3	51.2	22.2	0.0	384.5
2000	0.0	2.3	64.0	62.6	41.6	38.4	35.8	27.7	13.0	20.1	10.3	0.0	315.7
2001	0.0	0.0	30.5	46.6	65.7	39.8	39.9	42.3	23.7	20.2	24.7	0.0	333.6
2002	0.0	0.0	31.7	6.4	4.5	14.1	16.1	0.0	0.0	0.0	1.0	0.0	73.7
2003	0.0	0.0	7.8	3.0	20.9	39.8	21.1	6.5	3.4	0.0	5.4	0.0	107.9
2004	0.0	0.0	3.9	26.0	38.1	35.1	31.5	29.2	7.7	13.5	19.3	0.0	204.3
2005	0.0	0.0	33.0	74.4	47.5	39.6	33.2	35.1	9.6	19.8	11.6	0.0	303.8
2006	0.0	0.0	16.1	9.4	27.3	39.7	34.4	33.0	24.3	28.7	18.9	0.0	231.8
2007	0.0	0.0	23.3	73.8	45.0	36.9	38.0	37.9	30.7	29.6	24.6	0.0	339.9
2008	0.0	0.0	48.9	85.9	44.5	46.2	42.5	34.4	28.9	49.0	24.7	0.0	405.0
2009	0.0	0.0	41.1	67.9	49.7	36.6	40.8	32.3	23.5	52.9	18.5	0.0	363.5
2010	0.0	0.0	25.2	57.6	54.8	41.0	36.5	36.1	7.6	17.8	15.9	0.0	292.5
2011	0.0	0.0	31.8	10.9	27.1	46.1	42.2	27.4	18.2	20.0	11.9	0.0	235.4
2012	0.0	0.0	10.1	16.6	27.6	17.8	15.1	3.9	0.0	0.0	0.0	0.0	90.9
2013	0.0	0.0	2.5	0.7	24.5	38.2	20.7	27.5	23.4	34.1	0.0	0.0	171.6
Average	0.0	0.4	33.8	54.8	44.2	40.5	38.6	33.5	28.2	34.5	16.5	0.0	324.9
Minimum	0.0	0.0	2.5	0.7	4.5	14.1	15.1	0.0	0.0	0.0	0.0	0.0	73.7
Maximum	0.0	8.9	78.7	98.4	75.3	53.2	56.9	55.9	61.1	62.3	29.2	0.0	539.5
DP RF Factors: Average Monthly Deep Percolation / Groundwater Returns as a percent of Average Monthly Farm Headgate Delivery													
		80.0%	75.1%	67.7%	50.1%	37.8%	37.4%	37.5%	46.0%	60.5%	66.1%		49.4%

Table 17 - Historical Depletions at Farm

Farm Name or Designation: Hirakata Farms-02

Farm Headgate Delivery less Total Unlagged Return Flows at Farm. Includes Depletion and Return Flow Factors.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	17.0	6.1	36.4	70.3	69.9	58.4	32.0	0.0	0.0	0.0	290.1
1985	0.0	0.0	0.0	0.0	20.5	63.9	67.4	61.3	41.4	0.0	0.0	0.0	254.4
1986	0.0	0.0	6.4	20.1	44.8	52.0	57.7	51.8	4.3	0.0	0.0	0.0	237.1
1987	0.0	0.0	0.0	17.6	12.5	58.2	62.1	52.6	39.1	21.5	0.0	0.0	263.7
1988	0.0	0.0	0.0	1.8	24.2	63.3	47.6	51.0	38.8	36.4	15.9	0.0	279.1
1989	0.0	0.0	2.0	19.6	37.1	51.7	53.3	61.6	22.9	10.5	0.3	0.0	259.0
1990	0.0	0.0	0.0	18.2	6.1	60.0	55.4	53.7	19.5	0.6	0.0	0.0	213.5
1991	0.0	0.0	0.0	11.9	36.5	64.2	59.6	62.5	31.7	6.3	0.0	0.0	272.7
1992	0.0	0.0	0.0	23.0	39.8	31.5	58.0	44.9	28.5	0.8	0.0	0.0	226.5
1993	0.0	0.0	0.0	2.0	28.7	68.0	62.7	62.4	25.8	4.5	0.0	0.0	254.1
1994	0.0	0.0	0.0	6.9	25.0	74.8	67.1	55.0	33.2	5.3	0.0	0.0	267.3
1995	0.0	0.0	0.0	0.0	0.0	33.6	65.6	78.7	34.1	9.9	1.0	0.0	223.1
1996	0.0	0.0	0.0	21.3	32.4	68.0	59.4	54.2	5.4	9.1	0.0	0.0	249.8
1997	0.0	0.0	0.0	0.0	44.0	47.3	73.6	29.3	27.4	0.0	0.0	0.0	221.6
1998	0.0	0.0	0.0	12.1	36.5	67.9	60.3	36.5	33.8	0.0	0.0	0.0	247.1
1999	0.0	0.0	0.0	0.0	19.8	55.8	51.0	48.0	35.3	0.0	0.7	0.0	210.5
2000	0.0	0.0	0.0	18.1	46.3	58.7	54.6	42.4	19.8	30.7	15.8	0.0	286.4
2001	0.0	0.0	3.0	18.4	13.0	60.8	60.9	64.7	36.3	28.2	0.0	0.0	285.4
2002	0.0	0.0	0.0	9.7	6.9	21.5	24.6	0.0	0.0	0.0	1.5	0.0	64.2
2003	0.0	0.0	11.9	4.5	31.9	60.9	32.2	9.9	5.3	0.0	8.3	0.0	164.9
2004	0.0	0.0	6.0	39.7	58.2	53.6	48.2	44.6	11.7	20.7	20.9	0.0	303.5
2005	0.0	0.0	0.0	14.0	50.1	60.6	50.7	53.6	14.6	30.3	17.7	0.0	291.5
2006	0.0	0.0	11.0	14.3	41.7	60.7	52.5	50.4	37.1	33.7	0.0	0.0	301.3
2007	0.0	0.0	6.9	0.9	40.2	47.5	58.1	57.9	47.0	45.2	6.3	0.0	310.1
2008	0.0	0.0	0.0	14.5	49.4	70.6	64.9	52.5	44.2	10.6	0.0	0.0	306.7
2009	0.0	0.0	0.0	23.3	45.3	56.0	59.8	49.3	36.0	2.8	0.0	0.0	272.5
2010	0.0	0.0	0.0	14.3	38.4	62.7	54.4	50.7	11.6	27.1	23.4	0.0	282.6
2011	0.0	0.0	0.0	16.6	41.3	70.4	64.4	41.9	27.8	30.5	18.1	0.0	311.1
2012	0.0	0.0	15.4	22.1	42.1	27.2	23.0	5.9	0.0	0.0	0.0	0.0	135.7
2013	0.0	0.0	3.8	1.1	37.4	58.4	31.7	42.0	35.8	52.0	0.0	0.0	262.2
Average	0.0	0.0	2.8	12.4	32.9	56.7	55.0	47.6	26.0	13.9	4.3	0.0	251.6
Minimum	0.0	0.0	0.0	0.0	0.0	21.5	23.0	0.0	0.0	0.0	0.0	0.0	64.2
Maximum	0.0	0.0	17.0	39.7	58.2	74.8	73.6	78.7	47.0	52.0	23.4	0.0	311.1
Limit	0.0	0.0	14.8	28.7	52.5	71.9	70.3	68.6	44.2	44.6	20.8	0.0	309.3
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	6.2%	15.3%	37.3%	52.8%	53.3%	53.2%	42.5%	24.4%	17.4%		38.2%
TW Returns		20.0%	18.8%	16.9%	12.5%	9.4%	9.3%	9.4%	11.5%	15.1%	16.5%		12.4%
DP Returns		80.0%	75.1%	67.7%	50.1%	37.8%	37.4%	37.5%	46.0%	60.5%	66.1%		49.4%
Sum		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		100.0%

Table 18 - Percent Tailwater/Surface Runoff Return Flows of Farm Headgate Delivery

Farm Name or Designation: Hirakata Farms-02

Tailwater/Surface Runoff Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984			9.0%	18.2%	12.3%	9.0%	9.6%	9.0%	11.4%	20.0%	20.0%		11.7%
1985			20.0%	20.0%	13.5%	9.0%	9.0%	9.0%	9.9%	20.0%	20.0%		12.9%
1986		20.0%	18.4%	16.1%	12.1%	9.0%	9.7%	9.9%	18.7%	20.0%	20.0%		13.7%
1987			20.0%	16.0%	17.1%	9.8%	9.0%	9.0%	9.0%	13.3%	20.0%		12.7%
1988			20.0%	19.5%	13.6%	9.0%	9.0%	9.0%	9.0%	9.0%	10.2%		11.4%
1989			19.3%	16.1%	11.2%	10.3%	9.0%	9.0%	11.8%	14.4%	19.8%		12.4%
1990			20.0%	16.3%	18.4%	9.0%	9.0%	9.0%	12.3%	19.8%	20.0%		13.3%
1991			20.0%	16.0%	9.0%	9.0%	9.0%	9.0%	10.4%	17.9%			11.5%
1992			20.0%	16.2%	12.6%	12.9%	9.0%	11.3%	13.3%	19.8%	20.0%		14.0%
1993			20.0%	19.5%	14.8%	9.0%	9.0%	9.3%	14.1%	18.6%	20.0%		13.3%
1994			20.0%	18.8%	14.8%	9.0%	9.0%	9.0%	11.9%	18.6%	20.0%		13.5%
1995			20.0%	20.0%	20.0%	12.8%	10.3%	9.4%	13.8%	17.7%	19.5%		15.0%
1996		20.0%	20.0%	16.5%	14.2%	9.7%	10.5%	9.6%	18.7%	17.9%	20.0%		14.5%
1997			20.0%	20.0%	11.4%	11.7%	9.8%	11.5%	13.1%	20.0%			13.7%
1998			20.0%	17.7%	14.0%	9.0%	10.5%	11.6%	12.8%	20.0%	20.0%		13.7%
1999			20.0%	20.0%	12.4%	9.0%	10.7%	9.6%	12.0%	20.0%	19.5%		13.9%
2000		20.0%	20.0%	16.2%	10.6%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		11.6%
2001			18.5%	15.2%	17.3%	9.0%	9.0%	9.0%	9.0%	9.4%	20.0%		11.9%
2002			20.0%	9.0%	9.0%	9.0%	9.0%				9.0%		11.8%
2003			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%		9.0%
2004			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	10.7%		9.1%
2005			20.0%	17.4%	10.9%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		11.3%
2006			13.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	10.3%	20.0%		9.8%
2007			16.2%	19.8%	11.7%	9.9%	9.0%	9.0%	9.0%	9.0%	16.6%		11.6%
2008			20.0%	17.6%	10.6%	9.0%	9.0%	9.0%	9.0%	17.1%	20.0%		12.5%
2009			20.0%	15.7%	11.6%	9.0%	9.2%	9.0%	9.0%	19.2%	20.0%		12.5%
2010			20.0%	16.7%	12.8%	9.0%	9.1%	9.4%	9.0%	9.0%	9.2%		11.3%
2011			20.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.7%
2012			9.0%	9.7%	9.0%	9.0%	9.0%	9.0%					9.1%
2013			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%			9.0%
Average		20.0%	17.7%	15.6%	12.3%	9.5%	9.3%	9.4%	11.1%	15.0%	16.6%		12.0%
Minimum		20.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%
Maximum		20.0%	20.0%	20.0%	20.0%	12.9%	10.7%	11.6%	18.7%	20.0%	20.0%		15.0%

Table 19 - Percent Deep Percolation/Ground Water Return Flows of Farm Headgate Delivery

Farm Name or Designation: Hirakata Farms-02

Deep Percolation/Ground Water Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			36.0%	72.7%	49.0%	36.0%	38.4%	36.0%	45.7%	80.0%	80.0%		46.8%
1985			80.0%	80.0%	53.8%	36.0%	36.0%	36.0%	39.7%	80.0%	80.0%		51.7%
1986		80.0%	73.8%	64.2%	48.5%	36.0%	38.6%	39.8%	74.7%	80.0%	80.0%		54.8%
1987			80.0%	64.0%	68.3%	39.2%	36.0%	36.0%	36.0%	53.4%	80.0%		50.6%
1988			80.0%	78.0%	54.5%	36.0%	36.0%	36.0%	36.0%	36.0%	40.6%		45.7%
1989			77.3%	64.6%	44.9%	41.3%	36.0%	36.0%	47.2%	57.8%	79.2%		49.6%
1990			80.0%	65.0%	73.5%	36.0%	36.0%	36.0%	49.0%	79.2%	80.0%		53.3%
1991			80.0%	63.8%	36.0%	36.0%	36.0%	36.0%	41.5%	71.7%			45.9%
1992			80.0%	64.9%	50.3%	51.6%	36.0%	45.2%	53.0%	79.1%	80.0%		56.0%
1993			80.0%	78.1%	59.0%	36.0%	36.0%	37.3%	56.4%	74.6%	80.0%		53.4%
1994			80.0%	75.3%	59.4%	36.0%	36.0%	36.0%	47.7%	74.2%	80.0%		54.0%
1995			80.0%	80.0%	80.0%	51.3%	41.2%	37.6%	55.3%	70.9%	77.9%		60.1%
1996		80.0%	80.0%	66.0%	56.7%	38.9%	42.0%	38.4%	74.6%	71.4%	80.0%		57.9%
1997			80.0%	80.0%	45.7%	46.7%	39.3%	46.2%	52.5%	80.0%			55.0%
1998			80.0%	71.0%	55.8%	36.0%	41.9%	46.3%	51.1%	80.0%	80.0%		54.7%
1999			80.0%	80.0%	49.7%	36.0%	42.9%	38.3%	48.0%	80.0%	78.0%		55.6%
2000		80.0%	80.0%	65.0%	42.3%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		46.4%
2001			74.2%	60.8%	69.0%	36.0%	36.0%	36.0%	36.0%	37.8%	80.0%		47.5%
2002			80.0%	36.0%	36.0%	36.0%	36.0%				36.0%		47.2%
2003			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%		36.0%
2004			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	42.9%		36.6%
2005			80.0%	69.5%	43.4%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		45.3%
2006			51.8%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	41.3%	80.0%		39.2%
2007			64.6%	79.2%	46.6%	39.4%	36.0%	36.0%	36.0%	36.0%	66.4%		46.2%
2008			80.0%	70.5%	42.3%	36.0%	36.0%	36.0%	36.0%	68.2%	80.0%		49.8%
2009			80.0%	62.8%	46.3%	36.0%	36.8%	36.0%	36.0%	76.8%	80.0%		50.0%
2010			80.0%	66.7%	51.2%	36.0%	36.5%	37.7%	36.0%	36.0%	36.8%		45.1%
2011			80.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		38.9%
2012			36.0%	38.7%	36.0%	36.0%	36.0%	36.0%					36.5%
2013			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%			36.0%
Average		80.0%	70.7%	62.6%	49.3%	37.9%	37.1%	37.5%	44.3%	60.2%	66.2%		48.2%
Minimum		80.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%
Maximum		80.0%	80.0%	80.0%	80.0%	51.6%	42.9%	46.3%	74.7%	80.0%	80.0%		60.1%

Table 20 - Percent Historic On-Farm Depletions of Farm Headgate Delivery

Farm Name or Designation: Hirakata Farms-02

Historic On-Farm Depletions divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			55.0%	9.2%	38.7%	55.0%	52.0%	55.0%	42.9%	0.0%	0.0%		41.5%
1985			0.0%	0.0%	32.7%	55.0%	55.0%	55.0%	50.4%	0.0%	0.0%		35.4%
1986		0.0%	7.8%	19.7%	39.4%	55.0%	51.7%	50.3%	6.7%	0.0%	0.0%		31.5%
1987			0.0%	20.0%	14.7%	51.0%	55.0%	55.0%	55.0%	33.3%	0.0%		36.7%
1988			0.0%	2.5%	31.9%	55.0%	55.0%	55.0%	55.0%	55.0%	49.2%		42.9%
1989			3.4%	19.3%	43.9%	48.4%	55.0%	55.0%	40.9%	27.8%	1.0%		38.0%
1990			0.0%	18.7%	8.1%	55.0%	55.0%	55.0%	38.7%	1.0%	0.0%		33.4%
1991			0.0%	20.2%	55.0%	55.0%	55.0%	55.0%	48.2%	10.4%			42.7%
1992			0.0%	18.8%	37.2%	35.4%	55.0%	43.5%	33.7%	1.2%	0.0%		30.1%
1993			0.0%	2.3%	26.2%	55.0%	55.0%	53.4%	29.5%	6.8%	0.0%		33.3%
1994			0.0%	5.9%	25.8%	55.0%	55.0%	55.0%	40.4%	7.2%	0.0%		32.6%
1995			0.0%	0.0%	0.0%	35.9%	48.4%	53.0%	30.9%	11.3%	2.6%		24.9%
1996		0.0%	0.0%	17.6%	29.2%	51.4%	47.5%	52.0%	6.7%	10.7%	0.0%		27.6%
1997			0.0%	0.0%	42.8%	41.6%	50.8%	42.3%	34.3%	0.0%			31.3%
1998			0.0%	11.3%	30.2%	55.0%	47.6%	42.1%	36.1%	0.0%	0.0%		31.7%
1999			0.0%	0.0%	37.9%	55.0%	46.3%	52.1%	40.0%	0.0%	2.5%		30.5%
2000		0.0%	0.0%	18.8%	47.1%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		42.1%
2001			7.3%	24.0%	13.7%	55.0%	55.0%	55.0%	55.0%	52.8%	0.0%		40.6%
2002			0.0%	55.0%	55.0%	55.0%	55.0%				55.0%		41.1%
2003			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%		55.0%
2004			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	46.4%		54.3%
2005			0.0%	13.1%	45.7%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		43.4%
2006			35.2%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	48.4%	0.0%		51.0%
2007			19.2%	1.0%	41.7%	50.7%	55.0%	55.0%	55.0%	55.0%	17.1%		42.2%
2008			0.0%	11.9%	47.1%	55.0%	55.0%	55.0%	55.0%	14.7%	0.0%		37.7%
2009			0.0%	21.5%	42.2%	55.0%	54.0%	55.0%	55.0%	4.0%	0.0%		37.5%
2010			0.0%	16.6%	36.0%	55.0%	54.4%	52.9%	55.0%	55.0%	54.0%		43.6%
2011			0.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		51.4%
2012			55.0%	51.6%	55.0%	55.0%	55.0%	55.0%					54.4%
2013			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%			55.0%
Average		0.0%	11.6%	21.8%	38.4%	52.7%	53.6%	53.2%	44.6%	24.8%	17.2%		39.8%
Minimum		0.0%	0.0%	0.0%		35.4%	46.3%	42.1%	6.7%	0.0%	0.0%		24.9%
Maximum		0.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%

Table 21 - Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased

Farm Name or Designation: Hirakata Farms-02

Remaining return flows from cumulative calendar year diversions. Amount remaining after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	11.1	59.4	105.5	151.5	202.8	240.4	273.2	306.2	**319.8**	315.9	319.8
1985	0.0	0.0	35.9	110.6	144.2	185.8	229.4	268.3	299.0	346.4	**361.4**	356.7	361.4
1986	0.0	0.7	61.4	126.9	181.9	215.7	258.0	297.5	343.7	387.7	**399.2**	393.8	399.2
1987	0.0	0.0	40.6	96.8	155.1	199.6	239.7	273.0	296.7	328.3	**353.1**	348.3	353.1
1988	0.0	0.0	30.7	87.7	129.1	170.3	201.0	233.4	257.2	278.6	**288.5**	284.4	288.5
1989	0.0	0.0	45.8	111.4	149.3	193.1	227.4	266.5	291.0	309.9	**327.4**	322.8	327.4
1990	0.0	0.0	20.4	83.7	139.4	178.5	214.4	248.6	271.6	314.9	**331.0**	326.7	331.0
1991	0.0	0.0	38.8	76.3	100.2	142.1	180.6	220.7	246.5	**288.0**	285.1	281.4	288.0
1992	0.0	0.0	36.3	115.5	169.3	215.0	252.4	297.7	340.4	391.1	**410.1**	404.8	410.1
1993	0.0	0.0	23.0	91.0	155.6	200.0	240.6	283.1	330.5	377.6	**397.0**	392.1	397.0
1994	0.0	0.0	50.8	138.3	195.8	244.5	287.8	322.3	359.0	409.8	**429.8**	423.9	429.8
1995	0.0	0.0	53.5	151.9	227.1	274.8	329.9	384.1	442.3	500.6	**524.4**	517.5	524.4
1996	0.0	8.9	87.6	167.5	230.4	281.4	332.8	370.9	427.7	484.1	**507.4**	500.5	507.4
1997	0.0	0.0	43.8	116.5	163.4	216.4	272.7	303.4	343.1	**382.0**	377.7	372.3	382.0
1998	0.0	0.0	22.8	98.9	166.4	210.7	263.2	302.2	347.9	397.3	**415.4**	410.2	415.4
1999	0.0	0.0	52.1	123.9	149.8	186.1	232.6	266.6	306.9	355.2	**373.5**	368.7	373.5
2000	0.0	2.3	66.2	128.8	170.3	208.5	243.5	269.8	280.5	297.4	**303.6**	298.7	303.6
2001	0.0	0.0	30.5	77.1	142.9	182.5	222.0	263.3	285.4	303.0	**324.1**	319.7	324.1
2002	0.0	0.0	31.7	38.1	42.6	56.5	72.3	71.9	71.2	70.3	**70.1**	68.8	70.1
2003	0.0	0.0	7.8	10.8	31.7	71.5	92.5	98.7	101.7	100.9	**105.1**	103.5	105.1
2004	0.0	0.0	3.9	29.9	68.0	103.0	134.4	163.2	170.0	182.2	**199.6**	197.0	199.6
2005	0.0	0.0	33.0	107.3	154.9	194.3	227.0	260.9	268.5	285.5	**293.4**	288.8	293.4
2006	0.0	0.0	16.1	25.5	52.8	92.5	126.6	159.2	182.8	210.3	**227.4**	224.9	227.4
2007	0.0	0.0	23.3	97.1	142.1	178.8	216.4	253.3	282.3	309.3	**330.4**	326.0	330.4
2008	0.0	0.0	48.9	134.8	179.2	225.2	267.0	300.0	326.6	372.2	**392.5**	387.1	392.5
2009	0.0	0.0	41.1	109.0	158.7	195.2	235.4	266.5	288.0	338.0	**352.7**	348.0	352.7
2010	0.0	0.0	25.2	82.8	137.5	178.5	214.6	249.7	255.6	270.8	**283.3**	279.1	283.3
2011	0.0	0.0	31.8	42.6	69.7	115.6	157.5	184.3	201.5	219.9	**229.4**	226.4	229.4
2012	0.0	0.0	10.1	26.6	54.2	71.9	86.8	**90.4**	89.7	88.7	87.4	85.8	90.4
2013	0.0	0.0	2.5	3.2	27.6	65.9	86.6	113.9	137.0	**170.3**	169.1	167.4	170.3
Average	0.0	0.4	34.2	89.0	133.1	173.5	211.6	244.1	270.6	302.5	315.6	311.4	316.0
Minimum	0.0	0.0	2.5	3.2	27.6	56.5	72.3	71.9	71.2	70.3	70.1	68.8	70.1
Maximum	0.0	8.9	87.6	167.5	230.4	281.4	332.8	384.1	442.3	500.6	524.4	517.5	524.4
Limit	0.0	4.0	71.7	152.6	217.8	266.9	316.8	359.1	409.7	464.8	487.2	480.7	487.2

Table 22 - Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries

Farm Name or Designation: Hirakata Farms-02

Remaining return flows from cumulative calendar year diversions divided by cumulative FHGD. Amount after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			36.0%	61.0%	55.1%	47.4%	44.7%	42.9%	43.1%	45.1%	**45.7%**	45.2%	45.7%
1985			80.0%	80.0%	71.8%	58.6%	52.2%	48.7%	47.2%	49.8%	**50.3%**	49.6%	50.3%
1986		80.0%	73.9%	68.6%	60.9%	54.8%	51.1%	49.0%	51.1%	53.0%	**53.1%**	52.4%	53.1%
1987			80.0%	69.9%	69.2%	59.0%	53.1%	49.9%	48.0%	48.1%	**49.2%**	48.5%	49.2%
1988			80.0%	78.7%	68.9%	56.3%	51.7%	48.5%	46.6%	45.0%	**44.3%**	43.7%	44.3%
1989			77.3%	69.3%	60.8%	54.8%	50.6%	47.5%	47.2%	47.3%	**48.0%**	47.4%	48.0%
1990			80.0%	68.1%	70.2%	58.0%	52.5%	49.1%	48.8%	51.3%	**51.8%**	51.2%	51.8%
1991			80.0%	71.1%	57.7%	48.9%	45.3%	43.1%	42.6%	**45.1%**	44.6%	44.0%	45.1%
1992			80.0%	69.0%	61.7%	59.2%	53.8%	52.1%	51.9%	54.0%	**54.4%**	53.7%	54.4%
1993			80.0%	78.6%	69.1%	57.3%	52.0%	48.8%	49.5%	51.4%	**52.0%**	51.4%	52.0%
1994			80.0%	76.9%	70.8%	59.3%	53.8%	50.8%	50.1%	51.8%	**52.3%**	51.6%	52.3%
1995			80.0%	80.0%	80.0%	72.8%	64.3%	58.1%	57.3%	58.2%	**58.4%**	57.7%	58.4%
1996		80.0%	80.0%	72.6%	67.4%	59.4%	55.6%	52.7%	54.6%	55.7%	**56.1%**	55.3%	56.1%
1997			80.0%	80.0%	65.8%	59.8%	53.8%	52.7%	52.3%	**53.9%**	53.3%	52.6%	53.9%
1998			80.0%	72.9%	64.8%	55.4%	52.0%	50.9%	50.7%	52.8%	**53.3%**	52.6%	53.3%
1999			80.0%	80.0%	72.3%	60.3%	55.6%	52.2%	51.3%	53.6%	**54.0%**	53.3%	54.0%
2000		80.0%	80.0%	71.9%	61.4%	54.3%	50.4%	48.1%	47.0%	45.6%	**44.6%**	43.8%	44.6%
2001			74.2%	65.5%	67.1%	56.4%	51.1%	47.7%	46.2%	45.1%	**46.2%**	45.5%	46.2%
2002			80.0%	66.4%	61.0%	51.9%	47.1%	46.8%	46.4%	45.8%	**44.8%**	44.0%	44.8%
2003			36.0%	36.0%	36.0%	36.0%	36.0%	35.9%	35.7%	35.4%	**35.0%**	34.5%	35.0%
2004			36.0%	36.0%	36.0%	36.0%	36.0%	35.9%	35.7%	35.5%	**35.7%**	35.3%	35.7%
2005			80.0%	72.5%	60.1%	52.8%	49.3%	46.8%	46.0%	44.7%	**43.7%**	43.0%	43.7%
2006			51.8%	44.6%	39.7%	38.0%	37.4%	37.0%	36.7%	37.1%	**38.5%**	38.0%	38.5%
2007			64.6%	75.1%	62.9%	56.0%	50.9%	47.8%	45.8%	44.3%	**45.0%**	44.4%	45.0%
2008			80.0%	73.7%	62.2%	54.1%	50.0%	47.6%	46.0%	47.6%	**48.3%**	47.6%	48.3%
2009			80.0%	68.3%	59.4%	52.9%	49.1%	46.8%	45.4%	48.0%	**48.5%**	47.9%	48.5%
2010			80.0%	70.3%	61.2%	52.7%	48.9%	46.7%	46.0%	44.8%	**43.7%**	43.1%	43.7%
2011			80.0%	61.0%	48.0%	42.3%	40.4%	39.5%	39.0%	38.4%	**37.9%**	37.4%	37.9%
2012			36.0%	37.6%	36.8%	36.6%	36.4%	**36.2%**	36.0%	35.6%	35.1%	34.4%	36.2%
2013			36.0%	36.0%	36.0%	36.0%	36.0%	35.9%	35.8%	**35.7%**	35.5%	35.1%	35.7%
Average		80.0%	70.7%	66.4%	59.8%	52.6%	48.7%	46.5%	46.0%	46.7%	46.8%	46.1%	46.9%
Minimum		80.0%	36.0%	36.0%	36.0%	36.0%	36.0%	35.9%	35.7%	35.4%	35.0%	34.4%	35.0%
Maximum		80.0%	80.0%	80.0%	80.0%	72.8%	64.3%	58.1%	57.3%	58.2%	58.4%	57.7%	58.4%
Limit			80.0%	80.0%	74.7%	64.3%	58.5%	54.5%	54.7%	56.0%	56.3%	55.6%	56.3%

Table 23 - Transferrable Depletions Given Calculated On-Farm Depletion Factors

Farm Name or Designation: Hirakata Farms-02

Farm Headgate Deliveries multiplied by Avg Monthly On-Farm Depletion Factors limited by Avg-Max-3 Monthly and Annual On-Farm Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	0.0	0.0	1.9	10.2	35.1	67.5	70.3	56.5	31.7	10.7	3.6	0.0	287.5
1985	0.0	0.0	2.8	14.3	23.3	61.3	65.3	59.2	34.9	15.3	4.1	0.0	280.5
1986	0.0	0.0	5.1	15.6	42.4	49.9	59.4	54.8	27.6	14.4	3.4	0.0	272.7
1987	0.0	0.0	3.1	13.5	31.9	60.2	60.2	50.8	30.2	15.8	6.2	0.0	271.9
1988	0.0	0.0	2.4	11.2	28.3	60.8	46.1	49.3	30.0	16.1	5.6	0.0	249.8
1989	0.0	0.0	3.7	15.6	31.5	56.4	51.7	59.6	23.8	9.2	4.7	0.0	256.0
1990	0.0	0.0	1.6	14.9	28.3	57.6	53.7	51.9	21.4	14.1	4.2	0.0	247.7
1991	0.0	0.0	3.0	9.0	24.8	61.7	57.8	60.4	28.0	14.8	0.0	0.0	259.4
1992	0.0	0.0	2.8	18.7	39.9	46.9	56.2	54.8	35.9	16.6	5.0	0.0	277.0
1993	0.0	0.0	1.8	13.4	40.9	65.3	60.7	62.1	37.1	16.3	5.0	0.0	302.6
1994	0.0	0.0	3.9	17.8	36.2	71.8	65.1	53.2	34.9	17.9	5.4	0.0	306.2
1995	0.0	0.0	4.1	18.9	35.1	49.4	70.3	68.6	44.2	18.7	0.0	0.0	309.3
1996	0.0	0.0	6.1	18.6	41.5	69.8	66.6	55.5	34.1	17.2	0.0	0.0	309.3
1997	0.0	0.0	3.4	13.9	38.4	60.0	70.3	36.9	33.8	12.8	0.0	0.0	269.5
1998	0.0	0.0	1.8	16.5	45.1	65.2	67.4	46.1	39.7	16.0	4.8	0.0	302.5
1999	0.0	0.0	4.0	13.8	19.5	53.5	58.7	48.9	37.5	15.6	4.9	0.0	256.4
2000	0.0	0.0	4.9	14.8	36.7	56.4	53.0	41.0	15.3	13.6	5.0	0.0	240.6
2001	0.0	0.0	2.5	11.8	35.5	58.4	59.1	62.5	28.0	13.0	5.4	0.0	276.2
2002	0.0	0.0	2.4	2.7	4.7	20.6	23.8	0.0	0.0	0.0	0.5	0.0	54.8
2003	0.0	0.0	1.3	1.3	21.7	58.4	31.2	9.6	4.1	0.0	2.6	0.0	130.2
2004	0.0	0.0	0.7	11.1	39.5	51.4	46.7	43.1	9.0	9.2	7.8	0.0	218.5
2005	0.0	0.0	2.5	16.4	40.9	58.1	49.1	51.8	11.3	13.4	5.6	0.0	249.2
2006	0.0	0.0	1.9	4.0	28.3	58.3	50.9	48.7	28.7	17.0	4.1	0.0	241.8
2007	0.0	0.0	2.2	14.3	36.0	49.5	56.3	56.0	36.3	20.0	6.4	0.0	277.0
2008	0.0	0.0	3.8	18.7	39.2	67.8	62.9	50.7	34.2	17.5	5.4	0.0	300.2
2009	0.0	0.0	3.2	16.6	40.1	53.8	59.1	47.7	27.8	16.8	4.0	0.0	269.0
2010	0.0	0.0	1.9	13.2	39.9	60.2	53.4	50.9	8.9	12.0	7.5	0.0	248.1
2011	0.0	0.0	2.4	4.6	28.1	67.6	62.4	40.5	21.5	13.5	5.7	0.0	246.4
2012	0.0	0.0	1.7	6.6	28.6	26.1	22.3	5.7	0.0	0.0	0.0	0.0	91.0
2013	0.0	0.0	0.4	0.3	25.4	56.1	30.7	40.6	27.7	23.1	0.0	0.0	204.2
Average	0.0	0.0	2.8	12.4	32.9	56.7	54.7	47.2	25.9	13.7	3.9	0.0	250.2
Minimum	0.0	0.0	0.4	0.3	4.7	20.6	22.3	0.0	0.0	0.0	0.0	0.0	54.8
Maximum	0.0	0.0	6.1	18.9	45.1	71.8	70.3	68.6	44.2	23.1	7.8	0.0	309.3

Table 24 - Comparison of Historic On-Farm Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Hirakata Farms-02

Historic On-Farm Depletions less Transferrable Depletions Given Calculated On-Farm Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	15.1	-4.1	1.3	2.8	-0.4	2.0	0.3	-10.7	-3.6	0.0	2.6
1985	0.0	0.0	-2.8	-14.3	-2.9	2.6	2.1	2.0	6.5	-15.3	-4.1	0.0	-26.1
1986	0.0	-0.0	1.3	4.4	2.4	2.1	-1.8	-3.0	-23.3	-14.4	-3.4	0.0	-35.6
1987	0.0	0.0	-3.1	4.1	-19.4	-2.0	1.9	1.8	8.9	5.7	-6.2	0.0	-8.3
1988	0.0	0.0	-2.4	-9.4	-4.1	2.5	1.5	1.7	8.8	20.3	10.3	0.0	29.2
1989	0.0	0.0	-1.6	4.0	5.6	-4.7	1.6	2.1	-0.9	1.3	-4.4	0.0	3.0
1990	0.0	0.0	-1.6	3.3	-22.1	2.4	1.7	1.8	-1.9	-13.5	-4.2	0.0	-34.2
1991	0.0	0.0	-3.0	2.9	11.7	2.6	1.8	2.1	3.7	-8.5	0.0	0.0	13.3
1992	0.0	0.0	-2.8	4.3	-0.2	-15.4	1.8	-9.9	-7.4	-15.8	-5.0	0.0	-50.5
1993	0.0	0.0	-1.8	-11.3	-12.2	2.7	1.9	0.3	-11.4	-11.8	-5.0	0.0	-48.6
1994	0.0	0.0	-3.9	-11.0	-11.2	3.0	2.1	1.8	-1.7	-12.6	-5.4	0.0	-38.8
1995	0.0	0.0	-4.1	-18.9	-35.1	-15.8	-4.6	10.1	-10.0	-8.8	1.0	0.0	-86.3
1996	0.0	-0.0	-6.1	2.7	-9.1	-1.8	-7.2	-1.2	-28.7	-8.1	0.0	0.0	-59.5
1997	0.0	0.0	-3.4	-13.9	5.7	-12.8	3.3	-7.6	-6.5	-12.8	0.0	0.0	-48.0
1998	0.0	0.0	-1.8	-4.3	-8.6	2.7	-7.2	-9.6	-5.9	-16.0	-4.8	0.0	-55.4
1999	0.0	0.0	-4.0	-13.8	0.3	2.2	-7.7	-1.0	-2.2	-15.6	-4.2	0.0	-45.9
2000	0.0	0.0	-4.9	3.3	9.6	2.3	1.7	1.4	4.5	17.1	10.8	0.0	45.8
2001	0.0	0.0	0.5	6.6	-22.5	2.4	1.9	2.2	8.3	15.2	-5.4	0.0	9.2
2002	0.0	0.0	-2.4	7.0	2.2	0.9	0.8	0.0	0.0	0.0	1.0	0.0	9.4
2003	0.0	0.0	10.6	3.3	10.3	2.4	1.0	0.3	1.2	0.0	5.7	0.0	34.8
2004	0.0	0.0	5.3	28.6	18.7	2.1	1.5	1.5	2.7	11.5	13.1	0.0	85.0
2005	0.0	0.0	-2.5	-2.4	9.2	2.4	1.6	1.8	3.3	16.9	12.1	0.0	42.3
2006	0.0	0.0	9.0	10.3	13.4	2.4	1.6	1.7	8.4	16.7	-4.1	0.0	59.5
2007	0.0	0.0	4.7	-13.3	4.2	-1.9	1.8	1.9	10.7	25.2	-0.1	0.0	33.1
2008	0.0	0.0	-3.8	-4.2	10.2	2.8	2.0	1.8	10.1	-7.0	-5.4	0.0	6.6
2009	0.0	0.0	-3.2	6.7	5.2	2.2	0.7	1.6	8.2	-14.0	-4.0	0.0	3.5
2010	0.0	0.0	-1.9	1.1	-1.5	2.5	1.1	-0.3	2.6	15.1	15.8	0.0	34.6
2011	0.0	0.0	-2.4	12.0	13.3	2.8	2.0	1.4	6.3	17.0	12.4	0.0	64.7
2012	0.0	0.0	13.7	15.5	13.5	1.1	0.7	0.2	0.0	0.0	0.0	0.0	44.7
2013	0.0	0.0	3.4	0.8	12.0	2.3	1.0	1.4	8.1	29.0	0.0	0.0	58.0
Average	0.0	0.0	-0.0	0.0	-0.0	0.0	0.3	0.3	0.1	0.2	0.4	0.0	1.4
Minimum	0.0	-0.0	-6.1	-18.9	-35.1	-15.8	-7.7	-9.9	-28.7	-16.0	-6.2	0.0	-86.3
Maximum	0.0	0.0	15.1	28.6	18.7	3.0	3.3	10.1	10.7	29.0	15.8	0.0	85.0

Table 25 - Deep Percolation/Ground Water Return Flows at Stream (lagged)

Farm Name or Designation: Hirakata Farms-02

Deep Percolation Lagged to Stream using URF

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	19.2	19.6	19.8	19.9	19.8	19.7	19.5	19.6	19.9	20.2	20.7	21.2	239.2
1985	21.7	22.1	22.4	22.5	22.5	22.5	22.5	22.6	22.9	23.4	23.8	24.3	273.4
1986	24.8	25.3	25.6	25.7	25.6	25.6	25.6	25.8	26.1	26.5	27.0	27.5	311.1
1987	28.0	28.5	28.7	28.8	28.6	28.4	28.3	28.3	28.4	28.7	29.0	29.3	343.1
1988	29.6	29.9	30.0	29.9	29.7	29.5	29.3	29.2	29.2	29.4	29.5	29.6	354.8
1989	29.7	29.8	29.7	29.5	29.0	28.6	28.4	28.4	28.4	28.6	28.7	28.9	347.8
1990	29.1	29.3	29.3	29.1	28.7	28.3	28.0	27.9	27.9	28.0	28.2	28.5	342.5
1991	28.8	29.0	29.1	29.0	28.7	28.3	28.0	27.8	27.7	27.6	27.7	27.8	339.3
1992	28.1	28.2	28.2	28.0	27.5	27.1	27.0	27.0	27.2	27.4	27.7	28.2	331.6
1993	28.7	29.2	29.5	29.4	29.2	28.9	28.8	28.8	28.9	29.1	29.4	29.8	349.8
1994	30.4	30.8	31.1	31.0	30.8	30.5	30.5	30.7	31.0	31.3	31.7	32.1	371.8
1995	32.6	33.0	33.2	33.1	32.8	32.6	32.6	32.8	33.2	33.8	34.3	35.0	399.2
1996	35.7	36.3	36.8	36.8	36.6	36.5	36.6	36.9	37.2	37.6	38.1	38.5	443.8
1997	39.1	39.5	39.8	39.8	39.4	39.0	38.8	38.7	38.7	38.8	38.9	39.1	469.6
1998	39.3	39.4	39.3	38.9	38.3	37.8	37.3	37.1	37.0	37.1	37.2	37.5	456.1
1999	37.8	38.0	38.1	37.9	37.4	37.0	36.7	36.5	36.4	36.3	36.3	36.3	444.8
2000	36.6	36.7	36.7	36.5	36.0	35.6	35.3	35.3	35.2	35.2	35.2	35.1	429.3
2001	35.1	35.0	34.7	34.1	33.3	32.7	32.2	31.9	31.8	31.7	31.8	31.9	396.1
2002	32.0	32.1	32.0	31.7	31.0	30.4	29.9	29.4	28.8	28.1	27.5	26.9	359.9
2003	26.4	25.9	25.3	24.4	23.5	22.7	22.0	21.4	21.0	20.5	20.2	19.9	273.2
2004	19.7	19.4	19.1	18.6	18.0	17.5	17.0	16.7	16.6	16.5	16.6	16.8	212.6
2005	17.0	17.1	17.2	17.1	16.7	16.5	16.5	16.6	17.0	17.3	17.7	18.2	204.9
2006	18.6	18.9	19.1	18.9	18.6	18.4	18.2	17.9	17.8	17.8	17.8	18.0	220.2
2007	18.3	18.6	18.8	18.6	18.4	18.2	18.2	18.4	18.7	19.1	19.6	20.1	225.1
2008	20.6	21.0	21.3	21.4	21.3	21.1	21.2	21.6	22.0	22.5	23.1	23.5	260.6
2009	24.1	24.6	25.0	25.1	25.1	25.1	25.1	25.4	25.7	26.1	26.5	26.9	304.6
2010	27.3	27.6	27.8	27.8	27.7	27.4	27.2	27.3	27.4	27.7	28.0	28.2	331.3
2011	28.3	28.4	28.3	28.1	27.7	27.2	26.8	26.4	26.2	26.2	26.2	26.2	325.9
2012	26.3	26.3	26.1	25.8	25.3	24.8	24.3	23.9	23.5	23.3	23.0	22.7	295.2
2013	22.4	22.0	21.5	21.0	20.5	19.9	19.3	18.8	18.4	18.2	18.1	18.0	237.9
Average	27.8	28.0	28.1	27.9	27.6	27.3	27.0	27.0	27.0	27.1	27.3	27.5	329.8
Minimum	17.0	17.1	17.2	17.1	16.7	16.5	16.5	16.6	16.6	16.5	16.6	16.8	204.9
Maximum	39.3	39.5	39.8	39.8	39.4	39.0	38.8	38.7	38.7	38.8	38.9	39.1	469.6
Lagged DP RF Factors: Average Monthly Lagged Deep Perc. / GW Returns as a percent of Average Monthly Farm Headgate Delivery													
			62.4%	34.5%	31.3%	25.4%	26.2%	30.1%	44.1%	47.6%			50.1%

Table 26 - Total Return Flows at Stream

Farm Name or Designation: Hirakata Farms-02

Lagged Deep Percolation plus Direct Tailwater/Surface Runoff Return Flows

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	19.2	19.6	22.6	32.0	31.3	31.2	32.5	29.2	28.4	29.0	24.9	21.2	321.0
1985	21.7	22.1	31.4	41.2	30.9	33.0	33.5	32.6	31.1	35.9	28.5	24.3	366.3
1986	24.8	25.4	40.7	42.0	39.4	34.1	36.4	36.1	38.3	38.4	31.0	27.5	414.0
1987	28.0	28.5	38.9	42.8	43.2	39.6	38.5	36.9	34.8	37.3	36.2	29.3	434.0
1988	29.6	29.9	37.7	44.2	40.0	39.8	37.1	37.6	35.6	35.3	32.8	29.6	429.2
1989	29.7	29.8	41.2	45.9	38.5	39.7	37.2	38.4	35.0	34.0	34.0	28.9	432.3
1990	29.1	29.3	34.4	44.9	42.6	38.1	37.1	36.7	34.1	39.5	33.1	28.5	427.5
1991	28.8	29.0	38.8	38.3	34.6	38.8	37.8	38.0	34.5	38.5	27.7	27.8	412.6
1992	28.1	28.2	37.3	47.8	40.9	38.6	36.5	38.6	38.4	40.9	33.5	28.2	437.0
1993	28.7	29.2	35.2	46.4	45.3	40.0	39.0	39.7	41.3	41.6	35.2	29.8	451.6
1994	30.4	30.8	43.8	52.9	45.1	42.8	41.5	39.7	40.8	45.0	37.9	32.1	482.6
1995	32.6	33.0	46.6	57.7	51.7	44.6	46.6	46.8	48.5	49.3	41.6	35.0	534.0
1996	35.7	38.6	56.5	56.8	52.4	49.4	49.7	46.9	52.2	52.8	45.3	38.5	574.8
1997	39.1	39.5	50.8	57.9	51.2	52.3	53.0	46.7	49.1	49.3	38.9	39.1	566.9
1998	39.3	39.4	45.0	57.9	55.2	48.9	50.5	47.1	48.9	50.1	42.7	37.5	562.6
1999	37.8	38.0	51.1	55.9	43.9	46.1	48.5	45.4	47.0	49.1	41.8	36.3	540.9
2000	36.6	37.3	52.7	52.1	46.4	45.2	44.3	42.2	38.5	40.2	37.7	35.1	508.3
2001	35.1	35.0	42.3	45.8	49.8	42.6	42.2	42.5	37.7	36.8	37.9	31.9	479.5
2002	32.0	32.1	40.0	33.2	32.2	34.0	34.0	29.4	28.8	28.1	27.8	26.9	378.3
2003	26.4	25.9	27.2	25.1	28.8	32.7	27.3	23.0	21.8	20.5	21.5	19.9	300.2
2004	19.7	19.4	20.1	25.1	27.5	26.3	24.9	24.0	18.5	19.9	21.4	16.8	263.7
2005	17.0	17.1	25.4	35.7	28.6	26.4	24.8	25.4	19.4	22.3	20.6	18.2	280.8
2006	18.6	18.9	23.1	21.3	25.5	28.4	26.8	26.2	23.9	25.0	22.6	18.0	278.1
2007	18.3	18.6	24.6	37.1	29.6	27.5	27.7	27.9	26.4	26.5	25.7	20.1	310.0
2008	20.6	21.0	33.6	42.9	32.4	32.7	31.9	30.1	29.2	34.8	29.2	23.5	361.8
2009	24.1	24.6	35.2	42.0	37.5	34.2	35.3	33.4	31.6	39.3	31.1	26.9	395.5
2010	27.3	27.6	34.1	42.2	41.4	37.7	36.4	36.3	29.3	32.1	31.9	28.2	404.4
2011	28.3	28.4	36.2	30.8	34.4	38.7	37.3	33.3	30.8	31.2	29.2	26.2	384.8
2012	26.3	26.3	28.7	30.0	32.2	29.2	28.1	24.9	23.5	23.3	23.0	22.7	317.9
2013	22.4	22.0	22.1	21.2	26.6	29.4	24.5	25.7	24.3	26.7	18.1	18.0	280.9
Average	27.8	28.1	36.6	41.6	38.6	37.4	36.7	35.4	34.0	35.8	31.4	27.5	411.1
Minimum	17.0	17.1	20.1	21.2	25.5	26.3	24.5	23.0	18.5	19.9	18.1	16.8	263.7
Maximum	39.3	39.5	56.5	57.9	55.2	52.3	53.0	47.1	52.2	52.8	45.3	39.1	574.8
Lagged Total Returns as a percent of Farm Headgate Delivery Average													
			81.2%	51.5%	43.9%	34.8%	35.5%	39.5%	55.6%	62.7%			62.5%

Table 27 - Historical Depletions at Stream including Depletion and Return Flow Factors

Farm Name or Designation: Hirakata Farms-02

Farm Headgate Delivery less Total Lagged Return Flows at Stream

Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	-19.2	-19.6	8.3	34.5	62.7	96.7	102.0	77.0	46.3	14.8	-4.1	-21.2	378.2
1985	-21.7	-22.1	13.5	52.2	31.5	83.2	89.0	78.7	51.0	26.8	-5.1	-24.3	352.7
1986	-24.8	-24.5	41.5	59.9	74.3	60.5	75.1	67.0	26.8	20.8	-11.2	-27.5	337.7
1987	-28.0	-28.5	11.9	45.0	42.2	74.5	74.5	58.6	36.3	27.3	-0.4	-29.3	284.2
1988	-29.6	-29.9	0.7	29.0	35.9	75.2	49.5	55.1	35.0	30.9	-0.4	-29.6	221.7
1989	-29.7	-29.8	18.1	55.7	45.9	67.1	59.7	73.6	20.9	3.7	-7.2	-28.9	249.3
1990	-29.1	-29.3	-8.8	52.3	33.0	71.0	63.6	60.9	16.3	18.4	-8.7	-28.5	211.1
1991	-28.8	-29.0	9.7	20.4	31.8	78.0	70.6	75.6	31.3	22.3	-27.7	-27.8	226.4
1992	-28.1	-28.2	8.1	74.2	66.1	50.2	69.0	64.5	46.2	27.1	-4.6	-28.2	316.4
1993	-28.7	-29.2	-6.5	40.6	64.1	83.7	74.9	77.2	46.1	25.2	-6.2	-29.8	311.4
1994	-30.4	-30.8	19.7	63.4	51.7	93.2	80.6	60.4	41.5	28.4	-7.0	-32.1	338.7
1995	-32.6	-33.0	20.3	65.2	42.4	49.0	88.9	101.7	61.9	38.5	-4.1	-35.0	363.4
1996	-35.7	-27.4	41.9	64.3	58.8	82.7	75.3	57.4	28.1	32.2	-9.3	-38.5	329.8
1997	-39.1	-39.5	4.0	32.9	51.6	61.4	91.7	22.7	30.5	3.2	-38.9	-39.1	141.5
1998	-39.3	-39.4	-16.6	49.4	65.6	74.6	76.0	39.6	44.5	15.3	-14.9	-37.5	217.3
1999	-37.8	-38.0	14.0	33.9	8.3	55.3	61.6	46.7	41.2	14.9	-13.4	-36.3	150.3
2000	-36.6	-34.5	27.2	44.2	51.9	61.6	55.1	34.9	-2.4	15.6	-9.0	-35.1	172.8
2001	-35.1	-35.0	-1.2	30.9	45.4	68.0	68.7	75.1	28.3	16.7	-7.1	-31.9	222.8
2002	-32.0	-32.1	-0.3	-15.6	-19.7	5.1	10.8	-29.4	-28.8	-28.1	-25.0	-26.9	-222.0
2003	-26.4	-25.9	-5.5	-16.9	29.3	78.0	31.2	-5.0	-12.3	-20.5	-6.4	-19.9	-0.4
2004	-19.7	-19.4	-9.2	47.0	78.2	71.2	62.7	57.1	2.8	17.7	23.6	-16.8	295.1
2005	-17.0	-17.1	15.8	71.3	80.9	83.7	67.4	72.1	7.2	32.8	11.6	-18.2	390.4
2006	-18.6	-18.9	8.0	4.8	50.3	82.0	68.7	65.4	43.6	44.6	1.1	-18.0	312.9
2007	-18.3	-18.6	11.5	56.1	66.8	66.2	77.9	77.4	59.0	55.7	11.3	-20.1	424.9
2008	-20.6	-21.0	27.6	79.0	72.6	95.8	86.2	65.3	51.2	37.1	1.6	-23.5	451.2
2009	-24.1	-24.6	16.1	66.2	70.0	67.6	75.5	56.2	33.8	29.6	-8.0	-26.9	331.3
2010	-27.3	-27.6	-2.6	44.1	65.5	76.3	63.7	59.6	-8.3	17.2	11.3	-28.2	243.8
2011	-28.3	-28.4	3.5	-0.6	40.7	89.3	79.8	42.9	19.8	24.3	3.8	-26.2	220.6
2012	-26.3	-26.3	-0.7	12.8	44.4	20.2	13.8	-14.1	-23.5	-23.3	-23.0	-22.7	-68.6
2013	-22.4	-22.0	-15.2	-19.2	41.3	76.8	33.2	50.7	40.8	67.9	-18.1	-18.0	195.9
Average	-27.8	-27.7	8.5	39.2	49.5	69.9	66.6	54.2	27.2	21.2	-6.5	-27.5	246.7
Minimum	-39.3	-39.5	-16.6	-19.2	-19.7	5.1	10.8	-29.4	-28.8	-28.1	-38.9	-39.1	-222.0
Maximum	-17.0	-17.1	41.9	79.0	80.9	96.7	102.0	101.7	61.9	67.9	23.6	-16.8	451.2
Limit	-18.0	-18.2	37.0	74.8	77.8	95.2	94.2	86.0	57.4	56.1	15.5	-17.6	422.2
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Depletion Factors			18.8%	48.5%	56.1%	65.2%	64.5%	60.5%	44.4%	37.3%			37.5%
Return Flow Factors			81.2%	51.5%	43.9%	34.8%	35.5%	39.5%	55.6%	62.7%			62.5%
Winter RF	-4.2%	-4.2%									-1.0%	-4.2%	
Sum			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			100.0%

Table 28 - Transferrable Depletions Given Calculated Stream Depletion Factors

Farm Name or Designation: Hirakata Farms-02

Farm Headgate Deliveries multiplied by Avg Monthly Stream Depletion Factors limited by Avg-Max-3 Monthly and Annual Stream Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	5.8	32.2	52.8	83.3	86.7	64.3	33.1	16.3	0.0	0.0	374.6
1985	0.0	0.0	8.5	45.3	35.1	75.7	79.0	67.4	36.5	23.3	0.0	0.0	370.7
1986	0.0	0.0	15.5	49.5	63.8	61.6	71.9	62.4	28.9	22.0	0.0	0.0	375.5
1987	0.0	0.0	9.6	42.6	48.0	74.3	72.8	57.8	31.6	24.1	0.0	0.0	360.8
1988	0.0	0.0	7.2	35.5	42.6	75.0	55.8	56.1	31.3	24.7	0.0	0.0	328.2
1989	0.0	0.0	11.2	49.3	47.4	69.6	62.5	67.8	24.8	14.1	0.0	0.0	346.6
1990	0.0	0.0	4.8	47.2	42.5	71.1	64.9	59.1	22.4	21.5	0.0	0.0	333.5
1991	0.0	0.0	9.1	28.5	37.3	76.1	69.9	68.7	29.2	22.7	0.0	0.0	341.5
1992	0.0	0.0	8.6	59.2	60.1	57.9	68.0	62.4	37.6	25.3	0.0	0.0	379.0
1993	0.0	0.0	5.4	42.3	61.5	80.6	73.5	70.7	38.8	24.9	0.0	0.0	397.6
1994	0.0	0.0	12.0	56.4	54.4	88.6	78.7	60.5	36.5	27.3	0.0	0.0	414.5
1995	0.0	0.0	12.6	59.7	52.8	61.0	87.3	86.0	49.0	13.8	0.0	0.0	422.2
1996	0.0	0.0	18.5	58.7	62.4	86.1	80.6	63.1	35.6	17.0	0.0	0.0	422.2
1997	0.0	0.0	10.3	44.1	57.7	74.1	93.3	42.0	35.4	19.6	0.0	0.0	376.4
1998	0.0	0.0	5.4	52.1	67.8	80.4	81.6	52.4	41.5	24.4	0.0	0.0	405.6
1999	0.0	0.0	12.3	43.6	29.3	66.1	71.0	55.7	39.1	23.9	0.0	0.0	340.8
2000	0.0	0.0	15.1	46.7	55.2	69.6	64.1	46.6	16.0	20.8	0.0	0.0	334.0
2001	0.0	0.0	7.8	37.2	53.5	72.1	71.4	71.2	29.3	19.9	0.0	0.0	362.3
2002	0.0	0.0	7.5	8.6	7.0	25.5	28.8	0.0	0.0	0.0	0.0	0.0	77.4
2003	0.0	0.0	4.1	4.0	32.6	72.1	37.7	10.9	4.2	0.0	0.0	0.0	165.7
2004	0.0	0.0	2.1	35.0	59.4	63.5	56.5	49.1	9.4	14.0	0.0	0.0	288.9
2005	0.0	0.0	7.8	51.9	61.5	71.8	59.4	59.0	11.8	20.5	0.0	0.0	343.6
2006	0.0	0.0	5.9	12.6	42.5	71.9	61.6	55.4	30.0	25.9	0.0	0.0	305.8
2007	0.0	0.0	6.8	45.2	54.2	61.0	68.1	63.7	37.9	30.6	0.0	0.0	367.5
2008	0.0	0.0	11.5	59.1	58.9	83.7	76.1	57.8	35.7	26.8	0.0	0.0	409.6
2009	0.0	0.0	9.7	52.5	60.4	66.3	71.5	54.3	29.0	25.7	0.0	0.0	369.3
2010	0.0	0.0	5.9	41.9	60.0	74.3	64.5	58.0	9.3	18.4	0.0	0.0	332.4
2011	0.0	0.0	7.5	14.7	42.2	83.4	75.5	46.1	22.5	20.7	0.0	0.0	312.5
2012	0.0	0.0	5.3	20.8	43.0	32.2	27.0	6.5	0.0	0.0	0.0	0.0	134.7
2013	0.0	0.0	1.3	0.9	38.1	69.2	37.2	46.2	28.9	35.3	0.0	0.0	257.1
Average	0.0	0.0	8.5	39.2	49.5	69.9	66.6	54.0	27.2	20.1	0.0	0.0	335.0
Minimum	0.0	0.0	1.3	0.9	7.0	25.5	27.0	0.0	0.0	0.0	0.0	0.0	77.4
Maximum	0.0	0.0	18.5	59.7	67.8	88.6	93.3	86.0	49.0	35.3	0.0	0.0	422.2

Table 29 - Comparison of Historic Stream Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Hirakata Farms-02

Historic Stream Depletions less Transferrable Depletions Given Calculated Stream Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	2.4	2.2	9.9	13.4	15.3	12.8	13.1	-1.5	0.0	0.0	67.6
1985	0.0	0.0	5.0	6.9	-3.5	7.5	10.0	11.3	14.6	3.4	0.0	0.0	55.2
1986	0.0	0.0	26.0	10.5	10.5	-1.1	3.2	4.6	-2.1	-1.3	0.0	0.0	50.3
1987	0.0	0.0	2.3	2.4	-5.7	0.2	1.7	0.8	4.7	3.2	0.0	0.0	9.6
1988	0.0	0.0	-6.6	-6.5	-6.7	0.3	-6.3	-1.0	3.7	6.2	0.0	0.0	-17.0
1989	0.0	0.0	7.0	6.4	-1.5	-2.5	-2.7	5.8	-3.9	-10.3	0.0	0.0	-1.7
1990	0.0	0.0	-13.7	5.1	-9.5	-0.1	-1.3	1.8	-6.0	-3.2	0.0	0.0	-26.8
1991	0.0	0.0	0.6	-8.1	-5.5	1.9	0.7	6.8	2.1	-0.4	0.0	0.0	-1.8
1992	0.0	0.0	-0.5	15.0	6.0	-7.7	1.0	2.1	8.7	1.8	0.0	0.0	26.4
1993	0.0	0.0	-11.9	-1.6	2.7	3.1	1.5	6.5	7.3	0.3	0.0	0.0	7.8
1994	0.0	0.0	7.8	7.0	-2.7	4.6	1.9	-0.1	5.0	1.1	0.0	0.0	24.5
1995	0.0	0.0	7.7	5.6	-10.4	-12.0	1.6	15.8	12.9	24.8	0.0	0.0	45.9
1996	0.0	0.0	23.4	5.5	-3.6	-3.3	-5.3	-5.7	-7.5	15.2	0.0	0.0	18.6
1997	0.0	0.0	-6.3	-11.2	-6.1	-12.7	-1.6	-19.3	-4.8	-16.3	0.0	0.0	-78.3
1998	0.0	0.0	-21.9	-2.7	-2.2	-5.9	-5.6	-12.9	3.1	-9.1	0.0	0.0	-57.1
1999	0.0	0.0	1.7	-9.6	-21.0	-10.8	-9.4	-9.0	2.1	-9.0	0.0	0.0	-65.0
2000	0.0	0.0	12.2	-2.5	-3.3	-8.0	-9.0	-11.8	-18.4	-5.2	0.0	0.0	-46.0
2001	0.0	0.0	-8.9	-6.3	-8.0	-4.1	-2.8	4.0	-1.0	-3.2	0.0	0.0	-30.4
2002	0.0	0.0	-7.8	-24.2	-26.7	-20.3	-18.1	-29.4	-28.8	-28.1	0.0	0.0	-183.3
2003	0.0	0.0	-9.6	-20.9	-3.3	5.8	-6.5	-15.9	-16.5	-20.5	0.0	0.0	-87.4
2004	0.0	0.0	-11.2	12.0	18.8	7.7	6.2	8.0	-6.7	3.7	0.0	0.0	38.6
2005	0.0	0.0	8.0	19.4	19.4	12.0	8.0	13.1	-4.6	12.3	0.0	0.0	87.6
2006	0.0	0.0	2.2	-7.9	7.8	10.1	7.2	10.0	13.6	18.7	0.0	0.0	61.6
2007	0.0	0.0	4.7	10.9	12.7	5.2	9.8	13.7	21.1	25.1	0.0	0.0	103.1
2008	0.0	0.0	16.0	19.9	13.7	12.1	10.1	7.6	15.5	10.3	0.0	0.0	105.1
2009	0.0	0.0	6.4	13.7	9.6	1.2	4.0	2.0	4.8	3.9	0.0	0.0	45.7
2010	0.0	0.0	-8.5	2.3	5.5	2.0	-0.8	1.6	-17.6	-1.2	0.0	0.0	-16.8
2011	0.0	0.0	-4.0	-15.2	-1.5	5.9	4.3	-3.2	-2.6	3.7	0.0	0.0	-12.7
2012	0.0	0.0	-6.0	-7.9	1.4	-12.0	-13.2	-20.6	-23.5	-23.3	0.0	0.0	-105.1
2013	0.0	0.0	-16.5	-20.2	3.2	7.6	-4.0	4.5	11.9	32.7	0.0	0.0	19.2
Average	0.0	0.0	-0.0	0.0	-0.0	0.0	0.0	0.1	0.0	1.1	0.0	0.0	1.3
Minimum	0.0	0.0	-21.9	-24.2	-26.7	-20.3	-18.1	-29.4	-28.8	-28.1	0.0	0.0	-183.3
Maximum	0.0	0.0	26.0	19.9	19.4	13.4	15.3	15.8	21.1	32.7	0.0	0.0	105.1

Table 30 - Other Input Data Used For Analysis

Farm Name or Designation: Hirakata Farms-02

Notes:

Year (Cal)	Farm Shares	Ditch Shares	Ditch (acres)	Canal Loss	Off-Farm Lat Loss	On-Farm Lat Loss	SEVA Loss	Flood AppEff	Sprinkler AppEff	Drip AppEff	Flood Tailwater	Force Tailwater	Spray Loss	AWC (%)	RootDepth (ft)
1984	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1985	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1986	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1987	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1988	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1989	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1990	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1991	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1992	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1993	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1994	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1995	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1996	151	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1997	151	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1998	151	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1999	151	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2000	151	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2001	151	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2002	151	18660	13301	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2003	151	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2004	151	18660	15021	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2005	151	18660	17281	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2006	151	18660	17491	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2007	151	18660	17380	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2008	151	18660	16321	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2009	151	18660	17480	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2010	151	18660	17657	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2011	151	18660	17493	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2012	151	18660	17348	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2013	151	18660	14240	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Average	151	18660	16579.97	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Minimum	151	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Maximum	151	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4

APPENDIX

E

Table 1 - Summary Period Average and Maximum Values for Selected Variables

Farm Name or Designation: Hancock-09

Summary Period: 1984 - 2013

Notes:

Period	Farm	Farm	App.	Alfalfa	Grass	Corn_Grn	Corn_Sil	Spr_Grn	Sorghum	Win_Wht	Vegetable	Beans	Beets
	Shares	Acres	Eff.	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Average	80.0	73.7	0.55	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Maximum	80.0	75.7	0.55	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)
River Headgate Diversions for All Sources Considered in Pilot Project Plan													
Average	0.0	71.2	6469.9	11612.6	12648.6	15409.4	14822.9	12853.2	8790.7	8183.5	3577.9	0.0	94439.9
Farm Headgate Delivery													
Average	0.0	0.3	23.9	42.9	46.7	56.9	54.7	47.4	32.4	30.2	13.2	0.0	348.5
Maximum	0.0	5.9	52.1	65.1	64.0	72.0	76.7	78.7	58.5	50.1	23.9	0.0	479.3
Limit	0.0	2.6	46.0	64.8	61.0	70.0	73.2	67.6	51.6	47.2	22.2	0.0	463.3
Farm Crop Potential Evapotranspiration													
Average	0.0	0.0	2.0	12.1	27.1	41.8	47.6	38.5	18.7	6.4	0.5	0.0	194.7
Farm Effective Precipitation													
Average	1.6	1.9	4.8	6.8	8.6	8.2	10.7	9.8	5.1	5.0	2.5	2.1	67.1
Farm Irrigation Water Requirement													
Average	0.0	0.0	0.7	6.6	18.6	33.6	36.9	28.7	13.6	2.9	0.1	0.0	141.7
Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture													
Average	0.0	0.0	0.5	6.3	17.7	31.8	32.8	24.6	11.9	2.4	0.1	0.0	128.0
Total Return Flows at Farm													
Average	0.0	0.3	22.7	36.6	29.9	27.2	26.2	22.7	19.6	23.9	11.5	0.0	220.5
Tailwater/Surface Runoff Return Flows at Farm													
Average	0.0	0.1	4.5	7.3	6.0	5.4	5.2	4.5	3.9	4.8	2.3	0.0	44.1
Deep Percolation/Ground Water Return Flows at Farm (unlagged)													
Average	0.0	0.2	18.2	29.3	23.9	21.8	21.0	18.2	15.7	19.1	9.2	0.0	176.4
Historical Depletions at Farm													
Average	0.0	0.0	1.1	6.2	16.8	29.7	28.5	24.7	12.9	6.3	1.8	0.0	128.0
Maximum	0.0	0.0	8.4	21.0	30.8	39.6	38.8	41.8	24.9	27.6	9.6	0.0	162.6
Limit	0.0	0.0	6.9	14.8	26.5	37.8	36.7	36.7	22.1	21.8	9.4	0.0	155.6
Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased													
Average	0.0	0.2	16.6	38.6	49.7	56.2	60.1	60.2	57.7	58.6	49.7	34.5	51.8
Maximum	0.0	4.3	40.9	68.0	84.0	84.6	88.8	91.3	95.1	97.9	83.3	58.1	83.3
Limit	0.0	1.9	34.0	64.5	78.3	81.1	84.2	82.6	86.6	89.9	76.5	53.3	77.8
Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries													
Average			65.4%	54.3%	42.4%	32.4%	26.3%	21.7%	18.4%	16.7%	13.6%	9.4%	14.5%
Maximum		72.5%	72.5%	66.2%	55.9%	42.3%	32.7%	26.0%	23.3%	21.5%	17.5%	12.2%	19.1%
Limit			72.5%	65.9%	52.7%	38.3%	30.2%	24.6%	21.9%	20.8%	17.0%	11.9%	18.3%
Deep Percolation/Ground Water Return Flows at Stream (lagged)													
Average	11.3	8.1	7.6	11.4	15.4	17.0	18.0	18.3	18.2	18.2	18.0	15.2	176.9
Total Return Flows at Stream													
Average	11.3	8.2	12.1	18.8	21.4	22.5	23.2	22.9	22.1	23.0	20.3	15.2	221.0
Historical Depletions at Stream including Depletion and Return Flow Factors													
Average	-11.3	-7.9	11.7	24.1	25.3	34.4	31.5	24.5	10.4	7.2	-7.1	-15.2	127.5
Maximum	-1.2	-0.8	27.1	41.6	44.9	51.1	46.2	44.0	22.1	33.8	9.0	-2.0	168.0
Limit	-2.1	-1.5	25.1	38.4	38.6	48.2	44.2	39.8	21.8	23.4	5.8	-3.0	162.0
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	4.7%	14.5%	36.0%	52.2%	52.0%	52.1%	39.7%	21.0%	13.3%		36.7%
TW Returns		20.0%	19.1%	17.1%	12.8%	9.6%	9.6%	9.6%	12.1%	15.8%	17.3%		12.7%
DP Returns		80.0%	76.2%	68.4%	51.2%	38.3%	38.4%	38.3%	48.3%	63.2%	69.4%		50.6%
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD													
Depletion Factors			49.2%	56.2%	54.2%	60.5%	57.5%	51.7%	31.9%	23.8%			36.6%
Return Flow Factors			50.8%	43.8%	45.8%	39.5%	42.5%	48.3%	68.1%	76.2%			63.4%
Winter RF	-3.2%	-2.3%									-2.0%	-4.4%	

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Table 2 - River Headgate Diversions for All Sources Considered in Pilot Project Plan

Farm Name or Designation: Hancock-09

Catlin Canal D1700552; Sources Included and Excluded:

Notes: Explain period of record as being representative, and list source of data and rights included and excluded. Total Direct Flow plus Winter Water Diversions from Bill Tyner QA/QC Catlin1950-2012Final.xlsx updated to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0	0	4,431	9,541	13,503	18,362	19,304	15,254	10,719	6,294	2,985	0	100,393
1985	0	0	6,441	13,406	8,970	16,678	17,590	15,992	11,792	8,998	3,370	0	103,237
1986	0	129	11,801	14,638	16,316	13,574	16,005	14,802	9,335	8,490	2,832	0	107,922
1987	0	0	7,288	12,612	12,268	16,378	16,216	13,721	10,218	9,280	5,136	0	103,119
1988	0	0	5,502	10,504	10,903	16,524	12,428	13,305	10,136	9,502	4,645	0	93,449
1989	0	0	8,515	14,587	12,123	15,331	13,914	16,090	8,033	5,417	3,855	0	97,866
1990	0	0	3,669	13,968	10,867	15,668	14,461	14,013	7,242	8,301	3,504	0	91,693
1991	0	0	6,962	8,441	9,533	16,766	15,564	16,306	9,447	8,730	0	0	91,749
1992	0	0	6,518	17,517	15,363	12,754	15,149	14,806	12,147	9,761	4,157	0	108,171
1993	0	0	4,124	12,505	15,715	17,757	16,362	16,774	12,548	9,600	4,169	0	109,554
1994	0	0	9,115	16,704	13,905	19,523	17,529	14,367	11,807	10,531	4,437	0	117,917
1995	0	0	9,602	17,655	13,508	13,443	19,452	21,326	15,859	12,617	5,388	0	128,850
1996	0	1,603	14,126	17,384	15,965	18,970	17,944	14,981	11,528	12,203	5,174	0	129,879
1997	0	0	7,861	13,041	14,755	16,328	20,777	9,964	11,438	7,543	0	0	101,708
1998	0	0	4,084	15,413	17,345	17,724	18,166	12,442	13,415	9,398	3,989	0	111,978
1999	0	0	9,354	12,889	7,484	14,555	15,805	13,219	12,659	9,194	4,083	0	99,242
2000	0	405	11,480	13,831	14,110	15,331	14,266	11,067	5,173	8,007	4,122	0	97,792
2001	0	0	5,909	11,010	13,672	15,878	15,909	16,883	9,471	7,680	4,429	0	100,841
2002	0	0	5,693	2,536	1,794	5,613	6,423	0	0	0	390	0	22,449
2003	0	0	3,114	1,184	8,335	15,888	8,400	2,590	1,373	0	2,168	0	43,052
2004	0	0	1,568	10,358	15,182	13,986	12,575	11,641	3,054	5,403	6,467	0	80,235
2005	0	0	5,918	15,353	15,719	15,811	13,234	13,995	3,814	7,909	4,622	0	96,375
2006	0	0	4,471	3,739	10,880	15,847	13,708	13,145	9,689	9,988	3,399	0	84,866
2007	0	0	5,184	13,371	13,851	13,448	15,167	15,115	12,258	11,808	5,325	0	105,526
2008	0	0	8,776	17,500	15,073	18,441	16,950	13,707	11,543	10,314	4,431	0	116,732
2009	0	0	7,369	15,540	15,434	14,617	15,913	12,874	9,388	9,902	3,322	0	104,360
2010	0	0	4,521	12,398	15,345	16,368	14,372	13,760	3,023	7,081	6,207	0	93,073
2011	0	0	5,699	4,336	10,793	18,381	16,812	10,942	7,264	7,969	4,729	0	86,924
2012	0	0	4,014	6,143	10,993	7,089	6,015	1,545	0	0	0	0	35,798
2013	0	0	990	277	9,752	15,249	8,275	10,972	9,345	13,587	0	0	68,446
Average	0	71	6,470	11,613	12,649	15,409	14,823	12,853	8,791	8,184	3,578	0	94,440
Minimum	0	0	990	277	1,794	5,613	6,015	0	0	0	0	0	22,449
Maximum	0	1,603	14,126	17,655	17,345	19,523	20,777	21,326	15,859	13,587	6,467	0	129,879
Limit	0	712	12,469	17,557	16,542	18,978	19,844	18,328	13,978	12,802	6,021	0	125,549

Table 3 - River Headgate Diversions Pro-Rata by Share or Percent of Water Right for Pilot Project Farm

Farm Name or Designation: Hancock-09

Catlin Canal D1700552; For Summary Period Pro-Rata Ownership: 0.42872%

Notes: Variable shares or prorata acres ownership shown in constants table

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	19.0	40.9	57.9	78.7	82.8	65.4	46.0	27.0	12.8	0.0	430.4
1985	0.0	0.0	27.6	57.5	38.5	71.5	75.4	68.6	50.6	38.6	14.4	0.0	442.6
1986	0.0	0.6	50.6	62.8	69.9	58.2	68.6	63.5	40.0	36.4	12.1	0.0	462.7
1987	0.0	0.0	31.2	54.1	52.6	70.2	69.5	58.8	43.8	39.8	22.0	0.0	442.1
1988	0.0	0.0	23.6	45.0	46.7	70.8	53.3	57.0	43.5	40.7	19.9	0.0	400.6
1989	0.0	0.0	36.5	62.5	52.0	65.7	59.7	69.0	34.4	23.2	16.5	0.0	419.6
1990	0.0	0.0	15.7	59.9	46.6	67.2	62.0	60.1	31.0	35.6	15.0	0.0	393.1
1991	0.0	0.0	29.8	36.2	40.9	71.9	66.7	69.9	40.5	37.4	0.0	0.0	393.4
1992	0.0	0.0	27.9	75.1	65.9	54.7	64.9	63.5	52.1	41.8	17.8	0.0	463.8
1993	0.0	0.0	17.7	53.6	67.4	76.1	70.1	71.9	53.8	41.2	17.9	0.0	469.7
1994	0.0	0.0	39.1	71.6	59.6	83.7	75.2	61.6	50.6	45.1	19.0	0.0	505.5
1995	0.0	0.0	41.2	75.7	57.9	57.6	83.4	91.4	68.0	54.1	23.1	0.0	552.4
1996	0.0	6.9	60.6	74.5	68.4	81.3	76.9	64.2	49.4	52.3	22.2	0.0	556.8
1997	0.0	0.0	33.7	55.9	63.3	70.0	89.1	42.7	49.0	32.3	0.0	0.0	436.0
1998	0.0	0.0	17.5	66.1	74.4	76.0	77.9	53.3	57.5	40.3	17.1	0.0	480.1
1999	0.0	0.0	40.1	55.3	32.1	62.4	67.8	56.7	54.3	39.4	17.5	0.0	425.5
2000	0.0	1.7	49.2	59.3	60.5	65.7	61.2	47.4	22.2	34.3	17.7	0.0	419.3
2001	0.0	0.0	25.3	47.2	58.6	68.1	68.2	72.4	40.6	32.9	19.0	0.0	432.3
2002	0.0	0.0	24.4	10.9	7.7	24.1	27.5	0.0	0.0	0.0	1.7	0.0	96.2
2003	0.0	0.0	13.4	5.1	35.7	68.1	36.0	11.1	5.9	0.0	9.3	0.0	184.6
2004	0.0	0.0	6.7	44.4	65.1	60.0	53.9	49.9	13.1	23.2	27.7	0.0	344.0
2005	0.0	0.0	25.4	65.8	67.4	67.8	56.7	60.0	16.4	33.9	19.8	0.0	413.2
2006	0.0	0.0	19.2	16.0	46.6	67.9	58.8	56.4	41.5	42.8	14.6	0.0	363.8
2007	0.0	0.0	22.2	57.3	59.4	57.7	65.0	64.8	52.6	50.6	22.8	0.0	452.4
2008	0.0	0.0	37.6	75.0	64.6	79.1	72.7	58.8	49.5	44.2	19.0	0.0	500.5
2009	0.0	0.0	31.6	66.6	66.2	62.7	68.2	55.2	40.2	42.5	14.2	0.0	447.4
2010	0.0	0.0	19.4	53.2	65.8	70.2	61.6	59.0	13.0	30.4	26.6	0.0	399.0
2011	0.0	0.0	24.4	18.6	46.3	78.8	72.1	46.9	31.1	34.2	20.3	0.0	372.7
2012	0.0	0.0	17.2	26.3	47.1	30.4	25.8	6.6	0.0	0.0	0.0	0.0	153.5
2013	0.0	0.0	4.2	1.2	41.8	65.4	35.5	47.0	40.1	58.3	0.0	0.0	293.4
Average	0.0	0.3	27.7	49.8	54.2	66.1	63.5	55.1	37.7	35.1	15.3	0.0	404.9
Minimum	0.0	0.0	4.2	1.2	7.7	24.1	25.8	0.0	0.0	0.0	0.0	0.0	96.2
Maximum	0.0	6.9	60.6	75.7	74.4	83.7	89.1	91.4	68.0	58.3	27.7	0.0	556.8
Limit	0.0	3.1	53.5	75.3	70.9	81.4	85.1	78.6	59.9	54.9	25.8	0.0	538.3

Table 4 - Farm Headgate Delivery

Farm Name or Designation: Hancock-09

Catlin Canal D1700552; For Summary Period Canal Loss: 10.4309%, Off-Farm Lateral Loss: 3.5%

Notes: Reference source of canal/off-farm loss data

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	16.3	35.2	49.8	67.8	71.2	56.3	39.6	23.2	11.0	0.0	370.5
1985	0.0	0.0	23.8	49.5	33.1	61.5	64.9	59.0	43.5	33.2	12.4	0.0	380.9
1986	0.0	0.5	43.5	54.0	60.2	50.1	59.1	54.6	34.4	31.3	10.5	0.0	398.2
1987	0.0	0.0	26.9	46.5	45.3	60.4	59.8	50.6	37.7	34.2	19.0	0.0	380.5
1988	0.0	0.0	20.3	38.8	40.2	61.0	45.9	49.1	37.4	35.1	17.1	0.0	344.8
1989	0.0	0.0	31.4	53.8	44.7	56.6	51.3	59.4	29.6	20.0	14.2	0.0	361.1
1990	0.0	0.0	13.5	51.5	40.1	57.8	53.4	51.7	26.7	30.6	12.9	0.0	338.3
1991	0.0	0.0	25.7	31.1	35.2	61.9	57.4	60.2	34.9	32.2	0.0	0.0	338.6
1992	0.0	0.0	24.1	64.6	56.7	47.1	55.9	54.6	44.8	36.0	15.3	0.0	399.2
1993	0.0	0.0	15.2	46.1	58.0	65.5	60.4	61.9	46.3	35.4	15.4	0.0	404.3
1994	0.0	0.0	33.6	61.6	51.3	72.0	64.7	53.0	43.6	38.9	16.4	0.0	435.1
1995	0.0	0.0	35.4	65.1	49.8	49.6	71.8	78.7	58.5	46.6	19.9	0.0	475.5
1996	0.0	5.9	52.1	64.1	58.9	70.0	66.2	55.3	42.5	45.0	19.1	0.0	479.3
1997	0.0	0.0	29.0	48.1	54.4	60.3	76.7	36.8	42.2	27.8	0.0	0.0	375.3
1998	0.0	0.0	15.1	56.9	64.0	65.4	67.0	45.9	49.5	34.7	14.7	0.0	413.2
1999	0.0	0.0	34.5	47.6	27.6	53.7	58.3	48.8	46.7	33.9	15.1	0.0	366.2
2000	0.0	1.5	42.4	51.0	52.1	56.6	52.6	40.8	19.1	29.5	15.2	0.0	360.9
2001	0.0	0.0	21.8	40.6	50.5	58.6	58.7	62.3	34.9	28.3	16.3	0.0	372.1
2002	0.0	0.0	21.0	9.4	6.6	20.7	23.7	0.0	0.0	0.0	1.4	0.0	82.8
2003	0.0	0.0	11.5	4.4	30.8	58.6	31.0	9.6	5.1	0.0	8.0	0.0	158.9
2004	0.0	0.0	5.8	38.2	56.0	51.6	46.4	43.0	11.3	19.9	23.9	0.0	296.1
2005	0.0	0.0	21.8	56.7	58.0	58.3	48.8	51.6	14.1	29.2	17.1	0.0	355.6
2006	0.0	0.0	16.5	13.8	40.1	58.5	50.6	48.5	35.8	36.9	12.5	0.0	313.2
2007	0.0	0.0	19.1	49.3	51.1	49.6	56.0	55.8	45.2	43.6	19.6	0.0	389.4
2008	0.0	0.0	32.4	64.6	55.6	68.0	62.5	50.6	42.6	38.1	16.3	0.0	430.7
2009	0.0	0.0	27.2	57.3	57.0	53.9	58.7	47.5	34.6	36.5	12.3	0.0	385.1
2010	0.0	0.0	16.7	45.7	56.6	60.4	53.0	50.8	11.2	26.1	22.9	0.0	343.4
2011	0.0	0.0	21.0	16.0	39.8	67.8	62.0	40.4	26.8	29.4	17.4	0.0	320.7
2012	0.0	0.0	14.8	22.7	40.6	26.2	22.2	5.7	0.0	0.0	0.0	0.0	132.1
2013	0.0	0.0	3.7	1.0	36.0	56.3	30.5	40.5	34.5	50.1	0.0	0.0	252.6
Average	0.0	0.3	23.9	42.9	46.7	56.9	54.7	47.4	32.4	30.2	13.2	0.0	348.5
Minimum	0.0	0.0	3.7	1.0	6.6	20.7	22.2	0.0	0.0	0.0	0.0	0.0	82.8
Maximum	0.0	5.9	52.1	65.1	64.0	72.0	76.7	78.7	58.5	50.1	23.9	0.0	479.3
Limit	0.0	2.6	46.0	64.8	61.0	70.0	73.2	67.6	51.6	47.2	22.2	0.0	463.3

Table 5 - Farm Crop Acreages and Crop Distributions

Farm Name or Designation: Hancock-09

For Summary Period Farm Acres: 73.696 acres, Crop Distribution:

Notes: Provide information on source of crop data. HI Model Crop Distribution for Otero County (unitized)

Year	Flood	Sprinkler	Drip	Alfalfa	Grass	Corn_Grn	Corn_Sil	Spr_Grn	Sorghum	Win_Wht	Vegetable	Beans	Beets
(Cal)	(Acres)	(Acres)	(Acres)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	72.2	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1985	72.2	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1986	72.2	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1987	72.2	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1988	72.2	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1989	72.6	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1990	72.9	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1991	73.3	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1992	73.6	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1993	74.0	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1994	74.3	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1995	74.7	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1996	75.0	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1997	75.4	0.0	0.0	39.10%	7.20%	35.00%	2.90%	1.30%	0.70%	7.20%	5.20%	1.40%	0.00%
1998	75.7	0.0	0.0	36.14%	5.61%	35.64%	1.50%	2.20%	0.60%	11.21%	5.41%	1.70%	0.00%
1999	75.5	0.0	0.0	35.80%	3.60%	36.40%	3.60%	1.30%	0.00%	11.80%	5.30%	2.20%	0.00%
2000	75.4	0.0	0.0	34.07%	3.30%	34.57%	4.60%	1.10%	2.70%	12.79%	5.29%	1.60%	0.00%
2001	75.2	0.0	0.0	42.16%	5.19%	29.87%	1.50%	1.90%	3.90%	8.79%	5.39%	1.30%	0.00%
2002	75.0	0.0	0.0	52.25%	3.00%	19.52%	9.61%	1.00%	2.00%	5.01%	5.81%	1.80%	0.00%
2003	74.8	0.0	0.0	68.33%	12.09%	0.80%	0.00%	0.00%	2.70%	7.49%	7.79%	0.80%	0.00%
2004	74.7	0.0	0.0	76.98%	0.00%	5.11%	0.00%	0.00%	0.60%	8.01%	9.31%	0.00%	0.00%
2005	74.5	0.0	0.0	53.70%	15.00%	15.50%	1.30%	0.00%	0.20%	8.60%	4.20%	1.50%	0.00%
2006	74.1	0.0	0.0	63.00%	20.80%	5.10%	1.20%	0.00%	0.00%	4.60%	4.80%	0.50%	0.00%
2007	73.7	0.0	0.0	50.80%	16.00%	18.10%	0.90%	0.00%	2.30%	7.80%	3.60%	0.50%	0.00%
2008	73.2	0.0	0.0	45.00%	15.60%	21.70%	0.60%	0.00%	1.70%	11.50%	3.50%	0.40%	0.00%
2009	72.8	0.0	0.0	44.70%	14.90%	20.30%	0.40%	0.00%	1.60%	14.20%	3.40%	0.50%	0.00%
2010	72.4	0.0	0.0	41.70%	15.00%	24.10%	0.50%	0.00%	1.60%	13.20%	3.30%	0.60%	0.00%
2011	72.4	0.0	0.0	48.97%	12.70%	19.48%	6.08%	0.76%	5.72%	3.97%	2.24%	0.09%	0.00%
2012	72.4	0.0	0.0	55.20%	18.71%	8.83%	3.75%	1.96%	6.08%	3.61%	1.86%	0.00%	0.00%
2013	72.4	0.0	0.0	66.29%	9.32%	1.41%	0.72%	0.00%	12.51%	6.35%	3.26%	0.14%	0.00%
Average	73.7	0.0	0.0	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Minimum	72.2	0.0	0.0	34.07%	0.00%	0.80%	0.00%	0.00%	0.00%	3.61%	1.86%	0.00%	0.00%
Maximum	75.7	0.0	0.0	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%

Table 6 - Farm Crop Potential Evapotranspiration

Farm Name or Designation: Hancock-09

For Summary Period Farm Acres: 73.696 acres, PET:

Notes: Provide information on PET calculation method and climate stations. RECALCULATED - MBC TR21 PET (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167 and Crop Distribution from User Supplied Table (unitized)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	5.2	24.4	37.7	46.2	38.9	18.0	1.9	0.2	0.0	172.6
1985	0.0	0.0	1.5	12.5	25.6	39.4	45.0	36.6	13.2	2.2	0.1	0.0	176.1
1986	0.0	0.0	4.2	13.6	24.3	40.4	44.4	33.8	13.2	4.8	0.2	0.0	178.8
1987	0.0	0.0	0.4	10.9	24.9	40.8	47.4	35.3	14.5	4.7	0.3	0.0	179.2
1988	0.0	0.0	0.5	8.3	23.8	41.6	45.6	38.8	17.7	7.7	0.6	0.0	184.6
1989	0.0	0.0	2.9	13.2	27.5	36.8	45.8	35.4	13.5	6.3	0.4	0.0	181.9
1990	0.0	0.0	0.9	10.9	21.9	44.1	43.0	35.9	18.7	6.5	0.7	0.0	182.6
1991	0.0	0.0	1.3	10.8	27.7	42.6	44.1	37.5	16.5	7.5	0.0	0.0	188.1
1992	0.0	0.0	2.7	14.5	27.8	36.4	43.0	31.9	15.0	4.4	0.0	0.0	175.7
1993	0.0	0.0	0.8	10.3	23.9	39.1	48.0	36.6	15.8	7.2	0.0	0.0	181.6
1994	0.0	0.0	2.0	11.8	27.3	46.9	46.2	40.0	16.8	7.4	0.4	0.0	198.8
1995	0.0	0.0	1.0	5.6	19.9	33.8	43.6	44.2	22.2	5.3	0.5	0.0	176.1
1996	0.0	0.0	0.6	13.8	32.4	44.1	47.4	37.6	15.1	7.0	0.4	0.0	198.5
1997	0.0	0.0	1.5	5.8	24.7	39.4	49.5	39.4	22.4	6.9	0.0	0.0	189.7
1998	0.0	0.0	0.6	9.7	28.9	39.5	49.7	37.1	19.3	7.0	0.9	0.0	192.7
1999	0.0	0.0	0.0	1.2	22.8	37.5	49.5	40.8	21.4	2.3	1.3	0.0	176.8
2000	0.0	0.0	3.3	14.2	28.7	42.6	47.7	38.2	13.6	8.2	0.5	0.0	197.0
2001	0.0	0.0	1.3	14.8	26.6	45.5	53.0	38.7	15.8	4.0	0.7	0.0	200.4
2002	0.0	0.0	0.4	16.2	29.3	49.1	54.3	41.5	17.1	4.6	0.1	0.0	212.7
2003	0.0	0.0	3.4	19.5	32.7	40.8	55.3	42.5	22.9	9.7	0.4	0.0	227.3
2004	0.0	0.0	7.0	16.3	34.7	41.0	45.4	35.6	24.0	5.8	0.1	0.0	209.9
2005	0.0	0.0	0.6	11.9	27.5	40.7	47.5	40.6	25.5	11.3	1.2	0.0	206.8
2006	0.0	0.0	3.3	20.1	33.6	49.5	52.2	41.1	19.9	9.3	0.7	0.0	229.6
2007	0.0	0.0	4.0	12.9	28.1	40.6	48.1	44.6	24.3	10.1	1.0	0.0	213.5
2008	0.0	0.0	2.0	12.1	27.5	42.1	48.7	38.0	20.5	10.0	1.1	0.0	202.0
2009	0.0	0.0	2.7	15.2	29.1	38.4	41.6	33.6	17.5	3.6	0.0	0.0	181.6
2010	0.0	0.0	1.5	13.9	25.4	42.6	44.8	37.3	20.5	10.4	0.7	0.0	197.2
2011	0.0	0.0	2.3	13.2	23.9	44.7	52.3	44.7	18.2	6.9	0.3	0.0	206.4
2012	0.0	0.0	6.8	17.8	30.4	50.2	51.6	38.5	20.5	5.1	0.6	0.0	221.6
2013	0.0	0.0	0.4	8.4	28.2	46.1	46.6	40.9	26.8	4.1	0.1	0.0	201.6
Average	0.0	0.0	2.0	12.1	27.1	41.8	47.6	38.5	18.7	6.4	0.5	0.0	194.7
Minimum	0.0	0.0	0.0	1.2	19.9	33.8	41.6	31.9	13.2	1.9	0.0	0.0	172.6
Maximum	0.0	0.0	7.0	20.1	34.7	50.2	55.3	44.7	26.8	11.3	1.3	0.0	229.6

Table 7 - Farm Precipitation

Farm Name or Designation: Hancock-09

Climate Station:

Notes: Provide information source of climate data and climate stations used. Precipitation (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.8	4.0	10.7	7.7	7.3	1.4	16.9	11.1	3.3	8.9	0.7	2.0	74.8
1985	5.1	1.9	3.9	13.8	17.6	3.6	12.5	2.7	3.4	7.2	4.7	1.4	77.8
1986	0.7	0.6	1.1	4.0	2.5	14.1	21.3	9.0	11.9	8.5	3.7	0.4	77.8
1987	1.0	6.3	3.1	2.3	22.1	13.1	4.9	7.2	3.4	0.6	2.1	3.4	69.6
1988	1.7	3.1	5.5	7.8	12.8	8.7	8.0	2.0	4.6	0.1	0.1	2.1	56.7
1989	0.8	1.6	2.0	3.4	9.4	11.5	5.5	11.4	10.0	1.1	0.3	1.2	58.2
1990	4.9	4.8	5.8	1.7	22.1	2.3	29.9	7.4	14.4	6.6	6.5	2.4	108.7
1991	2.6	0.6	8.9	4.9	4.3	8.8	12.8	5.6	7.3	4.5	7.3	3.6	71.1
1992	1.7	1.9	4.9	2.5	7.3	23.6	11.3	11.0	0.0	4.2	5.9	1.4	75.7
1993	0.9	4.7	9.2	9.9	9.2	2.6	9.6	9.6	2.1	5.0	7.3	0.1	70.2
1994	1.9	0.2	5.3	8.7	15.4	3.2	5.0	15.9	5.4	4.8	4.3	0.7	70.8
1995	0.6	1.1	6.2	11.8	25.0	17.9	9.3	2.6	4.2	0.0	0.0	0.1	78.6
1996	0.6	1.1	7.2	2.6	16.9	8.7	17.8	9.6	13.4	2.3	0.9	2.6	83.6
1997	2.4	3.6	1.7	11.2	1.6	15.9	11.5	32.3	8.5	13.4	5.0	7.3	114.5
1998	0.6	2.3	5.9	3.5	10.4	2.3	23.2	20.4	1.6	14.2	6.6	1.5	92.4
1999	1.3	0.1	7.5	29.1	13.6	6.1	42.7	17.6	3.1	3.4	1.0	0.3	125.8
2000	2.1	1.2	13.1	5.1	5.0	3.8	7.8	8.5	4.8	7.1	0.7	1.1	60.3
2001	4.3	1.6	2.1	5.7	23.6	13.8	12.0	1.7	3.3	0.1	4.3	2.6	75.2
2002	2.0	0.9	0.6	0.9	0.6	4.9	0.4	3.1	4.0	2.3	0.5	2.9	22.9
2003	0.0	3.1	5.6	14.5	7.7	14.2	3.2	3.4	2.8	0.6	1.2	1.4	57.7
2004	2.2	2.4	0.6	24.4	0.4	16.4	21.7	30.5	4.0	2.0	5.2	0.5	110.3
2005	2.7	1.5	9.7	5.3	3.0	6.6	2.9	13.5	8.6	12.7	0.2	1.6	68.2
2006	3.8	0.0	5.6	1.9	9.4	1.7	20.1	25.5	12.3	14.2	0.9	10.2	105.6
2007	2.1	0.8	0.7	13.6	9.1	20.1	2.4	12.8	5.2	2.9	0.2	2.5	72.4
2008	1.3	2.7	2.8	5.3	3.7	4.7	4.3	30.0	0.3	10.4	1.3	1.0	68.1
2009	0.0	0.8	5.0	4.1	7.7	9.9	16.6	5.3	3.8	20.6	2.3	1.2	77.4
2010	2.5	4.0	11.6	7.5	7.4	12.2	24.0	14.3	1.2	0.2	0.5	1.7	87.2
2011	0.7	1.4	2.9	2.1	4.8	10.1	10.0	6.4	3.6	1.9	4.5	9.3	57.7
2012	0.1	0.5	0.7	7.7	4.2	0.8	6.6	0.4	5.3	1.1	0.1	0.5	28.1
2013	0.4	0.5	2.2	4.0	1.2	5.4	3.4	8.7	5.7	2.2	1.6	0.5	36.0
Average	1.7	2.0	5.1	7.6	9.5	9.0	12.6	11.3	5.4	5.4	2.7	2.3	74.5
Minimum	0.0	0.0	0.6	0.9	0.4	0.8	0.4	0.4	0.0	0.0	0.0	0.1	22.9
Maximum	5.1	6.3	13.1	29.1	25.0	23.6	42.7	32.3	14.4	20.6	7.3	10.2	125.8

Table 8 - Farm Effective Precipitation

Farm Name or Designation: Hancock-09

Method Used: USBR with HI model coefficients

Notes: USBR Methodology Used as Implemented in HI Model.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.7	3.8	9.9	7.2	6.9	1.4	15.1	10.3	3.1	8.3	0.7	1.9	69.4
1985	4.9	1.8	3.7	12.6	15.7	3.4	11.5	2.6	3.2	6.7	4.5	1.4	72.0
1986	0.6	0.6	1.1	3.8	2.3	12.9	18.2	8.4	11.0	7.9	3.5	0.4	70.8
1987	1.0	6.0	2.9	2.2	18.7	12.0	4.7	6.7	3.3	0.6	2.0	3.2	63.3
1988	1.7	3.0	5.3	7.3	11.7	8.1	7.5	1.9	4.4	0.1	0.1	2.0	53.1
1989	0.7	1.5	1.9	3.3	8.8	10.6	5.2	10.6	9.3	1.0	0.3	1.1	54.4
1990	4.6	4.6	5.5	1.6	18.8	2.2	22.7	7.0	13.1	6.2	6.2	2.3	94.7
1991	2.4	0.6	8.3	4.6	4.1	8.2	11.7	5.3	6.9	4.2	6.9	3.4	66.7
1992	1.6	1.8	4.7	2.4	6.9	19.8	10.5	10.2	0.0	4.0	5.7	1.3	68.8
1993	0.8	4.4	8.6	9.2	8.6	2.5	9.0	9.0	2.0	4.7	6.9	0.1	65.8
1994	1.8	0.2	5.0	8.2	14.0	3.1	4.8	14.3	5.1	4.6	4.1	0.7	65.7
1995	0.5	1.0	5.9	10.9	20.7	16.0	8.7	2.4	4.0	0.0	0.0	0.1	70.3
1996	0.5	1.0	6.8	2.5	15.2	8.1	15.9	8.9	12.3	2.1	0.9	2.4	76.8
1997	2.3	3.5	1.6	10.4	1.5	14.4	10.7	23.9	8.0	12.3	4.7	6.9	100.2
1998	0.5	2.2	5.6	3.3	9.7	2.2	19.6	17.9	1.6	13.0	6.3	1.4	83.1
1999	1.2	0.1	7.1	22.7	12.5	5.8	25.6	15.7	3.0	3.2	1.0	0.2	98.1
2000	2.0	1.1	12.1	4.9	4.8	3.6	7.4	7.9	4.6	6.7	0.7	1.0	56.7
2001	4.1	1.5	2.0	5.4	19.9	12.7	11.1	1.6	3.1	0.1	4.0	2.5	68.1
2002	1.9	0.8	0.5	0.8	0.5	4.6	0.4	2.9	3.8	2.1	0.5	2.8	21.7
2003	0.0	3.0	5.3	13.2	7.3	13.0	3.0	3.2	2.7	0.6	1.2	1.3	53.6
2004	2.1	2.2	0.6	20.4	0.4	14.8	18.6	23.2	3.8	1.9	5.0	0.5	93.4
2005	2.6	1.4	9.0	5.0	2.9	6.2	2.7	12.4	8.1	11.7	0.2	1.5	63.7
2006	3.6	0.0	5.3	1.8	8.8	1.6	17.5	20.9	11.4	12.9	0.9	9.5	94.3
2007	2.0	0.8	0.6	12.4	8.5	17.5	2.3	11.8	5.0	2.8	0.2	2.4	66.3
2008	1.3	2.6	2.7	5.0	3.5	4.5	4.1	22.8	0.3	9.7	1.3	1.0	58.8
2009	0.0	0.8	4.8	3.9	7.2	9.2	14.9	5.0	3.6	17.8	2.2	1.1	70.6
2010	2.4	3.8	10.8	7.0	6.9	11.3	19.9	13.0	1.1	0.2	0.5	1.7	78.7
2011	0.7	1.4	2.8	2.0	4.6	9.4	9.3	6.1	3.4	1.8	4.3	8.7	54.3
2012	0.1	0.5	0.7	7.2	4.0	0.7	6.3	0.4	5.0	1.1	0.1	0.5	26.6
2013	0.3	0.5	2.1	3.8	1.1	5.2	3.2	8.2	5.4	2.1	1.5	0.5	34.1
Average	1.6	1.9	4.8	6.8	8.6	8.2	10.7	9.8	5.1	5.0	2.5	2.1	67.1
Minimum	0.0	0.0	0.5	0.8	0.4	0.7	0.4	0.4	0.0	0.0	0.0	0.1	21.7
Maximum	4.9	6.0	12.1	22.7	20.7	19.8	25.6	23.9	13.1	17.8	6.9	9.5	100.2

Table 9 - Farm Irrigation Water Requirement

Farm Name or Designation: Hancock-09

Crop PET less effective precipitation

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	17.5	36.3	31.1	28.6	14.9	0.0	0.0	0.0	128.5
1985	0.0	0.0	0.0	0.0	9.9	36.0	33.5	34.1	10.0	0.0	0.0	0.0	123.4
1986	0.0	0.0	3.1	9.8	21.9	27.5	26.1	25.4	2.1	0.0	0.0	0.0	116.1
1987	0.0	0.0	0.0	8.7	6.2	28.8	42.8	28.6	11.2	4.1	0.0	0.0	130.3
1988	0.0	0.0	0.0	0.9	12.1	33.5	38.1	36.9	13.3	7.6	0.5	0.0	142.8
1989	0.0	0.0	1.0	9.9	18.7	26.1	40.6	24.8	4.3	5.3	0.1	0.0	130.9
1990	0.0	0.0	0.0	9.3	3.1	41.9	20.3	28.9	5.6	0.3	0.0	0.0	109.4
1991	0.0	0.0	0.0	6.2	23.6	34.4	32.4	32.2	9.6	3.3	0.0	0.0	141.7
1992	0.0	0.0	0.0	12.1	21.0	16.6	32.5	21.7	15.0	0.4	0.0	0.0	119.4
1993	0.0	0.0	0.0	1.1	15.3	36.5	39.0	27.7	13.8	2.4	0.0	0.0	135.8
1994	0.0	0.0	0.0	3.7	13.3	43.9	41.5	25.7	11.7	2.8	0.0	0.0	142.5
1995	0.0	0.0	0.0	0.0	0.0	17.9	34.9	41.8	18.1	5.3	0.5	0.0	118.5
1996	0.0	0.0	0.0	11.3	17.2	36.0	31.5	28.7	2.9	4.8	0.0	0.0	132.3
1997	0.0	0.0	0.0	0.0	23.2	25.0	38.8	15.5	14.4	0.0	0.0	0.0	117.0
1998	0.0	0.0	0.0	6.4	19.2	37.4	30.1	19.2	17.8	0.0	0.0	0.0	130.0
1999	0.0	0.0	0.0	0.0	10.3	31.7	24.0	25.0	18.4	0.0	0.4	0.0	109.7
2000	0.0	0.0	0.0	9.3	23.9	39.0	40.4	30.3	9.0	1.5	0.0	0.0	153.4
2001	0.0	0.0	0.0	9.4	6.7	32.8	41.9	37.1	12.7	3.9	0.0	0.0	144.5
2002	0.0	0.0	0.0	15.4	28.7	44.5	54.0	38.6	13.3	2.5	0.0	0.0	197.0
2003	0.0	0.0	0.0	6.3	25.5	27.8	52.3	39.3	20.2	9.1	0.0	0.0	180.6
2004	0.0	0.0	6.4	0.0	34.3	26.2	26.8	12.4	20.2	3.9	0.0	0.0	130.2
2005	0.0	0.0	0.0	6.9	24.6	34.4	44.7	28.3	17.4	0.0	1.0	0.0	157.3
2006	0.0	0.0	0.0	18.3	24.8	47.8	34.7	20.2	8.5	0.0	0.0	0.0	154.3
2007	0.0	0.0	3.4	0.5	19.6	23.1	45.8	32.8	19.3	7.3	0.7	0.0	152.5
2008	0.0	0.0	0.0	7.0	23.9	37.7	44.6	15.2	20.2	0.3	0.0	0.0	148.9
2009	0.0	0.0	0.0	11.2	21.9	29.2	26.7	28.6	13.9	0.0	0.0	0.0	131.5
2010	0.0	0.0	0.0	6.9	18.5	31.3	24.9	24.3	19.4	10.2	0.2	0.0	135.7
2011	0.0	0.0	0.0	11.2	19.3	35.3	43.1	38.6	14.8	5.1	0.0	0.0	167.3
2012	0.0	0.0	6.1	10.6	26.4	49.5	45.3	38.1	15.5	4.0	0.6	0.0	196.2
2013	0.0	0.0	0.0	4.6	27.1	40.9	43.4	32.7	21.3	2.0	0.0	0.0	172.0
Average	0.0	0.0	0.7	6.6	18.6	33.6	36.9	28.7	13.6	2.9	0.1	0.0	141.7
Minimum	0.0	0.0	0.0	0.0	0.0	16.6	20.3	12.4	2.1	0.0	0.0	0.0	109.4
Maximum	0.0	0.0	6.4	18.3	34.3	49.5	54.0	41.8	21.3	10.2	1.0	0.0	197.0

Table 10 - Farm Headgate Delivery Available to Meet Crop Irrigation Requirement

Farm Name or Designation: Hancock-09

For Summary Period, Average Application Efficiency: 55%, Maximum Application Efficiency: 55%

Notes: Does not include excess effective precipitation. Provide information source of efficiency data.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	9.0	19.4	27.4	37.3	39.2	31.0	21.8	12.8	6.1	0.0	203.7
1985	0.0	0.0	13.1	27.2	18.2	33.8	35.7	32.5	23.9	18.3	6.8	0.0	209.5
1986	0.0	0.3	24.0	29.7	33.1	27.5	32.5	30.0	18.9	17.2	5.7	0.0	219.0
1987	0.0	0.0	14.8	25.6	24.9	33.2	32.9	27.8	20.7	18.8	10.4	0.0	209.3
1988	0.0	0.0	11.2	21.3	22.1	33.5	25.2	27.0	20.6	19.3	9.4	0.0	189.7
1989	0.0	0.0	17.3	29.6	24.6	31.1	28.2	32.7	16.3	11.0	7.8	0.0	198.6
1990	0.0	0.0	7.4	28.3	22.1	31.8	29.3	28.4	14.7	16.8	7.1	0.0	186.1
1991	0.0	0.0	14.1	17.1	19.3	34.0	31.6	33.1	19.2	17.7	0.0	0.0	186.2
1992	0.0	0.0	13.2	35.6	31.2	25.9	30.7	30.0	24.7	19.8	8.4	0.0	219.5
1993	0.0	0.0	8.4	25.4	31.9	36.0	33.2	34.0	25.5	19.5	8.5	0.0	222.3
1994	0.0	0.0	18.5	33.9	28.2	39.6	35.6	29.2	24.0	21.4	9.0	0.0	239.3
1995	0.0	0.0	19.5	35.8	27.4	27.3	39.5	43.3	32.2	25.6	10.9	0.0	261.5
1996	0.0	3.3	28.7	35.3	32.4	38.5	36.4	30.4	23.4	24.8	10.5	0.0	263.6
1997	0.0	0.0	16.0	26.5	29.9	33.1	42.2	20.2	23.2	15.3	0.0	0.0	206.4
1998	0.0	0.0	8.3	31.3	35.2	36.0	36.9	25.3	27.2	19.1	8.1	0.0	227.3
1999	0.0	0.0	19.0	26.2	15.2	29.5	32.1	26.8	25.7	18.7	8.3	0.0	201.4
2000	0.0	0.8	23.3	28.1	28.6	31.1	29.0	22.5	10.5	16.3	8.4	0.0	198.5
2001	0.0	0.0	12.0	22.3	27.7	32.2	32.3	34.3	19.2	15.6	9.0	0.0	204.7
2002	0.0	0.0	11.6	5.1	3.6	11.4	13.0	0.0	0.0	0.0	0.8	0.0	45.6
2003	0.0	0.0	6.3	2.4	16.9	32.2	17.0	5.3	2.8	0.0	4.4	0.0	87.4
2004	0.0	0.0	3.2	21.0	30.8	28.4	25.5	23.6	6.2	11.0	13.1	0.0	162.8
2005	0.0	0.0	12.0	31.2	31.9	32.1	26.9	28.4	7.7	16.1	9.4	0.0	195.6
2006	0.0	0.0	9.1	7.6	22.1	32.2	27.8	26.7	19.7	20.3	6.9	0.0	172.2
2007	0.0	0.0	10.5	27.1	28.1	27.3	30.8	30.7	24.9	24.0	10.8	0.0	214.2
2008	0.0	0.0	17.8	35.5	30.6	37.4	34.4	27.8	23.4	20.9	9.0	0.0	236.9
2009	0.0	0.0	15.0	31.5	31.3	29.7	32.3	26.1	19.1	20.1	6.7	0.0	211.8
2010	0.0	0.0	9.2	25.2	31.1	33.2	29.2	27.9	6.1	14.4	12.6	0.0	188.9
2011	0.0	0.0	11.6	8.8	21.9	37.3	34.1	22.2	14.7	16.2	9.6	0.0	176.4
2012	0.0	0.0	8.1	12.5	22.3	14.4	12.2	3.1	0.0	0.0	0.0	0.0	72.7
2013	0.0	0.0	2.0	0.6	19.8	30.9	16.8	22.3	19.0	27.6	0.0	0.0	138.9
Average	0.0	0.1	13.1	23.6	25.7	31.3	30.1	26.1	17.8	16.6	7.3	0.0	191.7
Minimum	0.0	0.0	2.0	0.6	3.6	11.4	12.2	0.0	0.0	0.0	0.0	0.0	45.6
Maximum	0.0	3.3	28.7	35.8	35.2	39.6	42.2	43.3	32.2	27.6	13.1	0.0	263.6

Table 11 - Soil Moisture Filled (+) or Used (-)

Farm Name or Designation: Hancock-09

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.7	3.8	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4
1985	0.0	0.0	0.0	0.0	0.0	-2.1	2.1	-1.6	1.6	0.0	0.0	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	-9.8	-0.7	9.5	1.0	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	0.0	-12.9	-8.2	7.3	11.7	2.1	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	-12.3	7.8	4.5	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	-10.1	9.1	-0.5	1.5	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	-4.3	-0.4	-0.8	0.9	4.6	0.0	0.0	0.0	0.0
1992	0.0	0.0	0.0	0.0	0.0	0.0	-1.8	1.8	0.0	0.0	0.0	0.0	0.0
1993	0.0	0.0	0.0	0.0	0.0	-0.5	-5.8	6.3	0.0	0.0	0.0	0.0	0.0
1994	0.0	0.0	0.0	0.0	0.0	-4.3	-5.9	3.5	6.7	0.0	0.0	0.0	0.0
1995	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	0.0	0.0	0.0	-1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0
1999	0.0	0.0	0.0	0.0	0.0	-2.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0
2000	0.0	0.0	0.0	0.0	0.0	-7.9	-10.8	-5.3	1.5	14.7	7.8	0.0	0.0
2001	0.0	0.0	0.0	0.0	0.0	-0.6	-9.6	-2.9	6.5	6.5	0.0	0.0	0.0
2002	0.0	0.0	0.0	-10.2	-18.3	-7.3	-1.5	-0.1	0.0	0.0	1.2	2.8	-33.5
2003	0.0	3.0	8.2	-2.3	-3.9	4.4	-11.4	-1.7	-0.2	-0.1	5.2	1.3	2.6
2004	2.1	2.2	-1.4	25.1	-3.5	2.1	-1.2	5.3	-14.0	7.1	6.9	0.0	30.7
2005	0.0	0.0	0.0	0.0	0.0	-2.3	-17.0	0.1	-6.1	16.5	8.4	0.5	0.0
2006	0.0	0.0	0.0	-10.7	-2.7	-11.8	-3.0	6.5	11.1	10.6	0.0	0.0	0.0
2007	0.0	0.0	0.0	0.0	0.0	0.0	-14.9	-1.9	5.6	11.3	0.0	0.0	0.0
2008	0.0	0.0	0.0	0.0	0.0	-0.2	-10.2	10.5	0.0	0.0	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.5	2.5	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-13.2	4.2	9.1	0.0	0.0
2011	0.0	0.0	0.0	-2.4	2.4	0.0	-8.9	-13.8	0.0	11.1	11.7	0.0	0.0
2012	0.0	0.0	0.0	0.0	-4.1	-25.6	-5.4	-0.9	-0.1	0.0	0.0	0.5	-35.6
2013	0.3	0.5	3.7	-0.8	-1.2	-1.1	-1.5	-0.2	0.0	25.6	1.4	0.5	27.2
Average	0.1	0.3	0.5	0.0	-1.2	-2.4	-4.3	0.1	1.0	4.0	1.8	0.2	0.0
Minimum	0.0	0.0	-1.4	-10.7	-18.3	-25.6	-17.0	-13.8	-14.0	-0.1	0.0	0.0	-35.6
Maximum	2.1	3.8	8.2	25.1	2.4	4.4	9.1	10.5	11.1	25.6	11.7	2.8	30.7

Table 12 - Soil Moisture Storage

Farm Name or Designation: Hancock-09

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MaxSM
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	28.5	32.3	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1
1985	36.1	36.1	36.1	36.1	36.1	34.0	36.1	34.5	36.1	36.1	36.1	36.1	36.1
1986	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1
1987	36.1	36.1	36.1	36.1	36.1	36.1	26.3	25.5	35.1	36.1	36.1	36.1	36.1
1988	36.1	36.1	36.1	36.1	36.1	36.1	23.2	15.0	22.3	34.0	36.1	36.1	36.1
1989	36.3	36.3	36.3	36.3	36.3	36.3	23.9	31.8	36.3	36.3	36.3	36.3	36.3
1990	36.5	36.5	36.5	36.5	36.5	26.4	35.4	35.0	36.5	36.5	36.5	36.5	36.5
1991	36.6	36.6	36.6	36.6	32.4	32.0	31.2	32.0	36.6	36.6	36.6	36.6	36.6
1992	36.8	36.8	36.8	36.8	36.8	36.8	35.0	36.8	36.8	36.8	36.8	36.8	36.8
1993	37.0	37.0	37.0	37.0	37.0	36.5	30.6	37.0	37.0	37.0	37.0	37.0	37.0
1994	37.2	37.2	37.2	37.2	37.2	32.9	27.0	30.5	37.2	37.2	37.2	37.2	37.2
1995	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3
1996	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5
1997	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7	37.7
1998	37.9	37.9	37.9	37.9	37.9	36.4	37.9	37.9	37.9	37.9	37.9	37.9	37.9
1999	37.8	37.8	37.8	37.8	37.8	35.6	37.8	37.8	37.8	37.8	37.8	37.8	37.8
2000	37.7	37.7	37.7	37.7	37.7	29.7	19.0	13.7	15.2	29.9	37.7	37.7	37.7
2001	37.6	37.6	37.6	37.6	37.6	37.0	27.4	24.5	31.1	37.6	37.6	37.6	37.6
2002	37.5	37.5	37.5	27.3	9.0	1.7	0.1	0.0	0.0	0.0	1.2	4.0	37.5
2003	4.0	7.0	15.1	12.8	9.0	13.4	2.0	0.3	0.2	0.1	5.3	6.6	37.4
2004	8.7	10.9	9.5	34.6	31.1	33.3	32.0	37.3	23.3	30.4	37.3	37.3	37.3
2005	37.3	37.3	37.3	37.3	37.3	34.9	17.9	18.0	11.9	28.4	36.8	37.3	37.3
2006	37.0	37.0	37.0	26.4	23.7	11.9	8.9	15.4	26.5	37.0	37.0	37.0	37.0
2007	36.8	36.8	36.8	36.8	36.8	36.8	21.9	20.0	25.6	36.8	36.8	36.8	36.8
2008	36.6	36.6	36.6	36.6	36.6	36.4	26.2	36.6	36.6	36.6	36.6	36.6	36.6
2009	36.4	36.4	36.4	36.4	36.4	36.4	36.4	33.9	36.4	36.4	36.4	36.4	36.4
2010	36.2	36.2	36.2	36.2	36.2	36.2	36.2	36.2	23.0	27.1	36.2	36.2	36.2
2011	36.2	36.2	36.2	33.8	36.2	36.2	27.3	13.4	13.4	24.5	36.2	36.2	36.2
2012	36.2	36.2	36.2	36.2	32.1	6.4	1.1	0.1	0.1	0.1	0.1	0.6	36.2
2013	0.9	1.4	5.2	4.3	3.2	2.0	0.6	0.3	0.3	25.9	27.3	27.8	36.2
Average	33.3	33.7	34.1	34.1	32.9	30.5	26.2	26.3	27.3	31.3	33.1	33.2	36.8
Minimum	0.9	1.4	5.2	4.3	3.2	1.7	0.1	0.0	0.0	0.0	0.1	0.6	36.1
Maximum	37.9	37.9	37.9	37.9	37.9	37.7	37.9	37.9	37.9	37.9	37.9	37.9	37.9

Table 13 - Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture

Farm Name or Designation: Hancock-09

Derived from Water Budget Balance. Does not include excess effective precipitation used by crop. Soil moisture limited to: 0.5 feet

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	17.5	36.3	31.1	28.6	14.9	0.0	0.0	0.0	128.5
1985	0.0	0.0	0.0	0.0	9.9	36.0	33.5	34.1	10.0	0.0	0.0	0.0	123.4
1986	0.0	0.0	3.1	9.8	21.9	27.5	26.1	25.4	2.1	0.0	0.0	0.0	116.1
1987	0.0	0.0	0.0	8.7	6.2	28.8	42.8	28.6	11.2	4.1	0.0	0.0	130.3
1988	0.0	0.0	0.0	0.9	12.1	33.5	38.1	35.2	13.3	7.6	0.5	0.0	141.1
1989	0.0	0.0	1.0	9.9	18.7	26.1	40.6	24.8	4.3	5.3	0.1	0.0	130.9
1990	0.0	0.0	0.0	9.3	3.1	41.9	20.3	28.9	5.6	0.3	0.0	0.0	109.4
1991	0.0	0.0	0.0	6.2	23.6	34.4	32.4	32.2	9.6	3.3	0.0	0.0	141.7
1992	0.0	0.0	0.0	12.1	21.0	16.6	32.5	21.7	15.0	0.4	0.0	0.0	119.4
1993	0.0	0.0	0.0	1.1	15.3	36.5	39.0	27.7	13.8	2.4	0.0	0.0	135.8
1994	0.0	0.0	0.0	3.7	13.3	43.9	41.5	25.7	11.7	2.8	0.0	0.0	142.5
1995	0.0	0.0	0.0	0.0	0.0	17.9	34.9	41.8	18.1	5.3	0.5	0.0	118.5
1996	0.0	0.0	0.0	11.3	17.2	36.0	31.5	28.7	2.9	4.8	0.0	0.0	132.3
1997	0.0	0.0	0.0	0.0	23.2	25.0	38.8	15.5	14.4	0.0	0.0	0.0	117.0
1998	0.0	0.0	0.0	6.4	19.2	37.4	30.1	19.2	17.8	0.0	0.0	0.0	130.0
1999	0.0	0.0	0.0	0.0	10.3	31.7	24.0	25.0	18.4	0.0	0.4	0.0	109.7
2000	0.0	0.0	0.0	9.3	23.9	39.0	39.7	27.8	9.0	1.5	0.0	0.0	150.3
2001	0.0	0.0	0.0	9.4	6.7	32.8	41.9	37.1	12.7	3.9	0.0	0.0	144.5
2002	0.0	0.0	0.0	15.4	21.9	18.7	14.6	0.1	0.0	0.0	0.0	0.0	70.7
2003	0.0	0.0	0.0	2.4	16.9	26.0	28.4	7.0	3.0	0.1	0.0	0.0	83.7
2004	0.0	0.0	3.2	0.0	30.8	20.7	26.8	12.4	20.2	3.9	0.0	0.0	117.9
2005	0.0	0.0	0.0	6.9	24.6	34.4	43.9	28.3	13.8	0.0	0.6	0.0	152.5
2006	0.0	0.0	0.0	18.3	24.8	43.9	30.8	20.2	8.5	0.0	0.0	0.0	146.6
2007	0.0	0.0	3.4	0.5	19.6	23.1	45.7	32.6	19.3	7.3	0.7	0.0	152.2
2008	0.0	0.0	0.0	7.0	23.9	37.7	44.6	15.2	20.2	0.3	0.0	0.0	148.9
2009	0.0	0.0	0.0	11.2	21.9	29.2	26.7	28.6	13.9	0.0	0.0	0.0	131.5
2010	0.0	0.0	0.0	6.9	18.5	31.3	24.9	24.3	19.4	10.2	0.2	0.0	135.7
2011	0.0	0.0	0.0	11.2	19.3	35.3	43.1	36.0	14.8	5.1	0.0	0.0	164.7
2012	0.0	0.0	4.0	10.6	26.4	40.0	17.6	4.1	0.1	0.0	0.0	0.0	102.8
2013	0.0	0.0	0.0	0.6	19.8	31.0	18.3	22.5	19.0	2.0	0.0	0.0	113.1
Average	0.0	0.0	0.5	6.3	17.7	31.8	32.8	24.6	11.9	2.4	0.1	0.0	128.0
Minimum	0.0	0.0	0.0	0.0	0.0	16.6	14.6	0.1	0.0	0.0	0.0	0.0	70.7
Maximum	0.0	0.0	4.0	18.3	30.8	43.9	45.7	41.8	20.2	10.2	0.7	0.0	164.7
Limit	0.0	0.0	3.5	15.3	27.3	43.2	44.7	38.3	19.9	8.4	0.6	0.0	156.4

Table 14 - Total Return Flows at Farm

Farm Name or Designation: Hancock-09

Derived from Water Budget Balance. Does not include excess effective precipitation that deep percolates.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	8.0	35.2	32.3	31.4	40.1	27.7	24.7	23.2	11.0	0.0	233.6
1985	0.0	0.0	23.8	49.5	23.2	27.7	29.3	26.6	31.9	33.2	12.4	0.0	257.5
1986	0.0	0.5	40.4	44.2	38.3	22.5	32.9	29.2	32.3	31.3	10.5	0.0	282.1
1987	0.0	0.0	26.9	37.9	39.1	31.7	26.9	22.8	17.0	29.1	19.0	0.0	250.2
1988	0.0	0.0	20.3	37.8	28.2	27.5	20.6	22.1	16.8	15.8	14.6	0.0	203.7
1989	0.0	0.0	30.4	43.9	26.0	30.4	23.1	26.7	20.9	14.7	14.1	0.0	230.2
1990	0.0	0.0	13.5	42.2	37.0	26.0	24.0	23.3	19.7	30.3	12.9	0.0	228.9
1991	0.0	0.0	25.7	25.0	15.8	27.8	25.8	27.1	20.6	28.9	0.0	0.0	196.8
1992	0.0	0.0	24.1	52.5	35.7	30.5	25.2	31.1	29.8	35.6	15.3	0.0	279.8
1993	0.0	0.0	15.2	45.1	42.7	29.5	27.2	27.9	32.5	33.0	15.4	0.0	268.4
1994	0.0	0.0	33.6	58.0	38.0	32.4	29.1	23.9	25.2	36.0	16.4	0.0	292.6
1995	0.0	0.0	35.4	65.1	49.8	31.7	36.9	36.9	40.4	41.3	19.4	0.0	357.0
1996	0.0	5.9	52.1	52.9	41.7	34.0	34.8	26.6	39.7	40.2	19.1	0.0	347.0
1997	0.0	0.0	29.0	48.1	31.2	35.3	37.8	21.3	27.8	27.8	0.0	0.0	258.3
1998	0.0	0.0	15.1	50.5	44.8	29.4	35.5	26.7	31.7	34.7	14.7	0.0	283.2
1999	0.0	0.0	34.5	47.6	17.3	24.2	32.2	23.8	28.3	33.9	14.7	0.0	256.5
2000	0.0	1.5	42.4	41.7	28.2	25.5	23.7	18.4	8.6	13.3	7.4	0.0	210.6
2001	0.0	0.0	21.8	31.2	43.8	26.4	26.4	28.0	15.7	17.9	16.3	0.0	227.6
2002	0.0	0.0	21.0	4.2	3.0	9.3	10.7	0.0	0.0	0.0	0.6	0.0	48.8
2003	0.0	0.0	5.2	2.0	13.8	26.4	13.9	4.3	2.3	0.0	3.6	0.0	71.5
2004	0.0	0.0	2.6	17.2	25.2	23.2	20.9	25.3	5.1	9.0	16.9	0.0	145.4
2005	0.0	0.0	21.8	49.8	33.4	26.3	22.0	23.2	6.3	13.1	7.7	0.0	203.6
2006	0.0	0.0	16.0	6.2	18.1	26.3	22.8	21.8	16.1	26.3	12.5	0.0	166.1
2007	0.0	0.0	15.8	48.9	31.5	26.5	25.2	25.1	20.4	25.0	18.9	0.0	237.2
2008	0.0	0.0	32.4	57.6	31.7	30.6	28.1	24.9	22.4	37.8	16.3	0.0	281.8
2009	0.0	0.0	27.2	46.1	35.1	24.8	32.0	21.4	18.3	36.5	12.3	0.0	253.6
2010	0.0	0.0	16.7	38.9	38.2	29.1	28.1	26.4	5.0	11.8	13.6	0.0	207.7
2011	0.0	0.0	21.0	7.2	18.1	32.6	27.9	18.2	12.1	13.2	7.9	0.0	158.2
2012	0.0	0.0	8.7	12.1	18.3	11.8	10.0	2.6	0.0	0.0	0.0	0.0	63.4
2013	0.0	0.0	1.6	0.5	16.2	25.3	13.7	18.2	15.5	22.6	0.0	0.0	113.7
Average	0.0	0.3	22.7	36.6	29.9	27.2	26.2	22.7	19.6	23.9	11.5	0.0	220.5
Minimum	0.0	0.0	1.6	0.5	3.0	9.3	10.0	0.0	0.0	0.0	0.0	0.0	48.8
Maximum	0.0	5.9	52.1	65.1	49.8	35.3	40.1	36.9	40.4	41.3	19.4	0.0	357.0

Table 15 - Tailwater/Surface Runoff Return Flows at Farm

Farm Name or Designation: Hancock-09

For Summary Period Tailwater from Water Budget: 15.8% of Total Return Flows, Tailwater Forced to: 20% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	1.6	7.0	6.5	6.3	8.0	5.5	4.9	4.6	2.2	0.0	46.7
1985	0.0	0.0	4.8	9.9	4.6	5.5	5.9	5.3	6.4	6.6	2.5	0.0	51.5
1986	0.0	0.1	8.1	8.8	7.7	4.5	6.6	5.8	6.5	6.3	2.1	0.0	56.4
1987	0.0	0.0	5.4	7.6	7.8	6.3	5.4	4.6	3.4	5.8	3.8	0.0	50.0
1988	0.0	0.0	4.1	7.6	5.6	5.5	4.1	4.4	3.4	3.2	2.9	0.0	40.7
1989	0.0	0.0	6.1	8.8	5.2	6.1	4.6	5.3	4.2	2.9	2.8	0.0	46.0
1990	0.0	0.0	2.7	8.4	7.4	5.2	4.8	4.7	3.9	6.1	2.6	0.0	45.8
1991	0.0	0.0	5.1	5.0	3.2	5.6	5.2	5.4	4.1	5.8	0.0	0.0	39.4
1992	0.0	0.0	4.8	10.5	7.1	6.1	5.0	6.2	6.0	7.1	3.1	0.0	56.0
1993	0.0	0.0	3.0	9.0	8.5	5.9	5.4	5.6	6.5	6.6	3.1	0.0	53.7
1994	0.0	0.0	6.7	11.6	7.6	6.5	5.8	4.8	5.0	7.2	3.3	0.0	58.5
1995	0.0	0.0	7.1	13.0	10.0	6.3	7.4	7.4	8.1	8.3	3.9	0.0	71.4
1996	0.0	1.2	10.4	10.6	8.3	6.8	7.0	5.3	7.9	8.0	3.8	0.0	69.4
1997	0.0	0.0	5.8	9.6	6.2	7.1	7.6	4.3	5.6	5.6	0.0	0.0	51.7
1998	0.0	0.0	3.0	10.1	9.0	5.9	7.1	5.3	6.3	6.9	2.9	0.0	56.6
1999	0.0	0.0	6.9	9.5	3.5	4.8	6.4	4.8	5.7	6.8	2.9	0.0	51.3
2000	0.0	0.3	8.5	8.3	5.6	5.1	4.7	3.7	1.7	2.7	1.5	0.0	42.1
2001	0.0	0.0	4.4	6.2	8.8	5.3	5.3	5.6	3.1	3.6	3.3	0.0	45.5
2002	0.0	0.0	4.2	0.8	0.6	1.9	2.1	0.0	0.0	0.0	0.1	0.0	9.8
2003	0.0	0.0	1.0	0.4	2.8	5.3	2.8	0.9	0.5	0.0	0.7	0.0	14.3
2004	0.0	0.0	0.5	3.4	5.0	4.6	4.2	5.1	1.0	1.8	3.4	0.0	29.1
2005	0.0	0.0	4.4	10.0	6.7	5.3	4.4	4.6	1.3	2.6	1.5	0.0	40.7
2006	0.0	0.0	3.2	1.2	3.6	5.3	4.6	4.4	3.2	5.3	2.5	0.0	33.2
2007	0.0	0.0	3.2	9.8	6.3	5.3	5.0	5.0	4.1	5.0	3.8	0.0	47.4
2008	0.0	0.0	6.5	11.5	6.3	6.1	5.6	5.0	4.5	7.6	3.3	0.0	56.4
2009	0.0	0.0	5.4	9.2	7.0	5.0	6.4	4.3	3.7	7.3	2.5	0.0	50.7
2010	0.0	0.0	3.3	7.8	7.6	5.8	5.6	5.3	1.0	2.4	2.7	0.0	41.5
2011	0.0	0.0	4.2	1.4	3.6	6.5	5.6	3.6	2.4	2.6	1.6	0.0	31.6
2012	0.0	0.0	1.7	2.4	3.7	2.4	2.0	0.5	0.0	0.0	0.0	0.0	12.7
2013	0.0	0.0	0.3	0.1	3.2	5.1	2.7	3.6	3.1	4.5	0.0	0.0	22.7
Average	0.0	0.1	4.5	7.3	6.0	5.4	5.2	4.5	3.9	4.8	2.3	0.0	44.1
Minimum	0.0	0.0	0.3	0.1	0.6	1.9	2.0	0.0	0.0	0.0	0.0	0.0	9.8
Maximum	0.0	1.2	10.4	13.0	10.0	7.1	8.0	7.4	8.1	8.3	3.9	0.0	71.4
TW RF Factors: Average Monthly Tailwater / Surface Returns as a percent of Average Monthly Farm Headgate Delivery													
		20.0%	19.1%	17.1%	12.8%	9.6%	9.6%	9.6%	12.1%	15.8%	17.3%		12.7%

Table 16 - Deep Percolation/Ground Water Return Flows at Farm (unlagged)

Farm Name or Designation: Hancock-09

For Summary Period Deep Percolation from Water Budget: 84.2% of Total Return Flows, Deep Percolation Forced to: 80% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	6.4	28.2	25.9	25.2	32.1	22.1	19.7	18.6	8.8	0.0	186.9
1985	0.0	0.0	19.0	39.6	18.5	22.2	23.5	21.2	25.5	26.6	9.9	0.0	206.0
1986	0.0	0.4	32.3	35.3	30.6	18.0	26.3	23.4	25.9	25.1	8.4	0.0	225.7
1987	0.0	0.0	21.5	30.3	31.3	25.3	21.5	18.2	13.6	23.2	15.2	0.0	200.1
1988	0.0	0.0	16.2	30.3	22.5	22.0	16.5	17.7	13.5	12.6	11.7	0.0	163.0
1989	0.0	0.0	24.3	35.1	20.8	24.4	18.5	21.4	16.7	11.8	11.3	0.0	184.2
1990	0.0	0.0	10.8	33.8	29.6	20.8	19.2	18.6	15.7	24.3	10.3	0.0	183.1
1991	0.0	0.0	20.6	20.0	12.7	22.3	20.7	21.7	16.5	23.1	0.0	0.0	157.4
1992	0.0	0.0	19.2	42.0	28.6	24.4	20.1	24.9	23.8	28.5	12.3	0.0	223.8
1993	0.0	0.0	12.2	36.0	34.1	23.6	21.7	22.3	26.0	26.4	12.3	0.0	214.7
1994	0.0	0.0	26.9	46.4	30.4	25.9	23.3	19.1	20.2	28.8	13.1	0.0	234.1
1995	0.0	0.0	28.3	52.1	39.9	25.4	29.5	29.5	32.3	33.0	15.5	0.0	285.6
1996	0.0	4.7	41.7	42.3	33.4	27.2	27.8	21.3	31.7	32.2	15.3	0.0	277.6
1997	0.0	0.0	23.2	38.5	25.0	28.2	30.3	17.0	22.2	22.3	0.0	0.0	206.7
1998	0.0	0.0	12.1	40.4	35.8	23.5	28.4	21.4	25.4	27.7	11.8	0.0	226.5
1999	0.0	0.0	27.6	38.0	13.9	19.3	25.8	19.0	22.7	27.1	11.8	0.0	205.2
2000	0.0	1.2	33.9	33.4	22.5	20.4	19.0	14.7	6.9	10.6	5.9	0.0	168.5
2001	0.0	0.0	17.4	25.0	35.0	21.1	21.1	22.4	12.6	14.4	13.1	0.0	182.1
2002	0.0	0.0	16.8	3.4	2.4	7.5	8.5	0.0	0.0	0.0	0.5	0.0	39.1
2003	0.0	0.0	4.1	1.6	11.1	21.1	11.2	3.4	1.8	0.0	2.9	0.0	57.2
2004	0.0	0.0	2.1	13.8	20.2	18.6	16.7	20.2	4.1	7.2	13.5	0.0	116.3
2005	0.0	0.0	17.5	39.8	26.7	21.0	17.6	18.6	5.1	10.5	6.1	0.0	162.9
2006	0.0	0.0	12.8	5.0	14.5	21.1	18.2	17.5	12.9	21.0	10.0	0.0	132.9
2007	0.0	0.0	12.6	39.1	25.2	21.2	20.1	20.1	16.3	20.0	15.1	0.0	189.8
2008	0.0	0.0	25.9	46.0	25.3	24.5	22.5	20.0	17.9	30.2	13.1	0.0	225.5
2009	0.0	0.0	21.8	36.9	28.1	19.8	25.6	17.1	14.6	29.2	9.8	0.0	202.9
2010	0.0	0.0	13.3	31.1	30.5	23.3	22.5	21.2	4.0	9.4	10.9	0.0	166.2
2011	0.0	0.0	16.8	5.8	14.5	26.1	22.3	14.5	9.6	10.6	6.3	0.0	126.5
2012	0.0	0.0	7.0	9.7	14.6	9.4	8.0	2.1	0.0	0.0	0.0	0.0	50.7
2013	0.0	0.0	1.3	0.4	13.0	20.3	11.0	14.6	12.4	18.0	0.0	0.0	90.9
Average	0.0	0.2	18.2	29.3	23.9	21.8	21.0	18.2	15.7	19.1	9.2	0.0	176.4
Minimum	0.0	0.0	1.3	0.4	2.4	7.5	8.0	0.0	0.0	0.0	0.0	0.0	39.1
Maximum	0.0	4.7	41.7	52.1	39.9	28.2	32.1	29.5	32.3	33.0	15.5	0.0	285.6
DP RF Factors: Average Monthly Deep Percolation / Groundwater Returns as a percent of Average Monthly Farm Headgate Delivery													
		80.0%	76.2%	68.4%	51.2%	38.3%	38.4%	38.3%	48.3%	63.2%	69.4%		50.6%

Table 17 - Historical Depletions at Farm

Farm Name or Designation: Hancock-09

Farm Headgate Delivery less Total Unlagged Return Flows at Farm. Includes Depletion and Return Flow Factors.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	8.4	0.0	17.5	36.3	31.1	28.6	14.9	0.0	0.0	0.0	136.8
1985	0.0	0.0	0.0	0.0	9.9	33.8	35.6	32.5	11.6	0.0	0.0	0.0	123.4
1986	0.0	0.0	3.1	9.8	21.9	27.5	26.1	25.4	2.1	0.0	0.0	0.0	116.1
1987	0.0	0.0	0.0	8.7	6.2	28.8	32.9	27.8	20.7	5.2	0.0	0.0	130.3
1988	0.0	0.0	0.0	0.9	12.1	33.5	25.2	27.0	20.6	19.3	2.5	0.0	141.1
1989	0.0	0.0	1.0	9.9	18.7	26.1	28.2	32.7	8.8	5.3	0.1	0.0	130.9
1990	0.0	0.0	0.0	9.3	3.1	31.8	29.3	28.4	7.1	0.3	0.0	0.0	109.4
1991	0.0	0.0	0.0	6.2	19.3	34.0	31.6	33.1	14.2	3.3	0.0	0.0	141.7
1992	0.0	0.0	0.0	12.1	21.0	16.6	30.7	23.5	15.0	0.4	0.0	0.0	119.4
1993	0.0	0.0	0.0	1.1	15.3	36.0	33.2	34.0	13.8	2.4	0.0	0.0	135.8
1994	0.0	0.0	0.0	3.7	13.3	39.6	35.6	29.2	18.3	2.8	0.0	0.0	142.5
1995	0.0	0.0	0.0	0.0	0.0	17.9	34.9	41.8	18.1	5.3	0.5	0.0	118.5
1996	0.0	0.0	0.0	11.3	17.2	36.0	31.5	28.7	2.9	4.8	0.0	0.0	132.3
1997	0.0	0.0	0.0	0.0	23.2	25.0	38.8	15.5	14.4	0.0	0.0	0.0	117.0
1998	0.0	0.0	0.0	6.4	19.2	36.0	31.5	19.2	17.8	0.0	0.0	0.0	130.0
1999	0.0	0.0	0.0	0.0	10.3	29.5	26.1	25.0	18.4	0.0	0.4	0.0	109.7
2000	0.0	0.0	0.0	9.3	23.9	31.1	29.0	22.5	10.5	16.3	7.8	0.0	150.3
2001	0.0	0.0	0.0	9.4	6.7	32.2	32.3	34.3	19.2	10.4	0.0	0.0	144.5
2002	0.0	0.0	0.0	5.1	3.6	11.4	13.0	0.0	0.0	0.0	0.8	0.0	34.0
2003	0.0	0.0	6.3	2.4	16.9	32.2	17.0	5.3	2.8	0.0	4.4	0.0	87.4
2004	0.0	0.0	3.2	21.0	30.8	28.4	25.5	17.7	6.2	11.0	6.9	0.0	150.7
2005	0.0	0.0	0.0	6.9	24.6	32.1	26.9	28.4	7.7	16.1	9.4	0.0	152.0
2006	0.0	0.0	0.5	7.6	22.1	32.2	27.8	26.7	19.7	10.6	0.0	0.0	147.0
2007	0.0	0.0	3.4	0.5	19.6	23.1	30.8	30.7	24.9	18.5	0.7	0.0	152.2
2008	0.0	0.0	0.0	7.0	23.9	37.4	34.4	25.6	20.2	0.3	0.0	0.0	148.9
2009	0.0	0.0	0.0	11.2	21.9	29.2	26.7	26.1	16.4	0.0	0.0	0.0	131.5
2010	0.0	0.0	0.0	6.9	18.5	31.3	24.9	24.3	6.1	14.4	9.3	0.0	135.7
2011	0.0	0.0	0.0	8.8	21.7	35.3	34.1	22.2	14.7	16.2	9.6	0.0	162.6
2012	0.0	0.0	6.1	10.6	22.3	14.4	12.2	3.1	0.0	0.0	0.0	0.0	68.7
2013	0.0	0.0	2.0	0.6	19.8	30.9	16.8	22.3	19.0	27.6	0.0	0.0	138.9
Average	0.0	0.0	1.1	6.2	16.8	29.7	28.5	24.7	12.9	6.3	1.8	0.0	128.0
Minimum	0.0	0.0	0.0	0.0	0.0	11.4	12.2	0.0	0.0	0.0	0.0	0.0	34.0
Maximum	0.0	0.0	8.4	21.0	30.8	39.6	38.8	41.8	24.9	27.6	9.6	0.0	162.6
Limit	0.0	0.0	6.9	14.8	26.5	37.8	36.7	36.7	22.1	21.8	9.4	0.0	155.6
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	4.7%	14.5%	36.0%	52.2%	52.0%	52.1%	39.7%	21.0%	13.3%		36.7%
TW Returns		20.0%	19.1%	17.1%	12.8%	9.6%	9.6%	9.6%	12.1%	15.8%	17.3%		12.7%
DP Returns		80.0%	76.2%	68.4%	51.2%	38.3%	38.4%	38.3%	48.3%	63.2%	69.4%		50.6%
Sum		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		100.0%

Table 18 - Percent Tailwater/Surface Runoff Return Flows of Farm Headgate Delivery

Farm Name or Designation: Hancock-09

Tailwater/Surface Runoff Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984			9.7%	20.0%	13.0%	9.3%	11.3%	9.8%	12.5%	20.0%	20.0%		12.6%
1985			20.0%	20.0%	14.0%	9.0%	9.0%	9.0%	14.7%	20.0%	20.0%		13.5%
1986		20.0%	18.6%	16.4%	12.7%	9.0%	11.1%	10.7%	18.8%	20.0%	20.0%		14.2%
1987			20.0%	16.3%	17.3%	10.5%	9.0%	9.0%	9.0%	17.0%	20.0%		13.2%
1988			20.0%	19.5%	14.0%	9.0%	9.0%	9.0%	9.0%	9.0%	17.0%		11.8%
1989			19.3%	16.3%	11.6%	10.8%	9.0%	9.0%	14.1%	14.7%	19.8%		12.8%
1990			20.0%	16.4%	18.4%	9.0%	9.0%	9.0%	14.7%	19.8%	20.0%		13.5%
1991			20.0%	16.0%	9.0%	9.0%	9.0%	9.0%	11.8%	18.0%			11.6%
1992			20.0%	16.3%	12.6%	12.9%	9.0%	11.4%	13.3%	19.8%	20.0%		14.0%
1993			20.0%	19.5%	14.7%	9.0%	9.0%	9.0%	14.1%	18.6%	20.0%		13.3%
1994			20.0%	18.8%	14.8%	9.0%	9.0%	9.0%	11.6%	18.5%	20.0%		13.5%
1995			20.0%	20.0%	20.0%	12.8%	10.3%	9.4%	13.8%	17.7%	19.5%		15.0%
1996		20.0%	20.0%	16.5%	14.2%	9.7%	10.5%	9.6%	18.7%	17.9%	20.0%		14.5%
1997			20.0%	20.0%	11.5%	11.7%	9.9%	11.6%	13.2%	20.0%			13.8%
1998			20.0%	17.8%	14.0%	9.0%	10.6%	11.6%	12.8%	20.0%	20.0%		13.7%
1999			20.0%	20.0%	12.5%	9.0%	11.1%	9.7%	12.1%	20.0%	19.5%		14.0%
2000		20.0%	20.0%	16.3%	10.8%	9.0%	9.0%	9.0%	9.0%	9.0%	9.8%		11.7%
2001			20.0%	15.4%	17.4%	9.0%	9.0%	9.0%	9.0%	12.7%	20.0%		12.2%
2002			20.0%	9.0%	9.0%	9.0%	9.0%				9.0%		11.8%
2003			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%		9.0%
2004			9.0%	9.0%	9.0%	9.0%	9.0%	11.8%	9.0%	9.0%	14.2%		9.8%
2005			20.0%	17.6%	11.5%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		11.5%
2006			19.4%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	14.3%	20.0%		10.6%
2007			16.5%	19.8%	12.3%	10.7%	9.0%	9.0%	9.0%	11.5%	19.2%		12.2%
2008			20.0%	17.8%	11.4%	9.0%	9.0%	9.9%	10.5%	19.9%	20.0%		13.1%
2009			20.0%	16.1%	12.3%	9.2%	10.9%	9.0%	10.6%	20.0%	20.0%		13.2%
2010			20.0%	17.0%	13.5%	9.6%	10.6%	10.4%	9.0%	9.0%	11.9%		12.1%
2011			20.0%	9.0%	9.1%	9.6%	9.0%	9.0%	9.0%	9.0%	9.0%		9.9%
2012			11.8%	10.6%	9.0%	9.0%	9.0%	9.0%					9.6%
2013			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%			9.0%
Average		20.0%	18.1%	15.8%	12.6%	9.6%	9.5%	9.6%	11.6%	15.7%	17.2%		12.3%
Minimum		20.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%
Maximum		20.0%	20.0%	20.0%	20.0%	12.9%	11.3%	11.8%	18.8%	20.0%	20.0%		15.0%

Table 19 - Percent Deep Percolation/Ground Water Return Flows of Farm Headgate Delivery

Farm Name or Designation: Hancock-09

Deep Percolation/Ground Water Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			39.0%	80.0%	51.9%	37.1%	45.0%	39.3%	49.9%	80.0%	80.0%		50.4%
1985			80.0%	80.0%	56.0%	36.0%	36.1%	36.0%	58.6%	80.0%	80.0%		54.1%
1986		80.0%	74.3%	65.4%	50.9%	36.0%	44.6%	42.8%	75.1%	80.0%	80.0%		56.7%
1987			80.0%	65.1%	69.1%	41.9%	36.0%	36.0%	36.0%	67.9%	80.0%		52.6%
1988			80.0%	78.1%	56.0%	36.0%	36.0%	36.0%	36.0%	36.0%	68.1%		47.3%
1989			77.4%	65.3%	46.5%	43.1%	36.0%	36.0%	56.3%	58.8%	79.2%		51.0%
1990			80.0%	65.5%	73.7%	36.0%	36.0%	36.0%	58.8%	79.2%	80.0%		54.1%
1991			80.0%	64.1%	36.0%	36.0%	36.0%	36.0%	47.4%	71.9%			46.5%
1992			80.0%	65.0%	50.4%	51.8%	36.0%	45.6%	53.2%	79.1%	80.0%		56.1%
1993			80.0%	78.1%	58.9%	36.0%	36.0%	36.1%	56.2%	74.5%	80.0%		53.1%
1994			80.0%	75.2%	59.3%	36.0%	36.0%	36.0%	46.3%	74.2%	80.0%		53.8%
1995			80.0%	80.0%	80.0%	51.2%	41.1%	37.5%	55.2%	70.9%	77.9%		60.1%
1996		80.0%	80.0%	66.0%	56.7%	38.9%	42.0%	38.4%	74.6%	71.4%	80.0%		57.9%
1997			80.0%	80.0%	45.9%	46.9%	39.5%	46.3%	52.6%	80.0%			55.1%
1998			80.0%	71.0%	56.0%	36.0%	42.4%	46.5%	51.3%	80.0%	80.0%		54.8%
1999			80.0%	80.0%	50.2%	36.0%	44.2%	39.0%	48.5%	80.0%	78.0%		56.0%
2000		80.0%	80.0%	65.4%	43.3%	36.0%	36.0%	36.0%	36.0%	36.0%	39.0%		46.7%
2001			80.0%	61.5%	69.4%	36.0%	36.0%	36.0%	36.0%	50.7%	80.0%		48.9%
2002			80.0%	36.0%	36.0%	36.0%	36.0%				36.0%		47.2%
2003			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%		36.0%
2004			36.0%	36.0%	36.0%	36.0%	36.0%	47.1%	36.0%	36.0%	56.7%		39.3%
2005			80.0%	70.3%	46.1%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		45.8%
2006			77.7%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	57.1%	80.0%		42.4%
2007			65.9%	79.3%	49.3%	42.7%	36.0%	36.0%	36.0%	46.0%	77.0%		48.7%
2008			80.0%	71.3%	45.6%	36.0%	36.0%	39.4%	42.1%	79.4%	80.0%		52.3%
2009			80.0%	64.3%	49.3%	36.7%	43.6%	36.0%	42.2%	80.0%	80.0%		52.7%
2010			80.0%	68.0%	53.9%	38.5%	42.4%	41.7%	36.0%	36.0%	47.5%		48.4%
2011			80.0%	36.0%	36.4%	38.4%	36.0%	36.0%	36.0%	36.0%	36.0%		39.4%
2012			47.1%	42.6%	36.0%	36.0%	36.0%	36.0%					38.4%
2013			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%			36.0%
Average		80.0%	72.3%	63.3%	50.2%	38.4%	38.0%	38.3%	46.4%	62.7%	68.8%		49.4%
Minimum		80.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%
Maximum		80.0%	80.0%	80.0%	80.0%	51.8%	45.0%	47.1%	75.1%	80.0%	80.0%		60.1%

Table 20 - Percent Historic On-Farm Depletions of Farm Headgate Delivery

Farm Name or Designation: Hancock-09

Historic On-Farm Depletions divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			51.3%	0.0%	35.1%	53.6%	43.7%	50.9%	37.6%	0.0%	0.0%		36.9%
1985			0.0%	0.0%	30.0%	55.0%	54.8%	55.0%	26.7%	0.0%	0.0%		32.4%
1986		0.0%	7.2%	18.2%	36.4%	55.0%	44.3%	46.5%	6.2%	0.0%	0.0%		29.2%
1987			0.0%	18.7%	13.7%	47.6%	55.0%	55.0%	55.0%	15.1%	0.0%		34.2%
1988			0.0%	2.4%	30.0%	54.9%	55.0%	55.0%	55.0%	55.0%	14.9%		40.9%
1989			3.3%	18.4%	41.9%	46.2%	55.0%	55.0%	29.6%	26.5%	1.0%		36.2%
1990			0.0%	18.1%	7.8%	55.0%	55.0%	55.0%	26.4%	1.0%	0.0%		32.3%
1991			0.0%	19.9%	55.0%	55.0%	55.0%	55.0%	40.8%	10.2%			41.9%
1992			0.0%	18.7%	37.0%	35.3%	55.0%	43.0%	33.5%	1.2%	0.0%		29.9%
1993			0.0%	2.4%	26.4%	55.0%	55.0%	54.9%	29.7%	6.8%	0.0%		33.6%
1994			0.0%	6.0%	25.9%	55.0%	55.0%	55.0%	42.1%	7.3%	0.0%		32.7%
1995			0.0%	0.0%	0.0%	36.0%	48.6%	53.1%	31.0%	11.4%	2.6%		24.9%
1996		0.0%	0.0%	17.6%	29.2%	51.4%	47.5%	51.9%	6.7%	10.7%	0.0%		27.6%
1997			0.0%	0.0%	42.7%	41.4%	50.7%	42.1%	34.2%	0.0%			31.2%
1998			0.0%	11.2%	30.0%	55.0%	47.0%	41.8%	35.9%	0.0%	0.0%		31.5%
1999			0.0%	0.0%	37.3%	55.0%	44.7%	51.3%	39.4%	0.0%	2.5%		30.0%
2000		0.0%	0.0%	18.3%	45.9%	55.0%	55.0%	55.0%	55.0%	55.0%	51.2%		41.6%
2001			0.0%	23.1%	13.2%	55.0%	55.0%	55.0%	55.0%	36.7%	0.0%		38.8%
2002			0.0%	55.0%	55.0%	55.0%	55.0%				55.0%		41.1%
2003			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%		55.0%
2004			55.0%	55.0%	55.0%	55.0%	55.0%	41.2%	55.0%	55.0%	29.1%		50.9%
2005			0.0%	12.1%	42.4%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		42.7%
2006			2.8%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	28.6%	0.0%		46.9%
2007			17.6%	0.9%	38.3%	46.6%	55.0%	55.0%	55.0%	42.5%	3.8%		39.1%
2008			0.0%	10.9%	43.1%	55.0%	55.0%	50.7%	47.4%	0.7%	0.0%		34.6%
2009			0.0%	19.6%	38.4%	54.1%	45.4%	55.0%	47.2%	0.0%	0.0%		34.1%
2010			0.0%	15.0%	32.6%	51.9%	47.0%	47.9%	55.0%	55.0%	40.6%		39.5%
2011			0.0%	55.0%	54.5%	52.0%	55.0%	55.0%	55.0%	55.0%	55.0%		50.7%
2012			41.1%	46.8%	55.0%	55.0%	55.0%	55.0%					52.0%
2013			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%			55.0%
Average		0.0%	9.6%	20.9%	37.2%	52.0%	52.5%	52.1%	41.9%	21.6%	14.1%		38.3%
Minimum			0.0%	0.0%		35.3%	43.7%	41.2%	6.2%	0.0%	0.0%		24.9%
Maximum		0.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%

Table 21 - Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased

Farm Name or Designation: Hancock-09

Remaining return flows from cumulative calendar year diversions. Amount remaining after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	5.8	29.7	45.0	55.7	69.8	71.0	69.5	67.0	**55.7**	39.0	55.7
1985	0.0	0.0	17.2	48.3	52.0	58.2	63.9	65.7	70.5	74.6	**62.0**	43.4	62.0
1986	0.0	0.3	29.6	53.4	66.7	65.2	71.6	73.2	76.2	77.1	**62.1**	43.1	62.1
1987	0.0	0.0	19.5	41.5	58.6	65.8	67.7	65.9	59.9	63.8	**58.7**	40.8	58.7
1988	0.0	0.0	14.7	38.1	48.1	55.2	55.3	56.3	52.9	49.2	**45.2**	31.2	45.2
1989	0.0	0.0	22.0	47.8	53.7	61.5	61.7	64.2	61.4	54.5	**48.5**	33.3	48.5
1990	0.0	0.0	9.8	37.7	54.2	58.5	60.3	60.8	58.3	63.7	**54.5**	38.0	54.5
1991	0.0	0.0	18.6	31.6	34.5	45.5	52.0	57.4	56.5	**61.6**	43.8	30.6	61.6
1992	0.0	0.0	17.4	50.7	62.8	68.1	68.1	72.2	73.7	78.5	**66.8**	46.6	66.8
1993	0.0	0.0	11.0	40.6	60.4	65.6	67.8	69.7	74.0	77.0	**65.9**	46.2	65.9
1994	0.0	0.0	24.4	59.6	71.0	75.6	76.4	72.9	70.8	76.5	**65.7**	45.6	65.7
1995	0.0	0.0	25.7	65.8	84.0	84.6	88.8	91.3	95.1	97.9	**83.3**	58.1	83.3
1996	0.0	4.3	40.9	68.0	79.9	83.2	86.0	81.7	87.5	91.3	**78.2**	54.3	78.2
1997	0.0	0.0	21.0	50.1	59.1	68.9	77.8	72.1	72.2	**71.8**	50.7	34.9	71.8
1998	0.0	0.0	10.9	44.5	64.8	68.7	76.2	74.9	77.2	80.5	**67.8**	47.5	67.8
1999	0.0	0.0	25.0	52.6	50.9	55.0	63.5	63.3	66.2	71.8	**61.5**	43.0	61.5
2000	0.0	1.1	31.5	53.0	59.2	61.9	62.4	58.6	48.3	43.7	**35.6**	23.7	35.6
2001	0.0	0.0	15.8	34.1	56.6	60.4	63.4	66.6	59.6	55.7	**51.1**	35.4	51.1
2002	0.0	0.0	15.2	14.1	12.5	16.0	19.3	14.0	10.0	7.0	**5.1**	3.0	5.1
2003	0.0	0.0	3.7	4.1	13.1	28.6	30.9	25.8	20.5	14.8	**13.0**	8.8	13.0
2004	0.0	0.0	1.9	13.8	28.3	37.5	42.6	49.4	39.6	35.2	**37.3**	26.1	37.3
2005	0.0	0.0	15.8	47.5	58.8	62.1	61.5	61.6	49.0	44.3	**36.4**	24.5	36.4
2006	0.0	0.0	11.6	12.9	22.6	35.5	42.4	46.7	45.6	52.0	**46.3**	32.9	46.3
2007	0.0	0.0	11.4	43.7	54.6	59.2	61.7	63.1	60.4	61.3	**57.1**	39.8	57.1
2008	0.0	0.0	23.5	58.7	65.7	70.4	72.0	70.4	67.0	75.0	**64.7**	45.0	64.7
2009	0.0	0.0	19.7	47.7	60.1	62.0	68.7	65.4	60.5	69.6	**58.0**	40.3	58.0
2010	0.0	0.0	12.1	36.9	54.5	60.9	65.0	66.6	51.8	45.6	**41.8**	28.5	41.8
2011	0.0	0.0	15.2	16.2	25.1	41.9	50.8	50.2	45.2	42.2	**35.6**	24.8	35.6
2012	0.0	0.0	6.3	13.3	22.9	25.3	25.8	**20.7**	14.9	10.6	7.1	4.4	20.7
2013	0.0	0.0	1.2	1.2	12.6	27.5	30.0	35.2	37.0	**43.2**	31.2	22.3	43.2
Average	0.0	0.2	16.6	38.6	49.7	56.2	60.1	60.2	57.7	58.6	49.7	34.5	51.8
Minimum	0.0	0.0	1.2	1.2	12.5	16.0	19.3	14.0	10.0	7.0	5.1	3.0	5.1
Maximum	0.0	4.3	40.9	68.0	84.0	84.6	88.8	91.3	95.1	97.9	83.3	58.1	83.3
Limit	0.0	1.9	34.0	64.5	78.3	81.1	84.2	82.6	86.6	89.9	76.5	53.3	77.8

Table 22 - Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries

Farm Name or Designation: Hancock-09

Remaining return flows from cumulative calendar year diversions divided by cumulative FHGD. Amount after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			35.3%	57.6%	44.4%	32.9%	29.1%	23.9%	20.7%	18.6%	**15.0%**	10.5%	15.0%
1985			72.5%	66.0%	48.9%	34.7%	27.4%	22.5%	21.0%	20.2%	**16.3%**	11.4%	16.3%
1986		72.5%	67.1%	54.5%	42.2%	31.3%	26.8%	22.7%	21.4%	19.9%	**15.6%**	10.8%	15.6%
1987			72.5%	56.6%	49.4%	36.8%	28.3%	22.7%	18.3%	17.6%	**15.4%**	10.7%	15.4%
1988			72.5%	64.5%	48.5%	34.4%	26.8%	22.1%	18.1%	15.0%	**13.1%**	9.1%	13.1%
1989			70.1%	56.1%	41.3%	32.9%	25.9%	21.6%	18.8%	15.7%	**13.4%**	9.2%	13.4%
1990			72.5%	57.9%	51.5%	35.9%	27.9%	22.7%	19.8%	19.6%	**16.1%**	11.2%	16.1%
1991			72.5%	55.5%	37.5%	29.6%	24.6%	21.1%	18.4%	**18.2%**	12.9%	9.0%	18.2%
1992			72.5%	57.1%	43.2%	35.4%	27.4%	23.8%	21.2%	20.5%	**16.7%**	11.7%	16.7%
1993			72.5%	66.2%	50.6%	35.5%	27.6%	22.7%	20.9%	19.8%	**16.3%**	11.4%	16.3%
1994			72.5%	62.6%	48.4%	34.6%	27.0%	21.7%	18.6%	18.3%	**15.1%**	10.5%	15.1%
1995			72.5%	65.4%	55.9%	42.3%	32.7%	26.0%	23.3%	21.5%	**17.5%**	12.2%	17.5%
1996		72.5%	70.4%	55.6%	44.1%	33.1%	27.1%	21.9%	21.1%	19.8%	**16.3%**	11.3%	16.3%
1997			72.5%	64.9%	44.9%	35.9%	29.0%	23.6%	20.8%	**19.1%**	13.5%	9.3%	19.1%
1998			72.5%	61.9%	47.7%	34.1%	28.4%	23.8%	21.2%	20.2%	**16.4%**	11.5%	16.4%
1999			72.5%	64.0%	46.4%	33.6%	28.7%	23.4%	20.9%	20.5%	**16.8%**	11.7%	16.8%
2000		72.5%	71.8%	55.9%	40.3%	30.4%	24.4%	19.7%	15.3%	12.7%	**9.9%**	6.6%	9.9%
2001			72.5%	54.6%	50.1%	35.2%	27.6%	22.8%	18.2%	15.6%	**13.7%**	9.5%	13.7%
2002			72.5%	46.3%	33.9%	27.7%	23.7%	17.2%	12.3%	8.6%	**6.1%**	3.7%	6.1%
2003			32.6%	26.1%	28.0%	27.2%	22.7%	17.7%	13.6%	9.8%	**8.2%**	5.5%	8.2%
2004			32.6%	31.4%	28.3%	24.7%	21.5%	20.5%	15.7%	12.9%	**12.6%**	8.8%	12.6%
2005			72.5%	60.6%	43.1%	31.9%	25.2%	20.9%	15.8%	13.1%	**10.2%**	6.9%	10.2%
2006			70.4%	42.6%	32.0%	27.6%	23.6%	20.5%	17.3%	17.3%	**14.8%**	10.5%	14.8%
2007			59.7%	63.8%	45.7%	35.0%	27.4%	22.5%	18.5%	16.6%	**14.7%**	10.2%	14.7%
2008			72.5%	60.5%	43.1%	31.9%	25.4%	21.1%	17.8%	18.1%	**15.0%**	10.4%	15.0%
2009			72.5%	56.4%	42.5%	31.7%	27.0%	21.7%	18.0%	18.7%	**15.1%**	10.5%	15.1%
2010			72.5%	59.1%	45.8%	34.0%	28.0%	23.5%	17.6%	14.2%	**12.2%**	8.3%	12.2%
2011			72.5%	43.9%	32.6%	29.0%	24.6%	20.3%	16.5%	13.9%	**11.1%**	7.7%	11.1%
2012			42.7%	35.5%	29.4%	24.3%	20.4%	**15.6%**	11.3%	8.0%	5.4%	3.3%	15.6%
2013			32.6%	25.6%	31.0%	28.4%	23.5%	21.0%	18.3%	**17.1%**	12.3%	8.8%	17.1%
Average		72.5%	65.4%	54.3%	42.4%	32.4%	26.3%	21.7%	18.4%	16.7%	13.6%	9.4%	14.5%
Minimum		72.5%	32.6%	25.6%	28.0%	24.3%	20.4%	15.6%	11.3%	8.0%	5.4%	3.3%	6.1%
Maximum		72.5%	72.5%	66.2%	55.9%	42.3%	32.7%	26.0%	23.3%	21.5%	17.5%	12.2%	19.1%
Limit			72.5%	65.9%	52.7%	38.3%	30.2%	24.6%	21.9%	20.8%	17.0%	11.9%	18.3%

Table 23 - Transferrable Depletions Given Calculated On-Farm Depletion Factors

Farm Name or Designation: Hancock-09

Farm Headgate Deliveries multiplied by Avg Monthly On-Farm Depletion Factors limited by Avg-Max-3 Monthly and Annual On-Farm Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	0.0	0.0	0.8	5.1	18.0	35.3	36.7	29.3	15.7	4.9	1.5	0.0	147.2
1985	0.0	0.0	1.1	7.2	11.9	32.1	33.8	30.8	17.3	7.0	1.6	0.0	142.8
1986	0.0	0.0	2.1	7.8	21.7	26.1	30.7	28.5	13.7	6.6	1.4	0.0	138.6
1987	0.0	0.0	1.3	6.8	16.3	31.5	31.1	26.4	15.0	7.2	2.5	0.0	138.1
1988	0.0	0.0	1.0	5.6	14.5	31.8	23.9	25.6	14.8	7.4	2.3	0.0	126.8
1989	0.0	0.0	1.5	7.8	16.1	29.5	26.7	30.9	11.8	4.2	1.9	0.0	130.4
1990	0.0	0.0	0.6	7.5	14.5	30.2	27.8	26.9	10.6	6.4	1.7	0.0	126.2
1991	0.0	0.0	1.2	4.5	12.7	32.3	29.9	31.4	13.8	6.8	0.0	0.0	132.5
1992	0.0	0.0	1.1	9.4	20.4	24.5	29.1	28.5	17.8	7.6	2.0	0.0	140.4
1993	0.0	0.0	0.7	6.7	20.9	34.2	31.4	32.3	18.4	7.4	2.0	0.0	154.0
1994	0.0	0.0	1.6	8.9	18.5	37.6	33.7	27.6	17.3	8.2	2.2	0.0	155.5
1995	0.0	0.0	1.7	9.5	18.0	25.9	36.7	36.7	22.1	5.2	0.0	0.0	155.6
1996	0.0	0.0	2.5	9.3	21.2	36.5	34.5	28.8	16.9	5.9	0.0	0.0	155.6
1997	0.0	0.0	1.4	7.0	19.6	31.4	36.7	19.2	16.7	5.8	0.0	0.0	137.8
1998	0.0	0.0	0.7	8.3	23.1	34.1	34.9	23.9	19.6	7.3	2.0	0.0	153.8
1999	0.0	0.0	1.6	6.9	10.0	28.0	30.3	25.4	18.5	7.1	2.0	0.0	129.9
2000	0.0	0.0	2.0	7.4	18.8	29.5	27.4	21.3	7.6	6.2	2.0	0.0	122.2
2001	0.0	0.0	1.0	5.9	18.2	30.6	30.5	32.5	13.9	6.0	2.2	0.0	140.7
2002	0.0	0.0	1.0	1.4	2.4	10.8	12.3	0.0	0.0	0.0	0.2	0.0	28.1
2003	0.0	0.0	0.5	0.6	11.1	30.6	16.1	5.0	2.0	0.0	1.1	0.0	67.0
2004	0.0	0.0	0.3	5.5	20.2	26.9	24.1	22.4	4.5	4.2	3.2	0.0	111.3
2005	0.0	0.0	1.0	8.2	20.9	30.4	25.4	26.9	5.6	6.1	2.3	0.0	126.9
2006	0.0	0.0	0.8	2.0	14.5	30.5	26.3	25.3	14.2	7.7	1.7	0.0	122.9
2007	0.0	0.0	0.9	7.2	18.4	25.9	29.1	29.1	17.9	9.2	2.6	0.0	140.3
2008	0.0	0.0	1.5	9.4	20.0	35.5	32.5	26.4	16.9	8.0	2.2	0.0	152.4
2009	0.0	0.0	1.3	8.3	20.5	28.1	30.6	24.8	13.7	7.7	1.6	0.0	136.6
2010	0.0	0.0	0.8	6.6	20.4	31.5	27.6	26.5	4.4	5.5	3.0	0.0	126.4
2011	0.0	0.0	1.0	2.3	14.4	35.4	32.3	21.0	10.6	6.2	2.3	0.0	125.5
2012	0.0	0.0	0.7	3.3	14.6	13.6	11.6	3.0	0.0	0.0	0.0	0.0	46.8
2013	0.0	0.0	0.2	0.1	13.0	29.4	15.9	21.1	13.7	10.5	0.0	0.0	103.8
Average	0.0	0.0	1.1	6.2	16.8	29.7	28.3	24.6	12.8	6.1	1.6	0.0	127.2
Minimum	0.0	0.0	0.2	0.1	2.4	10.8	11.6	0.0	0.0	0.0	0.0	0.0	28.1
Maximum	0.0	0.0	2.5	9.5	23.1	37.6	36.7	36.7	22.1	10.5	3.2	0.0	155.6

Table 24 - Comparison of Historic On-Farm Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Hancock-09

Historic On-Farm Depletions less Transferrable Depletions Given Calculated On-Farm Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	7.6	-5.1	-0.4	1.0	-5.5	-0.7	-0.8	-4.9	-1.5	0.0	-10.4
1985	0.0	0.0	-1.1	-7.2	-2.0	1.7	1.8	1.7	-5.6	-7.0	-1.6	0.0	-19.3
1986	0.0	0.0	1.1	2.0	0.2	1.4	-4.6	-3.1	-11.5	-6.6	-1.4	0.0	-22.5
1987	0.0	0.0	-1.3	1.9	-10.1	-2.8	1.8	1.5	5.8	-2.0	-2.5	0.0	-7.7
1988	0.0	0.0	-1.0	-4.7	-2.4	1.7	1.4	1.4	5.7	11.9	0.3	0.0	14.3
1989	0.0	0.0	-0.5	2.1	2.6	-3.4	1.5	1.7	-3.0	1.1	-1.7	0.0	0.4
1990	0.0	0.0	-0.6	1.8	-11.3	1.6	1.6	1.5	-3.5	-6.1	-1.7	0.0	-16.8
1991	0.0	0.0	-1.2	1.7	6.7	1.8	1.7	1.7	0.4	-3.5	0.0	0.0	9.2
1992	0.0	0.0	-1.1	2.7	0.5	-7.9	1.7	-5.0	-2.8	-7.1	-2.0	0.0	-21.1
1993	0.0	0.0	-0.7	-5.6	-5.6	1.9	1.8	1.7	-4.6	-5.0	-2.0	0.0	-18.2
1994	0.0	0.0	-1.6	-5.3	-5.2	2.0	1.9	1.5	1.0	-5.3	-2.2	0.0	-13.0
1995	0.0	0.0	-1.7	-9.5	-18.0	-8.0	-1.8	5.1	-3.9	0.1	0.5	0.0	-37.1
1996	0.0	-0.0	-2.5	1.9	-4.1	-0.5	-3.0	-0.1	-14.0	-1.1	0.0	0.0	-23.3
1997	0.0	0.0	-1.4	-7.0	3.6	-6.5	2.2	-3.7	-2.3	-5.8	0.0	0.0	-20.9
1998	0.0	0.0	-0.7	-1.9	-3.9	1.9	-3.4	-4.7	-1.9	-7.3	-2.0	0.0	-23.8
1999	0.0	0.0	-1.6	-6.9	0.3	1.5	-4.3	-0.4	-0.1	-7.1	-1.6	0.0	-20.2
2000	0.0	0.0	-2.0	1.9	5.1	1.6	1.6	1.2	2.9	10.0	5.8	0.0	28.1
2001	0.0	0.0	-1.0	3.5	-11.5	1.7	1.7	1.8	5.4	4.4	-2.2	0.0	3.8
2002	0.0	0.0	-1.0	3.8	1.3	0.6	0.7	0.0	0.0	0.0	0.6	0.0	5.9
2003	0.0	0.0	5.8	1.8	5.8	1.7	0.9	0.3	0.8	0.0	3.3	0.0	20.3
2004	0.0	0.0	2.9	15.5	10.6	1.5	1.4	-4.7	1.7	6.8	3.8	0.0	39.4
2005	0.0	0.0	-1.0	-1.4	3.7	1.7	1.4	1.5	2.2	9.9	7.1	0.0	25.1
2006	0.0	0.0	-0.3	5.6	7.6	1.7	1.5	1.4	5.5	2.8	-1.7	0.0	24.1
2007	0.0	0.0	2.5	-6.7	1.2	-2.7	1.7	1.6	6.9	9.4	-1.9	0.0	11.9
2008	0.0	0.0	-1.5	-2.4	3.9	1.9	1.9	-0.7	3.3	-7.7	-2.2	0.0	-3.5
2009	0.0	0.0	-1.3	2.9	1.3	1.0	-3.9	1.4	2.6	-7.7	-1.6	0.0	-5.2
2010	0.0	0.0	-0.8	0.2	-2.0	-0.2	-2.7	-2.1	1.7	8.9	6.3	0.0	9.4
2011	0.0	0.0	-1.0	6.5	7.3	-0.1	1.8	1.2	4.1	10.0	7.3	0.0	37.1
2012	0.0	0.0	5.4	7.3	7.7	0.7	0.7	0.2	0.0	0.0	0.0	0.0	21.9
2013	0.0	0.0	1.8	0.4	6.8	1.6	0.9	1.2	5.3	17.0	0.0	0.0	35.1
Average	0.0	0.0	-0.0	0.0	-0.0	0.0	0.1	0.1	0.0	0.3	0.2	0.0	0.8
Minimum	0.0	-0.0	-2.5	-9.5	-18.0	-8.0	-5.5	-5.0	-14.0	-7.7	-2.5	0.0	-37.1
Maximum	0.0	0.0	7.6	15.5	10.6	2.0	2.2	5.1	6.9	17.0	7.3	0.0	39.4

Table 25 - Deep Percolation/Ground Water Return Flows at Stream (lagged)

Farm Name or Designation: Hancock-09

Deep Percolation Lagged to Stream using URF

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	11.5	8.5	6.7	8.6	13.5	16.1	18.9	21.2	21.2	21.1	20.0	16.7	184.1
1985	12.6	9.2	8.4	13.1	17.8	17.6	18.7	19.7	20.7	22.5	22.5	18.6	201.6
1986	13.7	9.8	10.4	16.7	20.8	21.8	21.1	22.1	22.9	24.1	23.4	19.0	226.1
1987	13.8	10.0	9.1	13.4	17.7	20.3	20.8	20.3	19.5	19.3	20.3	17.9	202.4
1988	13.0	9.4	8.2	11.6	15.6	17.0	17.6	17.1	16.9	16.3	15.7	14.0	172.5
1989	10.2	7.2	7.4	13.0	17.3	18.0	19.1	19.2	19.5	18.7	17.3	15.2	182.1
1990	11.0	7.7	6.6	9.7	15.7	18.0	18.2	18.4	18.3	18.8	19.5	16.5	178.5
1991	12.3	8.8	8.1	11.4	12.7	13.2	15.4	16.5	17.4	18.1	17.7	13.2	164.9
1992	9.8	7.2	7.2	12.5	18.9	20.4	20.8	20.8	22.3	23.7	24.0	20.1	207.8
1993	14.9	10.6	8.8	11.9	18.2	20.9	20.9	20.8	21.7	23.4	23.4	19.7	215.2
1994	14.7	10.6	10.1	16.5	22.8	23.8	23.7	23.0	22.3	23.1	23.9	20.2	234.7
1995	14.7	10.4	10.1	17.3	25.2	27.2	26.7	27.4	28.5	30.2	30.0	25.3	273.0
1996	18.6	13.7	14.6	22.1	26.2	26.9	26.6	26.1	25.9	28.3	28.4	23.9	281.3
1997	17.1	12.4	11.1	15.9	20.4	21.4	22.9	23.3	22.0	22.7	21.1	15.8	226.1
1998	11.8	8.4	7.1	10.9	18.0	21.1	21.7	22.7	23.0	24.5	24.4	20.4	214.0
1999	15.3	11.0	10.4	16.1	19.3	17.7	18.5	19.6	19.8	21.5	22.1	18.5	209.7
2000	13.4	9.7	10.7	17.1	19.9	20.0	19.7	18.9	17.2	15.2	14.1	11.8	187.7
2001	8.3	5.7	5.6	9.3	14.1	18.1	18.7	19.5	19.6	18.2	17.6	15.7	170.5
2002	11.5	8.4	7.3	8.6	6.6	5.6	6.1	5.8	3.9	3.0	2.4	2.0	71.4
2003	1.2	0.8	1.0	1.5	2.2	5.6	8.9	8.6	7.1	5.7	4.7	4.2	51.5
2004	3.1	2.4	1.8	2.6	6.1	9.6	11.7	13.4	13.9	11.6	11.5	11.2	99.0
2005	8.4	6.2	6.0	11.1	17.4	18.7	19.0	18.9	17.7	15.2	14.1	11.9	164.5
2006	8.7	5.9	5.2	6.3	6.4	8.9	11.9	13.3	14.0	14.6	15.7	13.5	124.5
2007	9.9	7.6	6.8	10.8	17.0	18.3	18.7	18.9	19.0	19.1	19.4	17.3	182.9
2008	12.8	9.0	8.9	15.4	21.5	21.8	22.2	22.0	21.4	22.1	23.4	19.8	220.3
2009	14.4	10.1	9.4	14.2	19.2	20.3	20.4	20.7	19.6	20.1	21.4	17.7	207.5
2010	13.0	9.2	7.9	11.0	16.1	18.9	19.7	19.9	18.8	15.6	14.7	13.3	178.0
2011	9.8	6.9	6.3	7.9	7.6	10.2	14.2	15.5	14.6	13.6	12.8	10.9	130.2
2012	7.9	6.1	5.1	5.5	6.7	8.1	8.1	7.4	5.7	4.4	3.4	2.7	71.1
2013	2.0	1.3	0.8	0.7	1.6	5.4	8.5	9.4	10.7	11.8	12.0	8.9	73.0
Average	11.3	8.1	7.6	11.4	15.4	17.0	18.0	18.3	18.2	18.2	18.0	15.2	176.9
Minimum	1.2	0.8	0.8	0.7	1.6	5.4	6.1	5.8	3.9	3.0	2.4	2.0	51.5
Maximum	18.6	13.7	14.6	22.1	26.2	27.2	26.7	27.4	28.5	30.2	30.0	25.3	281.3
Lagged DP RF Factors: Average Monthly Lagged Deep Perc. / GW Returns as a percent of Average Monthly Farm Headgate Delivery													
			31.8%	26.7%	33.0%	30.0%	32.9%	38.7%	56.0%	60.4%			50.8%

Table 26 - Total Return Flows at Stream

Farm Name or Designation: Hancock-09

Lagged Deep Percolation plus Direct Tailwater/Surface Runoff Return Flows

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	11.5	8.5	8.3	15.7	19.9	22.4	26.9	26.7	26.2	25.8	22.3	16.7	230.8
1985	12.6	9.2	13.2	23.0	22.4	23.2	24.6	25.0	27.0	29.2	25.0	18.6	253.1
1986	13.7	9.9	18.5	25.6	28.5	26.3	27.7	28.0	29.4	30.4	25.5	19.0	282.5
1987	13.8	10.0	14.5	21.0	25.5	26.6	26.2	24.9	22.9	25.1	24.1	17.9	252.5
1988	13.0	9.4	12.3	19.2	21.3	22.5	21.8	21.6	20.3	19.4	18.6	14.0	213.2
1989	10.2	7.2	13.5	21.7	22.5	24.1	23.7	24.5	23.7	21.6	20.1	15.2	228.2
1990	11.0	7.7	9.3	18.2	23.1	23.2	23.0	23.1	22.2	24.9	22.1	16.5	224.3
1991	12.3	8.8	13.3	16.4	15.9	18.8	20.6	21.9	21.6	23.9	17.7	13.2	204.2
1992	9.8	7.2	12.0	23.0	26.1	26.5	25.8	27.1	28.3	30.8	27.1	20.1	263.8
1993	14.9	10.6	11.9	20.9	26.7	26.8	26.3	26.4	28.2	30.0	26.5	19.7	268.9
1994	14.7	10.6	16.8	28.1	30.4	30.3	29.5	27.8	27.3	30.3	27.1	20.2	293.2
1995	14.7	10.4	17.2	30.3	35.2	33.6	34.1	34.7	36.6	38.5	33.9	25.3	344.4
1996	18.6	14.9	25.0	32.7	34.5	33.7	33.6	31.4	33.9	36.3	32.2	23.9	350.7
1997	17.1	12.4	16.9	25.5	26.6	28.4	30.5	27.5	27.6	28.3	21.1	15.8	277.8
1998	11.8	8.4	10.1	21.0	27.0	27.0	28.8	28.0	29.4	31.4	27.4	20.4	270.6
1999	15.3	11.0	17.3	25.6	22.7	22.5	25.0	24.4	25.5	28.2	25.0	18.5	261.0
2000	13.4	10.0	19.2	25.4	25.6	25.1	24.4	22.5	18.9	17.9	15.6	11.8	229.8
2001	8.3	5.7	9.9	15.6	22.9	23.4	24.0	25.1	22.7	21.8	20.9	15.7	216.0
2002	11.5	8.4	11.5	9.4	7.2	7.5	8.3	5.8	3.9	3.0	2.6	2.0	81.2
2003	1.2	0.8	2.0	1.9	4.9	10.9	11.6	9.5	7.5	5.7	5.4	4.2	65.8
2004	3.1	2.4	2.4	6.0	11.1	14.2	15.9	18.5	14.9	13.4	14.8	11.2	128.0
2005	8.4	6.2	10.4	21.1	24.1	24.0	23.4	23.5	18.9	17.8	15.7	11.9	205.2
2006	8.7	5.9	8.4	7.6	10.1	14.2	16.5	17.7	17.2	19.9	18.2	13.5	157.8
2007	9.9	7.6	10.0	20.6	23.3	23.6	23.8	23.9	23.1	24.1	23.2	17.3	230.3
2008	12.8	9.0	15.4	27.0	27.8	27.9	27.8	27.0	25.8	29.7	26.7	19.8	276.6
2009	14.4	10.1	14.9	23.4	26.2	25.2	26.8	25.0	23.2	27.4	23.9	17.7	258.3
2010	13.0	9.2	11.2	18.8	23.7	24.7	25.3	25.2	19.8	18.0	17.5	13.3	219.6
2011	9.8	6.9	10.5	9.3	11.2	16.7	19.8	19.1	17.0	16.3	14.4	10.9	161.9
2012	7.9	6.1	6.8	7.9	10.4	10.4	10.1	7.9	5.7	4.4	3.4	2.7	83.7
2013	2.0	1.3	1.2	0.8	4.8	10.4	11.2	13.0	13.8	16.3	12.0	8.9	95.8
Average	11.3	8.2	12.1	18.8	21.4	22.5	23.2	22.9	22.1	23.0	20.3	15.2	221.0
Minimum	1.2	0.8	1.2	0.8	4.8	7.5	8.3	5.8	3.9	3.0	2.6	2.0	65.8
Maximum	18.6	14.9	25.0	32.7	35.2	33.7	34.1	34.7	36.6	38.5	33.9	25.3	350.7
Lagged Total Returns as a percent of Farm Headgate Delivery Average													
			50.8%	43.8%	45.8%	39.5%	42.5%	48.3%	68.1%	76.2%			63.4%

Table 27 - Historical Depletions at Stream including Depletion and Return Flow Factors

Farm Name or Designation: Hancock-09

Farm Headgate Delivery less Total Lagged Return Flows at Stream

Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	-11.5	-8.5	8.1	19.5	29.9	45.3	44.3	29.6	13.4	-2.5	-11.2	-16.7	139.6
1985	-12.6	-9.2	10.6	26.4	10.7	38.4	40.3	34.0	16.5	4.0	-12.6	-18.6	127.8
1986	-13.7	-9.5	25.0	28.5	31.7	23.8	31.3	26.6	5.1	0.9	-15.0	-19.0	115.7
1987	-13.8	-10.0	12.4	25.5	19.8	33.8	33.7	25.7	14.8	9.1	-5.1	-17.9	128.1
1988	-13.0	-9.4	8.0	19.6	19.0	38.5	24.1	27.5	17.1	15.6	-1.4	-14.0	131.6
1989	-10.2	-7.2	17.9	32.1	22.2	32.4	27.6	34.8	6.0	-1.6	-5.9	-15.2	133.0
1990	-11.0	-7.7	4.2	33.4	17.0	34.6	30.3	28.6	4.5	5.7	-9.2	-16.5	114.1
1991	-12.3	-8.8	12.4	14.7	19.3	43.1	36.9	38.2	13.3	8.4	-17.7	-13.2	134.3
1992	-9.8	-7.2	12.0	41.6	30.6	20.5	30.1	27.6	16.5	5.2	-11.7	-20.1	135.4
1993	-14.9	-10.6	3.3	25.2	31.3	38.7	34.1	35.5	18.1	5.4	-11.1	-19.7	135.4
1994	-14.7	-10.6	16.8	33.5	20.9	41.8	35.2	25.2	16.3	8.5	-10.8	-20.2	141.9
1995	-14.7	-10.4	18.2	34.9	14.6	16.0	37.7	44.0	22.0	8.1	-14.0	-25.3	131.0
1996	-18.6	-9.0	27.1	31.4	24.4	36.3	32.7	23.9	8.7	8.7	-13.1	-23.9	128.6
1997	-17.1	-12.4	12.1	22.6	27.9	31.8	46.2	9.2	14.6	-0.4	-21.1	-15.8	97.5
1998	-11.8	-8.4	4.9	35.9	37.0	38.4	38.3	17.9	20.1	3.3	-12.7	-20.4	142.6
1999	-15.3	-11.0	17.2	22.0	4.9	31.2	33.4	24.4	21.2	5.7	-9.9	-18.5	105.2
2000	-13.4	-8.5	23.2	25.6	26.5	31.5	28.2	18.3	0.2	11.7	-0.4	-11.8	131.0
2001	-8.3	-5.7	11.9	25.0	27.6	35.2	34.7	37.2	12.2	6.5	-4.6	-15.7	156.1
2002	-11.5	-8.4	9.5	-0.1	-0.6	13.3	15.4	-5.8	-3.9	-3.0	-1.1	-2.0	1.7
2003	-1.2	-0.8	9.5	2.5	25.8	47.8	19.4	0.1	-2.5	-5.7	2.6	-4.2	93.1
2004	-3.1	-2.4	3.4	32.2	44.9	37.4	30.5	24.5	-3.6	6.5	9.0	-11.2	168.0
2005	-8.4	-6.2	11.5	35.6	33.9	34.4	25.4	28.1	-4.9	11.4	1.4	-11.9	150.4
2006	-8.7	-5.9	8.1	6.2	30.1	44.3	34.1	30.8	18.6	17.0	-5.7	-13.5	155.4
2007	-9.9	-7.6	9.1	28.8	27.8	26.1	32.2	31.8	22.1	19.5	-3.5	-17.3	159.1
2008	-12.8	-9.0	17.0	37.6	27.8	40.1	34.7	23.6	16.7	8.4	-10.3	-19.8	154.1
2009	-14.4	-10.1	12.3	34.0	30.8	28.7	31.9	22.5	11.4	9.1	-11.6	-17.7	126.8
2010	-13.0	-9.2	5.5	27.0	32.9	35.7	27.7	25.6	-8.6	8.1	5.4	-13.3	123.9
2011	-9.8	-6.9	10.6	6.7	28.6	51.1	42.2	21.3	9.8	13.1	3.0	-10.9	158.9
2012	-7.9	-6.1	8.0	14.7	30.2	15.7	12.1	-2.2	-5.7	-4.4	-3.4	-2.7	48.4
2013	-2.0	-1.3	2.5	0.2	31.2	45.8	19.3	27.5	20.7	33.8	-12.0	-8.9	156.8
Average	-11.3	-7.9	11.7	24.1	25.3	34.4	31.5	24.5	10.4	7.2	-7.1	-15.2	127.5
Minimum	-18.6	-12.4	2.5	-0.1	-0.6	13.3	12.1	-5.8	-8.6	-5.7	-21.1	-25.3	1.7
Maximum	-1.2	-0.8	27.1	41.6	44.9	51.1	46.2	44.0	22.1	33.8	9.0	-2.0	168.0
Limit	-2.1	-1.5	25.1	38.4	38.6	48.2	44.2	39.8	21.8	23.4	5.8	-3.0	162.0
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Depletion Factors			49.2%	56.2%	54.2%	60.5%	57.5%	51.7%	31.9%	23.8%			36.6%
Return Flow Factors			50.8%	43.8%	45.8%	39.5%	42.5%	48.3%	68.1%	76.2%			63.4%
Winter RF	-3.2%	-2.3%									-2.0%	-4.4%	
Sum			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			100.0%

Table 28 - Transferrable Depletions Given Calculated Stream Depletion Factors

Farm Name or Designation: Hancock-09

Farm Headgate Deliveries multiplied by Avg Monthly Stream Depletion Factors limited by Avg-Max-3 Monthly and Annual Stream Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	8.0	19.8	27.0	41.0	41.0	25.2	0.0	0.0	0.0	0.0	162.0
1985	0.0	0.0	11.7	27.8	17.9	37.2	37.3	30.0	0.0	0.0	0.0	0.0	162.0
1986	0.0	0.0	21.4	30.4	32.6	30.3	34.0	13.3	0.0	0.0	0.0	0.0	162.0
1987	0.0	0.0	13.2	26.2	24.5	36.5	34.4	26.2	0.9	0.0	0.0	0.0	162.0
1988	0.0	0.0	10.0	21.8	21.8	36.9	26.4	25.4	11.9	7.8	0.0	0.0	162.0
1989	0.0	0.0	15.5	30.3	24.2	34.2	29.5	28.3	0.0	0.0	0.0	0.0	162.0
1990	0.0	0.0	6.7	29.0	21.7	35.0	30.7	26.8	8.5	3.7	0.0	0.0	162.0
1991	0.0	0.0	12.6	17.5	19.1	37.4	33.0	31.1	11.1	0.1	0.0	0.0	162.0
1992	0.0	0.0	11.8	36.3	30.7	28.5	32.2	22.5	0.0	0.0	0.0	0.0	162.0
1993	0.0	0.0	7.5	25.9	31.4	39.6	34.7	22.8	0.0	0.0	0.0	0.0	162.0
1994	0.0	0.0	16.5	34.7	27.8	43.6	37.2	2.2	0.0	0.0	0.0	0.0	162.0
1995	0.0	0.0	17.4	36.6	27.0	30.0	41.3	9.6	0.0	0.0	0.0	0.0	162.0
1996	0.0	0.0	25.1	36.1	31.9	42.3	26.6	0.0	0.0	0.0	0.0	0.0	162.0
1997	0.0	0.0	14.3	27.1	29.5	36.4	44.1	10.6	0.0	0.0	0.0	0.0	162.0
1998	0.0	0.0	7.4	32.0	34.7	39.6	38.6	9.8	0.0	0.0	0.0	0.0	162.0
1999	0.0	0.0	17.0	26.7	15.0	32.5	33.5	25.2	12.0	0.0	0.0	0.0	162.0
2000	0.0	0.0	20.8	28.7	28.2	34.2	30.3	19.8	0.0	0.0	0.0	0.0	162.0
2001	0.0	0.0	10.7	22.8	27.3	35.4	33.8	31.9	0.0	0.0	0.0	0.0	162.0
2002	0.0	0.0	10.3	5.3	3.6	12.5	13.6	0.0	0.0	0.0	0.0	0.0	45.3
2003	0.0	0.0	5.7	2.5	16.7	35.5	17.8	4.9	1.6	0.0	0.0	0.0	84.6
2004	0.0	0.0	2.8	21.5	30.4	31.2	26.7	22.2	3.6	4.8	0.0	0.0	143.2
2005	0.0	0.0	10.7	31.9	31.4	35.3	28.1	24.6	0.0	0.0	0.0	0.0	162.0
2006	0.0	0.0	8.1	7.8	21.8	35.4	29.1	25.1	11.4	8.8	0.0	0.0	147.4
2007	0.0	0.0	9.4	27.7	27.7	30.0	32.2	28.9	6.1	0.0	0.0	0.0	162.0
2008	0.0	0.0	15.9	36.3	30.1	41.2	36.0	2.5	0.0	0.0	0.0	0.0	162.0
2009	0.0	0.0	13.4	32.2	30.9	32.6	33.8	19.1	0.0	0.0	0.0	0.0	162.0
2010	0.0	0.0	8.2	25.7	30.7	36.5	30.5	26.3	3.6	0.5	0.0	0.0	162.0
2011	0.0	0.0	10.3	9.0	21.6	41.0	35.7	20.9	8.6	7.0	0.0	0.0	154.1
2012	0.0	0.0	7.3	12.7	22.0	15.8	12.8	2.9	0.0	0.0	0.0	0.0	73.5
2013	0.0	0.0	1.8	0.6	19.5	34.0	17.6	21.0	11.0	12.0	0.0	0.0	117.4
Average	0.0	0.0	11.7	24.1	25.3	34.4	31.1	18.6	3.0	1.5	0.0	0.0	149.7
Minimum	0.0	0.0	1.8	0.6	3.6	12.5	12.8	0.0	0.0	0.0	0.0	0.0	45.3
Maximum	0.0	0.0	25.1	36.6	34.7	43.6	44.1	31.9	12.0	12.0	0.0	0.0	162.0

Table 29 - Comparison of Historic Stream Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Hancock-09

Historic Stream Depletions less Transferrable Depletions Given Calculated Stream Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	-0.3	2.9	4.3	3.4	4.4	13.4	-2.5	0.0	0.0	25.5
1985	0.0	0.0	-1.1	-1.4	-7.3	1.2	3.0	4.0	16.5	4.0	0.0	0.0	18.9
1986	0.0	0.0	3.6	-1.9	-0.9	-6.5	-2.6	13.3	5.1	0.9	0.0	0.0	11.0
1987	0.0	0.0	-0.9	-0.6	-4.7	-2.7	-0.7	-0.5	13.9	9.1	0.0	0.0	12.8
1988	0.0	0.0	-1.9	-2.2	-2.8	1.6	-2.3	2.1	5.2	7.8	0.0	0.0	7.5
1989	0.0	0.0	2.4	1.8	-2.0	-1.8	-1.9	6.6	6.0	-1.6	0.0	0.0	9.5
1990	0.0	0.0	-2.4	4.4	-4.7	-0.4	-0.3	1.9	-4.1	2.0	0.0	0.0	-3.6
1991	0.0	0.0	-0.2	-2.8	0.3	5.7	3.8	7.1	2.2	8.3	0.0	0.0	24.3
1992	0.0	0.0	0.2	5.3	-0.1	-7.9	-2.1	5.1	16.5	5.2	0.0	0.0	22.2
1993	0.0	0.0	-4.1	-0.7	-0.1	-0.9	-0.7	12.7	18.1	5.4	0.0	0.0	29.7
1994	0.0	0.0	0.3	-1.1	-6.9	-1.8	-2.1	23.0	16.3	8.5	0.0	0.0	36.2
1995	0.0	0.0	0.8	-1.8	-12.4	-14.0	-3.6	34.3	22.0	8.1	0.0	0.0	33.4
1996	0.0	0.0	2.0	-4.6	-7.5	-6.1	6.1	23.9	8.7	8.7	0.0	0.0	31.1
1997	0.0	0.0	-2.2	-4.4	-1.6	-4.6	2.1	-1.4	14.6	-0.4	0.0	0.0	2.0
1998	0.0	0.0	-2.5	3.9	2.3	-1.2	-0.3	8.1	20.1	3.3	0.0	0.0	33.8
1999	0.0	0.0	0.2	-4.8	-10.1	-1.3	-0.2	-0.8	9.2	5.7	0.0	0.0	-2.0
2000	0.0	0.0	2.3	-3.1	-1.7	-2.7	-2.1	-1.5	0.2	11.7	0.0	0.0	3.2
2001	0.0	0.0	1.2	2.2	0.2	-0.3	1.0	5.3	12.2	6.5	0.0	0.0	28.3
2002	0.0	0.0	-0.9	-5.3	-4.2	0.7	1.8	-5.8	-3.9	-3.0	0.0	0.0	-20.6
2003	0.0	0.0	3.8	0.0	9.2	12.3	1.5	-4.9	-4.1	-5.7	0.0	0.0	12.1
2004	0.0	0.0	0.6	10.7	14.6	6.1	3.8	2.2	-7.2	1.8	0.0	0.0	32.6
2005	0.0	0.0	0.7	3.7	2.5	-0.9	-2.7	3.5	-4.9	11.4	0.0	0.0	13.4
2006	0.0	0.0	-0.0	-1.5	8.3	8.9	5.0	5.7	7.1	8.2	0.0	0.0	41.8
2007	0.0	0.0	-0.3	1.0	0.1	-3.9	-0.0	3.0	16.0	19.5	0.0	0.0	35.4
2008	0.0	0.0	1.0	1.3	-2.4	-1.0	-1.2	21.1	16.7	8.4	0.0	0.0	44.0
2009	0.0	0.0	-1.0	1.7	-0.1	-3.9	-1.9	3.4	11.4	9.1	0.0	0.0	18.7
2010	0.0	0.0	-2.7	1.2	2.2	-0.8	-2.8	-0.7	-12.2	7.6	0.0	0.0	-8.1
2011	0.0	0.0	0.2	-2.3	7.0	10.1	6.6	0.4	1.2	6.1	0.0	0.0	29.3
2012	0.0	0.0	0.7	2.0	8.2	-0.1	-0.7	-5.1	-5.7	-4.4	0.0	0.0	-5.1
2013	0.0	0.0	0.7	-0.3	11.7	11.8	1.7	6.5	9.7	21.9	0.0	0.0	63.7
Average	0.0	0.0	0.0	0.0	-0.0	0.0	0.4	5.9	7.3	5.7	0.0	0.0	19.4
Minimum	0.0	0.0	-4.1	-5.3	-12.4	-14.0	-3.6	-5.8	-12.2	-5.7	0.0	0.0	-20.6
Maximum	0.0	0.0	3.8	10.7	14.6	12.3	6.6	34.3	22.0	21.9	0.0	0.0	63.7

Table 30 - Other Input Data Used For Analysis

Farm Name or Designation: Hancock-09

Notes:

Year (Cal)	Farm Shares	Ditch Shares	Ditch (acres)	Canal Loss	Off-Farm Lat Loss	On-Farm Lat Loss	SEVA Loss	Flood AppEff	Sprinkler AppEff	Drip AppEff	Flood Tailwater	Force Tailwater	Spray Loss	AWC (%)	RootDepth (ft)
1984	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1985	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1986	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1987	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1988	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1989	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1990	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1991	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1992	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1993	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1994	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1995	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1996	80	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1997	80	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1998	80	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1999	80	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2000	80	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2001	80	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2002	80	18660	13301	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2003	80	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2004	80	18660	15021	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2005	80	18660	17281	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2006	80	18660	17491	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2007	80	18660	17380	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2008	80	18660	16321	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2009	80	18660	17480	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2010	80	18660	17657	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2011	80	18660	17493	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2012	80	18660	17348	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2013	80	18660	14240	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Average	80	18660	16579.97	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Minimum	80	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Maximum	80	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4

APPENDIX

F

Table 1 - Summary Period Average and Maximum Values for Selected Variables

Farm Name or Designation: Diamond A East-01

Summary Period: 1984 - 2013

Notes:

Period	Farm Shares	Farm Acres	App. Eff.	Alfalfa (%)	Grass (%)	Corn_Grn (%)	Corn_Sil (%)	Spr_Grn (%)	Sorghum (%)	Win_Wht (%)	Vegetable (%)	Beans (%)	Beets (%)
Average	278.5	276.6	0.55	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Maximum	278.5	286.1	0.55	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%

Month	Jan (AF or %)	Feb (AF or %)	Mar (AF or %)	Apr (AF or %)	May (AF or %)	Jun (AF or %)	Jul (AF or %)	Aug (AF or %)	Sep (AF or %)	Oct (AF or %)	Nov (AF or %)	Dec (AF or %)	Total (AF or %)
River Headgate Diversions for All Sources Considered in Pilot Project Plan													
Average	0.0	71.2	6469.9	11612.6	12648.6	15409.4	14822.9	12853.2	8790.7	8183.5	3577.9	0.0	94439.9
Farm Headgate Delivery													
Average	0.0	0.9	83.1	149.2	162.5	198.0	190.4	165.1	112.9	105.1	46.0	0.0	1213.3
Maximum	0.0	20.6	181.5	226.8	222.8	250.8	266.9	274.0	203.7	174.6	83.1	0.0	1668.6
Limit	0.0	9.2	160.2	225.6	212.5	243.8	254.9	235.5	179.6	164.5	77.3	0.0	1612.9
Farm Crop Potential Evapotranspiration													
Average	0.0	0.0	7.5	45.5	101.6	156.8	178.5	144.5	69.9	24.0	1.7	0.0	730.1
Farm Effective Precipitation													
Average	6.1	7.1	17.9	25.6	32.3	30.6	40.4	36.6	19.0	18.8	9.6	8.0	251.9
Farm Irrigation Water Requirement													
Average	0.0	0.0	2.5	24.6	69.5	126.2	138.1	107.9	50.9	10.8	0.5	0.0	531.0
Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture													
Average	0.0	0.0	1.2	23.5	65.8	118.8	122.0	91.4	44.1	8.9	0.4	0.0	476.0
Total Return Flows at Farm													
Average	0.0	0.9	77.7	125.8	100.7	92.4	87.5	75.9	60.6	77.4	38.5	0.0	737.5
Tailwater/Surface Runoff Return Flows at Farm													
Average	0.0	0.2	15.5	25.2	20.1	18.5	17.5	15.2	12.1	15.5	7.7	0.0	147.5
Deep Percolation/Ground Water Return Flows at Farm (unlagged)													
Average	0.0	0.7	62.1	100.7	80.6	73.9	70.0	60.7	48.5	61.9	30.8	0.0	590.0
Historical Depletions at Farm													
Average	0.0	0.0	5.4	23.4	61.8	105.6	102.9	89.3	52.3	27.7	7.4	0.0	475.8
Maximum	0.0	0.0	31.3	73.2	107.3	137.9	142.6	150.7	86.6	96.0	40.4	0.0	573.9
Limit	0.0	0.0	27.2	53.7	95.2	133.8	136.3	129.5	84.5	82.1	35.5	0.0	561.2
Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased													
Average	0.0	0.7	62.9	163.5	244.1	318.0	388.1	448.8	497.2	559.2	590.0	590.0	590.0
Maximum	0.0	16.5	161.7	307.0	420.3	508.9	600.3	698.6	803.7	917.6	971.4	971.4	971.4
Limit	0.0	7.3	132.2	280.5	398.9	486.8	576.3	654.5	744.3	849.1	900.0	900.0	900.0
Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries													
Average			70.6%	66.3%	59.5%	52.3%	48.5%	46.4%	45.9%	46.9%	47.5%	47.5%	47.5%
Maximum		80.0%	80.0%	80.0%	80.0%	72.4%	63.4%	57.3%	56.4%	57.9%	58.7%	58.7%	58.7%
Limit			80.0%	80.0%	74.6%	63.8%	57.6%	53.6%	54.0%	55.8%	56.7%	56.7%	56.7%
Deep Percolation/Ground Water Return Flows at Stream (lagged)													
Average	46.4	46.4	46.5	46.6	46.6	46.6	46.7	46.8	46.8	46.8	46.9	46.9	560.2
Total Return Flows at Stream													
Average	46.4	46.6	62.1	71.8	66.8	65.1	64.2	61.9	59.0	62.3	54.6	46.9	707.7
Historical Depletions at Stream including Depletion and Return Flow Factors													
Average	-46.4	-45.7	21.1	77.4	95.7	132.9	126.2	103.2	54.0	42.8	-8.6	-46.9	505.6
Maximum	-34.1	-30.3	98.2	146.3	149.8	183.8	192.0	203.3	131.4	111.1	23.6	-34.0	862.5
Limit	-34.3	-32.6	83.3	141.2	140.3	179.5	187.9	169.4	112.1	96.2	19.1	-35.0	836.1
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	6.5%	15.7%	38.0%	53.3%	54.0%	54.1%	46.3%	26.4%	16.2%		39.2%
TW Returns		20.0%	18.7%	16.9%	12.4%	9.3%	9.2%	9.2%	10.7%	14.7%	16.8%		12.2%
DP Returns		80.0%	74.8%	67.5%	49.6%	37.3%	36.8%	36.8%	42.9%	58.9%	67.1%		48.6%
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD													
Depletion Factors			25.3%	51.9%	58.9%	67.1%	66.3%	62.5%	47.8%	40.7%			41.7%
Return Flow Factors			74.7%	48.1%	41.1%	32.9%	33.7%	37.5%	52.2%	59.3%			58.3%
Winter RF	-3.8%	-3.8%									-0.7%	-3.9%	

Lease Fallow Tool LFTengine_v3 24-Sep-2014 12:48:00 C:\LFT\LFT_FarmDataTemplate_v3.xlsm Diamond A East-01

Table 2 - River Headgate Diversions for All Sources Considered in Pilot Project Plan

Farm Name or Designation: Diamond A East-01

Catlin Canal D1700552; Sources Included and Excluded:

Notes: Explain period of record as being representative, and list source of data and rights included and excluded. Total Direct Flow plus Winter Water Diversions from Bill Tyner QA/QC Catlin1950-2012Final.xlsx updated to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0	0	4,431	9,541	13,503	18,362	19,304	15,254	10,719	6,294	2,985	0	100,393
1985	0	0	6,441	13,406	8,970	16,678	17,590	15,992	11,792	8,998	3,370	0	103,237
1986	0	129	11,801	14,638	16,316	13,574	16,005	14,802	9,335	8,490	2,832	0	107,922
1987	0	0	7,288	12,612	12,268	16,378	16,216	13,721	10,218	9,280	5,136	0	103,119
1988	0	0	5,502	10,504	10,903	16,524	12,428	13,305	10,136	9,502	4,645	0	93,449
1989	0	0	8,515	14,587	12,123	15,331	13,914	16,090	8,033	5,417	3,855	0	97,866
1990	0	0	3,669	13,968	10,867	15,668	14,461	14,013	7,242	8,301	3,504	0	91,693
1991	0	0	6,962	8,441	9,533	16,766	15,564	16,306	9,447	8,730	0	0	91,749
1992	0	0	6,518	17,517	15,363	12,754	15,149	14,806	12,147	9,761	4,157	0	108,171
1993	0	0	4,124	12,505	15,715	17,757	16,362	16,774	12,548	9,600	4,169	0	109,554
1994	0	0	9,115	16,704	13,905	19,523	17,529	14,367	11,807	10,531	4,437	0	117,917
1995	0	0	9,602	17,655	13,508	13,443	19,452	21,326	15,859	12,617	5,388	0	128,850
1996	0	1,603	14,126	17,384	15,965	18,970	17,944	14,981	11,528	12,203	5,174	0	129,879
1997	0	0	7,861	13,041	14,755	16,328	20,777	9,964	11,438	7,543	0	0	101,708
1998	0	0	4,084	15,413	17,345	17,724	18,166	12,442	13,415	9,398	3,989	0	111,978
1999	0	0	9,354	12,889	7,484	14,555	15,805	13,219	12,659	9,194	4,083	0	99,242
2000	0	405	11,480	13,831	14,110	15,331	14,266	11,067	5,173	8,007	4,122	0	97,792
2001	0	0	5,909	11,010	13,672	15,878	15,909	16,883	9,471	7,680	4,429	0	100,841
2002	0	0	5,693	2,536	1,794	5,613	6,423	0	0	0	390	0	22,449
2003	0	0	3,114	1,184	8,335	15,888	8,400	2,590	1,373	0	2,168	0	43,052
2004	0	0	1,568	10,358	15,182	13,986	12,575	11,641	3,054	5,403	6,467	0	80,235
2005	0	0	5,918	15,353	15,719	15,811	13,234	13,995	3,814	7,909	4,622	0	96,375
2006	0	0	4,471	3,739	10,880	15,847	13,708	13,145	9,689	9,988	3,399	0	84,866
2007	0	0	5,184	13,371	13,851	13,448	15,167	15,115	12,258	11,808	5,325	0	105,526
2008	0	0	8,776	17,500	15,073	18,441	16,950	13,707	11,543	10,314	4,431	0	116,732
2009	0	0	7,369	15,540	15,434	14,617	15,913	12,874	9,388	9,902	3,322	0	104,360
2010	0	0	4,521	12,398	15,345	16,368	14,372	13,760	3,023	7,081	6,207	0	93,073
2011	0	0	5,699	4,336	10,793	18,381	16,812	10,942	7,264	7,969	4,729	0	86,924
2012	0	0	4,014	6,143	10,993	7,089	6,015	1,545	0	0	0	0	35,798
2013	0	0	990	277	9,752	15,249	8,275	10,972	9,345	13,587	0	0	68,446
Average	0	71	6,470	11,613	12,649	15,409	14,823	12,853	8,791	8,184	3,578	0	94,440
Minimum	0	0	990	277	1,794	5,613	6,015	0	0	0	0	0	22,449
Maximum	0	1,603	14,126	17,655	17,345	19,523	20,777	21,326	15,859	13,587	6,467	0	129,879
Limit	0	712	12,469	17,557	16,542	18,978	19,844	18,328	13,978	12,802	6,021	0	125,549

Table 3 - River Headgate Diversions Pro-Rata by Share or Percent of Water Right for Pilot Project Farm

Farm Name or Designation: Diamond A East-01

Catlin Canal D1700552; For Summary Period Pro-Rata Ownership: 1.4927%

Notes: Variable shares or prorata acres ownership shown in constants table

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	66.1	142.4	201.6	274.1	288.1	227.7	160.0	94.0	44.6	0.0	1498.5
1985	0.0	0.0	96.1	200.1	133.9	248.9	262.6	238.7	176.0	134.3	50.3	0.0	1541.0
1986	0.0	1.9	176.2	218.5	243.5	202.6	238.9	220.9	139.3	126.7	42.3	0.0	1610.9
1987	0.0	0.0	108.8	188.3	183.1	244.5	242.1	204.8	152.5	138.5	76.7	0.0	1539.2
1988	0.0	0.0	82.1	156.8	162.7	246.6	185.5	198.6	151.3	141.8	69.3	0.0	1394.9
1989	0.0	0.0	127.1	217.7	181.0	228.8	207.7	240.2	119.9	80.9	57.5	0.0	1460.8
1990	0.0	0.0	54.8	208.5	162.2	233.9	215.9	209.2	108.1	123.9	52.3	0.0	1368.7
1991	0.0	0.0	103.9	126.0	142.3	250.3	232.3	243.4	141.0	130.3	0.0	0.0	1369.5
1992	0.0	0.0	97.3	261.5	229.3	190.4	226.1	221.0	181.3	145.7	62.1	0.0	1614.6
1993	0.0	0.0	61.6	186.7	234.6	265.1	244.2	250.4	187.3	143.3	62.2	0.0	1635.3
1994	0.0	0.0	136.1	249.3	207.6	291.4	261.7	214.4	176.2	157.2	66.2	0.0	1760.1
1995	0.0	0.0	143.3	263.5	201.6	200.7	290.4	318.3	236.7	188.3	80.4	0.0	1923.3
1996	0.0	23.9	210.9	259.5	238.3	283.2	267.8	223.6	172.1	182.1	77.2	0.0	1938.7
1997	0.0	0.0	117.3	194.7	220.2	243.7	310.1	148.7	170.7	112.6	0.0	0.0	1518.2
1998	0.0	0.0	61.0	230.1	258.9	264.6	271.2	185.7	200.2	140.3	59.5	0.0	1671.4
1999	0.0	0.0	139.6	192.4	111.7	217.3	235.9	197.3	189.0	137.2	60.9	0.0	1481.3
2000	0.0	6.0	171.4	206.5	210.6	228.8	212.9	165.2	77.2	119.5	61.5	0.0	1459.7
2001	0.0	0.0	88.2	164.3	204.1	237.0	237.5	252.0	141.4	114.6	66.1	0.0	1505.2
2002	0.0	0.0	85.0	37.9	26.8	83.8	95.9	0.0	0.0	0.0	5.8	0.0	335.1
2003	0.0	0.0	46.5	17.7	124.4	237.2	125.4	38.7	20.5	0.0	32.4	0.0	642.6
2004	0.0	0.0	23.4	154.6	226.6	208.8	187.7	173.8	45.6	80.6	96.5	0.0	1197.6
2005	0.0	0.0	88.3	229.2	234.6	236.0	197.5	208.9	56.9	118.1	69.0	0.0	1438.6
2006	0.0	0.0	66.7	55.8	162.4	236.5	204.6	196.2	144.6	149.1	50.7	0.0	1266.8
2007	0.0	0.0	77.4	199.6	206.7	200.7	226.4	225.6	183.0	176.3	79.5	0.0	1575.1
2008	0.0	0.0	131.0	261.2	225.0	275.3	253.0	204.6	172.3	154.0	66.1	0.0	1742.4
2009	0.0	0.0	110.0	232.0	230.4	218.2	237.5	192.2	140.1	147.8	49.6	0.0	1557.7
2010	0.0	0.0	67.5	185.1	229.1	244.3	214.5	205.4	45.1	105.7	92.6	0.0	1389.3
2011	0.0	0.0	85.1	64.7	161.1	274.4	250.9	163.3	108.4	118.9	70.6	0.0	1297.5
2012	0.0	0.0	59.9	91.7	164.1	105.8	89.8	23.1	0.0	0.0	0.0	0.0	534.3
2013	0.0	0.0	14.8	4.1	145.6	227.6	123.5	163.8	139.5	202.8	0.0	0.0	1021.7
Average	0.0	1.1	96.6	173.3	188.8	230.0	221.3	191.9	131.2	122.2	53.4	0.0	1409.7
Minimum	0.0	0.0	14.8	4.1	26.8	83.8	89.8	0.0	0.0	0.0	0.0	0.0	335.1
Maximum	0.0	23.9	210.9	263.5	258.9	291.4	310.1	318.3	236.7	202.8	96.5	0.0	1938.7
Limit	0.0	10.6	186.1	262.1	246.9	283.3	296.2	273.6	208.6	191.1	89.9	0.0	1874.0

Table 4 - Farm Headgate Delivery

Farm Name or Designation: Diamond A East-01

Catlin Canal D1700552; For Summary Period Canal Loss: 10.4309%, Off-Farm Lateral Loss: 3.5%

Notes: Reference source of canal/off-farm loss data

Year (Cal)	Jan (AF)	Feb (AF)	Mar (AF)	Apr (AF)	May (AF)	Jun (AF)	Jul (AF)	Aug (AF)	Sep (AF)	Oct (AF)	Nov (AF)	Dec (AF)	Total (AF)
1984	0.0	0.0	56.9	122.6	173.5	235.9	248.0	196.0	137.7	80.9	38.4	0.0	1289.8
1985	0.0	0.0	82.7	172.2	115.2	214.3	226.0	205.5	151.5	115.6	43.3	0.0	1326.3
1986	0.0	1.7	151.6	188.1	209.6	174.4	205.6	190.2	119.9	109.1	36.4	0.0	1386.5
1987	0.0	0.0	93.6	162.0	157.6	210.4	208.3	176.3	131.3	119.2	66.0	0.0	1324.8
1988	0.0	0.0	70.7	134.9	140.1	212.3	159.7	170.9	130.2	122.1	59.7	0.0	1200.6
1989	0.0	0.0	109.4	187.4	155.7	197.0	178.8	206.7	103.2	69.6	49.5	0.0	1257.3
1990	0.0	0.0	47.1	179.4	139.6	201.3	185.8	180.0	93.0	106.6	45.0	0.0	1178.0
1991	0.0	0.0	89.4	108.4	122.5	215.4	200.0	209.5	121.4	112.2	0.0	0.0	1178.7
1992	0.0	0.0	83.7	225.0	197.4	163.9	194.6	190.2	156.1	125.4	53.4	0.0	1389.7
1993	0.0	0.0	53.0	160.6	201.9	228.1	210.2	215.5	161.2	123.3	53.6	0.0	1407.5
1994	0.0	0.0	117.1	214.6	178.6	250.8	225.2	184.6	151.7	135.3	57.0	0.0	1514.9
1995	0.0	0.0	123.4	226.8	173.5	172.7	249.9	274.0	203.7	162.1	69.2	0.0	1655.4
1996	0.0	20.6	181.5	223.3	205.1	243.7	230.5	192.5	148.1	156.8	66.5	0.0	1668.6
1997	0.0	0.0	101.0	167.5	189.6	209.8	266.9	128.0	146.9	96.9	0.0	0.0	1306.7
1998	0.0	0.0	52.5	198.0	222.8	227.7	233.4	159.8	172.4	120.7	51.2	0.0	1438.6
1999	0.0	0.0	120.2	165.6	96.2	187.0	203.1	169.8	162.6	118.1	52.5	0.0	1275.0
2000	0.0	5.2	147.5	177.7	181.3	197.0	183.3	142.2	66.5	102.9	53.0	0.0	1256.3
2001	0.0	0.0	75.9	141.4	175.7	204.0	204.4	216.9	121.7	98.7	56.9	0.0	1295.5
2002	0.0	0.0	73.1	32.6	23.0	72.1	82.5	0.0	0.0	0.0	5.0	0.0	288.4
2003	0.0	0.0	40.0	15.2	107.1	204.1	107.9	33.3	17.6	0.0	27.9	0.0	553.1
2004	0.0	0.0	20.1	133.1	195.0	179.7	161.6	149.6	39.2	69.4	83.1	0.0	1030.8
2005	0.0	0.0	76.0	197.2	202.0	203.1	170.0	179.8	49.0	101.6	59.4	0.0	1238.2
2006	0.0	0.0	57.4	48.0	139.8	203.6	176.1	168.9	124.5	128.3	43.7	0.0	1090.3
2007	0.0	0.0	66.6	171.8	177.9	172.8	194.9	194.2	157.5	151.7	68.4	0.0	1355.7
2008	0.0	0.0	112.7	224.8	193.6	236.9	217.8	176.1	148.3	132.5	56.9	0.0	1499.7
2009	0.0	0.0	94.7	199.6	198.3	187.8	204.4	165.4	120.6	127.2	42.7	0.0	1340.7
2010	0.0	0.0	58.1	159.3	197.1	210.3	184.6	176.8	38.8	91.0	79.7	0.0	1195.7
2011	0.0	0.0	73.2	55.7	138.7	236.1	216.0	140.6	93.3	102.4	60.7	0.0	1116.7
2012	0.0	0.0	51.6	78.9	141.2	91.1	77.3	19.8	0.0	0.0	0.0	0.0	459.9
2013	0.0	0.0	12.7	3.6	125.3	195.9	106.3	141.0	120.1	174.6	0.0	0.0	879.3
Average	0.0	0.9	83.1	149.2	162.5	198.0	190.4	165.1	112.9	105.1	46.0	0.0	1213.3
Minimum	0.0	0.0	12.7	3.6	23.0	72.1	77.3	0.0	0.0	0.0	0.0	0.0	288.4
Maximum	0.0	20.6	181.5	226.8	222.8	250.8	266.9	274.0	203.7	174.6	83.1	0.0	1668.6
Limit	0.0	9.2	160.2	225.6	212.5	243.8	254.9	235.5	179.6	164.5	77.3	0.0	1612.9

Table 5 - Farm Crop Acreages and Crop Distributions

Farm Name or Designation: Diamond A East-01

For Summary Period Farm Acres: 276.5967 acres, Crop Distribution:

Notes: Provide information on source of crop data. HI Model Crop Distribution for Otero County (unitized)

Year	Flood	Sprinkler	Drip	Alfalfa	Grass	Corn_Grn	Corn_Sil	Spr_Grn	Sorghum	Win_Wht	Vegetable	Beans	Beets
(Cal)	(Acres)	(Acres)	(Acres)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	286.1	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1985	285.4	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1986	284.6	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1987	283.8	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1988	283.1	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1989	282.3	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1990	281.5	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1991	280.7	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1992	280.0	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1993	279.2	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1994	278.5	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1995	277.9	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1996	277.2	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1997	276.6	0.0	0.0	39.10%	7.20%	35.00%	2.90%	1.30%	0.70%	7.20%	5.20%	1.40%	0.00%
1998	275.9	0.0	0.0	36.14%	5.61%	35.64%	1.50%	2.20%	0.60%	11.21%	5.41%	1.70%	0.00%
1999	275.3	0.0	0.0	35.80%	3.60%	36.40%	3.60%	1.30%	0.00%	11.80%	5.30%	2.20%	0.00%
2000	274.6	0.0	0.0	34.07%	3.30%	34.57%	4.60%	1.10%	2.70%	12.79%	5.29%	1.60%	0.00%
2001	273.9	0.0	0.0	42.16%	5.19%	29.87%	1.50%	1.90%	3.90%	8.79%	5.39%	1.30%	0.00%
2002	273.3	0.0	0.0	52.25%	3.00%	19.52%	9.61%	1.00%	2.00%	5.01%	5.81%	1.80%	0.00%
2003	272.6	0.0	0.0	68.33%	12.09%	0.80%	0.00%	0.00%	2.70%	7.49%	7.79%	0.80%	0.00%
2004	272.0	0.0	0.0	76.98%	0.00%	5.11%	0.00%	0.00%	0.60%	8.01%	9.31%	0.00%	0.00%
2005	271.3	0.0	0.0	53.70%	15.00%	15.50%	1.30%	0.00%	0.20%	8.60%	4.20%	1.50%	0.00%
2006	271.4	0.0	0.0	63.00%	20.80%	5.10%	1.20%	0.00%	0.00%	4.60%	4.80%	0.50%	0.00%
2007	271.4	0.0	0.0	50.80%	16.00%	18.10%	0.90%	0.00%	2.30%	7.80%	3.60%	0.50%	0.00%
2008	271.5	0.0	0.0	45.00%	15.60%	21.70%	0.60%	0.00%	1.70%	11.50%	3.50%	0.40%	0.00%
2009	271.5	0.0	0.0	44.70%	14.90%	20.30%	0.40%	0.00%	1.60%	14.20%	3.40%	0.50%	0.00%
2010	271.6	0.0	0.0	41.70%	15.00%	24.10%	0.50%	0.00%	1.60%	13.20%	3.30%	0.60%	0.00%
2011	271.6	0.0	0.0	48.97%	12.70%	19.48%	6.08%	0.76%	5.72%	3.97%	2.24%	0.09%	0.00%
2012	271.6	0.0	0.0	55.20%	18.71%	8.83%	3.75%	1.96%	6.08%	3.61%	1.86%	0.00%	0.00%
2013	271.6	0.0	0.0	66.29%	9.32%	1.41%	0.72%	0.00%	12.51%	6.35%	3.26%	0.14%	0.00%
Average	276.6	0.0	0.0	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Minimum	271.3	0.0	0.0	34.07%	0.00%	0.80%	0.00%	0.00%	0.00%	3.61%	1.86%	0.00%	0.00%
Maximum	286.1	0.0	0.0	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%

Table 6 - Farm Crop Potential Evapotranspiration

Farm Name or Designation: Diamond A East-01

For Summary Period Farm Acres: 276.5967 acres, PET:

Notes: Provide information on PET calculation method and climate stations. RECALCULATED - MBC TR21 PET (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167 and Crop Distribution from User Supplied Table (unitized)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	20.5	96.7	149.3	183.1	154.1	71.4	7.7	1.0	0.0	683.7
1985	0.0	0.0	5.7	49.3	101.3	155.7	177.7	144.8	52.2	8.8	0.2	0.0	695.6
1986	0.0	0.0	16.6	53.6	95.6	159.2	174.8	133.0	51.8	18.9	1.0	0.0	704.6
1987	0.0	0.0	1.5	42.9	97.9	160.3	186.4	138.9	56.8	18.5	1.0	0.0	704.1
1988	0.0	0.0	2.0	32.3	93.3	163.1	179.0	152.2	69.4	30.1	2.2	0.0	723.6
1989	0.0	0.0	11.4	51.2	107.1	143.1	178.2	137.8	52.7	24.6	1.6	0.0	707.7
1990	0.0	0.0	3.3	42.2	84.6	170.2	166.0	138.5	72.2	25.2	2.9	0.0	705.1
1991	0.0	0.0	4.9	41.5	106.3	163.4	169.1	143.8	63.3	28.8	0.0	0.0	721.1
1992	0.0	0.0	10.1	55.2	105.9	138.3	163.5	121.4	57.2	16.9	0.0	0.0	668.4
1993	0.0	0.0	3.0	39.0	90.2	147.5	181.2	138.2	59.5	27.0	0.0	0.0	685.8
1994	0.0	0.0	7.6	44.4	102.2	176.0	173.3	150.0	62.9	27.8	1.4	0.0	745.4
1995	0.0	0.0	3.5	20.8	74.3	126.0	162.2	164.7	82.5	19.7	2.0	0.0	655.5
1996	0.0	0.0	2.4	50.8	119.8	163.1	175.2	139.1	56.0	25.8	1.5	0.0	733.6
1997	0.0	0.0	5.5	21.2	90.8	144.5	181.7	144.6	82.4	25.5	0.2	0.0	696.3
1998	0.0	0.0	2.3	35.3	105.3	144.1	181.1	135.1	70.4	25.4	3.4	0.0	702.5
1999	0.0	0.0	0.0	4.5	83.0	136.6	180.5	148.5	77.9	8.4	4.8	0.0	644.3
2000	0.0	0.0	11.9	51.8	104.5	155.3	173.9	139.3	49.4	30.0	1.7	0.0	718.0
2001	0.0	0.0	4.6	54.0	96.8	165.8	193.0	141.1	57.6	14.5	2.7	0.0	730.0
2002	0.0	0.0	1.4	59.1	106.7	179.0	197.9	151.1	62.4	16.9	0.2	0.0	774.7
2003	0.0	0.0	12.4	71.1	119.2	148.5	201.4	155.0	83.5	35.4	1.4	0.0	827.9
2004	0.0	0.0	25.6	59.4	126.4	149.5	165.3	129.6	87.4	21.1	0.4	0.0	764.6
2005	0.0	0.0	2.3	43.3	100.1	148.1	172.8	147.9	92.9	41.0	4.5	0.0	752.9
2006	0.0	0.0	12.0	73.6	123.0	181.2	191.3	150.5	72.9	34.0	2.6	0.0	841.1
2007	0.0	0.0	14.8	47.4	103.4	149.7	177.1	164.2	89.4	37.1	3.6	0.0	786.8
2008	0.0	0.0	7.5	44.7	101.9	156.2	180.7	140.7	75.9	37.0	4.3	0.0	748.8
2009	0.0	0.0	10.0	56.5	108.6	143.1	155.0	125.3	65.3	13.4	0.0	0.0	677.3
2010	0.0	0.0	5.6	52.2	95.2	159.8	168.2	140.1	77.0	39.1	2.8	0.0	740.0
2011	0.0	0.0	8.7	49.6	89.6	167.6	196.3	167.5	68.3	25.7	1.2	0.0	774.5
2012	0.0	0.0	25.4	66.8	114.0	188.5	193.7	144.5	77.1	19.3	2.4	0.0	831.6
2013	0.0	0.0	1.5	31.5	105.8	172.8	174.8	153.3	100.5	15.5	0.5	0.0	756.3
Average	0.0	0.0	7.5	45.5	101.6	156.8	178.5	144.5	69.9	24.0	1.7	0.0	730.1
Minimum	0.0	0.0	0.0	4.5	74.3	126.0	155.0	121.4	49.4	7.7	0.0	0.0	644.3
Maximum	0.0	0.0	25.6	73.6	126.4	188.5	201.4	167.5	100.5	41.0	4.8	0.0	841.1

Table 7 - Farm Precipitation

Farm Name or Designation: Diamond A East-01

Climate Station:

Notes: Provide information source of climate data and climate stations used. Precipitation (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	3.1	16.0	42.2	30.5	29.1	5.7	66.8	43.9	13.1	35.3	2.9	7.9	296.4
1985	20.2	7.4	15.5	54.7	69.4	14.3	49.5	10.7	13.3	28.3	18.5	5.7	307.5
1986	2.6	2.4	4.5	15.7	9.7	55.7	84.0	35.3	47.0	33.4	14.7	1.7	306.6
1987	4.0	24.8	12.1	9.2	86.8	51.6	19.4	28.1	13.5	2.4	8.3	13.2	273.4
1988	6.8	12.3	21.7	30.7	50.0	34.0	31.4	8.0	18.2	0.5	0.5	8.3	222.2
1989	3.1	6.1	7.8	13.4	36.7	44.7	21.4	44.5	38.8	4.2	1.2	4.7	226.5
1990	18.8	18.5	22.5	6.6	85.4	8.9	115.4	28.6	55.6	25.3	25.1	9.1	419.9
1991	9.8	2.3	33.9	18.7	16.6	33.7	48.9	21.3	28.1	17.1	28.1	13.8	272.3
1992	6.5	7.2	18.7	9.6	27.8	89.6	42.9	41.8	0.0	16.1	22.6	5.4	288.1
1993	3.3	17.7	34.7	37.5	34.7	10.0	36.3	36.3	7.9	18.8	27.5	0.5	265.0
1994	7.0	0.7	19.7	32.7	57.8	12.1	18.8	59.4	20.2	18.1	16.2	2.8	265.5
1995	2.1	3.9	23.2	43.8	93.1	66.5	34.7	9.5	15.7	0.0	0.0	0.2	292.7
1996	2.1	3.9	26.6	9.7	62.6	32.1	65.8	35.3	49.4	8.3	3.5	9.5	308.9
1997	9.0	13.4	6.2	41.0	5.8	58.5	42.2	118.5	31.3	49.1	18.2	27.0	420.2
1998	2.1	8.5	21.4	12.6	37.9	8.3	84.4	74.5	6.0	51.7	24.1	5.3	336.8
1999	4.6	0.5	27.3	106.2	49.5	22.2	155.7	64.0	11.5	12.4	3.7	0.9	458.5
2000	7.6	4.3	47.8	18.8	18.3	13.7	28.6	30.9	17.6	25.9	2.5	3.9	219.9
2001	15.8	5.9	7.8	20.8	86.1	50.4	43.6	6.2	11.9	0.5	15.5	9.6	273.9
2002	7.3	3.2	2.0	3.2	2.0	17.8	1.4	11.2	14.6	8.2	1.8	10.7	83.3
2003	0.0	11.4	20.2	52.7	28.2	51.8	11.6	12.3	10.2	2.3	4.5	5.0	210.1
2004	7.9	8.6	2.3	88.8	1.6	59.8	79.1	111.0	14.5	7.3	19.0	1.8	401.8
2005	9.9	5.4	35.3	19.2	11.1	24.0	10.4	49.1	31.4	46.1	0.9	5.7	248.5
2006	13.8	0.0	20.6	7.0	34.6	6.3	73.5	93.4	45.0	52.0	3.4	37.3	386.9
2007	7.9	2.9	2.5	50.0	33.5	74.0	8.8	47.0	19.2	10.9	0.9	9.3	266.9
2008	5.0	10.2	10.4	19.7	13.8	17.4	16.1	111.1	1.1	38.7	5.0	3.8	252.3
2009	0.0	3.2	18.8	15.4	28.7	36.9	61.8	19.7	14.3	76.9	8.6	4.3	288.5
2010	9.5	14.9	43.7	28.1	27.6	45.7	89.9	53.6	4.5	0.9	2.0	6.6	327.1
2011	2.7	5.4	10.9	7.9	18.1	38.0	37.3	24.0	13.4	7.0	17.0	34.9	216.6
2012	0.5	2.0	2.7	28.7	15.6	2.9	24.9	1.6	19.9	4.3	0.2	2.0	105.5
2013	1.4	2.0	8.4	14.9	4.5	20.4	12.7	32.8	21.5	8.4	6.1	2.0	135.1
Average	6.5	7.5	19.0	28.3	35.9	33.6	47.2	42.1	20.3	20.3	10.1	8.4	279.2
Minimum	0.0	0.0	2.0	3.2	1.6	2.9	1.4	1.6	0.0	0.0	0.0	0.2	83.3
Maximum	20.2	24.8	47.8	106.2	93.1	89.6	155.7	118.5	55.6	76.9	28.1	37.3	458.5

Table 8 - Farm Effective Precipitation

Farm Name or Designation: Diamond A East-01

Method Used: USBR with HI model coefficients

Notes: USBR Methodology Used as Implemented in HI Model.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	2.9	15.2	39.2	28.7	27.4	5.4	59.8	40.7	12.5	33.0	2.7	7.5	274.9
1985	19.2	7.0	14.7	49.9	62.0	13.6	45.6	10.2	12.7	26.7	17.6	5.4	284.4
1986	2.5	2.3	4.3	14.9	9.2	50.7	71.8	33.0	43.4	31.3	14.0	1.6	278.9
1987	3.8	23.5	11.5	8.8	73.6	47.3	18.4	26.5	12.8	2.2	7.9	12.6	248.9
1988	6.5	11.7	20.6	28.8	46.0	31.7	29.4	7.6	17.3	0.4	0.4	7.8	208.3
1989	2.9	5.8	7.4	12.7	34.2	41.4	20.3	41.2	36.1	4.0	1.1	4.5	211.7
1990	17.8	17.6	21.4	6.2	72.5	8.5	87.7	26.9	50.6	24.0	23.8	8.7	365.7
1991	9.3	2.2	31.7	17.8	15.8	31.5	45.0	20.2	26.4	16.2	26.4	13.1	255.8
1992	6.2	6.9	17.7	9.1	26.2	75.1	39.8	38.8	0.0	15.3	21.5	5.1	261.6
1993	3.1	16.8	32.4	34.9	32.4	9.5	33.8	33.8	7.5	17.9	25.9	0.4	248.4
1994	6.6	0.7	18.7	30.6	52.3	11.5	17.9	53.7	19.2	17.2	15.4	2.6	246.4
1995	2.0	3.7	22.0	40.5	77.2	59.5	32.4	9.0	15.0	0.0	0.0	0.2	261.6
1996	2.0	3.7	25.1	9.2	56.3	30.1	58.9	33.0	45.4	7.9	3.3	9.0	283.8
1997	8.5	12.7	5.9	38.1	5.5	52.9	39.1	87.8	29.4	45.1	17.3	25.4	367.7
1998	2.0	8.1	20.3	12.0	35.3	7.9	71.5	65.1	5.7	47.3	22.9	5.0	303.0
1999	4.4	0.4	25.7	82.8	45.5	21.1	93.2	57.4	10.9	11.8	3.5	0.9	357.5
2000	7.2	4.1	44.0	17.8	17.4	13.0	26.9	28.9	16.7	24.4	2.4	3.7	206.7
2001	15.0	5.6	7.4	19.7	72.5	46.2	40.4	5.9	11.3	0.4	14.7	9.1	248.2
2002	6.9	3.0	1.9	3.0	1.9	16.9	1.3	10.6	13.8	7.8	1.7	10.2	79.2
2003	0.0	10.8	19.2	48.0	26.5	47.3	11.0	11.7	9.7	2.2	4.3	4.7	195.4
2004	7.5	8.2	2.2	74.2	1.5	53.9	67.8	84.5	13.8	6.9	18.1	1.7	340.3
2005	9.5	5.2	32.9	18.3	10.5	22.7	9.9	45.0	29.4	42.6	0.9	5.4	232.0
2006	13.1	0.0	19.5	6.7	32.3	6.0	64.2	76.5	41.6	47.4	3.2	34.7	345.3
2007	7.5	2.8	2.4	45.8	31.3	64.5	8.4	43.3	18.3	10.3	0.9	8.8	244.1
2008	4.7	9.7	9.9	18.7	13.1	16.5	15.3	84.5	1.1	35.9	4.7	3.7	217.8
2009	0.0	3.0	17.8	14.6	27.0	34.3	55.5	18.7	13.5	66.4	8.2	4.1	263.2
2010	9.0	14.2	40.4	26.4	26.0	42.2	74.8	48.8	4.3	0.9	1.9	6.2	295.2
2011	2.6	5.2	10.3	7.5	17.2	35.4	34.7	22.7	12.7	6.7	16.1	32.5	203.6
2012	0.4	1.9	2.6	27.0	14.8	2.8	23.5	1.5	18.9	4.1	0.2	1.9	99.8
2013	1.3	1.9	8.0	14.2	4.3	19.4	12.0	30.7	20.4	8.0	5.8	1.9	127.9
Average	6.1	7.1	17.9	25.6	32.3	30.6	40.4	36.6	19.0	18.8	9.6	8.0	251.9
Minimum	0.0	0.0	1.9	3.0	1.5	2.8	1.3	1.5	0.0	0.0	0.0	0.2	79.2
Maximum	19.2	23.5	44.0	82.8	77.2	75.1	93.2	87.8	50.6	66.4	26.4	34.7	367.7

Table 9 - Farm Irrigation Water Requirement

Farm Name or Designation: Diamond A East-01

Crop PET less effective precipitation

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	69.4	143.8	123.3	113.4	58.9	0.0	0.0	0.0	508.8
1985	0.0	0.0	0.0	0.0	39.2	142.1	132.2	134.6	39.6	0.0	0.0	0.0	487.6
1986	0.0	0.0	12.3	38.7	86.4	108.5	103.0	100.0	8.4	0.0	0.0	0.0	457.3
1987	0.0	0.0	0.0	34.1	24.3	113.0	168.0	112.3	44.0	16.2	0.0	0.0	512.0
1988	0.0	0.0	0.0	3.6	47.4	131.3	149.5	144.6	52.1	29.7	1.8	0.0	560.0
1989	0.0	0.0	4.0	38.5	72.9	101.7	157.8	96.6	16.6	20.6	0.5	0.0	509.2
1990	0.0	0.0	0.0	36.0	12.1	161.7	78.3	111.6	21.6	1.2	0.0	0.0	422.5
1991	0.0	0.0	0.0	23.7	90.5	131.9	124.1	123.6	36.8	12.6	0.0	0.0	543.2
1992	0.0	0.0	0.0	46.1	79.7	63.1	123.7	82.7	57.2	1.6	0.0	0.0	454.1
1993	0.0	0.0	0.0	4.1	57.9	138.0	147.4	104.4	52.0	9.1	0.0	0.0	512.9
1994	0.0	0.0	0.0	13.8	49.9	164.5	155.4	96.3	43.7	10.6	0.0	0.0	534.2
1995	0.0	0.0	0.0	0.0	0.0	66.5	129.8	155.6	67.5	19.7	2.0	0.0	441.1
1996	0.0	0.0	0.0	41.6	63.5	133.0	116.3	106.1	10.6	17.9	0.0	0.0	489.0
1997	0.0	0.0	0.0	0.0	85.3	91.6	142.6	56.8	53.0	0.0	0.0	0.0	429.3
1998	0.0	0.0	0.0	23.3	70.0	136.3	109.6	70.0	64.8	0.0	0.0	0.0	473.9
1999	0.0	0.0	0.0	0.0	37.5	115.4	87.3	91.1	67.0	0.0	1.4	0.0	399.8
2000	0.0	0.0	0.0	34.0	87.1	142.3	147.1	110.4	32.7	5.6	0.0	0.0	559.1
2001	0.0	0.0	0.0	34.3	24.3	119.6	152.6	135.2	46.3	14.1	0.0	0.0	526.3
2002	0.0	0.0	0.0	56.0	104.7	162.1	196.6	140.5	48.6	9.1	0.0	0.0	717.7
2003	0.0	0.0	0.0	23.0	92.7	101.3	190.4	143.3	73.7	33.3	0.0	0.0	657.7
2004	0.0	0.0	23.5	0.0	124.9	95.6	97.4	45.1	73.6	14.2	0.0	0.0	474.3
2005	0.0	0.0	0.0	25.0	89.6	125.4	162.9	102.9	63.5	0.0	3.7	0.0	573.0
2006	0.0	0.0	0.0	66.9	90.7	175.2	127.2	74.0	31.3	0.0	0.0	0.0	565.3
2007	0.0	0.0	12.4	1.7	72.2	85.3	168.7	120.9	71.1	26.8	2.7	0.0	561.8
2008	0.0	0.0	0.0	26.0	88.8	139.6	165.4	56.2	74.8	1.0	0.0	0.0	551.9
2009	0.0	0.0	0.0	41.9	81.6	108.8	99.5	106.6	51.8	0.0	0.0	0.0	490.2
2010	0.0	0.0	0.0	25.8	69.2	117.5	93.4	91.3	72.7	38.3	0.9	0.0	509.1
2011	0.0	0.0	0.0	42.1	72.4	132.3	161.6	144.8	55.6	19.1	0.0	0.0	627.7
2012	0.0	0.0	22.8	39.8	99.1	185.7	170.1	143.0	58.1	15.2	2.2	0.0	736.1
2013	0.0	0.0	0.0	17.3	101.5	153.5	162.8	122.6	80.1	7.6	0.0	0.0	645.3
Average	0.0	0.0	2.5	24.6	69.5	126.2	138.1	107.9	50.9	10.8	0.5	0.0	531.0
Minimum	0.0	0.0	0.0	0.0	0.0	63.1	78.3	45.1	8.4	0.0	0.0	0.0	399.8
Maximum	0.0	0.0	23.5	66.9	124.9	185.7	196.6	155.6	80.1	38.3	3.7	0.0	736.1

Table 10 - Farm Headgate Delivery Available to Meet Crop Irrigation Requirement

Farm Name or Designation: Diamond A East-01

For Summary Period, Average Application Efficiency: 55%, Maximum Application Efficiency: 55%

Notes: Does not include excess effective precipitation. Provide information source of efficiency data.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	31.3	67.4	95.4	129.7	136.4	107.8	75.7	44.5	21.1	0.0	709.4
1985	0.0	0.0	45.5	94.7	63.4	117.8	124.3	113.0	83.3	63.6	23.8	0.0	729.5
1986	0.0	0.9	83.4	103.4	115.3	95.9	113.1	104.6	66.0	60.0	20.0	0.0	762.6
1987	0.0	0.0	51.5	89.1	86.7	115.7	114.6	97.0	72.2	65.6	36.3	0.0	728.6
1988	0.0	0.0	38.9	74.2	77.0	116.8	87.8	94.0	71.6	67.1	32.8	0.0	660.3
1989	0.0	0.0	60.2	103.1	85.7	108.3	98.3	113.7	56.8	38.3	27.2	0.0	691.5
1990	0.0	0.0	25.9	98.7	76.8	110.7	102.2	99.0	51.2	58.7	24.8	0.0	647.9
1991	0.0	0.0	49.2	59.6	67.4	118.5	110.0	115.2	66.8	61.7	0.0	0.0	648.3
1992	0.0	0.0	46.1	123.8	108.6	90.1	107.0	104.6	85.8	69.0	29.4	0.0	764.3
1993	0.0	0.0	29.1	88.4	111.0	125.5	115.6	118.5	88.7	67.8	29.5	0.0	774.1
1994	0.0	0.0	64.4	118.0	98.3	137.9	123.9	101.5	83.4	74.4	31.4	0.0	833.2
1995	0.0	0.0	67.8	124.8	95.4	95.0	137.4	150.7	112.1	89.1	38.1	0.0	910.4
1996	0.0	11.3	99.8	122.8	112.8	134.0	126.8	105.9	81.5	86.2	36.6	0.0	917.7
1997	0.0	0.0	55.5	92.1	104.3	115.4	146.8	70.4	80.8	53.3	0.0	0.0	718.7
1998	0.0	0.0	28.9	108.9	122.6	125.2	128.4	87.9	94.8	66.4	28.2	0.0	791.2
1999	0.0	0.0	66.1	91.1	52.9	102.8	111.7	93.4	89.4	65.0	28.8	0.0	701.2
2000	0.0	2.9	81.1	97.7	99.7	108.3	100.8	78.2	36.6	56.6	29.1	0.0	691.0
2001	0.0	0.0	41.8	77.8	96.6	112.2	112.4	119.3	66.9	54.3	31.3	0.0	712.5
2002	0.0	0.0	40.2	17.9	12.7	39.7	45.4	0.0	0.0	0.0	2.8	0.0	158.6
2003	0.0	0.0	22.0	8.4	58.9	112.3	59.4	18.3	9.7	0.0	15.3	0.0	304.2
2004	0.0	0.0	11.1	73.2	107.3	98.8	88.9	82.3	21.6	38.2	45.7	0.0	566.9
2005	0.0	0.0	41.8	108.5	111.1	111.7	93.5	98.9	26.9	55.9	32.7	0.0	681.0
2006	0.0	0.0	31.6	26.4	76.9	112.0	96.9	92.9	68.5	70.6	24.0	0.0	599.7
2007	0.0	0.0	36.6	94.5	97.9	95.0	107.2	106.8	86.6	83.4	37.6	0.0	745.6
2008	0.0	0.0	62.0	123.7	106.5	130.3	119.8	96.8	81.6	72.9	31.3	0.0	824.8
2009	0.0	0.0	52.1	109.8	109.1	103.3	112.4	91.0	66.3	70.0	23.5	0.0	737.4
2010	0.0	0.0	31.9	87.6	108.4	115.7	101.6	97.2	21.4	50.0	43.9	0.0	657.7
2011	0.0	0.0	40.3	30.6	76.3	129.9	118.8	77.3	51.3	56.3	33.4	0.0	614.2
2012	0.0	0.0	28.4	43.4	77.7	50.1	42.5	10.9	0.0	0.0	0.0	0.0	252.9
2013	0.0	0.0	7.0	2.0	68.9	107.7	58.5	77.5	66.0	96.0	0.0	0.0	483.6
Average	0.0	0.5	45.7	82.1	89.4	108.9	104.7	90.8	62.1	57.8	25.3	0.0	667.3
Minimum	0.0	0.0	7.0	2.0	12.7	39.7	42.5	0.0	0.0	0.0	0.0	0.0	158.6
Maximum	0.0	11.3	99.8	124.8	122.6	137.9	146.8	150.7	112.1	96.0	45.7	0.0	917.7

Table 11 - Soil Moisture Filled (+) or Used (-)

Farm Name or Designation: Diamond A East-01

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	2.9	15.2	23.4	0.0	0.0	-14.1	13.1	-5.6	6.6	0.0	0.0	0.0	41.5
1985	0.0	0.0	0.0	0.0	0.0	-24.3	-7.9	-21.6	43.8	9.9	0.0	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	-12.6	10.1	2.5	0.0	0.0	0.0	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	-53.3	-13.8	28.2	39.0	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	-14.6	-58.6	-29.8	19.5	37.5	31.0	7.8	-7.2
1989	2.9	4.2	0.0	0.0	0.0	0.0	-59.1	17.0	40.2	1.9	0.0	0.0	7.1
1990	0.0	0.0	0.0	0.0	0.0	-51.0	23.9	-12.6	29.6	10.2	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	-23.1	-13.5	-14.2	-8.0	29.9	28.8	0.0	0.0	0.0
1992	0.0	0.0	0.0	0.0	0.0	0.0	-16.7	16.7	0.0	0.0	0.0	0.0	0.0
1993	0.0	0.0	0.0	0.0	0.0	-12.5	-31.8	14.1	30.2	0.0	0.0	0.0	0.0
1994	0.0	0.0	0.0	0.0	0.0	-26.5	-31.2	5.2	39.7	12.9	0.0	0.0	0.0
1995	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.9	4.9	0.0	0.0	0.0	0.0
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	0.3	0.0	0.0	0.0	0.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	0.0	0.0	0.0	-11.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0
1999	0.0	0.0	0.0	0.0	0.0	-12.6	12.6	0.0	0.0	0.0	0.0	0.0	0.0
2000	0.0	0.0	0.0	0.0	0.0	-34.0	-41.7	-19.1	3.9	50.9	29.8	3.7	-6.4
2001	6.4	0.0	0.0	0.0	0.0	-7.4	-40.2	-14.9	20.6	40.2	1.6	0.0	6.4
2002	0.0	0.0	0.0	-38.1	-66.4	-26.4	-5.2	-0.4	0.0	0.0	4.3	10.2	-122.2
2003	0.0	10.8	28.8	-8.4	-14.8	11.0	-35.9	-5.0	-0.5	-0.1	18.2	4.7	8.9
2004	7.5	8.2	-5.2	88.0	-17.6	3.2	-8.6	37.2	-52.0	24.0	28.0	0.0	112.7
2005	0.0	0.0	0.0	0.0	0.0	-13.7	-63.8	-2.6	-19.3	57.4	29.0	5.4	-7.6
2006	7.6	0.0	0.0	-40.5	-13.6	-43.5	-11.3	18.9	37.1	52.9	0.0	0.0	7.6
2007	0.0	0.0	0.0	0.0	0.0	0.0	-60.7	-11.3	15.5	56.4	0.0	0.0	0.0
2008	0.0	0.0	0.0	0.0	0.0	-9.3	-45.4	40.6	6.7	7.4	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	-5.5	5.5	-15.7	14.6	1.1	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	-1.9	1.9	0.0	-51.3	11.7	39.5	0.0	0.0
2011	0.0	0.0	0.0	-11.5	3.9	-2.4	-42.7	-46.5	-1.7	37.2	48.3	15.3	0.0
2012	0.0	0.0	0.0	0.0	-21.5	-94.1	-17.1	-2.7	-0.2	0.0	0.0	1.9	-133.7
2013	1.3	1.9	13.4	-3.0	-5.0	-4.5	-4.7	-0.6	-0.1	88.4	5.3	1.9	94.3
Average	1.0	1.3	2.0	-0.5	-5.3	-14.0	-19.1	-2.1	8.2	18.9	7.8	1.7	0.1
Minimum	0.0	0.0	-5.2	-40.5	-66.4	-94.1	-63.8	-46.5	-52.0	-0.1	0.0	0.0	-133.7
Maximum	7.6	15.2	28.8	88.0	3.9	11.0	23.9	40.6	43.8	88.4	48.3	15.3	112.7

Table 12 - Soil Moisture Storage

Farm Name or Designation: Diamond A East-01

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MaxSM
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	104.5	119.7	143.1	143.1	143.1	129.0	142.1	136.5	143.1	143.1	143.1	143.1	143.1
1985	142.7	142.7	142.7	142.7	142.7	118.4	110.6	89.0	132.8	142.7	142.7	142.7	142.7
1986	142.3	142.3	142.3	142.3	142.3	129.7	139.8	142.3	142.3	142.3	142.3	142.3	142.3
1987	141.9	141.9	141.9	141.9	141.9	141.9	88.6	74.7	102.9	141.9	141.9	141.9	141.9
1988	141.5	141.5	141.5	141.5	141.5	126.9	68.3	38.5	58.0	95.5	126.5	134.4	141.5
1989	136.9	141.1	141.1	141.1	141.1	141.1	82.0	99.1	139.3	141.1	141.1	141.1	141.1
1990	140.8	140.8	140.8	140.8	140.8	89.8	113.6	101.0	130.6	140.8	140.8	140.8	140.8
1991	140.4	140.4	140.4	140.4	117.3	103.8	89.6	81.7	111.6	140.4	140.4	140.4	140.4
1992	140.0	140.0	140.0	140.0	140.0	140.0	123.3	140.0	140.0	140.0	140.0	140.0	140.0
1993	139.6	139.6	139.6	139.6	139.6	127.1	95.3	109.4	139.6	139.6	139.6	139.6	139.6
1994	139.3	139.3	139.3	139.3	139.3	112.7	81.5	86.7	126.4	139.3	139.3	139.3	139.3
1995	138.9	138.9	138.9	138.9	138.9	138.9	138.9	134.0	138.9	138.9	138.9	138.9	138.9
1996	138.6	138.6	138.6	138.6	138.6	138.6	138.6	138.3	138.6	138.6	138.6	138.6	138.6
1997	138.3	138.3	138.3	138.3	138.3	138.3	138.3	138.3	138.3	138.3	138.3	138.3	138.3
1998	138.0	138.0	138.0	138.0	138.0	126.9	138.0	138.0	138.0	138.0	138.0	138.0	138.0
1999	137.6	137.6	137.6	137.6	137.6	125.1	137.6	137.6	137.6	137.6	137.6	137.6	137.6
2000	137.3	137.3	137.3	137.3	137.3	103.3	61.7	42.6	46.4	97.4	127.2	130.9	137.3
2001	137.0	137.0	137.0	137.0	137.0	129.6	89.4	74.5	95.1	135.3	137.0	137.0	137.0
2002	136.6	136.6	136.6	98.5	32.1	5.7	0.4	0.0	0.0	0.0	4.3	14.5	136.6
2003	14.4	25.2	54.0	45.6	30.8	41.8	5.9	1.0	0.5	0.3	18.5	23.3	136.3
2004	30.8	38.9	33.8	121.8	104.1	107.4	98.8	136.0	84.0	108.0	136.0	136.0	136.0
2005	135.7	135.7	135.7	135.7	135.7	122.0	58.2	55.5	36.2	93.7	122.7	128.0	135.7
2006	135.7	135.7	135.7	95.2	81.6	38.0	26.7	45.6	82.7	135.7	135.7	135.7	135.7
2007	135.7	135.7	135.7	135.7	135.7	135.7	75.0	63.8	79.3	135.7	135.7	135.7	135.7
2008	135.7	135.7	135.7	135.7	135.7	126.4	81.0	121.6	128.3	135.7	135.7	135.7	135.7
2009	135.8	135.8	135.8	135.8	135.8	130.3	135.8	120.1	134.7	135.8	135.8	135.8	135.8
2010	135.8	135.8	135.8	135.8	135.8	133.9	135.8	135.8	84.5	96.3	135.8	135.8	135.8
2011	135.8	135.8	135.8	124.3	128.3	125.9	83.2	36.7	34.9	72.2	120.5	135.8	135.8
2012	135.8	135.8	135.8	135.8	114.3	20.2	3.1	0.4	0.2	0.2	0.2	2.1	135.8
2013	3.4	5.3	18.8	15.7	10.8	6.3	1.6	0.9	0.8	89.2	94.5	96.4	135.8
Average	124.9	126.2	128.2	127.8	122.5	108.5	89.4	87.3	95.5	114.4	122.3	124.0	138.3
Minimum	3.4	5.3	18.8	15.7	10.8	5.7	0.4	0.0	0.0	0.0	0.2	2.1	135.7
Maximum	142.7	142.7	143.1	143.1	143.1	141.9	142.1	142.3	143.1	143.1	143.1	143.1	143.1

Table 13 - Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture

Farm Name or Designation: Diamond A East-01

Derived from Water Budget Balance. Does not include excess effective precipitation used by crop. Soil moisture limited to: 0.5 feet

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	69.4	143.8	123.3	113.4	58.9	0.0	0.0	0.0	508.8
1985	0.0	0.0	0.0	0.0	39.2	142.1	132.2	134.6	39.6	0.0	0.0	0.0	487.6
1986	0.0	0.0	12.3	38.7	86.4	108.5	103.0	100.0	8.4	0.0	0.0	0.0	457.3
1987	0.0	0.0	0.0	34.1	24.3	113.0	167.9	110.8	44.0	16.2	0.0	0.0	510.4
1988	0.0	0.0	0.0	3.6	47.4	131.3	146.4	123.8	52.1	29.7	1.8	0.0	536.1
1989	0.0	0.0	0.0	38.5	72.9	101.7	157.4	96.6	16.6	20.6	0.5	0.0	504.8
1990	0.0	0.0	0.0	36.0	12.1	161.7	78.3	111.6	21.6	1.2	0.0	0.0	422.5
1991	0.0	0.0	0.0	23.7	90.5	131.9	124.1	123.2	36.8	12.6	0.0	0.0	542.9
1992	0.0	0.0	0.0	46.1	79.7	63.1	123.7	82.7	57.2	1.6	0.0	0.0	454.1
1993	0.0	0.0	0.0	4.1	57.9	138.0	147.4	104.4	52.0	9.1	0.0	0.0	512.9
1994	0.0	0.0	0.0	13.8	49.9	164.5	155.1	96.3	43.7	10.6	0.0	0.0	533.8
1995	0.0	0.0	0.0	0.0	0.0	66.5	129.8	155.6	67.5	19.7	2.0	0.0	441.1
1996	0.0	0.0	0.0	41.6	63.5	133.0	116.3	106.1	10.6	17.9	0.0	0.0	489.0
1997	0.0	0.0	0.0	0.0	85.3	91.6	142.6	56.8	53.0	0.0	0.0	0.0	429.3
1998	0.0	0.0	0.0	23.3	70.0	136.3	109.6	70.0	64.8	0.0	0.0	0.0	473.9
1999	0.0	0.0	0.0	0.0	37.5	115.4	87.3	91.1	67.0	0.0	1.4	0.0	399.8
2000	0.0	0.0	0.0	34.0	87.1	142.3	142.5	97.3	32.7	5.6	0.0	0.0	541.4
2001	0.0	0.0	0.0	34.3	24.3	119.6	152.6	134.2	46.3	14.1	0.0	0.0	525.3
2002	0.0	0.0	0.0	56.0	79.1	66.1	50.6	0.4	0.0	0.0	0.0	0.0	252.3
2003	0.0	0.0	0.0	8.4	58.9	95.2	95.2	23.3	10.2	0.1	0.0	0.0	291.3
2004	0.0	0.0	11.1	0.0	107.3	80.3	97.4	45.1	73.6	14.2	0.0	0.0	428.9
2005	0.0	0.0	0.0	25.0	89.6	125.4	157.3	101.5	46.3	0.0	2.1	0.0	547.2
2006	0.0	0.0	0.0	66.9	90.5	155.5	108.2	74.0	31.3	0.0	0.0	0.0	526.4
2007	0.0	0.0	12.4	1.7	72.2	85.3	167.9	118.1	71.1	26.8	2.7	0.0	558.1
2008	0.0	0.0	0.0	26.0	88.8	139.6	165.2	56.2	74.8	1.0	0.0	0.0	551.7
2009	0.0	0.0	0.0	41.9	81.6	108.8	99.5	106.6	51.8	0.0	0.0	0.0	490.2
2010	0.0	0.0	0.0	25.8	69.2	117.5	93.4	91.3	72.6	38.3	0.9	0.0	509.1
2011	0.0	0.0	0.0	42.1	72.4	132.3	161.5	123.8	53.1	19.1	0.0	0.0	604.2
2012	0.0	0.0	0.0	37.9	99.1	144.2	59.6	13.6	0.2	0.0	0.0	0.0	354.7
2013	0.0	0.0	0.0	2.0	68.9	108.6	63.2	78.2	66.2	7.6	0.0	0.0	394.6
Average	0.0	0.0	1.2	23.5	65.8	118.8	122.0	91.4	44.1	8.9	0.4	0.0	476.0
Minimum	0.0	0.0	0.0	0.0	0.0	63.1	50.6	0.4	0.0	0.0	0.0	0.0	252.3
Maximum	0.0	0.0	12.4	66.9	107.3	164.5	167.9	155.6	74.8	38.3	2.7	0.0	604.2
Limit	0.0	0.0	11.9	56.3	99.0	160.6	167.0	141.5	73.7	31.6	2.3	0.0	571.3

Table 14 - Total Return Flows at Farm

Farm Name or Designation: Diamond A East-01

Derived from Water Budget Balance. Does not include excess effective precipitation that deep percolates.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	25.6	112.4	104.1	106.2	111.6	88.2	72.2	80.9	38.4	0.0	739.5
1985	0.0	0.0	82.7	172.2	76.0	96.4	101.7	92.5	68.2	105.7	43.3	0.0	838.7
1986	0.0	1.7	139.3	149.3	123.2	78.5	92.5	87.6	111.6	109.1	36.4	0.0	929.2
1987	0.0	0.0	93.6	127.9	133.3	97.4	93.8	79.3	59.1	64.0	66.0	0.0	814.4
1988	0.0	0.0	70.7	131.4	92.7	95.5	71.8	76.9	58.6	54.9	26.9	0.0	679.5
1989	0.0	0.0	94.4	148.9	82.8	95.3	80.4	93.0	46.4	47.1	49.0	0.0	737.5
1990	0.0	0.0	47.1	143.4	127.5	90.6	83.6	81.0	41.9	95.3	45.0	0.0	755.5
1991	0.0	0.0	89.4	84.7	55.1	96.9	90.0	94.3	54.6	70.8	0.0	0.0	635.9
1992	0.0	0.0	83.7	179.0	117.6	100.7	87.6	90.9	98.9	123.8	53.4	0.0	935.6
1993	0.0	0.0	53.0	156.5	144.0	102.7	94.6	97.0	79.0	114.2	53.6	0.0	894.6
1994	0.0	0.0	117.1	200.8	128.8	112.9	101.3	83.1	68.3	111.8	57.0	0.0	981.1
1995	0.0	0.0	123.4	226.8	173.5	106.2	120.1	123.3	131.3	142.4	67.3	0.0	1214.3
1996	0.0	20.6	181.5	181.7	141.6	110.7	114.2	86.6	137.2	138.9	66.5	0.0	1179.6
1997	0.0	0.0	101.0	167.5	104.3	118.2	124.3	71.2	93.9	96.9	0.0	0.0	877.3
1998	0.0	0.0	52.5	174.8	152.8	102.5	112.8	89.8	107.6	120.7	51.2	0.0	964.7
1999	0.0	0.0	120.2	165.6	58.6	84.1	103.2	78.7	95.6	118.1	51.1	0.0	875.2
2000	0.0	5.2	147.5	143.7	94.2	88.6	82.5	64.0	29.9	46.3	23.8	0.0	725.7
2001	0.0	0.0	65.2	107.2	151.4	91.8	92.0	97.6	54.8	44.4	55.3	0.0	759.5
2002	0.0	0.0	73.1	14.7	10.4	32.5	37.1	0.0	0.0	0.0	2.3	0.0	170.0
2003	0.0	0.0	18.0	6.8	48.2	91.9	48.6	15.0	7.9	0.0	12.5	0.0	248.9
2004	0.0	0.0	9.1	59.9	87.8	80.9	72.7	67.3	17.7	31.2	55.1	0.0	481.5
2005	0.0	0.0	76.0	172.2	112.4	91.4	76.5	80.9	22.0	45.7	26.7	0.0	703.9
2006	0.0	0.0	44.4	21.6	62.9	91.6	79.2	76.0	56.0	75.4	43.7	0.0	550.9
2007	0.0	0.0	54.2	170.1	105.8	87.5	87.7	87.4	70.9	68.5	65.7	0.0	797.6
2008	0.0	0.0	112.7	198.8	104.9	106.6	98.0	79.2	66.7	124.1	56.9	0.0	948.0
2009	0.0	0.0	94.7	157.7	116.7	84.5	99.4	74.4	54.3	126.1	42.7	0.0	850.5
2010	0.0	0.0	58.1	133.5	127.9	94.6	89.3	85.5	17.5	40.9	39.3	0.0	686.7
2011	0.0	0.0	73.2	25.1	62.4	106.3	97.2	63.3	42.0	46.1	27.3	0.0	542.8
2012	0.0	0.0	23.2	39.2	63.6	41.0	34.8	8.9	0.0	0.0	0.0	0.0	210.6
2013	0.0	0.0	5.7	1.6	56.4	88.2	47.8	63.4	54.0	78.5	0.0	0.0	395.7
Average	0.0	0.9	77.7	125.8	100.7	92.4	87.5	75.9	60.6	77.4	38.5	0.0	737.5
Minimum	0.0	0.0	5.7	1.6	10.4	32.5	34.8	0.0	0.0	0.0	0.0	0.0	170.0
Maximum	0.0	20.6	181.5	226.8	173.5	118.2	124.3	123.3	137.2	142.4	67.3	0.0	1214.3

Table 15 - Tailwater/Surface Runoff Return Flows at Farm

Farm Name or Designation: Diamond A East-01

For Summary Period Tailwater from Water Budget: 16.5% of Total Return Flows, Tailwater Forced to: 20% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	5.1	22.5	20.8	21.2	22.3	17.6	14.4	16.2	7.7	0.0	147.9
1985	0.0	0.0	16.5	34.4	15.2	19.3	20.3	18.5	13.6	21.1	8.7	0.0	167.7
1986	0.0	0.3	27.9	29.9	24.6	15.7	18.5	17.5	22.3	21.8	7.3	0.0	185.8
1987	0.0	0.0	18.7	25.6	26.7	19.5	18.8	15.9	11.8	12.8	13.2	0.0	162.9
1988	0.0	0.0	14.1	26.3	18.5	19.1	14.4	15.4	11.7	11.0	5.4	0.0	135.9
1989	0.0	0.0	18.9	29.8	16.6	19.1	16.1	18.6	9.3	9.4	9.8	0.0	147.5
1990	0.0	0.0	9.4	28.7	25.5	18.1	16.7	16.2	8.4	19.1	9.0	0.0	151.1
1991	0.0	0.0	17.9	16.9	11.0	19.4	18.0	18.9	10.9	14.2	0.0	0.0	127.2
1992	0.0	0.0	16.7	35.8	23.5	20.1	17.5	18.2	19.8	24.8	10.7	0.0	187.1
1993	0.0	0.0	10.6	31.3	28.8	20.5	18.9	19.4	15.8	22.8	10.7	0.0	178.9
1994	0.0	0.0	23.4	40.2	25.8	22.6	20.3	16.6	13.7	22.4	11.4	0.0	196.2
1995	0.0	0.0	24.7	45.4	34.7	21.2	24.0	24.7	26.3	28.5	13.5	0.0	242.9
1996	0.0	4.1	36.3	36.3	28.3	22.1	22.8	17.3	27.4	27.8	13.3	0.0	235.9
1997	0.0	0.0	20.2	33.5	20.9	23.6	24.9	14.2	18.8	19.4	0.0	0.0	175.5
1998	0.0	0.0	10.5	35.0	30.6	20.5	22.6	18.0	21.5	24.1	10.2	0.0	192.9
1999	0.0	0.0	24.0	33.1	11.7	16.8	20.6	15.7	19.1	23.6	10.2	0.0	175.0
2000	0.0	1.0	29.5	28.7	18.8	17.7	16.5	12.8	6.0	9.3	4.8	0.0	145.1
2001	0.0	0.0	13.0	21.4	30.3	18.4	18.4	19.5	11.0	8.9	11.1	0.0	151.9
2002	0.0	0.0	14.6	2.9	2.1	6.5	7.4	0.0	0.0	0.0	0.5	0.0	34.0
2003	0.0	0.0	3.6	1.4	9.6	18.4	9.7	3.0	1.6	0.0	2.5	0.0	49.8
2004	0.0	0.0	1.8	12.0	17.6	16.2	14.5	13.5	3.5	6.2	11.0	0.0	96.3
2005	0.0	0.0	15.2	34.4	22.5	18.3	15.3	16.2	4.4	9.1	5.3	0.0	140.8
2006	0.0	0.0	8.9	4.3	12.6	18.3	15.8	15.2	11.2	15.1	8.7	0.0	110.2
2007	0.0	0.0	10.8	34.0	21.2	17.5	17.5	17.5	14.2	13.7	13.1	0.0	159.5
2008	0.0	0.0	22.5	39.8	21.0	21.3	19.6	15.8	13.3	24.8	11.4	0.0	189.6
2009	0.0	0.0	18.9	31.5	23.3	16.9	19.9	14.9	10.9	25.2	8.5	0.0	170.1
2010	0.0	0.0	11.6	26.7	25.6	18.9	17.9	17.1	3.5	8.2	7.9	0.0	137.3
2011	0.0	0.0	14.6	5.0	12.5	21.3	19.4	12.7	8.4	9.2	5.5	0.0	108.6
2012	0.0	0.0	4.6	7.8	12.7	8.2	7.0	1.8	0.0	0.0	0.0	0.0	42.1
2013	0.0	0.0	1.1	0.3	11.3	17.6	9.6	12.7	10.8	15.7	0.0	0.0	79.1
Average	0.0	0.2	15.5	25.2	20.1	18.5	17.5	15.2	12.1	15.5	7.7	0.0	147.5
Minimum	0.0	0.0	1.1	0.3	2.1	6.5	7.0	0.0	0.0	0.0	0.0	0.0	34.0
Maximum	0.0	4.1	36.3	45.4	34.7	23.6	24.9	24.7	27.4	28.5	13.5	0.0	242.9
TW RF Factors: Average Monthly Tailwater / Surface Returns as a percent of Average Monthly Farm Headgate Delivery													
		20.0%	18.7%	16.9%	12.4%	9.3%	9.2%	9.2%	10.7%	14.7%	16.8%		12.2%

Table 16 - Deep Percolation/Ground Water Return Flows at Farm (unlagged)

Farm Name or Designation: Diamond A East-01

For Summary Period Deep Percolation from Water Budget: 83.5% of Total Return Flows, Deep Percolation Forced to: 80% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	20.5	89.9	83.3	84.9	89.3	70.5	57.8	64.7	30.7	0.0	591.6
1985	0.0	0.0	66.2	137.8	60.8	77.1	81.4	74.0	54.5	84.5	34.6	0.0	671.0
1986	0.0	1.3	111.4	119.5	98.6	62.8	74.0	70.1	89.3	87.3	29.1	0.0	743.3
1987	0.0	0.0	74.9	102.3	106.6	77.9	75.0	63.5	47.3	51.2	52.8	0.0	651.5
1988	0.0	0.0	56.5	105.1	74.2	76.4	57.5	61.5	46.9	43.9	21.5	0.0	543.6
1989	0.0	0.0	75.5	119.1	66.3	76.2	64.4	74.4	37.2	37.7	39.2	0.0	590.0
1990	0.0	0.0	37.7	114.8	102.0	72.5	66.9	64.8	33.5	76.3	36.0	0.0	604.4
1991	0.0	0.0	71.6	67.8	44.1	77.5	72.0	75.4	43.7	56.6	0.0	0.0	508.7
1992	0.0	0.0	67.0	143.2	94.1	80.6	70.1	72.7	79.1	99.0	42.7	0.0	748.5
1993	0.0	0.0	42.4	125.2	115.2	82.1	75.7	77.6	63.2	91.4	42.8	0.0	715.6
1994	0.0	0.0	93.7	160.7	103.0	90.3	81.1	66.4	54.6	89.5	45.6	0.0	784.9
1995	0.0	0.0	98.7	181.5	138.8	84.9	96.1	98.6	105.0	113.9	53.8	0.0	971.4
1996	0.0	16.5	145.2	145.4	113.3	88.6	91.4	69.3	109.8	111.1	53.2	0.0	943.7
1997	0.0	0.0	80.8	134.0	83.4	94.5	99.5	57.0	75.1	77.5	0.0	0.0	701.9
1998	0.0	0.0	42.0	139.8	122.2	82.0	90.2	71.9	86.1	96.6	41.0	0.0	771.7
1999	0.0	0.0	96.1	132.5	46.9	67.3	82.5	63.0	76.5	94.5	40.9	0.0	700.2
2000	0.0	4.2	118.0	115.0	75.4	70.9	66.0	51.2	23.9	37.0	19.1	0.0	580.6
2001	0.0	0.0	52.1	85.8	121.1	73.4	73.6	78.1	43.8	35.5	44.2	0.0	607.6
2002	0.0	0.0	58.5	11.7	8.3	26.0	29.7	0.0	0.0	0.0	1.8	0.0	136.0
2003	0.0	0.0	14.4	5.5	38.5	73.5	38.9	12.0	6.3	0.0	10.0	0.0	199.1
2004	0.0	0.0	7.3	47.9	70.2	64.7	58.2	53.8	14.1	25.0	44.1	0.0	385.2
2005	0.0	0.0	60.8	137.8	89.9	73.1	61.2	64.7	17.6	36.6	21.4	0.0	563.2
2006	0.0	0.0	35.6	17.3	50.3	73.3	63.4	60.8	44.8	60.3	34.9	0.0	440.7
2007	0.0	0.0	43.3	136.1	84.6	70.0	70.1	69.9	56.7	54.8	52.5	0.0	638.1
2008	0.0	0.0	90.2	159.0	83.9	85.3	78.4	63.4	53.4	99.3	45.5	0.0	758.4
2009	0.0	0.0	75.7	126.2	93.4	67.6	79.5	59.5	43.4	100.9	34.1	0.0	680.4
2010	0.0	0.0	46.5	106.8	102.3	75.7	71.5	68.4	14.0	32.7	31.5	0.0	549.3
2011	0.0	0.0	58.6	20.1	49.9	85.0	77.8	50.6	33.6	36.9	21.9	0.0	434.2
2012	0.0	0.0	18.6	31.3	50.8	32.8	27.8	7.1	0.0	0.0	0.0	0.0	168.5
2013	0.0	0.0	4.6	1.3	45.1	70.5	38.3	50.7	43.2	62.8	0.0	0.0	316.6
Average	0.0	0.7	62.1	100.7	80.6	73.9	70.0	60.7	48.5	61.9	30.8	0.0	590.0
Minimum	0.0	0.0	4.6	1.3	8.3	26.0	27.8	0.0	0.0	0.0	0.0	0.0	136.0
Maximum	0.0	16.5	145.2	181.5	138.8	94.5	99.5	98.6	109.8	113.9	53.8	0.0	971.4
DP RF Factors: Average Monthly Deep Percolation / Groundwater Returns as a percent of Average Monthly Farm Headgate Delivery													
		80.0%	74.8%	67.5%	49.6%	37.3%	36.8%	36.8%	42.9%	58.9%	67.1%		48.6%

Table 17 - Historical Depletions at Farm

Farm Name or Designation: Diamond A East-01

Farm Headgate Delivery less Total Unlagged Return Flows at Farm. Includes Depletion and Return Flow Factors.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	31.3	10.2	69.4	129.7	136.4	107.8	65.5	0.0	0.0	0.0	550.3
1985	0.0	0.0	0.0	0.0	39.2	117.8	124.3	113.0	83.3	9.9	0.0	0.0	487.6
1986	0.0	0.0	12.3	38.7	86.4	95.9	113.1	102.5	8.4	0.0	0.0	0.0	457.3
1987	0.0	0.0	0.0	34.1	24.3	113.0	114.6	97.0	72.2	55.2	0.0	0.0	510.4
1988	0.0	0.0	0.0	3.6	47.4	116.8	87.8	94.0	71.6	67.1	32.8	0.0	521.1
1989	0.0	0.0	15.0	38.5	72.9	101.7	98.3	113.7	56.8	22.5	0.5	0.0	519.8
1990	0.0	0.0	0.0	36.0	12.1	110.7	102.2	99.0	51.2	11.3	0.0	0.0	422.5
1991	0.0	0.0	0.0	23.7	67.4	118.5	110.0	115.2	66.8	41.4	0.0	0.0	542.9
1992	0.0	0.0	0.0	46.1	79.7	63.1	107.0	99.3	57.2	1.6	0.0	0.0	454.1
1993	0.0	0.0	0.0	4.1	57.9	125.5	115.6	118.5	82.2	9.1	0.0	0.0	512.9
1994	0.0	0.0	0.0	13.8	49.9	137.9	123.9	101.5	83.4	23.5	0.0	0.0	533.8
1995	0.0	0.0	0.0	0.0	0.0	66.5	129.8	150.7	72.5	19.7	2.0	0.0	441.1
1996	0.0	0.0	0.0	41.6	63.5	133.0	116.3	105.9	10.9	17.9	0.0	0.0	489.0
1997	0.0	0.0	0.0	0.0	85.3	91.6	142.6	56.8	53.0	0.0	0.0	0.0	429.3
1998	0.0	0.0	0.0	23.3	70.0	125.2	120.6	70.0	64.8	0.0	0.0	0.0	473.9
1999	0.0	0.0	0.0	0.0	37.5	102.8	99.9	91.1	67.0	0.0	1.4	0.0	399.8
2000	0.0	0.0	0.0	34.0	87.1	108.3	100.8	78.2	36.6	56.6	29.1	0.0	530.6
2001	0.0	0.0	10.8	34.3	24.3	112.2	112.4	119.3	66.9	54.3	1.6	0.0	536.0
2002	0.0	0.0	0.0	17.9	12.7	39.7	45.4	0.0	0.0	0.0	2.8	0.0	118.4
2003	0.0	0.0	22.0	8.4	58.9	112.3	59.4	18.3	9.7	0.0	15.3	0.0	304.2
2004	0.0	0.0	11.1	73.2	107.3	98.8	88.9	82.3	21.6	38.2	28.0	0.0	549.3
2005	0.0	0.0	0.0	25.0	89.6	111.7	93.5	98.9	26.9	55.9	32.7	0.0	534.2
2006	0.0	0.0	13.0	26.4	76.9	112.0	96.9	92.9	68.5	52.9	0.0	0.0	539.4
2007	0.0	0.0	12.4	1.7	72.2	85.3	107.2	106.8	86.6	83.2	2.7	0.0	558.1
2008	0.0	0.0	0.0	26.0	88.8	130.3	119.8	96.8	81.6	8.4	0.0	0.0	551.7
2009	0.0	0.0	0.0	41.9	81.6	103.3	105.0	91.0	66.3	1.1	0.0	0.0	490.2
2010	0.0	0.0	0.0	25.8	69.2	115.7	95.3	91.3	21.4	50.0	40.4	0.0	509.1
2011	0.0	0.0	0.0	30.6	76.3	129.9	118.8	77.3	51.3	56.3	33.4	0.0	573.9
2012	0.0	0.0	28.4	39.8	77.7	50.1	42.5	10.9	0.0	0.0	0.0	0.0	249.3
2013	0.0	0.0	7.0	2.0	68.9	107.7	58.5	77.5	66.0	96.0	0.0	0.0	483.6
Average	0.0	0.0	5.4	23.4	61.8	105.6	102.9	89.3	52.3	27.7	7.4	0.0	475.8
Minimum	0.0	0.0	0.0	0.0	0.0	39.7	42.5	0.0	0.0	0.0	0.0	0.0	118.4
Maximum	0.0	0.0	31.3	73.2	107.3	137.9	142.6	150.7	86.6	96.0	40.4	0.0	573.9
Limit	0.0	0.0	27.2	53.7	95.2	133.8	136.3	129.5	84.5	82.1	35.5	0.0	561.2
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	6.5%	15.7%	38.0%	53.3%	54.0%	54.1%	46.3%	26.4%	16.2%		39.2%
TW Returns		20.0%	18.7%	16.9%	12.4%	9.3%	9.2%	9.2%	10.7%	14.7%	16.8%		12.2%
DP Returns		80.0%	74.8%	67.5%	49.6%	37.3%	36.8%	36.8%	42.9%	58.9%	67.1%		48.6%
Sum		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		100.0%

Table 18 - Percent Tailwater/Surface Runoff Return Flows of Farm Headgate Delivery

Farm Name or Designation: Diamond A East-01

Tailwater/Surface Runoff Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984			9.0%	18.3%	12.0%	9.0%	9.0%	9.0%	10.5%	20.0%	20.0%		11.5%
1985			20.0%	20.0%	13.2%	9.0%	9.0%	9.0%	9.0%	18.3%	20.0%		12.6%
1986		20.0%	18.4%	15.9%	11.8%	9.0%	9.0%	9.2%	18.6%	20.0%	20.0%		13.4%
1987			20.0%	15.8%	16.9%	9.3%	9.0%	9.0%	9.0%	10.7%	20.0%		12.3%
1988			20.0%	19.5%	13.2%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		11.3%
1989			17.3%	15.9%	10.6%	9.7%	9.0%	9.0%	9.0%	13.5%	19.8%		11.7%
1990			20.0%	16.0%	18.3%	9.0%	9.0%	9.0%	9.0%	17.9%	20.0%		12.8%
1991			20.0%	15.6%	9.0%	9.0%	9.0%	9.0%	9.0%	12.6%			10.8%
1992			20.0%	15.9%	11.9%	12.3%	9.0%	9.6%	12.7%	19.7%	20.0%		13.5%
1993			20.0%	19.5%	14.3%	9.0%	9.0%	9.0%	9.8%	18.5%	20.0%		12.7%
1994			20.0%	18.7%	14.4%	9.0%	9.0%	9.0%	9.0%	16.5%	20.0%		13.0%
1995			20.0%	20.0%	20.0%	12.3%	9.6%	9.0%	12.9%	17.6%	19.4%		14.7%
1996		20.0%	20.0%	16.3%	13.8%	9.1%	9.9%	9.0%	18.5%	17.7%	20.0%		14.1%
1997			20.0%	20.0%	11.0%	11.3%	9.3%	11.1%	12.8%	20.0%			13.4%
1998			20.0%	17.7%	13.7%	9.0%	9.7%	11.2%	12.5%	20.0%	20.0%		13.4%
1999			20.0%	20.0%	12.2%	9.0%	10.2%	9.3%	11.8%	20.0%	19.5%		13.7%
2000		20.0%	20.0%	16.2%	10.4%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		11.6%
2001			17.2%	15.2%	17.2%	9.0%	9.0%	9.0%	9.0%	9.0%	19.4%		11.7%
2002			20.0%	9.0%	9.0%	9.0%	9.0%				9.0%		11.8%
2003			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%		9.0%
2004			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	13.3%		9.3%
2005			20.0%	17.5%	11.1%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		11.4%
2006			15.5%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	11.7%	20.0%		10.1%
2007			16.3%	19.8%	11.9%	10.1%	9.0%	9.0%	9.0%	9.0%	19.2%		11.8%
2008			20.0%	17.7%	10.8%	9.0%	9.0%	9.0%	9.0%	18.7%	20.0%		12.6%
2009			20.0%	15.8%	11.8%	9.0%	9.7%	9.0%	9.0%	19.8%	20.0%		12.7%
2010			20.0%	16.8%	13.0%	9.0%	9.7%	9.7%	9.0%	9.0%	9.9%		11.5%
2011			20.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.7%
2012			9.0%	9.9%	9.0%	9.0%	9.0%	9.0%					9.2%
2013			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%			9.0%
Average		20.0%	17.7%	15.6%	12.2%	9.4%	9.2%	9.2%	10.4%	14.6%	16.7%		11.9%
Minimum		20.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%
Maximum		20.0%	20.0%	20.0%	20.0%	12.3%	10.2%	11.2%	18.6%	20.0%	20.0%		14.7%

Table 19 - Percent Deep Percolation/Ground Water Return Flows of Farm Headgate Delivery

Farm Name or Designation: Diamond A East-01

Deep Percolation/Ground Water Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			36.0%	73.4%	48.0%	36.0%	36.0%	36.0%	42.0%	80.0%	80.0%		45.9%
1985			80.0%	80.0%	52.8%	36.0%	36.0%	36.0%	36.0%	73.1%	80.0%		50.6%
1986		80.0%	73.5%	63.5%	47.0%	36.0%	36.0%	36.9%	74.4%	80.0%	80.0%		53.6%
1987			80.0%	63.2%	67.7%	37.0%	36.0%	36.0%	36.0%	42.9%	80.0%		49.2%
1988			80.0%	77.9%	53.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		45.3%
1989			69.1%	63.6%	42.5%	38.7%	36.0%	36.0%	36.0%	54.2%	79.1%		46.9%
1990			80.0%	63.9%	73.1%	36.0%	36.0%	36.0%	36.0%	71.5%	80.0%		51.3%
1991			80.0%	62.5%	36.0%	36.0%	36.0%	36.0%	36.0%	50.5%			43.2%
1992			80.0%	63.6%	47.7%	49.2%	36.0%	38.2%	50.7%	79.0%	80.0%		53.9%
1993			80.0%	78.0%	57.1%	36.0%	36.0%	36.0%	39.2%	74.1%	80.0%		50.8%
1994			80.0%	74.9%	57.7%	36.0%	36.0%	36.0%	36.0%	66.1%	80.0%		51.8%
1995			80.0%	80.0%	80.0%	49.2%	38.4%	36.0%	51.5%	70.3%	77.7%		58.7%
1996		80.0%	80.0%	65.1%	55.2%	36.3%	39.6%	36.0%	74.1%	70.9%	80.0%		56.6%
1997			80.0%	80.0%	44.0%	45.1%	37.3%	44.5%	51.1%	80.0%			53.7%
1998			80.0%	70.6%	54.9%	36.0%	38.6%	45.0%	49.9%	80.0%	80.0%		53.6%
1999			80.0%	80.0%	48.8%	36.0%	40.6%	37.1%	47.0%	80.0%	77.9%		54.9%
2000		80.0%	80.0%	64.7%	41.6%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		46.2%
2001			68.7%	60.6%	68.9%	36.0%	36.0%	36.0%	36.0%	36.0%	77.7%		46.9%
2002			80.0%	36.0%	36.0%	36.0%	36.0%				36.0%		47.2%
2003			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%		36.0%
2004			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	53.0%		37.4%
2005			80.0%	69.9%	44.5%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		45.5%
2006			61.9%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	47.0%	80.0%		40.4%
2007			65.1%	79.2%	47.6%	40.5%	36.0%	36.0%	36.0%	36.1%	76.8%		47.1%
2008			80.0%	70.7%	43.3%	36.0%	36.0%	36.0%	36.0%	74.9%	80.0%		50.6%
2009			80.0%	63.2%	47.1%	36.0%	38.9%	36.0%	36.0%	79.3%	80.0%		50.8%
2010			80.0%	67.0%	51.9%	36.0%	38.7%	38.7%	36.0%	36.0%	39.5%		45.9%
2011			80.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		38.9%
2012			36.0%	39.7%	36.0%	36.0%	36.0%	36.0%					36.6%
2013			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%			36.0%
Average		80.0%	70.6%	62.4%	48.7%	37.5%	36.7%	36.8%	41.6%	58.4%	66.8%		47.5%
Minimum		80.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%
Maximum		80.0%	80.0%	80.0%	80.0%	49.2%	40.6%	45.0%	74.4%	80.0%	80.0%		58.7%

Table 20 - Percent Historic On-Farm Depletions of Farm Headgate Delivery

Farm Name or Designation: Diamond A East-01

Historic On-Farm Depletions divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			55.0%	8.3%	40.0%	55.0%	55.0%	55.0%	47.6%	0.0%	0.0%		42.7%
1985			0.0%	0.0%	34.0%	55.0%	55.0%	55.0%	55.0%	8.6%	0.0%		36.8%
1986		0.0%	8.1%	20.6%	41.2%	55.0%	55.0%	53.9%	7.0%	0.0%	0.0%		33.0%
1987			0.0%	21.1%	15.4%	53.7%	55.0%	55.0%	55.0%	46.3%	0.0%		38.5%
1988			0.0%	2.6%	33.8%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		43.4%
1989			13.7%	20.5%	46.8%	51.6%	55.0%	55.0%	55.0%	32.3%	1.1%		41.3%
1990			0.0%	20.1%	8.7%	55.0%	55.0%	55.0%	55.0%	10.6%	0.0%		35.9%
1991			0.0%	21.9%	55.0%	55.0%	55.0%	55.0%	55.0%	36.9%			46.1%
1992			0.0%	20.5%	40.4%	38.5%	55.0%	52.2%	36.6%	1.3%	0.0%		32.7%
1993			0.0%	2.6%	28.7%	55.0%	55.0%	55.0%	51.0%	7.4%	0.0%		36.4%
1994			0.0%	6.4%	27.9%	55.0%	55.0%	55.0%	55.0%	17.3%	0.0%		35.2%
1995			0.0%	0.0%	0.0%	38.5%	51.9%	55.0%	35.6%	12.1%	2.8%		26.6%
1996		0.0%	0.0%	18.6%	31.0%	54.6%	50.4%	55.0%	7.3%	11.4%	0.0%		29.3%
1997			0.0%	0.0%	45.0%	43.7%	53.4%	44.4%	36.1%	0.0%			32.9%
1998			0.0%	11.7%	31.4%	55.0%	51.7%	43.8%	37.6%	0.0%	0.0%		32.9%
1999			0.0%	0.0%	39.0%	55.0%	49.2%	53.7%	41.2%	0.0%	2.6%		31.4%
2000		0.0%	0.0%	19.1%	48.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		42.2%
2001			14.2%	24.2%	13.8%	55.0%	55.0%	55.0%	55.0%	55.0%	2.9%		41.4%
2002			0.0%	55.0%	55.0%	55.0%	55.0%				55.0%		41.1%
2003			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%		55.0%
2004			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	33.7%		53.3%
2005			0.0%	12.7%	44.4%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		43.1%
2006			22.6%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	41.3%	0.0%		49.5%
2007			18.7%	1.0%	40.6%	49.4%	55.0%	55.0%	55.0%	54.9%	4.0%		41.2%
2008			0.0%	11.6%	45.8%	55.0%	55.0%	55.0%	55.0%	6.4%	0.0%		36.8%
2009			0.0%	21.0%	41.1%	55.0%	51.4%	55.0%	55.0%	0.9%	0.0%		36.6%
2010			0.0%	16.2%	35.1%	55.0%	51.6%	51.6%	55.0%	55.0%	50.7%		42.6%
2011			0.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		51.4%
2012			55.0%	50.4%	55.0%	55.0%	55.0%	55.0%					54.2%
2013			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%			55.0%
Average		0.0%	11.7%	22.0%	39.1%	53.2%	54.2%	54.0%	48.0%	26.9%	16.5%		40.6%
Minimum		0.0%	0.0%			38.5%	49.2%	43.8%	7.0%	0.0%	0.0%		26.6%
Maximum			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%

Table 21 - Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased

Farm Name or Designation: Diamond A East-01

Remaining return flows from cumulative calendar year diversions. Amount remaining after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	20.5	110.4	193.7	278.6	367.9	438.5	496.2	560.9	**591.6**	591.6	591.6
1985	0.0	0.0	66.2	204.0	264.8	341.9	423.3	497.3	551.8	636.3	**671.0**	671.0	671.0
1986	0.0	1.3	112.8	232.2	330.8	393.6	467.6	537.7	627.0	714.2	**743.3**	743.3	743.3
1987	0.0	0.0	74.9	177.2	283.9	361.8	436.8	500.2	547.5	598.7	**651.5**	651.5	651.5
1988	0.0	0.0	56.5	161.6	235.8	312.2	369.7	431.3	478.1	522.1	**543.6**	543.6	543.6
1989	0.0	0.0	75.5	194.7	260.9	337.2	401.5	475.9	513.1	550.8	**590.0**	590.0	590.0
1990	0.0	0.0	37.7	152.5	254.5	326.9	393.8	458.6	492.1	568.4	**604.4**	604.4	604.4
1991	0.0	0.0	71.6	139.4	183.4	261.0	333.0	408.4	452.1	**508.7**	508.7	508.7	508.7
1992	0.0	0.0	67.0	210.2	304.2	384.8	454.9	527.6	606.7	705.7	**748.5**	748.5	748.5
1993	0.0	0.0	42.4	167.6	282.8	365.0	440.6	518.2	581.4	672.8	**715.6**	715.6	715.6
1994	0.0	0.0	93.7	254.3	357.4	447.7	528.7	595.2	649.8	739.3	**784.9**	784.8	784.9
1995	0.0	0.0	98.7	280.1	419.0	503.9	600.0	698.6	803.7	917.6	**971.4**	971.4	971.4
1996	0.0	16.5	161.7	307.0	420.3	508.9	600.3	669.6	779.3	890.5	**943.7**	943.6	943.7
1997	0.0	0.0	80.8	214.8	298.2	392.8	492.2	549.2	624.3	**701.9**	701.9	701.8	701.9
1998	0.0	0.0	42.0	181.8	304.0	386.0	476.2	548.1	634.2	730.8	**771.7**	771.7	771.7
1999	0.0	0.0	96.1	228.6	275.5	342.8	425.4	488.3	564.8	659.3	**700.2**	700.1	700.2
2000	0.0	4.2	122.2	237.1	312.5	383.4	449.4	500.5	524.5	561.5	**580.6**	580.5	580.6
2001	0.0	0.0	52.1	137.9	259.0	332.4	406.0	484.1	527.9	563.4	**607.6**	607.6	607.6
2002	0.0	0.0	58.5	70.2	78.5	104.5	134.2	134.2	134.2	134.2	**136.0**	136.0	136.0
2003	0.0	0.0	14.4	19.9	58.4	131.9	170.8	182.7	189.1	189.1	**199.1**	199.1	199.1
2004	0.0	0.0	7.3	55.2	125.4	190.1	248.2	302.1	316.2	341.2	**385.2**	385.2	385.2
2005	0.0	0.0	60.8	198.6	288.5	361.6	422.8	487.6	505.2	541.8	**563.2**	563.1	563.2
2006	0.0	0.0	35.6	52.9	103.2	176.5	239.9	300.7	345.5	405.8	**440.7**	440.7	440.7
2007	0.0	0.0	43.3	179.4	264.0	334.0	404.2	474.1	530.8	585.6	**638.1**	638.1	638.1
2008	0.0	0.0	90.2	249.2	333.1	418.4	496.8	560.2	613.6	712.8	**758.4**	758.4	758.4
2009	0.0	0.0	75.7	201.9	295.3	362.9	442.4	502.0	545.4	646.3	**680.4**	680.4	680.4
2010	0.0	0.0	46.5	153.2	255.6	331.3	402.7	471.1	485.1	517.9	**549.3**	549.3	549.3
2011	0.0	0.0	58.6	78.6	128.5	213.6	291.3	341.9	375.5	412.4	**434.2**	434.2	434.2
2012	0.0	0.0	18.6	49.9	100.7	133.5	161.3	**168.5**	168.5	168.5	168.5	168.5	168.5
2013	0.0	0.0	4.6	5.9	51.0	121.5	159.8	210.5	253.7	**316.6**	316.6	316.6	316.6
Average	0.0	0.7	62.9	163.5	244.1	318.0	388.1	448.8	497.2	559.2	590.0	590.0	590.0
Minimum	0.0	0.0	4.6	5.9	51.0	104.5	134.2	134.2	134.2	134.2	136.0	136.0	136.0
Maximum	0.0	16.5	161.7	307.0	420.3	508.9	600.3	698.6	803.7	917.6	971.4	971.4	971.4
Limit	0.0	7.3	132.2	280.5	398.9	486.8	576.3	654.5	744.3	849.1	900.0	900.0	900.0

Table 22 - Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries

Farm Name or Designation: Diamond A East-01

Remaining return flows from cumulative calendar year diversions divided by cumulative FHGD. Amount after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			36.0%	61.5%	54.9%	47.3%	44.0%	42.5%	42.4%	44.8%	**45.9%**	45.9%	45.9%
1985			80.0%	80.0%	71.5%	58.5%	52.2%	48.9%	47.3%	49.6%	**50.6%**	50.6%	50.6%
1986		80.0%	73.6%	68.0%	60.0%	54.3%	50.2%	48.0%	50.5%	52.9%	**53.6%**	53.6%	53.6%
1987			80.0%	69.3%	68.7%	58.0%	52.5%	49.6%	48.0%	47.6%	**49.2%**	49.2%	49.2%
1988			80.0%	78.6%	68.2%	56.0%	51.5%	48.5%	46.9%	45.8%	**45.3%**	45.3%	45.3%
1989			69.1%	65.6%	57.7%	51.9%	48.5%	46.0%	45.1%	45.6%	**46.9%**	46.9%	46.9%
1990			80.0%	67.3%	69.5%	57.6%	52.3%	49.1%	47.9%	50.2%	**51.3%**	51.3%	51.3%
1991			80.0%	70.4%	57.3%	48.7%	45.3%	43.2%	42.4%	**43.2%**	43.2%	43.2%	43.2%
1992			80.0%	68.1%	60.1%	57.4%	52.6%	50.0%	50.1%	52.8%	**53.9%**	53.9%	53.9%
1993			80.0%	78.5%	68.1%	56.7%	51.6%	48.5%	47.2%	49.7%	**50.8%**	50.8%	50.8%
1994			80.0%	76.7%	70.0%	58.8%	53.6%	50.8%	49.1%	50.7%	**51.8%**	51.8%	51.8%
1995			80.0%	80.0%	80.0%	72.4%	63.4%	57.3%	56.4%	57.9%	**58.7%**	58.7%	58.7%
1996		80.0%	80.0%	72.2%	66.7%	58.2%	54.3%	51.6%	53.9%	55.6%	**56.6%**	56.6%	56.6%
1997			80.0%	80.0%	65.1%	58.8%	52.7%	51.7%	51.6%	**53.7%**	53.7%	53.7%	53.7%
1998			80.0%	72.6%	64.2%	55.1%	51.0%	50.1%	50.1%	52.7%	**53.6%**	53.6%	53.6%
1999			80.0%	80.0%	72.1%	60.3%	55.1%	51.8%	51.1%	53.9%	**54.9%**	54.9%	54.9%
2000		80.0%	80.0%	71.8%	61.1%	54.1%	50.4%	48.4%	47.7%	46.7%	**46.2%**	46.2%	46.2%
2001			68.7%	63.4%	65.9%	55.7%	50.7%	47.5%	46.3%	45.5%	**46.9%**	46.9%	46.9%
2002			80.0%	66.4%	61.0%	52.0%	47.4%	47.4%	47.4%	47.4%	**47.2%**	47.2%	47.2%
2003			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	**36.0%**	36.0%	36.0%
2004			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	**37.4%**	37.4%	37.4%
2005			80.0%	72.7%	60.7%	53.3%	49.8%	47.4%	46.9%	46.0%	**45.5%**	45.5%	45.5%
2006			61.9%	50.1%	42.1%	39.3%	38.4%	37.9%	37.6%	38.8%	**40.4%**	40.4%	40.4%
2007			65.1%	75.3%	63.4%	56.7%	51.6%	48.5%	46.7%	45.5%	**47.1%**	47.1%	47.1%
2008			80.0%	73.8%	62.7%	54.5%	50.4%	48.2%	46.8%	49.4%	**50.6%**	50.6%	50.6%
2009			80.0%	68.6%	59.9%	53.3%	50.0%	47.8%	46.6%	49.8%	**50.8%**	50.7%	50.8%
2010			80.0%	70.5%	61.7%	53.0%	49.8%	47.8%	47.3%	46.4%	**45.9%**	45.9%	45.9%
2011			80.0%	61.0%	48.0%	42.4%	40.5%	39.7%	39.4%	39.1%	**38.9%**	38.9%	38.9%
2012			36.0%	38.2%	37.1%	36.8%	36.7%	**36.6%**	36.6%	36.6%	36.6%	36.6%	36.6%
2013			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	**36.0%**	36.0%	36.0%	36.0%
Average		80.0%	70.6%	66.3%	59.5%	52.3%	48.5%	46.4%	45.9%	46.9%	47.5%	47.5%	47.5%
Minimum		80.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Maximum		80.0%	80.0%	80.0%	80.0%	72.4%	63.4%	57.3%	56.4%	57.9%	58.7%	58.7%	58.7%
Limit			80.0%	80.0%	74.6%	63.8%	57.6%	53.6%	54.0%	55.8%	56.7%	56.7%	56.7%

Table 23 - Transferrable Depletions Given Calculated On-Farm Depletion Factors

Farm Name or Designation: Diamond A East-01

Farm Headgate Deliveries multiplied by Avg Monthly On-Farm Depletion Factors limited by Avg-Max-3 Monthly and Annual On-Farm Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	0.0	0.0	3.7	19.2	66.0	125.8	134.0	105.9	63.8	21.3	6.2	0.0	545.9
1985	0.0	0.0	5.4	27.0	43.8	114.3	122.1	111.0	70.2	30.5	7.0	0.0	531.3
1986	0.0	0.0	9.9	29.4	79.7	93.0	111.1	102.8	55.6	28.8	5.9	0.0	516.2
1987	0.0	0.0	6.1	25.4	59.9	112.2	112.6	95.3	60.8	31.5	10.7	0.0	514.4
1988	0.0	0.0	4.6	21.1	53.3	113.2	86.3	92.4	60.3	32.2	9.6	0.0	473.1
1989	0.0	0.0	7.2	29.3	59.2	105.0	96.6	111.7	47.8	18.4	8.0	0.0	483.2
1990	0.0	0.0	3.1	28.1	53.1	107.3	100.4	97.3	43.1	28.1	7.3	0.0	467.8
1991	0.0	0.0	5.9	17.0	46.6	114.9	108.0	113.2	56.2	29.6	0.0	0.0	491.4
1992	0.0	0.0	5.5	35.2	75.1	87.4	105.1	102.8	72.3	33.1	8.6	0.0	525.1
1993	0.0	0.0	3.5	25.1	76.8	121.7	113.6	116.5	74.7	29.4	0.0	0.0	561.2
1994	0.0	0.0	7.7	33.6	67.9	133.8	121.7	99.8	70.3	26.6	0.0	0.0	561.2
1995	0.0	0.0	8.1	35.5	66.0	92.1	135.0	129.5	84.5	10.6	0.0	0.0	561.2
1996	0.0	0.0	11.9	35.0	78.0	130.0	124.6	104.0	68.6	9.2	0.0	0.0	561.2
1997	0.0	0.0	6.6	26.2	72.1	111.9	136.3	69.2	68.1	25.6	0.0	0.0	515.9
1998	0.0	0.0	3.4	31.0	84.8	121.4	126.1	86.4	79.9	28.3	0.0	0.0	561.2
1999	0.0	0.0	7.9	25.9	36.6	99.7	109.7	91.8	75.4	31.2	8.5	0.0	486.6
2000	0.0	0.0	9.7	27.8	68.9	105.0	99.0	76.8	30.8	27.1	8.6	0.0	453.8
2001	0.0	0.0	5.0	22.1	66.8	108.8	110.4	117.2	56.4	26.0	9.2	0.0	522.0
2002	0.0	0.0	4.8	5.1	8.8	38.5	44.6	0.0	0.0	0.0	0.8	0.0	102.5
2003	0.0	0.0	2.6	2.4	40.7	108.8	58.3	18.0	8.2	0.0	4.5	0.0	243.5
2004	0.0	0.0	1.3	20.8	74.2	95.8	87.3	80.8	18.2	18.3	13.4	0.0	410.2
2005	0.0	0.0	5.0	30.9	76.8	108.3	91.9	97.2	22.7	26.8	9.6	0.0	469.1
2006	0.0	0.0	3.8	7.5	53.2	108.6	95.1	91.3	57.7	33.9	7.1	0.0	458.0
2007	0.0	0.0	4.4	26.9	67.7	92.1	105.3	105.0	73.0	40.0	11.0	0.0	525.3
2008	0.0	0.0	7.4	35.2	73.6	126.3	117.6	95.2	68.7	35.0	2.2	0.0	561.2
2009	0.0	0.0	6.2	31.2	75.4	100.1	110.5	89.4	55.9	33.6	6.9	0.0	509.2
2010	0.0	0.0	3.8	24.9	75.0	112.1	99.8	95.5	18.0	24.0	12.9	0.0	466.0
2011	0.0	0.0	4.8	8.7	52.7	125.9	116.7	76.0	43.2	27.0	9.8	0.0	464.9
2012	0.0	0.0	3.4	12.4	53.7	48.6	41.8	10.7	0.0	0.0	0.0	0.0	170.5
2013	0.0	0.0	0.8	0.6	47.6	104.5	57.4	76.2	55.6	46.1	0.0	0.0	388.8
Average	0.0	0.0	5.4	23.4	61.8	105.6	102.6	88.6	52.0	25.1	5.6	0.0	470.1
Minimum	0.0	0.0	0.8	0.6	8.8	38.5	41.8	0.0	0.0	0.0	0.0	0.0	102.5
Maximum	0.0	0.0	11.9	35.5	84.8	133.8	136.3	129.5	84.5	46.1	13.4	0.0	561.2

Table 24 - Comparison of Historic On-Farm Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Diamond A East-01

Historic On-Farm Depletions less Transferrable Depletions Given Calculated On-Farm Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	27.6	-9.0	3.4	3.9	2.4	1.9	1.7	-21.3	-6.2	0.0	4.3
1985	0.0	0.0	-5.4	-27.0	-4.6	3.6	2.2	2.0	13.1	-20.6	-7.0	0.0	-43.7
1986	0.0	0.0	2.4	9.3	6.7	2.9	2.0	-0.3	-47.2	-28.8	-5.9	0.0	-58.9
1987	0.0	0.0	-6.1	8.8	-35.6	0.8	2.0	1.7	11.4	23.8	-10.7	0.0	-4.0
1988	0.0	0.0	-4.6	-17.5	-5.9	3.6	1.6	1.6	11.3	34.9	23.2	0.0	48.0
1989	0.0	0.0	7.8	9.2	13.7	-3.4	1.7	2.0	8.9	4.1	-7.5	0.0	36.6
1990	0.0	0.0	-3.1	7.9	-41.0	3.4	1.8	1.7	8.1	-16.8	-7.3	0.0	-45.3
1991	0.0	0.0	-5.9	6.7	20.8	3.6	1.9	2.0	10.5	11.8	0.0	0.0	51.5
1992	0.0	0.0	-5.5	10.9	4.7	-24.2	1.9	-3.5	-15.2	-31.5	-8.6	0.0	-71.0
1993	0.0	0.0	-3.5	-21.0	-18.9	3.8	2.0	2.0	7.5	-20.3	0.0	0.0	-48.3
1994	0.0	0.0	-7.7	-19.8	-18.1	4.2	2.2	1.8	13.1	-3.1	0.0	0.0	-27.4
1995	0.0	0.0	-8.1	-35.5	-66.0	-25.6	-5.2	21.2	-12.0	9.1	2.0	0.0	-120.1
1996	0.0	0.0	-11.9	6.7	-14.5	3.0	-8.3	1.8	-57.8	8.6	0.0	0.0	-72.2
1997	0.0	0.0	-6.6	-26.2	13.2	-20.3	6.3	-12.4	-15.1	-25.6	0.0	0.0	-86.6
1998	0.0	0.0	-3.4	-7.7	-14.7	3.8	-5.5	-16.4	-15.1	-28.3	0.0	0.0	-87.3
1999	0.0	0.0	-7.9	-25.9	1.0	3.1	-9.8	-0.7	-8.3	-31.2	-7.1	0.0	-86.8
2000	0.0	-0.0	-9.7	6.2	18.1	3.3	1.8	1.4	5.8	29.4	20.6	0.0	76.9
2001	0.0	0.0	5.8	12.1	-42.5	3.4	2.0	2.1	10.5	28.2	-7.6	0.0	14.1
2002	0.0	0.0	-4.8	12.8	3.9	1.2	0.8	0.0	0.0	0.0	1.9	0.0	15.9
2003	0.0	0.0	19.4	6.0	18.2	3.4	1.0	0.3	1.5	0.0	10.8	0.0	60.7
2004	0.0	0.0	9.8	52.4	33.1	3.0	1.6	1.4	3.4	19.9	14.6	0.0	139.1
2005	0.0	0.0	-5.0	-5.9	12.8	3.4	1.7	1.7	4.2	29.1	23.1	0.0	65.1
2006	0.0	0.0	9.2	18.9	23.7	3.4	1.7	1.6	10.8	19.1	-7.1	0.0	81.4
2007	0.0	0.0	8.1	-25.2	4.5	-6.9	1.9	1.8	13.6	43.2	-8.3	0.0	32.8
2008	0.0	0.0	-7.4	-9.2	15.1	4.0	2.1	1.7	12.8	-26.5	-2.2	0.0	-9.5
2009	0.0	0.0	-6.2	10.7	6.2	3.1	-5.4	1.6	10.4	-32.5	-6.9	0.0	-19.0
2010	0.0	0.0	-3.8	0.9	-5.8	3.5	-4.5	-4.3	3.4	26.0	27.5	0.0	43.0
2011	0.0	0.0	-4.8	21.9	23.5	4.0	2.1	1.3	8.1	29.3	23.6	0.0	109.0
2012	0.0	0.0	25.0	27.4	24.0	1.5	0.8	0.2	0.0	0.0	0.0	0.0	78.8
2013	0.0	0.0	6.2	1.4	21.3	3.3	1.0	1.3	10.4	50.0	0.0	0.0	94.8
Average	0.0	0.0	0.0	0.0	0.0	-0.0	0.3	0.6	0.3	2.7	1.8	0.0	5.7
Minimum	0.0	-0.0	-11.9	-35.5	-66.0	-25.6	-9.8	-16.4	-57.8	-32.5	-10.7	0.0	-120.1
Maximum	0.0	0.0	27.6	52.4	33.1	4.2	6.3	21.2	13.6	50.0	27.5	0.0	139.1

Table 25 - Deep Percolation/Ground Water Return Flows at Stream (lagged)

Farm Name or Designation: Diamond A East-01

Deep Percolation Lagged to Stream using URF

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	34.1	34.0	34.0	34.0	34.0	34.1	33.9	34.1	34.0	34.1	34.0	34.0	408.3
1985	34.1	34.1	34.1	34.3	34.2	34.5	34.5	34.5	34.7	34.6	34.8	34.8	413.1
1986	34.8	34.9	35.1	35.0	35.2	35.4	35.6	35.7	35.7	36.0	36.0	36.1	425.6
1987	36.1	36.3	36.5	36.7	36.7	36.9	37.2	37.3	37.5	37.6	37.8	37.9	444.7
1988	38.1	38.2	38.5	38.4	38.6	38.8	38.9	39.1	39.2	39.3	39.4	39.5	466.0
1989	39.6	39.7	39.8	40.1	40.2	40.2	40.4	40.5	40.6	40.7	40.8	41.0	483.5
1990	41.0	41.0	41.3	41.4	41.4	41.4	41.7	41.7	41.8	41.8	42.0	42.1	498.5
1991	42.0	42.0	42.2	42.3	42.3	42.5	42.6	42.5	42.6	42.8	42.8	42.8	509.5
1992	42.8	42.8	42.9	42.9	43.0	43.1	43.1	43.1	43.2	43.2	43.3	43.4	516.9
1993	43.3	43.4	43.4	43.5	43.5	43.7	43.6	43.7	43.7	43.8	44.0	44.1	523.7
1994	44.0	44.1	44.2	44.4	44.3	44.5	44.7	44.7	44.8	44.8	45.0	45.1	534.6
1995	45.1	45.2	45.4	45.5	45.7	45.7	46.0	46.0	46.1	46.3	46.5	46.5	550.0
1996	46.6	46.8	46.9	47.1	47.3	47.4	47.7	47.8	48.1	48.2	48.4	48.6	570.9
1997	48.7	48.8	49.1	49.3	49.5	49.8	50.1	50.2	50.3	50.6	50.8	51.0	598.1
1998	51.1	51.3	51.5	51.8	51.9	52.1	52.4	52.6	52.7	52.8	53.0	53.3	626.6
1999	53.2	53.4	53.6	53.8	53.9	54.0	54.2	54.3	54.5	54.5	54.7	54.7	648.7
2000	54.7	54.8	54.9	55.1	55.1	55.2	55.4	55.4	55.6	55.6	55.7	55.8	663.2
2001	55.7	55.8	56.0	56.1	56.2	56.2	56.3	56.4	56.5	56.5	56.6	56.6	675.0
2002	56.4	56.5	56.5	56.6	56.7	56.5	56.5	56.6	56.7	56.6	56.6	56.5	678.7
2003	56.4	56.4	56.4	56.4	56.4	56.2	56.1	56.1	56.0	55.9	55.7	55.5	673.4
2004	55.2	55.1	55.0	54.9	54.8	54.3	54.2	54.0	53.9	53.6	53.5	53.1	651.7
2005	52.8	52.5	52.4	52.4	52.0	51.7	51.5	51.4	51.2	51.0	50.7	50.4	620.0
2006	50.2	50.1	49.9	49.9	49.7	49.5	49.3	49.2	49.2	49.1	49.0	48.8	593.8
2007	48.5	48.5	48.4	48.4	48.3	48.0	48.1	47.9	47.9	47.8	47.8	47.7	577.3
2008	47.5	47.5	47.4	47.6	47.4	47.2	47.3	47.3	47.3	47.2	47.2	47.2	568.1
2009	47.0	47.1	47.1	47.1	47.2	47.1	47.1	47.3	47.3	47.4	47.5	47.4	566.7
2010	47.4	47.5	47.5	47.7	47.7	47.7	48.0	48.0	48.1	48.2	48.3	48.2	574.3
2011	48.3	48.3	48.3	48.6	48.6	48.5	48.7	48.7	48.8	48.9	48.9	48.8	583.4
2012	48.7	48.8	48.8	48.9	49.0	48.7	48.8	48.8	48.9	48.8	48.7	48.5	585.4
2013	48.4	48.5	48.3	48.4	48.3	48.0	48.0	47.9	47.9	47.7	47.6	47.3	576.4
Average	46.4	46.4	46.5	46.6	46.6	46.6	46.7	46.8	46.8	46.8	46.9	46.9	560.2
Minimum	34.1	34.0	34.0	34.0	34.0	34.1	33.9	34.1	34.0	34.1	34.0	34.0	408.3
Maximum	56.4	56.5	56.5	56.6	56.7	56.5	56.5	56.6	56.7	56.6	56.6	56.6	678.7
Lagged DP RF Factors: Average Monthly Lagged Deep Perc. / GW Returns as a percent of Average Monthly Farm Headgate Delivery													
			56.0%	31.2%	28.7%	23.6%	24.5%	28.3%	41.5%	44.6%			46.2%

Table 26 - Total Return Flows at Stream

Farm Name or Designation: Diamond A East-01

Lagged Deep Percolation plus Direct Tailwater/Surface Runoff Return Flows

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	34.1	34.0	39.1	56.5	54.8	55.3	56.2	51.7	48.5	50.2	41.7	34.0	556.2
1985	34.1	34.1	50.6	68.7	49.4	53.8	54.8	53.0	48.3	55.8	43.4	34.8	580.9
1986	34.8	35.2	63.0	64.9	59.8	51.1	54.1	53.2	58.1	57.8	43.3	36.1	611.4
1987	36.1	36.3	55.2	62.3	63.4	56.4	56.0	53.2	49.3	50.4	51.0	37.9	607.6
1988	38.1	38.2	52.6	64.7	57.1	57.9	53.3	54.5	50.9	50.3	44.7	39.5	601.9
1989	39.6	39.7	58.7	69.9	56.7	59.2	56.5	59.1	49.9	50.1	50.6	41.0	631.0
1990	41.0	41.0	50.7	70.1	66.9	59.5	58.4	57.9	50.2	60.8	51.0	42.1	649.6
1991	42.0	42.0	60.1	59.2	53.3	61.9	60.6	61.4	53.5	56.9	42.8	42.8	636.7
1992	42.8	42.8	59.7	78.7	66.5	63.3	60.6	61.3	63.0	68.0	54.0	43.4	704.0
1993	43.3	43.4	54.0	74.8	72.3	64.2	62.6	63.1	59.5	66.7	54.7	44.1	702.6
1994	44.0	44.1	67.6	84.5	70.1	67.1	65.0	61.3	58.4	67.2	56.4	45.1	730.8
1995	45.1	45.2	70.0	90.9	80.4	67.0	70.0	70.7	72.4	74.8	59.9	46.5	792.9
1996	46.6	50.9	83.2	83.4	75.7	69.5	70.5	65.2	75.5	76.0	61.7	48.6	806.8
1997	48.7	48.8	69.3	82.8	70.3	73.4	75.0	64.4	69.1	70.0	50.8	51.0	773.6
1998	51.1	51.3	62.0	86.7	82.5	72.6	75.0	70.5	74.3	77.0	63.3	53.3	819.5
1999	53.2	53.4	77.6	86.9	65.6	70.8	74.8	70.0	73.6	78.1	64.9	54.7	823.8
2000	54.7	55.8	84.4	83.8	74.0	72.9	71.9	68.2	61.6	64.9	60.5	55.8	808.4
2001	55.7	55.8	69.0	77.6	86.5	74.6	74.7	75.9	67.4	65.4	67.6	56.6	826.9
2002	56.4	56.5	71.2	59.5	58.7	63.0	64.0	56.6	56.7	56.6	57.0	56.5	712.7
2003	56.4	56.4	60.0	57.8	66.0	74.6	65.8	59.1	57.6	55.9	58.2	55.5	723.2
2004	55.2	55.1	56.8	66.9	72.3	70.5	68.8	67.5	57.4	59.8	64.5	53.1	748.0
2005	52.8	52.5	67.6	86.8	74.4	70.0	66.8	67.5	55.6	60.2	56.1	50.4	760.8
2006	50.2	50.1	58.8	54.2	62.2	67.8	65.1	64.4	60.4	64.1	57.7	48.8	703.9
2007	48.5	48.5	59.2	82.4	69.4	65.5	65.6	65.4	62.1	61.5	60.9	47.7	736.8
2008	47.5	47.5	70.0	87.3	68.4	68.5	66.9	63.1	60.6	72.0	58.6	47.2	757.7
2009	47.0	47.1	66.0	78.7	70.6	64.0	67.0	62.1	58.2	72.6	56.1	47.4	736.8
2010	47.4	47.5	59.1	74.4	73.3	66.7	65.8	65.1	51.6	56.3	56.1	48.2	711.7
2011	48.3	48.3	63.0	53.6	61.1	69.7	68.1	61.4	57.2	58.1	54.3	48.8	692.0
2012	48.7	48.8	53.5	56.7	61.7	56.9	55.7	50.6	48.9	48.8	48.7	48.5	627.5
2013	48.4	48.5	49.5	48.7	59.6	65.6	57.6	60.6	58.7	63.4	47.6	47.3	655.5
Average	46.4	46.6	62.1	71.8	66.8	65.1	64.2	61.9	59.0	62.3	54.6	46.9	707.7
Minimum	34.1	34.0	39.1	48.7	49.4	51.1	53.3	50.6	48.3	48.8	41.7	34.0	556.2
Maximum	56.4	56.5	84.4	90.9	86.5	74.6	75.0	75.9	75.5	78.1	67.6	56.6	826.9
Lagged Total Returns as a percent of Farm Headgate Delivery Average													
			74.7%	48.1%	41.1%	32.9%	33.7%	37.5%	52.2%	59.3%			58.3%

Table 27 - Historical Depletions at Stream including Depletion and Return Flow Factors

Farm Name or Designation: Diamond A East-01

Farm Headgate Delivery less Total Lagged Return Flows at Stream

Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	-34.1	-34.0	17.8	66.0	118.7	180.6	191.8	144.3	89.2	30.6	-3.3	-34.0	733.6
1985	-34.1	-34.1	32.1	103.5	65.8	160.5	171.2	152.4	103.2	59.8	-0.1	-34.8	745.4
1986	-34.8	-33.6	88.6	123.2	149.8	123.3	151.5	137.0	61.9	51.3	-6.9	-36.1	775.1
1987	-36.1	-36.3	38.4	99.8	94.2	154.0	152.4	123.1	82.0	68.8	15.0	-37.9	717.2
1988	-38.1	-38.2	18.1	70.2	83.0	154.4	106.3	116.5	79.3	71.8	14.9	-39.5	598.7
1989	-39.6	-39.7	50.7	117.5	99.0	137.7	122.3	147.6	53.3	19.5	-1.1	-41.0	626.3
1990	-41.0	-41.0	-3.6	109.4	72.7	141.7	127.4	122.1	42.8	45.8	-5.9	-42.1	528.4
1991	-42.0	-42.0	29.3	49.2	69.2	153.5	139.3	148.1	67.8	55.2	-42.8	-42.8	542.1
1992	-42.8	-42.8	24.1	146.3	130.8	100.6	134.0	128.9	93.0	57.4	-0.6	-43.4	685.7
1993	-43.3	-43.4	-1.0	85.8	129.6	163.9	147.6	152.4	101.7	56.6	-1.1	-44.1	704.9
1994	-44.0	-44.1	49.5	130.1	108.6	183.8	160.2	123.3	93.3	68.1	0.6	-45.1	784.1
1995	-45.1	-45.2	53.3	135.9	93.2	105.7	179.9	203.3	131.4	87.3	9.3	-46.5	862.5
1996	-46.6	-30.3	98.2	139.9	129.5	174.2	160.0	127.3	72.6	80.8	4.8	-48.6	861.8
1997	-48.7	-48.8	31.7	84.7	119.2	136.4	192.0	63.6	77.8	26.9	-50.8	-51.0	533.1
1998	-51.1	-51.3	-9.6	111.3	140.3	155.1	158.4	89.3	98.1	43.8	-12.0	-53.3	619.1
1999	-53.2	-53.4	42.5	78.7	30.5	116.1	128.2	99.8	89.0	40.0	-12.4	-54.7	451.2
2000	-54.7	-50.6	63.1	93.9	107.3	124.1	111.4	74.0	4.9	38.0	-7.5	-55.8	448.0
2001	-55.7	-55.8	6.9	63.9	89.1	129.4	129.7	141.0	54.3	33.3	-10.7	-56.6	468.7
2002	-56.4	-56.5	2.0	-27.0	-35.7	9.1	18.6	-56.6	-56.7	-56.6	-52.0	-56.5	-424.3
2003	-56.4	-56.4	-20.0	-42.5	41.0	129.5	42.1	-25.8	-39.9	-55.9	-30.4	-55.5	-170.1
2004	-55.2	-55.1	-36.7	66.2	122.7	109.2	92.8	82.1	-18.2	9.6	18.6	-53.1	282.8
2005	-52.8	-52.5	8.4	110.4	127.5	133.1	103.2	112.3	-6.6	41.4	3.3	-50.4	477.4
2006	-50.2	-50.1	-1.4	-6.2	77.5	135.8	111.0	104.4	64.1	64.2	-14.0	-48.8	386.4
2007	-48.5	-48.5	7.4	89.4	108.5	107.2	129.3	128.8	95.4	90.2	7.5	-47.7	618.9
2008	-47.5	-47.5	42.8	137.5	125.2	168.4	150.8	113.0	87.7	60.5	-1.7	-47.2	742.0
2009	-47.0	-47.1	28.6	120.9	127.7	123.8	137.4	103.3	62.4	54.6	-13.4	-47.4	603.9
2010	-47.4	-47.5	-1.0	84.9	123.9	143.6	118.8	111.7	-12.8	34.6	23.6	-48.2	484.1
2011	-48.3	-48.3	10.2	2.1	77.5	166.4	147.9	79.2	36.1	44.3	6.4	-48.8	424.8
2012	-48.7	-48.8	-1.9	22.2	79.6	34.1	21.5	-30.8	-48.9	-48.8	-48.7	-48.5	-167.6
2013	-48.4	-48.5	-36.8	-45.2	65.7	130.3	48.7	80.3	61.4	111.1	-47.6	-47.3	223.8
Average	-46.4	-45.7	21.1	77.4	95.7	132.9	126.2	103.2	54.0	42.8	-8.6	-46.9	505.6
Minimum	-56.4	-56.5	-36.8	-45.2	-35.7	9.1	18.6	-56.6	-56.7	-56.6	-52.0	-56.6	-424.3
Maximum	-34.1	-30.3	98.2	146.3	149.8	183.8	192.0	203.3	131.4	111.1	23.6	-34.0	862.5
Limit	-34.3	-32.6	83.3	141.2	140.3	179.5	187.9	169.4	112.1	96.2	19.1	-35.0	836.1
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Depletion Factors			25.3%	51.9%	58.9%	67.1%	66.3%	62.5%	47.8%	40.7%			41.7%
Return Flow Factors			74.7%	48.1%	41.1%	32.9%	33.7%	37.5%	52.2%	59.3%			58.3%
Winter RF	-3.8%	-3.8%									-0.7%	-3.9%	
Sum			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			100.0%

Table 28 - Transferrable Depletions Given Calculated Stream Depletion Factors

Farm Name or Designation: Diamond A East-01

Farm Headgate Deliveries multiplied by Avg Monthly Stream Depletion Factors limited by Avg-Max-3 Monthly and Annual Stream Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	14.4	63.6	102.2	158.3	164.3	122.5	65.8	32.9	0.0	0.0	724.1
1985	0.0	0.0	21.0	89.4	67.9	143.8	149.7	128.4	72.4	47.1	0.0	0.0	719.6
1986	0.0	0.0	38.4	97.6	123.5	117.0	136.3	118.8	57.3	44.4	0.0	0.0	733.3
1987	0.0	0.0	23.7	84.1	92.8	141.2	138.1	110.2	62.8	48.5	0.0	0.0	701.4
1988	0.0	0.0	17.9	70.0	82.5	142.5	105.8	106.8	62.2	49.7	0.0	0.0	637.5
1989	0.0	0.0	27.7	97.2	91.7	132.2	118.4	129.2	49.3	28.3	0.0	0.0	674.2
1990	0.0	0.0	11.9	93.1	82.2	135.1	123.1	112.5	44.5	43.4	0.0	0.0	645.9
1991	0.0	0.0	22.7	56.3	72.1	144.5	132.5	130.9	58.0	45.7	0.0	0.0	662.7
1992	0.0	0.0	21.2	116.8	116.3	110.0	129.0	118.9	74.6	51.1	0.0	0.0	737.7
1993	0.0	0.0	13.4	83.3	118.9	153.1	139.3	134.7	77.1	50.2	0.0	0.0	770.0
1994	0.0	0.0	29.7	111.3	105.2	168.3	149.2	115.3	72.5	55.1	0.0	0.0	806.7
1995	0.0	0.0	31.3	117.7	102.2	115.9	165.6	169.4	97.4	36.7	0.0	0.0	836.1
1996	0.0	0.0	46.0	115.9	120.8	163.5	152.8	120.3	70.8	46.1	0.0	0.0	836.1
1997	0.0	0.0	25.6	86.9	111.7	140.8	176.9	80.0	70.2	39.5	0.0	0.0	731.5
1998	0.0	0.0	13.3	102.7	131.3	152.8	154.7	99.9	82.4	49.2	0.0	0.0	786.2
1999	0.0	0.0	30.5	85.9	56.6	125.5	134.6	106.1	77.7	48.1	0.0	0.0	665.0
2000	0.0	0.0	37.4	92.2	106.8	132.2	121.4	88.8	31.8	41.9	0.0	0.0	652.5
2001	0.0	0.0	19.2	73.4	103.5	136.9	135.4	135.5	58.2	40.2	0.0	0.0	702.3
2002	0.0	0.0	18.5	16.9	13.6	48.4	54.7	0.0	0.0	0.0	0.0	0.0	152.1
2003	0.0	0.0	10.1	7.9	63.1	137.0	71.5	20.8	8.4	0.0	0.0	0.0	318.8
2004	0.0	0.0	5.1	69.0	114.9	120.6	107.1	93.5	18.8	28.3	0.0	0.0	557.2
2005	0.0	0.0	19.3	102.3	119.0	136.3	112.7	112.4	23.4	41.4	0.0	0.0	666.7
2006	0.0	0.0	14.6	24.9	82.3	136.6	116.7	105.5	59.5	52.3	0.0	0.0	592.4
2007	0.0	0.0	16.9	89.1	104.8	115.9	129.1	121.3	75.3	61.8	0.0	0.0	714.3
2008	0.0	0.0	28.6	116.6	114.1	159.0	144.3	110.0	70.9	54.0	0.0	0.0	797.4
2009	0.0	0.0	24.0	103.6	116.8	126.0	135.5	103.4	57.7	51.8	0.0	0.0	718.7
2010	0.0	0.0	14.7	82.6	116.1	141.1	122.4	110.5	18.6	37.0	0.0	0.0	643.0
2011	0.0	0.0	18.6	28.9	81.7	158.5	143.1	87.8	44.6	41.7	0.0	0.0	604.9
2012	0.0	0.0	13.1	40.9	83.2	61.1	51.2	12.4	0.0	0.0	0.0	0.0	261.9
2013	0.0	0.0	3.2	1.8	73.8	131.5	70.4	88.1	57.4	71.1	0.0	0.0	497.3
Average	0.0	0.0	21.1	77.4	95.7	132.9	126.2	103.1	54.0	41.2	0.0	0.0	651.6
Minimum	0.0	0.0	3.2	1.8	13.6	48.4	51.2	0.0	0.0	0.0	0.0	0.0	152.1
Maximum	0.0	0.0	46.0	117.7	131.3	168.3	176.9	169.4	97.4	71.1	0.0	0.0	836.1

Table 29 - Comparison of Historic Stream Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Diamond A East-01

Historic Stream Depletions less Transferrable Depletions Given Calculated Stream Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	3.4	2.5	16.5	22.3	27.4	21.8	23.4	-2.3	0.0	0.0	114.9
1985	0.0	0.0	11.1	14.2	-2.1	16.7	21.4	24.1	30.8	12.8	0.0	0.0	128.9
1986	0.0	0.0	50.2	25.6	26.3	6.2	15.3	18.1	4.5	6.9	0.0	0.0	153.2
1987	0.0	0.0	14.7	15.7	1.4	12.8	14.3	12.9	19.2	20.2	0.0	0.0	111.2
1988	0.0	0.0	0.2	0.2	0.5	11.9	0.5	9.6	17.0	22.1	0.0	0.0	62.1
1989	0.0	0.0	22.9	20.3	7.3	5.5	3.8	18.4	4.0	-8.8	0.0	0.0	73.4
1990	0.0	0.0	-15.5	16.3	-9.6	6.7	4.3	9.6	-1.6	2.4	0.0	0.0	12.5
1991	0.0	0.0	6.7	-7.1	-3.0	9.0	6.8	17.2	9.8	9.6	0.0	0.0	49.0
1992	0.0	0.0	2.8	29.6	14.6	-9.4	5.0	10.1	18.5	6.4	0.0	0.0	77.5
1993	0.0	0.0	-14.5	2.5	10.7	10.8	8.3	17.8	24.6	6.4	0.0	0.0	66.7
1994	0.0	0.0	19.8	18.7	3.3	15.4	11.0	7.9	20.7	13.0	0.0	0.0	110.0
1995	0.0	0.0	22.1	18.3	-9.1	-10.2	14.3	33.9	34.0	50.7	0.0	0.0	153.9
1996	0.0	0.0	52.3	24.0	8.6	10.6	7.2	7.0	1.8	34.7	0.0	0.0	146.3
1997	0.0	0.0	6.1	-2.2	7.6	-4.4	15.1	-16.4	7.6	-12.5	0.0	0.0	0.8
1998	0.0	0.0	-22.8	8.6	9.1	2.3	3.8	-10.6	15.7	-5.4	0.0	0.0	0.6
1999	0.0	0.0	12.1	-7.2	-26.1	-9.3	-6.3	-6.3	11.3	-8.1	0.0	0.0	-40.1
2000	0.0	0.0	25.7	1.7	0.5	-8.1	-10.1	-14.8	-26.9	-3.9	0.0	0.0	-35.9
2001	0.0	0.0	-12.4	-9.5	-14.3	-7.5	-5.7	5.4	-3.9	-6.9	0.0	0.0	-54.8
2002	0.0	0.0	-16.6	-43.9	-49.3	-39.3	-36.1	-56.6	-56.7	-56.6	0.0	0.0	-355.0
2003	0.0	0.0	-30.1	-50.4	-22.0	-7.4	-29.4	-46.6	-48.4	-55.9	0.0	0.0	-290.3
2004	0.0	0.0	-41.8	-2.9	7.8	-11.4	-14.3	-11.4	-36.9	-18.7	0.0	0.0	-129.5
2005	0.0	0.0	-10.8	8.1	8.5	-3.2	-9.4	-0.1	-30.0	0.1	0.0	0.0	-36.9
2006	0.0	0.0	-15.9	-31.1	-4.8	-0.8	-5.7	-1.1	4.6	11.9	0.0	0.0	-43.0
2007	0.0	0.0	-9.5	0.2	3.7	-8.7	0.1	7.4	20.1	28.4	0.0	0.0	41.8
2008	0.0	0.0	14.2	20.9	11.2	9.4	6.5	2.9	16.8	6.5	0.0	0.0	88.4
2009	0.0	0.0	4.7	17.4	10.9	-2.2	2.0	-0.1	4.8	2.8	0.0	0.0	40.1
2010	0.0	0.0	-15.8	2.2	7.7	2.5	-3.5	1.2	-31.3	-2.4	0.0	0.0	-39.4
2011	0.0	0.0	-8.3	-26.8	-4.1	8.0	4.8	-8.7	-8.5	2.6	0.0	0.0	-41.1
2012	0.0	0.0	-15.0	-18.8	-3.6	-27.0	-29.7	-43.2	-48.9	-48.8	0.0	0.0	-234.8
2013	0.0	0.0	-40.0	-47.0	-8.1	-1.2	-21.7	-7.7	4.0	40.0	0.0	0.0	-81.7
Average	0.0	0.0	-0.0	-0.0	0.0	-0.0	-0.0	0.1	0.0	1.6	0.0	0.0	1.6
Minimum	0.0	0.0	-41.8	-50.4	-49.3	-39.3	-36.1	-56.6	-56.7	-56.6	0.0	0.0	-355.0
Maximum	0.0	0.0	52.3	29.6	26.3	22.3	27.4	33.9	34.0	50.7	0.0	0.0	153.9

Table 30 - Other Input Data Used For Analysis

Farm Name or Designation: Diamond A East-01

Notes:

Year (Cal)	Farm Shares	Ditch Shares	Ditch (acres)	Canal Loss	Off-Farm Lat Loss	On-Farm Lat Loss	SEVA Loss	Flood AppEff	Sprinkler AppEff	Drip AppEff	Flood Tailwater	Force Tailwater	Spray Loss	AWC (%)	RootDepth (ft)
1984	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1985	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1986	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1987	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1988	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1989	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1990	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1991	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1992	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1993	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1994	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1995	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1996	278.53	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1997	278.53	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1998	278.53	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1999	278.53	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2000	278.53	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2001	278.53	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2002	278.53	18660	13301	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2003	278.53	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2004	278.53	18660	15021	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2005	278.53	18660	17281	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2006	278.53	18660	17491	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2007	278.53	18660	17380	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2008	278.53	18660	16321	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2009	278.53	18660	17480	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2010	278.53	18660	17657	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2011	278.53	18660	17493	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2012	278.53	18660	17348	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2013	278.53	18660	14240	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Average	278.53	18660	16579.97	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Minimum	278.53	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Maximum	278.53	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4

APPENDIX

G

Table 1 - Summary Period Average and Maximum Values for Selected Variables

Farm Name or Designation: Hanagan-06

Summary Period: 1984 - 2013

Notes:

Period	Farm	Farm	App.	Alfalfa	Grass	Corn_Grn	Corn_Sil	Spr_Grn	Sorghum	Win_Wht	Vegetable	Beans	Beets
	Shares	Acres	Eff.	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Average	171.0	112.4	0.55	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Maximum	171.0	117.7	0.55	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)	(AF or %)
River Headgate Diversions for All Sources Considered in Pilot Project Plan													
Average	0.0	71.2	6469.9	11612.6	12648.6	15409.4	14822.9	12853.2	8790.7	8183.5	3577.9	0.0	94439.9
Farm Headgate Delivery													
Average	0.0	0.6	51.0	91.6	99.8	121.5	116.9	101.4	69.3	64.5	28.2	0.0	744.9
Maximum	0.0	12.6	111.4	139.3	136.8	154.0	163.9	168.2	125.1	107.2	51.0	0.0	1024.4
Limit	0.0	5.6	98.3	138.5	130.5	149.7	156.5	144.6	110.2	101.0	47.5	0.0	990.2
Farm Crop Potential Evapotranspiration													
Average	0.0	0.0	3.0	18.4	41.3	63.7	72.5	58.7	28.4	9.7	0.7	0.0	296.4
Farm Effective Precipitation													
Average	2.5	2.9	7.3	10.4	13.2	12.4	16.5	14.9	7.7	7.6	3.9	3.2	102.6
Farm Irrigation Water Requirement													
Average	0.0	0.0	1.0	9.9	28.1	51.3	56.1	43.8	20.6	4.4	0.2	0.0	215.4
Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture													
Average	0.0	0.0	0.9	9.6	27.7	49.8	52.6	39.3	18.5	3.6	0.2	0.0	202.3
Total Return Flows at Farm													
Average	0.0	0.6	49.5	81.3	72.4	72.0	66.8	62.7	51.4	58.3	27.7	0.0	542.6
Tailwater/Surface Runoff Return Flows at Farm													
Average	0.0	0.1	9.9	16.3	14.5	14.4	13.4	12.5	10.3	11.7	5.5	0.0	108.5
Deep Percolation/Ground Water Return Flows at Farm (unlagged)													
Average	0.0	0.4	39.6	65.0	58.0	57.6	53.5	50.2	41.1	46.6	22.1	0.0	434.1
Historical Depletions at Farm													
Average	0.0	0.0	1.5	10.3	27.3	49.6	50.1	38.7	18.0	6.3	0.6	0.0	202.2
Maximum	0.0	0.0	13.5	43.1	49.2	68.9	68.0	65.5	40.5	42.7	9.4	0.0	280.7
Limit	0.0	0.0	9.8	26.6	45.6	68.7	66.3	59.6	33.9	31.6	4.2	0.0	254.4
Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased													
Average	0.0	0.4	40.0	104.3	159.0	209.9	253.5	290.9	317.0	346.9	351.2	332.7	353.4
Maximum	0.0	10.1	99.0	192.4	264.9	327.7	385.3	430.2	485.7	533.9	539.9	511.4	539.9
Limit	0.0	4.5	81.7	173.5	246.4	304.1	359.5	409.7	455.2	500.7	506.5	479.9	506.5
Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries													
Average			74.3%	69.3%	63.1%	56.1%	51.4%	48.7%	47.3%	47.0%	45.7%	43.3%	46.2%
Maximum		80.0%	80.0%	79.5%	78.0%	70.8%	63.1%	57.4%	55.6%	54.8%	53.1%	50.3%	53.1%
Limit			80.0%	79.5%	74.2%	65.1%	59.2%	55.2%	53.7%	53.3%	51.8%	49.1%	52.0%
Deep Percolation/Ground Water Return Flows at Stream (lagged)													
Average	38.1	35.8	33.4	31.9	32.4	34.1	35.9	37.4	38.5	39.1	39.4	39.2	435.2
Total Return Flows at Stream													
Average	38.1	35.9	43.3	48.2	46.9	48.5	49.3	50.0	48.8	50.8	44.9	39.2	543.7
Historical Depletions at Stream including Depletion and Return Flow Factors													
Average	-38.1	-35.3	7.8	43.4	52.9	73.0	67.7	51.4	20.5	13.7	-16.7	-39.2	201.2
Maximum	-21.9	-21.0	45.4	84.3	86.1	98.8	100.8	100.7	57.0	71.0	11.6	-22.7	311.6
Limit	-23.3	-22.3	40.4	79.4	81.1	97.0	95.5	85.3	49.3	46.9	1.8	-23.9	307.6
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	3.0%	11.3%	27.4%	40.8%	42.8%	38.1%	25.9%	9.7%	2.0%		27.2%
TW Returns		20.0%	19.4%	17.7%	14.5%	11.8%	11.4%	12.4%	14.8%	18.1%	19.6%		14.6%
DP Returns		80.0%	77.6%	71.0%	58.1%	47.4%	45.7%	49.5%	59.3%	72.2%	78.4%		58.3%
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD													
Depletion Factors			15.2%	47.4%	53.0%	60.1%	57.9%	50.7%	29.6%	21.3%			27.0%
Return Flow Factors			84.8%	52.6%	47.0%	39.9%	42.1%	49.3%	70.4%	78.7%			73.0%
Winter RF	-5.1%	-4.7%									-2.2%	-5.3%	

Lease Fallow Tool LFTengine_v3 24-Sep-2014 12:48:18 C:\LFT\LFT_FarmDataTemplate_v3.xlsm Hanagan-06

Table 2 - River Headgate Diversions for All Sources Considered in Pilot Project Plan

Farm Name or Designation: Hanagan-06

Catlin Canal D1700552; Sources Included and Excluded:

Notes: Explain period of record as being representative, and list source of data and rights included and excluded. Total Direct Flow plus Winter Water Diversions from Bill Tyner QA/QC Catlin1950-2012Final.xlsx updated to 2013

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0	0	4,431	9,541	13,503	18,362	19,304	15,254	10,719	6,294	2,985	0	100,393
1985	0	0	6,441	13,406	8,970	16,678	17,590	15,992	11,792	8,998	3,370	0	103,237
1986	0	129	11,801	14,638	16,316	13,574	16,005	14,802	9,335	8,490	2,832	0	107,922
1987	0	0	7,288	12,612	12,268	16,378	16,216	13,721	10,218	9,280	5,136	0	103,119
1988	0	0	5,502	10,504	10,903	16,524	12,428	13,305	10,136	9,502	4,645	0	93,449
1989	0	0	8,515	14,587	12,123	15,331	13,914	16,090	8,033	5,417	3,855	0	97,866
1990	0	0	3,669	13,968	10,867	15,668	14,461	14,013	7,242	8,301	3,504	0	91,693
1991	0	0	6,962	8,441	9,533	16,766	15,564	16,306	9,447	8,730	0	0	91,749
1992	0	0	6,518	17,517	15,363	12,754	15,149	14,806	12,147	9,761	4,157	0	108,171
1993	0	0	4,124	12,505	15,715	17,757	16,362	16,774	12,548	9,600	4,169	0	109,554
1994	0	0	9,115	16,704	13,905	19,523	17,529	14,367	11,807	10,531	4,437	0	117,917
1995	0	0	9,602	17,655	13,508	13,443	19,452	21,326	15,859	12,617	5,388	0	128,850
1996	0	1,603	14,126	17,384	15,965	18,970	17,944	14,981	11,528	12,203	5,174	0	129,879
1997	0	0	7,861	13,041	14,755	16,328	20,777	9,964	11,438	7,543	0	0	101,708
1998	0	0	4,084	15,413	17,345	17,724	18,166	12,442	13,415	9,398	3,989	0	111,978
1999	0	0	9,354	12,889	7,484	14,555	15,805	13,219	12,659	9,194	4,083	0	99,242
2000	0	405	11,480	13,831	14,110	15,331	14,266	11,067	5,173	8,007	4,122	0	97,792
2001	0	0	5,909	11,010	13,672	15,878	15,909	16,883	9,471	7,680	4,429	0	100,841
2002	0	0	5,693	2,536	1,794	5,613	6,423	0	0	0	390	0	22,449
2003	0	0	3,114	1,184	8,335	15,888	8,400	2,590	1,373	0	2,168	0	43,052
2004	0	0	1,568	10,358	15,182	13,986	12,575	11,641	3,054	5,403	6,467	0	80,235
2005	0	0	5,918	15,353	15,719	15,811	13,234	13,995	3,814	7,909	4,622	0	96,375
2006	0	0	4,471	3,739	10,880	15,847	13,708	13,145	9,689	9,988	3,399	0	84,866
2007	0	0	5,184	13,371	13,851	13,448	15,167	15,115	12,258	11,808	5,325	0	105,526
2008	0	0	8,776	17,500	15,073	18,441	16,950	13,707	11,543	10,314	4,431	0	116,732
2009	0	0	7,369	15,540	15,434	14,617	15,913	12,874	9,388	9,902	3,322	0	104,360
2010	0	0	4,521	12,398	15,345	16,368	14,372	13,760	3,023	7,081	6,207	0	93,073
2011	0	0	5,699	4,336	10,793	18,381	16,812	10,942	7,264	7,969	4,729	0	86,924
2012	0	0	4,014	6,143	10,993	7,089	6,015	1,545	0	0	0	0	35,798
2013	0	0	990	277	9,752	15,249	8,275	10,972	9,345	13,587	0	0	68,446
Average	0	71	6,470	11,613	12,649	15,409	14,823	12,853	8,791	8,184	3,578	0	94,440
Minimum	0	0	990	277	1,794	5,613	6,015	0	0	0	0	0	22,449
Maximum	0	1,603	14,126	17,655	17,345	19,523	20,777	21,326	15,859	13,587	6,467	0	129,879
Limit	0	712	12,469	17,557	16,542	18,978	19,844	18,328	13,978	12,802	6,021	0	125,549

Table 3 - River Headgate Diversions Pro-Rata by Share or Percent of Water Right for Pilot Project Farm

Farm Name or Designation: Hanagan-06

Catlin Canal D1700552; For Summary Period Pro-Rata Ownership: 0.9164%

Notes: Variable shares or prorata acres ownership shown in constants table

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	40.6	87.4	123.7	168.3	176.9	139.8	98.2	57.7	27.4	0.0	920.0
1985	0.0	0.0	59.0	122.9	82.2	152.8	161.2	146.6	108.1	82.5	30.9	0.0	946.1
1986	0.0	1.2	108.1	134.1	149.5	124.4	146.7	135.6	85.5	77.8	26.0	0.0	989.0
1987	0.0	0.0	66.8	115.6	112.4	150.1	148.6	125.7	93.6	85.0	47.1	0.0	945.0
1988	0.0	0.0	50.4	96.3	99.9	151.4	113.9	121.9	92.9	87.1	42.6	0.0	856.4
1989	0.0	0.0	78.0	133.7	111.1	140.5	127.5	147.5	73.6	49.6	35.3	0.0	896.8
1990	0.0	0.0	33.6	128.0	99.6	143.6	132.5	128.4	66.4	76.1	32.1	0.0	840.3
1991	0.0	0.0	63.8	77.4	87.4	153.6	142.6	149.4	86.6	80.0	0.0	0.0	840.8
1992	0.0	0.0	59.7	160.5	140.8	116.9	138.8	135.7	111.3	89.4	38.1	0.0	991.3
1993	0.0	0.0	37.8	114.6	144.0	162.7	149.9	153.7	115.0	88.0	38.2	0.0	1003.9
1994	0.0	0.0	83.5	153.1	127.4	178.9	160.6	131.7	108.2	96.5	40.7	0.0	1080.6
1995	0.0	0.0	88.0	161.8	123.8	123.2	178.3	195.4	145.3	115.6	49.4	0.0	1180.8
1996	0.0	14.7	129.5	159.3	146.3	173.8	164.4	137.3	105.6	111.8	47.4	0.0	1190.2
1997	0.0	0.0	72.0	119.5	135.2	149.6	190.4	91.3	104.8	69.1	0.0	0.0	932.1
1998	0.0	0.0	37.4	141.2	159.0	162.4	166.5	114.0	122.9	86.1	36.6	0.0	1026.2
1999	0.0	0.0	85.7	118.1	68.6	133.4	144.8	121.1	116.0	84.2	37.4	0.0	909.5
2000	0.0	3.7	105.2	126.8	129.3	140.5	130.7	101.4	47.4	73.4	37.8	0.0	896.2
2001	0.0	0.0	54.1	100.9	125.3	145.5	145.8	154.7	86.8	70.4	40.6	0.0	924.1
2002	0.0	0.0	52.2	23.2	16.4	51.4	58.9	0.0	0.0	0.0	3.6	0.0	205.7
2003	0.0	0.0	28.5	10.9	76.4	145.6	77.0	23.7	12.6	0.0	19.9	0.0	394.5
2004	0.0	0.0	14.4	94.9	139.1	128.2	115.2	106.7	28.0	49.5	59.3	0.0	735.3
2005	0.0	0.0	54.2	140.7	144.1	144.9	121.3	128.2	35.0	72.5	42.4	0.0	883.2
2006	0.0	0.0	41.0	34.3	99.7	145.2	125.6	120.5	88.8	91.5	31.2	0.0	777.7
2007	0.0	0.0	47.5	122.5	126.9	123.2	139.0	138.5	112.3	108.2	48.8	0.0	967.0
2008	0.0	0.0	80.4	160.4	138.1	169.0	155.3	125.6	105.8	94.5	40.6	0.0	1069.7
2009	0.0	0.0	67.5	142.4	141.4	133.9	145.8	118.0	86.0	90.7	30.4	0.0	956.4
2010	0.0	0.0	41.4	113.6	140.6	150.0	131.7	126.1	27.7	64.9	56.9	0.0	852.9
2011	0.0	0.0	52.2	39.7	98.9	168.4	154.1	100.3	66.6	73.0	43.3	0.0	796.6
2012	0.0	0.0	36.8	56.3	100.7	65.0	55.1	14.2	0.0	0.0	0.0	0.0	328.1
2013	0.0	0.0	9.1	2.5	89.4	139.7	75.8	100.5	85.6	124.5	0.0	0.0	627.2
Average	0.0	0.7	59.3	106.4	115.9	141.2	135.8	117.8	80.6	75.0	32.8	0.0	865.4
Minimum	0.0	0.0	9.1	2.5	16.4	51.4	55.1	0.0	0.0	0.0	0.0	0.0	205.7
Maximum	0.0	14.7	129.5	161.8	159.0	178.9	190.4	195.4	145.3	124.5	59.3	0.0	1190.2
Limit	0.0	6.5	114.3	160.9	151.6	173.9	181.9	168.0	128.1	117.3	55.2	0.0	1150.5

Table 4 - Farm Headgate Delivery

Farm Name or Designation: Hanagan-06

Catlin Canal D1700552; For Summary Period Canal Loss: 10.4309%, Off-Farm Lateral Loss: 3.5%

Notes: Reference source of canal/off-farm loss data

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	34.9	75.3	106.5	144.8	152.3	120.3	84.5	49.6	23.5	0.0	791.8
1985	0.0	0.0	50.8	105.7	70.7	131.5	138.7	126.1	93.0	71.0	26.6	0.0	814.3
1986	0.0	1.0	93.1	115.5	128.7	107.1	126.2	116.7	73.6	67.0	22.3	0.0	851.2
1987	0.0	0.0	57.5	99.5	96.8	129.2	127.9	108.2	80.6	73.2	40.5	0.0	813.3
1988	0.0	0.0	43.4	82.8	86.0	130.3	98.0	104.9	79.9	74.9	36.6	0.0	737.1
1989	0.0	0.0	67.2	115.1	95.6	120.9	109.7	126.9	63.4	42.7	30.4	0.0	771.9
1990	0.0	0.0	28.9	110.2	85.7	123.6	114.1	110.5	57.1	65.5	27.6	0.0	723.2
1991	0.0	0.0	54.9	66.6	75.2	132.2	122.8	128.6	74.5	68.9	0.0	0.0	723.7
1992	0.0	0.0	51.4	138.2	121.2	100.6	119.5	116.8	95.8	77.0	32.8	0.0	853.2
1993	0.0	0.0	32.5	98.6	124.0	140.1	129.1	132.3	99.0	75.7	32.9	0.0	864.1
1994	0.0	0.0	71.9	131.7	109.7	154.0	138.3	113.3	93.1	83.1	35.0	0.0	930.1
1995	0.0	0.0	75.7	139.3	106.5	106.0	153.4	168.2	125.1	99.5	42.5	0.0	1016.3
1996	0.0	12.6	111.4	137.1	125.9	149.6	141.5	118.2	90.9	96.2	40.8	0.0	1024.4
1997	0.0	0.0	62.0	102.9	116.4	128.8	163.9	78.6	90.2	59.5	0.0	0.0	802.2
1998	0.0	0.0	32.2	121.6	136.8	139.8	143.3	98.1	105.8	74.1	31.5	0.0	883.2
1999	0.0	0.0	73.8	101.7	59.0	114.8	124.7	104.3	99.8	72.5	32.2	0.0	782.8
2000	0.0	3.2	90.6	109.1	111.3	120.9	112.5	87.3	40.8	63.2	32.5	0.0	771.3
2001	0.0	0.0	46.6	86.8	107.8	125.2	125.5	133.2	74.7	60.6	34.9	0.0	795.4
2002	0.0	0.0	44.9	20.0	14.2	44.3	50.7	0.0	0.0	0.0	3.1	0.0	177.1
2003	0.0	0.0	24.6	9.3	65.7	125.3	66.3	20.4	10.8	0.0	17.1	0.0	339.6
2004	0.0	0.0	12.4	81.7	119.7	110.3	99.2	91.8	24.1	42.6	51.0	0.0	632.8
2005	0.0	0.0	46.7	121.1	124.0	124.7	104.4	110.4	30.1	62.4	36.5	0.0	760.1
2006	0.0	0.0	35.3	29.5	85.8	125.0	108.1	103.7	76.4	78.8	26.8	0.0	669.4
2007	0.0	0.0	40.9	105.5	109.2	106.1	119.6	119.2	96.7	93.1	42.0	0.0	832.3
2008	0.0	0.0	69.2	138.0	118.9	145.4	133.7	108.1	91.0	81.3	34.9	0.0	920.7
2009	0.0	0.0	58.1	122.6	121.7	115.3	125.5	101.5	74.0	78.1	26.2	0.0	823.1
2010	0.0	0.0	35.7	97.8	121.0	129.1	113.4	108.5	23.8	55.8	49.0	0.0	734.1
2011	0.0	0.0	44.9	34.2	85.1	145.0	132.6	86.3	57.3	62.9	37.3	0.0	685.6
2012	0.0	0.0	31.7	48.5	86.7	55.9	47.4	12.2	0.0	0.0	0.0	0.0	282.4
2013	0.0	0.0	7.8	2.2	76.9	120.3	65.3	86.5	73.7	107.2	0.0	0.0	539.9
Average	0.0	0.6	51.0	91.6	99.8	121.5	116.9	101.4	69.3	64.5	28.2	0.0	744.9
Minimum	0.0	0.0	7.8	2.2	14.2	44.3	47.4	0.0	0.0	0.0	0.0	0.0	177.1
Maximum	0.0	12.6	111.4	139.3	136.8	154.0	163.9	168.2	125.1	107.2	51.0	0.0	1024.4
Limit	0.0	5.6	98.3	138.5	130.5	149.7	156.5	144.6	110.2	101.0	47.5	0.0	990.2

Table 5 - Farm Crop Acreages and Crop Distributions

Farm Name or Designation: Hanagan-06

For Summary Period Farm Acres: 112.4343 acres, Crop Distribution:

Notes: Provide information on source of crop data. HI Model Crop Distribution for Otero County (unitized)

Year	Flood	Sprinkler	Drip	Alfalfa	Grass	Corn_Grn	Corn_Sil	Spr_Grn	Sorghum	Win_Wht	Vegetable	Beans	Beets
(Cal)	(Acres)	(Acres)	(Acres)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	114.9	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1985	114.9	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1986	114.9	0.0	0.0	38.00%	7.00%	24.00%	8.00%	2.00%	4.00%	8.00%	8.00%	1.00%	0.00%
1987	114.9	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1988	114.9	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1989	115.2	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1990	115.5	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1991	115.7	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1992	116.0	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1993	116.3	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1994	116.6	0.0	0.0	39.46%	7.49%	30.37%	3.60%	1.10%	2.20%	8.09%	5.69%	2.00%	0.00%
1995	116.9	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1996	117.1	0.0	0.0	43.96%	4.60%	28.37%	3.40%	2.20%	1.20%	8.49%	5.39%	2.40%	0.00%
1997	117.4	0.0	0.0	39.10%	7.20%	35.00%	2.90%	1.30%	0.70%	7.20%	5.20%	1.40%	0.00%
1998	117.7	0.0	0.0	36.14%	5.61%	35.64%	1.50%	2.20%	0.60%	11.21%	5.41%	1.70%	0.00%
1999	115.9	0.0	0.0	35.80%	3.60%	36.40%	3.60%	1.30%	0.00%	11.80%	5.30%	2.20%	0.00%
2000	114.2	0.0	0.0	34.07%	3.30%	34.57%	4.60%	1.10%	2.70%	12.79%	5.29%	1.60%	0.00%
2001	112.4	0.0	0.0	42.16%	5.19%	29.87%	1.50%	1.90%	3.90%	8.79%	5.39%	1.30%	0.00%
2002	110.6	0.0	0.0	52.25%	3.00%	19.52%	9.61%	1.00%	2.00%	5.01%	5.81%	1.80%	0.00%
2003	108.8	0.0	0.0	68.33%	12.09%	0.80%	0.00%	0.00%	2.70%	7.49%	7.79%	0.80%	0.00%
2004	107.1	0.0	0.0	76.98%	0.00%	5.11%	0.00%	0.00%	0.60%	8.01%	9.31%	0.00%	0.00%
2005	105.3	0.0	0.0	53.70%	15.00%	15.50%	1.30%	0.00%	0.20%	8.60%	4.20%	1.50%	0.00%
2006	105.9	0.0	0.0	63.00%	20.80%	5.10%	1.20%	0.00%	0.00%	4.60%	4.80%	0.50%	0.00%
2007	106.5	0.0	0.0	50.80%	16.00%	18.10%	0.90%	0.00%	2.30%	7.80%	3.60%	0.50%	0.00%
2008	107.0	0.0	0.0	45.00%	15.60%	21.70%	0.60%	0.00%	1.70%	11.50%	3.50%	0.40%	0.00%
2009	107.6	0.0	0.0	44.70%	14.90%	20.30%	0.40%	0.00%	1.60%	14.20%	3.40%	0.50%	0.00%
2010	108.2	0.0	0.0	41.70%	15.00%	24.10%	0.50%	0.00%	1.60%	13.20%	3.30%	0.60%	0.00%
2011	108.2	0.0	0.0	48.97%	12.70%	19.48%	6.08%	0.76%	5.72%	3.97%	2.24%	0.09%	0.00%
2012	108.2	0.0	0.0	55.20%	18.71%	8.83%	3.75%	1.96%	6.08%	3.61%	1.86%	0.00%	0.00%
2013	108.2	0.0	0.0	66.29%	9.32%	1.41%	0.72%	0.00%	12.51%	6.35%	3.26%	0.14%	0.00%
Average	112.4	0.0	0.0	45.73%	8.94%	23.44%	3.29%	1.02%	2.56%	8.39%	5.33%	1.29%	0.00%
Minimum	105.3	0.0	0.0	34.07%	0.00%	0.80%	0.00%	0.00%	0.00%	3.61%	1.86%	0.00%	0.00%
Maximum	117.7	0.0	0.0	76.98%	20.80%	36.40%	9.61%	2.20%	12.51%	14.20%	9.31%	2.40%	0.00%

Table 6 - Farm Crop Potential Evapotranspiration

Farm Name or Designation: Hanagan-06

For Summary Period Farm Acres: 112.4343 acres, PET:

Notes: Provide information on PET calculation method and climate stations. RECALCULATED - MBC TR21 PET (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167 and Crop Distribution from User Supplied Table (unitized)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	8.2	38.8	59.9	73.5	61.9	28.7	3.1	0.4	0.0	274.6
1985	0.0	0.0	2.3	19.8	40.8	62.7	71.6	58.3	21.0	3.5	0.1	0.0	280.1
1986	0.0	0.0	6.7	21.6	38.6	64.3	70.6	53.7	20.9	7.6	0.4	0.0	284.5
1987	0.0	0.0	0.6	17.4	39.6	64.9	75.5	56.2	23.0	7.5	0.4	0.0	285.1
1988	0.0	0.0	0.8	13.1	37.9	66.2	72.6	61.8	28.2	12.2	0.9	0.0	293.7
1989	0.0	0.0	4.6	20.9	43.7	58.4	72.7	56.2	21.5	10.0	0.7	0.0	288.8
1990	0.0	0.0	1.4	17.3	34.7	69.8	68.1	56.8	29.6	10.3	1.2	0.0	289.2
1991	0.0	0.0	2.0	17.1	43.8	67.4	69.7	59.3	26.1	11.9	0.0	0.0	297.3
1992	0.0	0.0	4.2	22.9	43.9	57.3	67.8	50.3	23.7	7.0	0.0	0.0	277.0
1993	0.0	0.0	1.3	16.2	37.6	61.4	75.5	57.6	24.8	11.3	0.0	0.0	285.7
1994	0.0	0.0	3.2	18.6	42.8	73.6	72.5	62.8	26.3	11.6	0.6	0.0	312.0
1995	0.0	0.0	1.5	8.7	31.2	53.0	68.2	69.2	34.7	8.3	0.8	0.0	275.7
1996	0.0	0.0	1.0	21.5	50.6	68.9	74.0	58.8	23.7	10.9	0.6	0.0	310.0
1997	0.0	0.0	2.3	9.0	38.5	61.4	77.1	61.4	35.0	10.8	0.1	0.0	295.6
1998	0.0	0.0	1.0	15.0	44.9	61.5	77.3	57.6	30.0	10.8	1.4	0.0	299.7
1999	0.0	0.0	0.0	1.9	35.0	57.5	76.0	62.6	32.8	3.5	2.0	0.0	271.4
2000	0.0	0.0	4.9	21.5	43.4	64.6	72.3	57.9	20.5	12.5	0.7	0.0	298.5
2001	0.0	0.0	1.9	22.1	39.7	68.0	79.2	57.9	23.6	5.9	1.1	0.0	299.5
2002	0.0	0.0	0.6	23.9	43.2	72.5	80.1	61.2	25.3	6.9	0.1	0.0	313.6
2003	0.0	0.0	5.0	28.4	47.6	59.3	80.4	61.9	33.3	14.1	0.6	0.0	330.5
2004	0.0	0.0	10.1	23.4	49.8	58.9	65.1	51.0	34.4	8.3	0.2	0.0	301.0
2005	0.0	0.0	0.9	16.8	38.9	57.5	67.1	57.4	36.1	15.9	1.8	0.0	292.2
2006	0.0	0.0	4.7	28.7	48.0	70.7	74.7	58.7	28.5	13.3	1.0	0.0	328.2
2007	0.0	0.0	5.8	18.6	40.6	58.7	69.5	64.4	35.0	14.6	1.4	0.0	308.6
2008	0.0	0.0	3.0	17.6	40.2	61.6	71.2	55.5	29.9	14.6	1.7	0.0	295.3
2009	0.0	0.0	4.0	22.4	43.0	56.7	61.4	49.7	25.9	5.3	0.0	0.0	268.4
2010	0.0	0.0	2.2	20.8	37.9	63.7	67.0	55.8	30.7	15.6	1.1	0.0	294.8
2011	0.0	0.0	3.5	19.8	35.7	66.8	78.2	66.7	27.2	10.3	0.5	0.0	308.6
2012	0.0	0.0	10.1	26.6	45.4	75.1	77.2	57.6	30.7	7.7	1.0	0.0	331.3
2013	0.0	0.0	0.6	12.5	42.2	68.9	69.6	61.1	40.0	6.2	0.2	0.0	301.3
Average	0.0	0.0	3.0	18.4	41.3	63.7	72.5	58.7	28.4	9.7	0.7	0.0	296.4
Minimum	0.0	0.0	0.0	1.9	31.2	53.0	61.4	49.7	20.5	3.1	0.0	0.0	268.4
Maximum	0.0	0.0	10.1	28.7	50.6	75.1	80.4	69.2	40.0	15.9	2.0	0.0	331.3

Table 7 - Farm Precipitation

Farm Name or Designation: Hanagan-06

Climate Station:

Notes: Provide information source of climate data and climate stations used. Precipitation (from StateCU CDSS ArkclimLFT) from NOAA station: ROCKY FORD 2 SE USC00057167

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	1.2	6.4	16.9	12.3	11.7	2.3	26.8	17.6	5.3	14.2	1.1	3.2	119.0
1985	8.1	3.0	6.2	22.0	28.0	5.7	19.9	4.3	5.4	11.4	7.5	2.3	123.8
1986	1.1	1.0	1.8	6.3	3.9	22.5	33.9	14.3	19.0	13.5	5.9	0.7	123.8
1987	1.6	10.1	4.9	3.7	35.1	20.9	7.9	11.4	5.5	1.0	3.4	5.4	110.7
1988	2.8	5.0	8.8	12.4	20.3	13.8	12.7	3.3	7.4	0.2	0.2	3.4	90.2
1989	1.2	2.5	3.2	5.5	15.0	18.2	8.7	18.1	15.8	1.7	0.5	1.9	92.4
1990	7.7	7.6	9.2	2.7	35.0	3.7	47.3	11.7	22.8	10.4	10.3	3.8	172.2
1991	4.1	1.0	14.0	7.7	6.8	13.9	20.2	8.8	11.6	7.0	11.6	5.7	112.3
1992	2.7	3.0	7.7	4.0	11.5	37.1	17.8	17.3	0.0	6.7	9.4	2.2	119.4
1993	1.4	7.4	14.4	15.6	14.4	4.2	15.1	15.1	3.3	7.9	11.4	0.2	110.4
1994	2.9	0.3	8.3	13.7	24.2	5.1	7.9	24.9	8.5	7.6	6.8	1.2	111.1
1995	0.9	1.7	9.7	18.4	39.1	27.9	14.6	4.0	6.6	0.0	0.0	0.1	123.1
1996	0.9	1.7	11.2	4.1	26.5	13.6	27.8	14.9	20.9	3.5	1.5	4.0	130.5
1997	3.8	5.7	2.6	17.4	2.4	24.9	17.9	50.3	13.3	20.8	7.7	11.4	178.4
1998	0.9	3.6	9.1	5.4	16.2	3.5	36.0	31.8	2.6	22.1	10.3	2.3	143.7
1999	1.9	0.2	11.5	44.7	20.9	9.4	65.6	27.0	4.8	5.2	1.5	0.4	193.1
2000	3.1	1.8	19.9	7.8	7.6	5.7	11.9	12.8	7.3	10.7	1.0	1.6	91.4
2001	6.5	2.4	3.2	8.5	35.3	20.7	17.9	2.5	4.9	0.2	6.4	3.9	112.4
2002	2.9	1.3	0.8	1.3	0.8	7.2	0.6	4.5	5.9	3.3	0.7	4.3	33.7
2003	0.0	4.5	8.1	21.0	11.2	20.7	4.6	4.9	4.1	0.9	1.8	2.0	83.9
2004	3.1	3.4	0.9	35.0	0.6	23.6	31.1	43.7	5.7	2.9	7.5	0.7	158.2
2005	3.9	2.1	13.7	7.5	4.3	9.3	4.0	19.0	12.2	17.9	0.4	2.2	96.4
2006	5.4	0.0	8.0	2.7	13.5	2.5	28.7	36.4	17.6	20.3	1.3	14.6	151.0
2007	3.1	1.2	1.0	19.6	13.1	29.0	3.5	18.5	7.5	4.3	0.4	3.6	104.7
2008	2.0	4.0	4.1	7.8	5.4	6.9	6.3	43.8	0.4	15.3	2.0	1.5	99.5
2009	0.0	1.3	7.4	6.1	11.4	14.6	24.5	7.8	5.7	30.5	3.4	1.7	114.3
2010	3.8	6.0	17.4	11.2	11.0	18.2	35.8	21.4	1.8	0.4	0.8	2.6	130.3
2011	1.1	2.2	4.3	3.2	7.2	15.1	14.9	9.6	5.3	2.8	6.8	13.9	86.3
2012	0.2	0.8	1.1	11.5	6.2	1.2	9.9	0.6	7.9	1.7	0.1	0.8	42.0
2013	0.5	0.8	3.3	6.0	1.8	8.1	5.0	13.1	8.6	3.3	2.4	0.8	53.8
Average	2.6	3.1	7.8	11.5	14.7	13.6	19.3	17.1	8.2	8.3	4.1	3.4	113.7
Minimum	0.0	0.0	0.8	1.3	0.6	1.2	0.6	0.6	0.0	0.0	0.0	0.1	33.7
Maximum	8.1	10.1	19.9	44.7	39.1	37.1	65.6	50.3	22.8	30.5	11.6	14.6	193.1

Table 8 - Farm Effective Precipitation

Farm Name or Designation: Hanagan-06

Method Used: USBR with HI model coefficients

Notes: USBR Methodology Used as Implemented in HI Model.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	1.2	6.1	15.7	11.5	11.0	2.2	24.0	16.3	5.0	13.2	1.1	3.0	110.4
1985	7.7	2.8	5.9	20.1	25.0	5.5	18.3	4.1	5.1	10.7	7.1	2.2	114.5
1986	1.0	0.9	1.7	6.0	3.7	20.5	29.0	13.3	17.5	12.6	5.6	0.6	112.6
1987	1.5	9.5	4.6	3.5	29.8	19.1	7.5	10.7	5.2	0.9	3.2	5.1	100.7
1988	2.6	4.7	8.4	11.7	18.7	12.9	11.9	3.1	7.0	0.2	0.2	3.2	84.6
1989	1.2	2.4	3.0	5.2	14.0	16.9	8.3	16.8	14.7	1.6	0.5	1.8	86.4
1990	7.3	7.2	8.8	2.6	29.7	3.5	36.0	11.0	20.7	9.8	9.7	3.6	150.0
1991	3.8	0.9	13.1	7.3	6.5	13.0	18.6	8.3	10.9	6.7	10.9	5.4	105.4
1992	2.6	2.8	7.3	3.8	10.8	31.1	16.5	16.1	0.0	6.3	8.9	2.1	108.4
1993	1.3	7.0	13.5	14.5	13.5	4.0	14.1	14.1	3.1	7.5	10.8	0.2	103.5
1994	2.8	0.3	7.8	12.8	21.9	4.8	7.5	22.5	8.0	7.2	6.5	1.1	103.1
1995	0.8	1.6	9.3	17.1	32.5	25.0	13.6	3.8	6.3	0.0	0.0	0.1	110.0
1996	0.8	1.6	10.6	3.9	23.8	12.7	24.9	13.9	19.2	3.3	1.4	3.8	119.9
1997	3.6	5.4	2.5	16.2	2.3	22.5	16.6	37.3	12.5	19.2	7.3	10.8	156.1
1998	0.8	3.4	8.7	5.1	15.1	3.4	30.5	27.8	2.4	20.2	9.8	2.1	129.3
1999	1.8	0.2	10.8	34.9	19.1	8.9	39.3	24.2	4.6	5.0	1.5	0.4	150.6
2000	3.0	1.7	18.3	7.4	7.2	5.4	11.2	12.0	7.0	10.2	1.0	1.5	85.9
2001	6.1	2.3	3.0	8.1	29.7	18.9	16.6	2.4	4.6	0.2	6.1	3.7	101.8
2002	2.8	1.2	0.8	1.2	0.8	6.8	0.5	4.3	5.6	3.2	0.7	4.1	32.1
2003	0.0	4.3	7.7	19.2	10.6	18.9	4.4	4.7	3.9	0.9	1.7	1.9	78.0
2004	3.0	3.2	0.8	29.2	0.6	21.2	26.7	33.3	5.4	2.7	7.1	0.7	134.0
2005	3.7	2.0	12.8	7.1	4.1	8.8	3.8	17.5	11.4	16.5	0.3	2.1	90.1
2006	5.1	0.0	7.6	2.6	12.6	2.3	25.0	29.9	16.2	18.5	1.3	13.5	134.7
2007	2.9	1.1	0.9	17.9	12.3	25.3	3.3	17.0	7.2	4.0	0.3	3.5	95.8
2008	1.9	3.8	3.9	7.4	5.2	6.5	6.0	33.3	0.4	14.2	1.9	1.4	85.9
2009	0.0	1.2	7.1	5.8	10.7	13.6	22.0	7.4	5.4	26.3	3.2	1.6	104.3
2010	3.6	5.7	16.1	10.5	10.4	16.8	29.8	19.4	1.7	0.3	0.8	2.5	117.6
2011	1.0	2.1	4.1	3.0	6.9	14.1	13.8	9.1	5.1	2.7	6.4	12.9	81.1
2012	0.2	0.8	1.0	10.8	5.9	1.1	9.4	0.6	7.5	1.6	0.1	0.8	39.8
2013	0.5	0.8	3.2	5.7	1.7	7.7	4.8	12.2	8.1	3.2	2.3	0.8	50.9
Average	2.5	2.9	7.3	10.4	13.2	12.4	16.5	14.9	7.7	7.6	3.9	3.2	102.6
Minimum	0.0	0.0	0.8	1.2	0.6	1.1	0.5	0.6	0.0	0.0	0.0	0.1	32.1
Maximum	7.7	9.5	18.3	34.9	32.5	31.1	39.3	37.3	20.7	26.3	10.9	13.5	156.1

Table 9 - Farm Irrigation Water Requirement

Farm Name or Designation: Hanagan-06

Crop PET less effective precipitation

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	27.9	57.8	49.5	45.5	23.7	0.0	0.0	0.0	204.3
1985	0.0	0.0	0.0	0.0	15.8	57.2	53.2	54.2	15.9	0.0	0.0	0.0	196.3
1986	0.0	0.0	5.0	15.6	34.9	43.8	41.6	40.4	3.4	0.0	0.0	0.0	184.6
1987	0.0	0.0	0.0	13.8	9.8	45.8	68.0	45.5	17.8	6.6	0.0	0.0	207.3
1988	0.0	0.0	0.0	1.5	19.2	53.3	60.7	58.7	21.2	12.1	0.7	0.0	227.3
1989	0.0	0.0	1.6	15.7	29.8	41.5	64.4	39.4	6.8	8.4	0.2	0.0	207.8
1990	0.0	0.0	0.0	14.8	5.0	66.3	32.1	45.8	8.9	0.5	0.0	0.0	173.3
1991	0.0	0.0	0.0	9.8	37.3	54.4	51.2	50.9	15.2	5.2	0.0	0.0	224.0
1992	0.0	0.0	0.0	19.1	33.0	26.2	51.3	34.3	23.7	0.7	0.0	0.0	188.2
1993	0.0	0.0	0.0	1.7	24.1	57.5	61.4	43.5	21.7	3.8	0.0	0.0	213.6
1994	0.0	0.0	0.0	5.8	20.9	68.8	65.1	40.3	18.3	4.4	0.0	0.0	223.6
1995	0.0	0.0	0.0	0.0	0.0	28.0	54.6	65.5	28.4	8.3	0.8	0.0	185.5
1996	0.0	0.0	0.0	17.6	26.8	56.2	49.1	44.9	4.5	7.5	0.0	0.0	206.6
1997	0.0	0.0	0.0	0.0	36.2	38.9	60.5	24.1	22.5	0.0	0.0	0.0	182.3
1998	0.0	0.0	0.0	9.9	29.9	58.1	46.8	29.9	27.6	0.0	0.0	0.0	202.2
1999	0.0	0.0	0.0	0.0	15.8	48.6	36.8	38.4	28.2	0.0	0.6	0.0	168.4
2000	0.0	0.0	0.0	14.1	36.2	59.2	61.1	45.9	13.6	2.3	0.0	0.0	232.4
2001	0.0	0.0	0.0	14.1	10.0	49.1	62.6	55.5	19.0	5.8	0.0	0.0	215.9
2002	0.0	0.0	0.0	22.7	42.4	65.6	79.6	56.9	19.7	3.7	0.0	0.0	290.5
2003	0.0	0.0	0.0	9.2	37.0	40.4	76.0	57.2	29.4	13.3	0.0	0.0	262.6
2004	0.0	0.0	9.2	0.0	49.2	37.6	38.4	17.7	29.0	5.6	0.0	0.0	186.7
2005	0.0	0.0	0.0	9.7	34.8	48.7	63.2	39.9	24.6	0.0	1.4	0.0	222.4
2006	0.0	0.0	0.0	26.1	35.4	68.4	49.6	28.9	12.2	0.0	0.0	0.0	220.6
2007	0.0	0.0	4.9	0.7	28.3	33.4	66.2	47.4	27.9	10.5	1.1	0.0	220.4
2008	0.0	0.0	0.0	10.3	35.0	55.0	65.2	22.2	29.5	0.4	0.0	0.0	217.6
2009	0.0	0.0	0.0	16.6	32.3	43.1	39.4	42.3	20.5	0.0	0.0	0.0	194.3
2010	0.0	0.0	0.0	10.3	27.6	46.8	37.2	36.4	29.0	15.3	0.3	0.0	202.8
2011	0.0	0.0	0.0	16.8	28.8	52.7	64.4	57.7	22.1	7.6	0.0	0.0	250.1
2012	0.0	0.0	9.1	15.8	39.5	74.0	67.8	57.0	23.2	6.0	0.9	0.0	293.3
2013	0.0	0.0	0.0	6.9	40.5	61.1	64.9	48.9	31.9	3.0	0.0	0.0	257.1
Average	0.0	0.0	1.0	9.9	28.1	51.3	56.1	43.8	20.6	4.4	0.2	0.0	215.4
Minimum	0.0	0.0	0.0	0.0	0.0	26.2	32.1	17.7	3.4	0.0	0.0	0.0	168.4
Maximum	0.0	0.0	9.2	26.1	49.2	74.0	79.6	65.5	31.9	15.3	1.4	0.0	293.3

Table 10 - Farm Headgate Delivery Available to Meet Crop Irrigation Requirement

Farm Name or Designation: Hanagan-06

For Summary Period, Average Application Efficiency: 55%, Maximum Application Efficiency: 55%

Notes: Does not include excess effective precipitation. Provide information source of efficiency data.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	19.2	41.4	58.6	79.7	83.7	66.2	46.5	27.3	12.9	0.0	435.5
1985	0.0	0.0	27.9	58.2	38.9	72.4	76.3	69.4	51.2	39.0	14.6	0.0	447.8
1986	0.0	0.6	51.2	63.5	70.8	58.9	69.4	64.2	40.5	36.8	12.3	0.0	468.2
1987	0.0	0.0	31.6	54.7	53.2	71.0	70.3	59.5	44.3	40.3	22.3	0.0	447.3
1988	0.0	0.0	23.9	45.6	47.3	71.7	53.9	57.7	44.0	41.2	20.2	0.0	405.4
1989	0.0	0.0	36.9	63.3	52.6	66.5	60.4	69.8	34.8	23.5	16.7	0.0	424.5
1990	0.0	0.0	15.9	60.6	47.1	68.0	62.7	60.8	31.4	36.0	15.2	0.0	397.8
1991	0.0	0.0	30.2	36.6	41.4	72.7	67.5	70.7	41.0	37.9	0.0	0.0	398.0
1992	0.0	0.0	28.3	76.0	66.6	55.3	65.7	64.2	52.7	42.3	18.0	0.0	469.3
1993	0.0	0.0	17.9	54.2	68.2	77.0	71.0	72.8	54.4	41.6	18.1	0.0	475.2
1994	0.0	0.0	39.5	72.5	60.3	84.7	76.0	62.3	51.2	45.7	19.2	0.0	511.5
1995	0.0	0.0	41.7	76.6	58.6	58.3	84.4	92.5	68.8	54.7	23.4	0.0	559.0
1996	0.0	7.0	61.3	75.4	69.3	82.3	77.8	65.0	50.0	52.9	22.4	0.0	563.4
1997	0.0	0.0	34.1	56.6	64.0	70.8	90.1	43.2	49.6	32.7	0.0	0.0	441.2
1998	0.0	0.0	17.7	66.9	75.2	76.9	78.8	54.0	58.2	40.8	17.3	0.0	485.8
1999	0.0	0.0	40.6	55.9	32.5	63.1	68.6	57.3	54.9	39.9	17.7	0.0	430.5
2000	0.0	1.8	49.8	60.0	61.2	66.5	61.9	48.0	22.4	34.7	17.9	0.0	424.2
2001	0.0	0.0	25.6	47.8	59.3	68.9	69.0	73.2	41.1	33.3	19.2	0.0	437.5
2002	0.0	0.0	24.7	11.0	7.8	24.4	27.9	0.0	0.0	0.0	1.7	0.0	97.4
2003	0.0	0.0	13.5	5.1	36.2	68.9	36.4	11.2	6.0	0.0	9.4	0.0	186.8
2004	0.0	0.0	6.8	44.9	65.9	60.7	54.6	50.5	13.2	23.4	28.1	0.0	348.1
2005	0.0	0.0	25.7	66.6	68.2	68.6	57.4	60.7	16.5	34.3	20.1	0.0	418.1
2006	0.0	0.0	19.4	16.2	47.2	68.7	59.5	57.0	42.0	43.3	14.7	0.0	368.2
2007	0.0	0.0	22.5	58.0	60.1	58.3	65.8	65.6	53.2	51.2	23.1	0.0	457.8
2008	0.0	0.0	38.1	75.9	65.4	80.0	73.5	59.5	50.1	44.7	19.2	0.0	506.4
2009	0.0	0.0	32.0	67.4	67.0	63.4	69.0	55.9	40.7	43.0	14.4	0.0	452.7
2010	0.0	0.0	19.6	53.8	66.6	71.0	62.3	59.7	13.1	30.7	26.9	0.0	403.8
2011	0.0	0.0	24.7	18.8	46.8	79.7	72.9	47.5	31.5	34.6	20.5	0.0	377.1
2012	0.0	0.0	17.4	26.6	47.7	30.8	26.1	6.7	0.0	0.0	0.0	0.0	155.3
2013	0.0	0.0	4.3	1.2	42.3	66.2	35.9	47.6	40.5	58.9	0.0	0.0	296.9
Average	0.0	0.3	28.1	50.4	54.9	66.8	64.3	55.8	38.1	35.5	15.5	0.0	409.7
Minimum	0.0	0.0	4.3	1.2	7.8	24.4	26.1	0.0	0.0	0.0	0.0	0.0	97.4
Maximum	0.0	7.0	61.3	76.6	75.2	84.7	90.1	92.5	68.8	58.9	28.1	0.0	563.4

Table 11 - Soil Moisture Filled (+) or Used (-)

Farm Name or Designation: Hanagan-06

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	0.0	-6.8	-1.0	7.8	0.0	0.0	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	-4.0	4.0	0.0	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1992	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1995	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1999	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2002	0.0	0.0	0.0	-11.7	-27.4	-11.9	-3.6	-0.6	0.0	0.0	2.3	4.1	-48.8
2003	0.0	4.3	16.2	-3.0	-0.6	28.5	-34.0	-14.1	-1.8	-0.6	10.6	1.9	7.3
2004	3.0	3.2	-1.4	35.2	0.0	0.0	0.0	0.0	-15.7	15.7	0.0	0.0	40.1
2005	0.0	0.0	0.0	0.0	0.0	0.0	-5.8	5.8	-8.1	8.1	0.0	0.0	0.0
2006	0.0	0.0	0.0	-9.9	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2007	0.0	0.0	0.0	0.0	0.0	0.0	-0.4	0.4	0.0	0.0	0.0	0.0	0.0
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-15.8	15.5	0.4	0.0	0.0
2011	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-10.2	9.4	0.9	0.0	0.0	0.0
2012	0.0	0.0	0.0	0.0	0.0	-37.2	-12.7	-3.5	-0.3	-0.1	0.0	0.8	-53.1
2013	0.5	0.8	6.9	-1.4	1.8	5.0	-8.6	-0.2	8.6	39.7	0.0	0.0	53.1
Average	0.1	0.3	0.7	0.3	-0.5	-0.5	-2.5	-0.6	-0.5	2.6	0.4	0.2	0.0
Minimum	0.0	0.0	-1.4	-11.7	-27.4	-37.2	-34.0	-14.1	-15.8	-0.6	0.0	0.0	-53.1
Maximum	3.0	4.3	16.2	35.2	9.9	28.5	0.0	5.8	9.4	39.7	10.6	4.1	53.1

Table 12 - Soil Moisture Storage

Farm Name or Designation: Hanagan-06

Derived from Water Budget Balance. Includes excess effective precipitation that is tracked.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MaxSM
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5
1985	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5
1986	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5
1987	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5
1988	57.5	57.5	57.5	57.5	57.5	57.5	50.7	49.7	57.5	57.5	57.5	57.5	57.5
1989	57.6	57.6	57.6	57.6	57.6	57.6	53.5	57.6	57.6	57.6	57.6	57.6	57.6
1990	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7	57.7
1991	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9
1992	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0
1993	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2	58.2
1994	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3
1995	58.4	58.4	58.4	58.4	58.4	58.4	58.4	58.4	58.4	58.4	58.4	58.4	58.4
1996	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6
1997	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7
1998	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9
1999	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0
2000	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1	57.1
2001	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2
2002	55.3	55.3	55.3	43.6	16.2	4.3	0.7	0.1	0.0	0.0	2.3	6.5	55.3
2003	6.4	10.7	26.9	23.9	23.3	51.8	17.8	3.6	1.8	1.2	11.8	13.7	54.4
2004	16.4	19.7	18.3	53.5	53.5	53.5	53.5	53.5	37.8	53.5	53.5	53.5	53.5
2005	52.7	52.7	52.7	52.7	52.7	52.7	46.8	52.7	44.6	52.7	52.7	52.7	52.7
2006	52.9	52.9	52.9	43.1	52.9	52.9	52.9	52.9	52.9	52.9	52.9	52.9	52.9
2007	53.2	53.2	53.2	53.2	53.2	53.2	52.8	53.2	53.2	53.2	53.2	53.2	53.2
2008	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5
2009	53.8	53.8	53.8	53.8	53.8	53.8	53.8	53.8	53.8	53.8	53.8	53.8	53.8
2010	54.1	54.1	54.1	54.1	54.1	54.1	54.1	54.1	38.3	53.7	54.1	54.1	54.1
2011	54.1	54.1	54.1	54.1	54.1	54.1	54.1	43.9	53.3	54.1	54.1	54.1	54.1
2012	54.1	54.1	54.1	54.1	54.1	16.9	4.2	0.7	0.3	0.3	0.3	1.0	54.1
2013	1.6	2.3	9.2	7.8	9.6	14.6	6.0	5.8	14.4	54.1	54.1	54.1	54.1
Average	51.6	51.9	52.6	52.9	52.4	51.9	49.3	48.7	48.2	50.8	51.2	51.5	56.2
Minimum	1.6	2.3	9.2	7.8	9.6	4.3	0.7	0.1	0.0	0.0	0.3	1.0	52.7
Maximum	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9

Table 13 - Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture

Farm Name or Designation: Hanagan-06

Derived from Water Budget Balance. Does not include excess effective precipitation used by crop. Soil moisture limited to: 0.5 feet

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	27.9	57.8	49.5	45.5	23.7	0.0	0.0	0.0	204.3
1985	0.0	0.0	0.0	0.0	15.8	57.2	53.2	54.2	15.9	0.0	0.0	0.0	196.3
1986	0.0	0.0	5.0	15.6	34.9	43.8	41.6	40.4	3.4	0.0	0.0	0.0	184.6
1987	0.0	0.0	0.0	13.8	9.8	45.8	68.0	45.5	17.8	6.6	0.0	0.0	207.3
1988	0.0	0.0	0.0	1.5	19.2	53.3	60.7	58.7	21.2	12.1	0.7	0.0	227.3
1989	0.0	0.0	1.6	15.7	29.8	41.5	64.4	39.4	6.8	8.4	0.2	0.0	207.8
1990	0.0	0.0	0.0	14.8	5.0	66.3	32.1	45.8	8.9	0.5	0.0	0.0	173.3
1991	0.0	0.0	0.0	9.8	37.3	54.4	51.2	50.9	15.2	5.2	0.0	0.0	224.0
1992	0.0	0.0	0.0	19.1	33.0	26.2	51.3	34.3	23.7	0.7	0.0	0.0	188.2
1993	0.0	0.0	0.0	1.7	24.1	57.5	61.4	43.5	21.7	3.8	0.0	0.0	213.6
1994	0.0	0.0	0.0	5.8	20.9	68.8	65.1	40.3	18.3	4.4	0.0	0.0	223.6
1995	0.0	0.0	0.0	0.0	0.0	28.0	54.6	65.5	28.4	8.3	0.8	0.0	185.5
1996	0.0	0.0	0.0	17.6	26.8	56.2	49.1	44.9	4.5	7.5	0.0	0.0	206.6
1997	0.0	0.0	0.0	0.0	36.2	38.9	60.5	24.1	22.5	0.0	0.0	0.0	182.3
1998	0.0	0.0	0.0	9.9	29.9	58.1	46.8	29.9	27.6	0.0	0.0	0.0	202.2
1999	0.0	0.0	0.0	0.0	15.8	48.6	36.8	38.4	28.2	0.0	0.6	0.0	168.4
2000	0.0	0.0	0.0	14.1	36.2	59.2	61.1	45.9	13.6	2.3	0.0	0.0	232.4
2001	0.0	0.0	0.0	14.1	10.0	49.1	62.6	55.5	19.0	5.8	0.0	0.0	215.9
2002	0.0	0.0	0.0	22.7	35.2	36.3	31.5	0.6	0.0	0.0	0.0	0.0	126.3
2003	0.0	0.0	0.0	5.1	36.2	32.3	70.5	25.4	7.8	0.6	0.0	0.0	177.8
2004	0.0	0.0	6.8	0.0	49.2	37.6	38.4	17.7	29.0	5.6	0.0	0.0	184.3
2005	0.0	0.0	0.0	9.7	34.8	48.7	63.2	39.9	24.6	0.0	1.4	0.0	222.4
2006	0.0	0.0	0.0	26.1	35.4	68.4	49.6	28.9	12.2	0.0	0.0	0.0	220.6
2007	0.0	0.0	4.9	0.7	28.3	33.4	66.2	47.4	27.9	10.5	1.1	0.0	220.4
2008	0.0	0.0	0.0	10.3	35.0	55.0	65.2	22.2	29.5	0.4	0.0	0.0	217.6
2009	0.0	0.0	0.0	16.6	32.3	43.1	39.4	42.3	20.5	0.0	0.0	0.0	194.3
2010	0.0	0.0	0.0	10.3	27.6	46.8	37.2	36.4	29.0	15.3	0.3	0.0	202.8
2011	0.0	0.0	0.0	16.8	28.8	52.7	64.4	57.7	22.1	7.6	0.0	0.0	250.1
2012	0.0	0.0	9.1	15.8	39.5	67.9	38.8	10.2	0.3	0.1	0.0	0.0	181.8
2013	0.0	0.0	0.0	1.2	37.2	61.1	44.5	47.8	31.9	3.0	0.0	0.0	226.8
Average	0.0	0.0	0.9	9.6	27.7	49.8	52.6	39.3	18.5	3.6	0.2	0.0	202.3
Minimum	0.0	0.0	0.0	0.0	0.0	26.2	31.5	0.6	0.0	0.0	0.0	0.0	126.3
Maximum	0.0	0.0	9.1	26.1	49.2	68.8	70.5	65.5	31.9	15.3	1.4	0.0	250.1
Limit	0.0	0.0	7.0	22.6	42.0	68.4	68.2	60.6	30.1	12.6	1.1	0.0	236.6

Table 14 - Total Return Flows at Farm

Farm Name or Designation: Hanagan-06

Derived from Water Budget Balance. Does not include excess effective precipitation that deep percolates.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	34.9	75.3	78.6	87.1	102.7	74.8	60.9	49.6	23.5	0.0	587.5
1985	0.0	0.0	50.8	105.7	55.0	74.3	85.5	71.9	77.1	71.0	26.6	0.0	617.9
1986	0.0	1.0	88.1	99.8	93.8	63.3	84.7	76.4	70.3	67.0	22.3	0.0	666.6
1987	0.0	0.0	57.5	85.7	86.9	83.4	59.9	62.7	62.8	66.6	40.5	0.0	606.1
1988	0.0	0.0	43.4	81.4	66.8	77.0	44.1	47.2	51.0	62.9	35.9	0.0	509.8
1989	0.0	0.0	65.5	99.3	65.9	79.4	49.4	83.4	56.6	34.3	30.2	0.0	564.1
1990	0.0	0.0	28.9	95.4	80.7	57.3	81.9	64.8	48.3	65.0	27.6	0.0	549.9
1991	0.0	0.0	54.9	56.8	37.9	77.8	71.6	77.7	59.3	63.7	0.0	0.0	499.7
1992	0.0	0.0	51.4	119.1	88.1	74.4	68.2	82.5	72.1	76.3	32.8	0.0	665.0
1993	0.0	0.0	32.5	96.9	99.8	82.6	67.6	88.8	77.3	71.9	32.9	0.0	650.4
1994	0.0	0.0	71.9	126.0	88.8	85.1	73.2	73.0	74.8	78.6	35.0	0.0	706.5
1995	0.0	0.0	75.7	139.3	106.5	78.1	98.8	102.8	96.7	91.2	41.7	0.0	830.8
1996	0.0	12.6	111.4	119.5	99.1	93.4	92.4	73.3	86.5	88.7	40.8	0.0	817.8
1997	0.0	0.0	62.0	102.9	80.2	89.9	103.3	54.5	67.7	59.5	0.0	0.0	619.9
1998	0.0	0.0	32.2	111.6	106.9	81.7	96.5	68.3	78.2	74.1	31.5	0.0	681.0
1999	0.0	0.0	73.8	101.7	43.2	66.2	87.9	65.9	71.6	72.5	31.6	0.0	614.4
2000	0.0	3.2	90.6	95.0	75.1	61.8	51.4	41.4	27.2	60.8	32.5	0.0	538.9
2001	0.0	0.0	46.6	72.8	97.9	76.2	62.9	77.7	55.7	54.8	34.9	0.0	579.4
2002	0.0	0.0	44.9	9.0	6.4	19.9	22.8	0.0	0.0	0.0	1.4	0.0	104.4
2003	0.0	0.0	11.1	4.2	29.6	56.4	29.8	9.2	4.9	0.0	7.7	0.0	152.8
2004	0.0	0.0	5.6	38.6	70.6	72.7	60.8	74.1	10.8	21.3	51.0	0.0	405.5
2005	0.0	0.0	46.7	111.4	89.2	76.0	47.0	64.6	13.5	54.3	35.0	0.0	537.7
2006	0.0	0.0	35.3	13.3	40.5	56.6	58.5	74.8	64.2	78.8	26.8	0.0	448.8
2007	0.0	0.0	36.0	104.8	80.9	72.6	53.8	71.4	68.8	82.6	40.9	0.0	612.0
2008	0.0	0.0	69.2	127.8	83.9	90.4	68.5	85.9	61.5	81.0	34.9	0.0	703.1
2009	0.0	0.0	58.1	106.0	89.4	72.2	86.1	59.3	53.5	78.1	26.2	0.0	628.8
2010	0.0	0.0	35.7	87.5	93.5	82.3	76.1	72.2	10.7	25.1	48.2	0.0	531.3
2011	0.0	0.0	44.9	17.4	56.3	92.3	68.2	38.8	25.8	54.4	37.3	0.0	435.5
2012	0.0	0.0	22.6	32.6	47.2	25.2	21.3	5.5	0.0	0.0	0.0	0.0	154.4
2013	0.0	0.0	3.5	1.0	34.6	54.1	29.4	38.9	33.2	64.5	0.0	0.0	259.2
Average	0.0	0.6	49.5	81.3	72.4	72.0	66.8	62.7	51.4	58.3	27.7	0.0	542.6
Minimum	0.0	0.0	3.5	1.0	6.4	19.9	21.3	0.0	0.0	0.0	0.0	0.0	104.4
Maximum	0.0	12.6	111.4	139.3	106.9	93.4	103.3	102.8	96.7	91.2	51.0	0.0	830.8

Table 15 - Tailwater/Surface Runoff Return Flows at Farm

Farm Name or Designation: Hanagan-06

For Summary Period Tailwater from Water Budget: 13.7% of Total Return Flows, Tailwater Forced to: 20% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	7.0	15.1	15.7	17.4	20.5	15.0	12.2	9.9	4.7	0.0	117.5
1985	0.0	0.0	10.2	21.1	11.0	14.9	17.1	14.4	15.4	14.2	5.3	0.0	123.6
1986	0.0	0.2	17.6	20.0	18.8	12.7	16.9	15.3	14.1	13.4	4.5	0.0	133.3
1987	0.0	0.0	11.5	17.1	17.4	16.7	12.0	12.5	12.6	13.3	8.1	0.0	121.2
1988	0.0	0.0	8.7	16.3	13.4	15.4	8.8	9.4	10.2	12.6	7.2	0.0	102.0
1989	0.0	0.0	13.1	19.9	13.2	15.9	9.9	16.7	11.3	6.9	6.0	0.0	112.8
1990	0.0	0.0	5.8	19.1	16.1	11.5	16.4	13.0	9.7	13.0	5.5	0.0	110.0
1991	0.0	0.0	11.0	11.4	7.6	15.6	14.3	15.5	11.9	12.7	0.0	0.0	99.9
1992	0.0	0.0	10.3	23.8	17.6	14.9	13.6	16.5	14.4	15.3	6.6	0.0	133.0
1993	0.0	0.0	6.5	19.4	20.0	16.5	13.5	17.8	15.5	14.4	6.6	0.0	130.1
1994	0.0	0.0	14.4	25.2	17.8	17.0	14.6	14.6	15.0	15.7	7.0	0.0	141.3
1995	0.0	0.0	15.1	27.9	21.3	15.6	19.8	20.6	19.3	18.2	8.3	0.0	166.2
1996	0.0	2.5	22.3	23.9	19.8	18.7	18.5	14.7	17.3	17.7	8.2	0.0	163.6
1997	0.0	0.0	12.4	20.6	16.0	18.0	20.7	10.9	13.5	11.9	0.0	0.0	124.0
1998	0.0	0.0	6.4	22.3	21.4	16.3	19.3	13.7	15.6	14.8	6.3	0.0	136.2
1999	0.0	0.0	14.8	20.3	8.6	13.2	17.6	13.2	14.3	14.5	6.3	0.0	122.9
2000	0.0	0.6	18.1	19.0	15.0	12.4	10.3	8.3	5.4	12.2	6.5	0.0	107.8
2001	0.0	0.0	9.3	14.6	19.6	15.2	12.6	15.5	11.1	11.0	7.0	0.0	115.9
2002	0.0	0.0	9.0	1.8	1.3	4.0	4.6	0.0	0.0	0.0	0.3	0.0	20.9
2003	0.0	0.0	2.2	0.8	5.9	11.3	6.0	1.8	1.0	0.0	1.5	0.0	30.6
2004	0.0	0.0	1.1	7.7	14.1	14.5	12.2	14.8	2.2	4.3	10.2	0.0	81.1
2005	0.0	0.0	9.3	22.3	17.8	15.2	9.4	12.9	2.7	10.9	7.0	0.0	107.5
2006	0.0	0.0	7.1	2.7	8.1	11.3	11.7	15.0	12.8	15.8	5.4	0.0	89.8
2007	0.0	0.0	7.2	21.0	16.2	14.5	10.8	14.3	13.8	16.5	8.2	0.0	122.4
2008	0.0	0.0	13.8	25.6	16.8	18.1	13.7	17.2	12.3	16.2	7.0	0.0	140.6
2009	0.0	0.0	11.6	21.2	17.9	14.4	17.2	11.9	10.7	15.6	5.2	0.0	125.8
2010	0.0	0.0	7.1	17.5	18.7	16.5	15.2	14.4	2.1	5.0	9.6	0.0	106.3
2011	0.0	0.0	9.0	3.5	11.3	18.5	13.6	7.8	5.2	10.9	7.5	0.0	87.1
2012	0.0	0.0	4.5	6.5	9.4	5.0	4.3	1.1	0.0	0.0	0.0	0.0	30.9
2013	0.0	0.0	0.7	0.2	6.9	10.8	5.9	7.8	6.6	12.9	0.0	0.0	51.8
Average	0.0	0.1	9.9	16.3	14.5	14.4	13.4	12.5	10.3	11.7	5.5	0.0	108.5
Minimum	0.0	0.0	0.7	0.2	1.3	4.0	4.3	0.0	0.0	0.0	0.0	0.0	20.9
Maximum	0.0	2.5	22.3	27.9	21.4	18.7	20.7	20.6	19.3	18.2	10.2	0.0	166.2
TW RF Factors: Average Monthly Tailwater / Surface Returns as a percent of Average Monthly Farm Headgate Delivery													
		20.0%	19.4%	17.7%	14.5%	11.8%	11.4%	12.4%	14.8%	18.1%	19.6%		14.6%

Table 16 - Deep Percolation/Ground Water Return Flows at Farm (unlagged)

Farm Name or Designation: Hanagan-06

For Summary Period Deep Percolation from Water Budget: 86.3% of Total Return Flows, Deep Percolation Forced to: 80% of Total Return Flows

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	28.0	60.2	62.9	69.7	82.2	59.8	48.7	39.7	18.8	0.0	470.0
1985	0.0	0.0	40.6	84.6	44.0	59.5	68.4	57.6	61.7	56.8	21.3	0.0	494.3
1986	0.0	0.8	70.5	79.9	75.0	50.6	67.7	61.1	56.2	53.6	17.9	0.0	533.3
1987	0.0	0.0	46.0	68.5	69.5	66.7	47.9	50.2	50.2	53.3	32.4	0.0	484.8
1988	0.0	0.0	34.7	65.1	53.4	61.6	35.3	37.8	40.8	50.3	28.7	0.0	407.8
1989	0.0	0.0	52.4	79.5	52.7	63.6	39.5	66.7	45.3	27.5	24.1	0.0	451.3
1990	0.0	0.0	23.1	76.3	64.6	45.8	65.6	51.8	38.6	52.0	22.1	0.0	439.9
1991	0.0	0.0	43.9	45.4	30.3	62.3	57.3	62.1	47.5	50.9	0.0	0.0	399.8
1992	0.0	0.0	41.1	95.3	70.5	59.5	54.6	66.0	57.7	61.1	26.2	0.0	532.0
1993	0.0	0.0	26.0	77.5	79.9	66.1	54.1	71.1	61.8	57.5	26.3	0.0	520.4
1994	0.0	0.0	57.5	100.8	71.0	68.1	58.6	58.4	59.9	62.9	28.0	0.0	565.2
1995	0.0	0.0	60.6	111.4	85.2	62.4	79.1	82.2	77.4	73.0	33.3	0.0	664.6
1996	0.0	10.1	89.1	95.6	79.3	74.7	73.9	58.6	69.2	71.0	32.7	0.0	654.2
1997	0.0	0.0	49.6	82.3	64.1	71.9	82.7	43.6	54.2	47.6	0.0	0.0	495.9
1998	0.0	0.0	25.8	89.3	85.5	65.3	77.2	54.6	62.5	59.3	25.2	0.0	544.8
1999	0.0	0.0	59.0	81.3	34.6	53.0	70.3	52.7	57.3	58.0	25.3	0.0	491.5
2000	0.0	2.6	72.4	76.0	60.1	49.4	41.1	33.1	21.8	48.7	26.0	0.0	431.1
2001	0.0	0.0	37.3	58.2	78.3	60.9	50.3	62.1	44.6	43.8	27.9	0.0	463.5
2002	0.0	0.0	35.9	7.2	5.1	15.9	18.2	0.0	0.0	0.0	1.1	0.0	83.5
2003	0.0	0.0	8.8	3.4	23.7	45.1	23.9	7.4	3.9	0.0	6.2	0.0	122.2
2004	0.0	0.0	4.5	30.9	56.5	58.1	48.7	59.3	8.7	17.0	40.8	0.0	324.4
2005	0.0	0.0	37.3	89.1	71.4	60.8	37.6	51.7	10.8	43.4	28.0	0.0	430.2
2006	0.0	0.0	28.2	10.6	32.4	45.3	46.8	59.8	51.4	63.0	21.4	0.0	359.0
2007	0.0	0.0	28.8	83.8	64.7	58.1	43.1	57.1	55.0	66.1	32.7	0.0	489.6
2008	0.0	0.0	55.4	102.2	67.1	72.3	54.8	68.7	49.2	64.8	28.0	0.0	562.5
2009	0.0	0.0	46.5	84.8	71.5	57.7	68.9	47.4	42.8	62.5	21.0	0.0	503.1
2010	0.0	0.0	28.5	70.0	74.8	65.8	60.9	57.7	8.6	20.1	38.6	0.0	425.0
2011	0.0	0.0	36.0	13.9	45.0	73.8	54.6	31.1	20.6	43.5	29.8	0.0	348.4
2012	0.0	0.0	18.0	26.1	37.8	20.1	17.1	4.4	0.0	0.0	0.0	0.0	123.5
2013	0.0	0.0	2.8	0.8	27.7	43.3	23.5	31.2	26.5	51.6	0.0	0.0	207.4
Average	0.0	0.4	39.6	65.0	58.0	57.6	53.5	50.2	41.1	46.6	22.1	0.0	434.1
Minimum	0.0	0.0	2.8	0.8	5.1	15.9	17.1	0.0	0.0	0.0	0.0	0.0	83.5
Maximum	0.0	10.1	89.1	111.4	85.5	74.7	82.7	82.2	77.4	73.0	40.8	0.0	664.6
DP RF Factors: Average Monthly Deep Percolation / Groundwater Returns as a percent of Average Monthly Farm Headgate Delivery													
		80.0%	77.6%	71.0%	58.1%	47.4%	45.7%	49.5%	59.3%	72.2%	78.4%		58.3%

Table 17 - Historical Depletions at Farm

Farm Name or Designation: Hanagan-06

Farm Headgate Delivery less Total Unlagged Return Flows at Farm. Includes Depletion and Return Flow Factors.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	0.0	0.0	27.9	57.8	49.5	45.5	23.7	0.0	0.0	0.0	204.3
1985	0.0	0.0	0.0	0.0	15.8	57.2	53.2	54.2	15.9	0.0	0.0	0.0	196.3
1986	0.0	0.0	5.0	15.6	34.9	43.8	41.6	40.4	3.4	0.0	0.0	0.0	184.6
1987	0.0	0.0	0.0	13.8	9.8	45.8	68.0	45.5	17.8	6.6	0.0	0.0	207.3
1988	0.0	0.0	0.0	1.5	19.2	53.3	53.9	57.7	28.9	12.1	0.7	0.0	227.3
1989	0.0	0.0	1.6	15.7	29.8	41.5	60.4	43.5	6.8	8.4	0.2	0.0	207.8
1990	0.0	0.0	0.0	14.8	5.0	66.3	32.1	45.8	8.9	0.5	0.0	0.0	173.3
1991	0.0	0.0	0.0	9.8	37.3	54.4	51.2	50.9	15.2	5.2	0.0	0.0	224.0
1992	0.0	0.0	0.0	19.1	33.0	26.2	51.3	34.3	23.7	0.7	0.0	0.0	188.2
1993	0.0	0.0	0.0	1.7	24.1	57.5	61.4	43.5	21.7	3.8	0.0	0.0	213.6
1994	0.0	0.0	0.0	5.8	20.9	68.8	65.1	40.3	18.3	4.4	0.0	0.0	223.6
1995	0.0	0.0	0.0	0.0	0.0	28.0	54.6	65.5	28.4	8.3	0.8	0.0	185.5
1996	0.0	0.0	0.0	17.6	26.8	56.2	49.1	44.9	4.5	7.5	0.0	0.0	206.6
1997	0.0	0.0	0.0	0.0	36.2	38.9	60.5	24.1	22.5	0.0	0.0	0.0	182.3
1998	0.0	0.0	0.0	9.9	29.9	58.1	46.8	29.9	27.6	0.0	0.0	0.0	202.2
1999	0.0	0.0	0.0	0.0	15.8	48.6	36.8	38.4	28.2	0.0	0.6	0.0	168.4
2000	0.0	0.0	0.0	14.1	36.2	59.2	61.1	45.9	13.6	2.3	0.0	0.0	232.4
2001	0.0	0.0	0.0	14.1	10.0	49.1	62.6	55.5	19.0	5.8	0.0	0.0	215.9
2002	0.0	0.0	0.0	11.0	7.8	24.4	27.9	0.0	0.0	0.0	1.7	0.0	72.7
2003	0.0	0.0	13.5	5.1	36.2	68.9	36.4	11.2	6.0	0.0	9.4	0.0	186.8
2004	0.0	0.0	6.8	43.1	49.2	37.6	38.4	17.7	13.2	21.3	0.0	0.0	227.4
2005	0.0	0.0	0.0	9.7	34.8	48.7	57.4	45.8	16.5	8.1	1.4	0.0	222.4
2006	0.0	0.0	0.0	16.2	45.3	68.4	49.6	28.9	12.2	0.0	0.0	0.0	220.6
2007	0.0	0.0	4.9	0.7	28.3	33.4	65.8	47.8	27.9	10.5	1.1	0.0	220.4
2008	0.0	0.0	0.0	10.3	35.0	55.0	65.2	22.2	29.5	0.4	0.0	0.0	217.6
2009	0.0	0.0	0.0	16.6	32.3	43.1	39.4	42.3	20.5	0.0	0.0	0.0	194.3
2010	0.0	0.0	0.0	10.3	27.6	46.8	37.2	36.4	13.1	30.7	0.7	0.0	202.8
2011	0.0	0.0	0.0	16.8	28.8	52.7	64.4	47.5	31.5	8.4	0.0	0.0	250.1
2012	0.0	0.0	9.1	15.8	39.5	30.8	26.1	6.7	0.0	0.0	0.0	0.0	128.0
2013	0.0	0.0	4.3	1.2	42.3	66.2	35.9	47.6	40.5	42.7	0.0	0.0	280.7
Average	0.0	0.0	1.5	10.3	27.3	49.6	50.1	38.7	18.0	6.3	0.6	0.0	202.2
Minimum	0.0	0.0	0.0	0.0	0.0	24.4	26.1	0.0	0.0	0.0	0.0	0.0	72.7
Maximum	0.0	0.0	13.5	43.1	49.2	68.9	68.0	65.5	40.5	42.7	9.4	0.0	280.7
Limit	0.0	0.0	9.8	26.6	45.6	68.7	66.3	59.6	33.9	31.6	4.2	0.0	254.4
On-Farm Depletion and RF Factors: Average Monthly Depletions and Returns at Farm as a percent of Average Monthly Farm Headgate Delivery													
Depletions		0.0%	3.0%	11.3%	27.4%	40.8%	42.8%	38.1%	25.9%	9.7%	2.0%		27.2%
TW Returns		20.0%	19.4%	17.7%	14.5%	11.8%	11.4%	12.4%	14.8%	18.1%	19.6%		14.6%
DP Returns		80.0%	77.6%	71.0%	58.1%	47.4%	45.7%	49.5%	59.3%	72.2%	78.4%		58.3%
Sum		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		100.0%

Table 18 - Percent Tailwater/Surface Runoff Return Flows of Farm Headgate Delivery

Farm Name or Designation: Hanagan-06

Tailwater/Surface Runoff Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984			20.0%	20.0%	14.8%	12.0%	13.5%	12.4%	14.4%	20.0%	20.0%		14.8%
1985			20.0%	20.0%	15.5%	11.3%	12.3%	11.4%	16.6%	20.0%	20.0%		15.2%
1986		20.0%	18.9%	17.3%	14.6%	11.8%	13.4%	13.1%	19.1%	20.0%	20.0%		15.7%
1987			20.0%	17.2%	18.0%	12.9%	9.4%	11.6%	15.6%	18.2%	20.0%		14.9%
1988			20.0%	19.6%	15.5%	11.8%	9.0%	9.0%	12.8%	16.8%	19.6%		13.8%
1989			19.5%	17.3%	13.8%	13.1%	9.0%	13.1%	17.9%	16.1%	19.9%		14.6%
1990			20.0%	17.3%	18.8%	9.3%	14.4%	11.7%	16.9%	19.9%	20.0%		15.2%
1991			20.0%	17.1%	10.1%	11.8%	11.7%	12.1%	15.9%	18.5%			13.8%
1992			20.0%	17.2%	14.5%	14.8%	11.4%	14.1%	15.1%	19.8%	20.0%		15.6%
1993			20.0%	19.7%	16.1%	11.8%	10.5%	13.4%	15.6%	19.0%	20.0%		15.1%
1994			20.0%	19.1%	16.2%	11.1%	10.6%	12.9%	16.1%	18.9%	20.0%		15.2%
1995			20.0%	20.0%	20.0%	14.7%	12.9%	12.2%	15.5%	18.3%	19.6%		16.3%
1996		20.0%	20.0%	17.4%	15.7%	12.5%	13.1%	12.4%	19.0%	18.4%	20.0%		16.0%
1997			20.0%	20.0%	13.8%	14.0%	12.6%	13.9%	15.0%	20.0%			15.5%
1998			20.0%	18.4%	15.6%	11.7%	13.5%	13.9%	14.8%	20.0%	20.0%		15.4%
1999			20.0%	20.0%	14.6%	11.5%	14.1%	12.6%	14.3%	20.0%	19.6%		15.7%
2000		20.0%	20.0%	17.4%	13.5%	10.2%	9.1%	9.5%	13.3%	19.3%	20.0%		14.0%
2001			20.0%	16.8%	18.2%	12.2%	10.0%	11.7%	14.9%	18.1%	20.0%		14.6%
2002			20.0%	9.0%	9.0%	9.0%	9.0%				9.0%		11.8%
2003			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%		9.0%
2004			9.0%	9.5%	11.8%	13.2%	12.3%	16.1%	9.0%	10.0%	20.0%		12.8%
2005			20.0%	18.4%	14.4%	12.2%	9.0%	11.7%	9.0%	17.4%	19.2%		14.1%
2006			20.0%	9.0%	9.4%	9.1%	10.8%	14.4%	16.8%	20.0%	20.0%		13.4%
2007			17.6%	19.9%	14.8%	13.7%	9.0%	12.0%	14.2%	17.7%	19.5%		14.7%
2008			20.0%	18.5%	14.1%	12.4%	10.2%	15.9%	13.5%	19.9%	20.0%		15.3%
2009			20.0%	17.3%	14.7%	12.5%	13.7%	11.7%	14.5%	20.0%	20.0%		15.3%
2010			20.0%	17.9%	15.4%	12.7%	13.4%	13.3%	9.0%	9.0%	19.7%		14.5%
2011			20.0%	10.2%	13.2%	12.7%	10.3%	9.0%	9.0%	17.3%	20.0%		12.7%
2012			14.3%	13.5%	10.9%	9.0%	9.0%	9.0%					10.9%
2013			9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	12.0%			9.6%
Average		20.0%	18.6%	16.4%	14.2%	11.8%	11.2%	12.1%	14.1%	18.0%	19.0%		14.2%
Minimum		20.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%		9.0%
Maximum		20.0%	20.0%	20.0%	20.0%	14.8%	14.4%	16.1%	19.1%	20.0%	20.0%		16.3%

Table 19 - Percent Deep Percolation/Ground Water Return Flows of Farm Headgate Delivery

Farm Name or Designation: Hanagan-06

Deep Percolation/Ground Water Return Flows divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			80.0%	80.0%	59.1%	48.1%	54.0%	49.7%	57.6%	80.0%	80.0%		59.4%
1985			80.0%	80.0%	62.1%	45.2%	49.3%	45.6%	66.3%	80.0%	80.0%		60.7%
1986		80.0%	75.7%	69.2%	58.3%	47.3%	53.6%	52.3%	76.3%	80.0%	80.0%		62.6%
1987			80.0%	68.9%	71.9%	51.7%	37.5%	46.4%	62.3%	72.8%	80.0%		59.6%
1988			80.0%	78.6%	62.1%	47.3%	36.0%	36.0%	51.1%	67.1%	78.4%		55.3%
1989			78.1%	69.1%	55.1%	52.6%	36.0%	52.6%	71.5%	64.3%	79.4%		58.5%
1990			80.0%	69.3%	75.4%	37.1%	57.5%	46.9%	67.6%	79.4%	80.0%		60.8%
1991			80.0%	68.3%	40.3%	47.1%	46.7%	48.3%	63.7%	74.0%			55.2%
1992			80.0%	68.9%	58.2%	59.2%	45.7%	56.5%	60.2%	79.3%	80.0%		62.4%
1993			80.0%	78.6%	64.4%	47.2%	41.9%	53.7%	62.5%	76.0%	80.0%		60.2%
1994			80.0%	76.5%	64.8%	44.2%	42.4%	51.5%	64.3%	75.7%	80.0%		60.8%
1995			80.0%	80.0%	80.0%	58.9%	51.5%	48.9%	61.8%	73.4%	78.5%		65.4%
1996		80.0%	80.0%	69.7%	63.0%	49.9%	52.2%	49.6%	76.1%	73.7%	80.0%		63.9%
1997			80.0%	80.0%	55.1%	55.8%	50.4%	55.4%	60.0%	80.0%			61.8%
1998			80.0%	73.5%	62.5%	46.7%	53.9%	55.7%	59.1%	80.0%	80.0%		61.7%
1999			80.0%	80.0%	58.6%	46.1%	56.4%	50.5%	57.4%	80.0%	78.6%		62.8%
2000		80.0%	80.0%	69.6%	54.0%	40.9%	36.5%	37.9%	53.4%	77.0%	80.0%		55.9%
2001			80.0%	67.1%	72.6%	48.7%	40.1%	46.7%	59.7%	72.4%	80.0%		58.3%
2002			80.0%	36.0%	36.0%	36.0%	36.0%				36.0%		47.2%
2003			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%		36.0%
2004			36.0%	37.8%	47.1%	52.7%	49.1%	64.5%	36.0%	40.0%	80.0%		51.3%
2005			80.0%	73.6%	57.6%	48.8%	36.0%	46.8%	36.0%	69.6%	76.9%		56.6%
2006			80.0%	36.0%	37.8%	36.2%	43.3%	57.7%	67.2%	80.0%	80.0%		53.6%
2007			70.5%	79.5%	59.3%	54.8%	36.0%	47.9%	56.9%	71.0%	78.0%		58.8%
2008			80.0%	74.1%	56.4%	49.7%	41.0%	63.6%	54.1%	79.6%	80.0%		61.1%
2009			80.0%	69.2%	58.8%	50.1%	54.9%	46.7%	57.8%	80.0%	80.0%		61.1%
2010			80.0%	71.6%	61.8%	51.0%	53.7%	53.2%	36.0%	36.0%	78.8%		57.9%
2011			80.0%	40.8%	52.9%	50.9%	41.2%	36.0%	36.0%	69.2%	80.0%		50.8%
2012			57.0%	53.8%	43.6%	36.0%	36.0%	36.0%					43.7%
2013			36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	48.1%			38.4%
Average		80.0%	74.3%	65.7%	56.7%	47.1%	44.7%	48.6%	56.5%	71.8%	76.2%		56.7%
Minimum		80.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%		36.0%
Maximum		80.0%	80.0%	80.0%	80.0%	59.2%	57.5%	64.5%	76.3%	80.0%	80.0%		65.4%

Table 20 - Percent Historic On-Farm Depletions of Farm Headgate Delivery

Farm Name or Designation: Hanagan-06

Historic On-Farm Depletions divided by Farm Headgate Delivery

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			0.0%	0.0%	26.2%	39.9%	32.5%	37.9%	28.0%	0.0%	0.0%		25.8%
1985			0.0%	0.0%	22.3%	43.5%	38.4%	43.0%	17.1%	0.0%	0.0%		24.1%
1986		0.0%	5.3%	13.5%	27.1%	40.9%	32.9%	34.6%	4.6%	0.0%	0.0%		21.7%
1987			0.0%	13.9%	10.2%	35.4%	53.2%	42.0%	22.1%	9.0%	0.0%		25.5%
1988			0.0%	1.8%	22.4%	40.9%	55.0%	55.0%	36.2%	16.1%	2.0%		30.8%
1989			2.4%	13.7%	31.1%	34.3%	55.0%	34.3%	10.7%	19.7%	0.7%		26.9%
1990			0.0%	13.4%	5.8%	53.7%	28.2%	41.4%	15.5%	0.7%	0.0%		24.0%
1991			0.0%	14.7%	49.6%	41.1%	41.7%	39.6%	20.4%	7.5%			30.9%
1992			0.0%	13.8%	27.3%	26.0%	42.9%	29.3%	24.7%	0.9%	0.0%		22.1%
1993			0.0%	1.7%	19.4%	41.0%	47.6%	32.9%	21.9%	5.0%	0.0%		24.7%
1994			0.0%	4.4%	19.0%	44.7%	47.1%	35.6%	19.6%	5.3%	0.0%		24.0%
1995			0.0%	0.0%	0.0%	26.4%	35.6%	38.9%	22.7%	8.3%	1.9%		18.3%
1996		0.0%	0.0%	12.8%	21.3%	37.6%	34.7%	38.0%	4.9%	7.8%	0.0%		20.2%
1997			0.0%	0.0%	31.1%	30.2%	36.9%	30.7%	24.9%	0.0%			22.7%
1998			0.0%	8.2%	21.8%	41.6%	32.6%	30.4%	26.1%	0.0%	0.0%		22.9%
1999			0.0%	0.0%	26.8%	42.3%	29.5%	36.8%	28.3%	0.0%	1.8%		21.5%
2000		0.0%	0.0%	13.0%	32.5%	48.9%	54.3%	52.6%	33.3%	3.7%	0.0%		30.1%
2001			0.0%	16.2%	9.2%	39.2%	49.9%	41.7%	25.4%	9.5%	0.0%		27.1%
2002			0.0%	55.0%	55.0%	55.0%	55.0%				55.0%		41.1%
2003			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%		55.0%
2004			55.0%	52.7%	41.1%	34.1%	38.7%	19.3%	55.0%	50.0%	0.0%		35.9%
2005			0.0%	8.0%	28.0%	39.0%	55.0%	41.5%	55.0%	13.0%	3.9%		29.3%
2006			0.0%	55.0%	52.8%	54.7%	45.9%	27.9%	16.0%	0.0%	0.0%		33.0%
2007			11.9%	0.6%	25.9%	31.5%	55.0%	40.1%	28.8%	11.3%	2.6%		26.5%
2008			0.0%	7.4%	29.4%	37.8%	48.8%	20.5%	32.4%	0.5%	0.0%		23.6%
2009			0.0%	13.6%	26.6%	37.4%	31.4%	41.6%	27.7%	0.0%	0.0%		23.6%
2010			0.0%	10.5%	22.8%	36.3%	32.8%	33.5%	55.0%	55.0%	1.5%		27.6%
2011			0.0%	49.0%	33.9%	36.3%	48.5%	55.0%	55.0%	13.4%	0.0%		36.5%
2012			28.7%	32.7%	45.6%	55.0%	55.0%	55.0%					45.3%
2013			55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	39.8%			52.0%
Average		0.0%	7.1%	17.9%	29.1%	41.2%	44.1%	39.3%	29.3%	10.2%	4.8%		29.1%
Minimum			0.0%	0.0%		26.0%	28.2%	19.3%	4.6%		0.0%		18.3%
Maximum		0.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%		55.0%

Table 21 - Historical Delayed Return Flow Remaining to the Steam after Diversions have Ceased

Farm Name or Designation: Hanagan-06

Remaining return flows from cumulative calendar year diversions. Amount remaining after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	27.9	87.6	148.0	211.8	284.6	331.1	362.9	383.5	**381.8**	361.2	381.8
1985	0.0	0.0	40.6	124.4	164.8	216.9	274.8	319.0	364.4	402.6	**403.3**	381.7	403.3
1986	0.0	0.8	71.2	149.7	219.7	260.8	315.3	360.4	398.1	431.0	**426.7**	404.0	426.7
1987	0.0	0.0	46.0	113.6	179.6	238.9	275.6	311.6	345.5	380.8	**393.8**	373.3	393.8
1988	0.0	0.0	34.7	99.1	149.6	205.0	230.8	256.5	283.6	319.1	**331.8**	314.7	331.8
1989	0.0	0.0	52.4	130.9	179.5	235.0	263.3	316.1	345.5	355.0	**360.2**	341.2	360.2
1990	0.0	0.0	23.1	99.0	161.0	200.5	256.2	295.5	318.9	354.0	**357.9**	339.0	357.9
1991	0.0	0.0	43.9	88.5	115.8	172.7	222.2	273.8	307.8	**343.0**	325.4	307.2	343.0
1992	0.0	0.0	41.1	135.5	202.2	253.3	295.5	346.2	386.2	427.4	**431.8**	409.0	431.8
1993	0.0	0.0	26.0	103.0	180.1	239.3	282.3	338.9	383.6	421.5	**426.1**	403.3	426.1
1994	0.0	0.0	57.5	157.2	223.4	281.9	326.6	368.1	408.7	450.5	**455.6**	431.7	455.6
1995	0.0	0.0	60.6	170.8	250.9	302.7	366.6	430.2	485.7	533.9	**539.9**	511.4	539.9
1996	0.0	10.1	99.0	192.4	264.9	327.7	385.3	424.2	471.0	517.7	**524.1**	496.8	524.1
1997	0.0	0.0	49.6	130.9	191.0	254.8	325.4	353.2	388.6	**415.7**	394.0	372.3	415.7
1998	0.0	0.0	25.8	114.6	197.1	254.9	320.1	358.9	402.6	441.0	**443.4**	419.8	443.4
1999	0.0	0.0	59.0	139.2	169.3	214.2	273.8	313.2	354.5	394.4	**399.7**	378.7	399.7
2000	0.0	2.6	74.9	149.4	204.3	244.4	273.1	291.7	297.8	330.2	**339.6**	322.5	339.6
2001	0.0	0.0	37.3	94.8	170.1	224.5	264.4	313.0	341.6	367.5	**376.3**	356.5	376.3
2002	0.0	0.0	35.9	42.4	45.6	59.0	74.3	70.7	66.7	62.9	**60.5**	57.4	60.5
2003	0.0	0.0	8.8	12.0	35.2	79.2	100.3	103.0	101.1	95.2	**95.8**	90.6	95.8
2004	0.0	0.0	4.5	35.2	90.9	146.2	188.9	239.2	236.1	239.8	**267.2**	253.6	267.2
2005	0.0	0.0	37.3	125.7	193.5	246.4	272.1	309.2	303.8	330.2	**341.1**	323.7	341.1
2006	0.0	0.0	28.2	38.3	69.1	111.6	153.8	206.7	248.4	299.2	**305.9**	289.5	305.9
2007	0.0	0.0	28.8	112.1	173.8	224.8	257.2	300.8	340.4	389.1	**402.4**	381.4	402.4
2008	0.0	0.0	55.3	156.5	218.9	281.7	322.8	374.7	404.7	448.2	**453.3**	429.6	453.3
2009	0.0	0.0	46.5	130.3	197.9	247.4	304.2	336.4	361.5	404.7	**405.2**	383.8	405.2
2010	0.0	0.0	28.5	98.0	170.0	229.2	279.6	323.3	315.3	317.5	**338.5**	321.3	338.5
2011	0.0	0.0	35.9	49.2	92.2	162.4	210.5	231.8	240.2	270.4	**286.3**	271.6	286.3
2012	0.0	0.0	18.0	43.8	80.1	97.2	109.6	**108.1**	101.9	95.9	90.5	85.8	108.1
2013	0.0	0.0	2.8	3.5	31.1	73.6	94.7	121.5	142.1	**186.4**	177.6	167.6	186.4
Average	0.0	0.4	40.0	104.3	159.0	209.9	253.5	290.9	317.0	346.9	351.2	332.7	353.4
Minimum	0.0	0.0	2.8	3.5	31.1	59.0	74.3	70.7	66.7	62.9	60.5	57.4	60.5
Maximum	0.0	10.1	99.0	192.4	264.9	327.7	385.3	430.2	485.7	533.9	539.9	511.4	539.9
Limit	0.0	4.5	81.7	173.5	246.4	304.1	359.5	409.7	455.2	500.7	506.5	479.9	506.5

Table 22 - Delayed Return Flows Remaining to Stream as Percent of Cumulative Farm Headgate Deliveries

Farm Name or Designation: Hanagan-06

Remaining return flows from cumulative calendar year diversions divided by cumulative FHGD. Amount after last diversion in bold/lastcolumn.

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	AfterDivs
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984			80.0%	79.5%	68.3%	58.6%	55.4%	52.2%	50.5%	49.9%	**48.2%**	45.6%	48.2%
1985			80.0%	79.5%	72.5%	60.4%	55.2%	51.1%	50.8%	51.1%	**49.5%**	46.9%	49.5%
1986		80.0%	75.7%	71.4%	65.0%	58.6%	55.2%	52.4%	52.2%	52.0%	**50.1%**	47.5%	50.1%
1987			80.0%	72.4%	70.8%	62.4%	54.0%	50.3%	49.4%	49.3%	**48.4%**	45.9%	48.4%
1988			80.0%	78.5%	70.5%	59.8%	52.4%	47.0%	45.3%	45.6%	**45.0%**	42.7%	45.0%
1989			78.0%	71.8%	64.6%	58.9%	51.8%	49.8%	49.4%	47.9%	**46.7%**	44.2%	46.7%
1990			80.0%	71.2%	71.6%	57.5%	55.4%	51.6%	50.6%	50.9%	**49.5%**	46.9%	49.5%
1991			80.0%	72.9%	58.9%	52.5%	49.2%	47.2%	47.0%	**47.4%**	45.0%	42.5%	47.4%
1992			80.0%	71.5%	65.1%	61.6%	55.7%	53.5%	51.9%	52.1%	**50.6%**	47.9%	50.6%
1993			80.0%	78.5%	70.6%	60.6%	53.9%	51.6%	50.8%	50.7%	**49.3%**	46.7%	49.3%
1994			80.0%	77.2%	71.3%	60.3%	53.9%	51.2%	50.3%	50.3%	**49.0%**	46.4%	49.0%
1995			80.0%	79.4%	78.0%	70.8%	63.1%	57.4%	55.6%	54.8%	**53.1%**	50.3%	53.1%
1996		80.0%	79.8%	73.7%	68.4%	61.0%	56.8%	53.3%	53.1%	52.6%	**51.2%**	48.5%	51.2%
1997			80.0%	79.4%	67.9%	62.1%	56.7%	54.1%	52.3%	**51.8%**	49.1%	46.4%	51.8%
1998			80.0%	74.5%	67.8%	59.2%	55.8%	53.4%	51.8%	51.8%	**50.2%**	47.5%	50.2%
1999			80.0%	79.3%	72.2%	61.3%	57.8%	54.2%	52.3%	52.5%	**51.1%**	48.4%	51.1%
2000		80.0%	79.9%	73.6%	65.0%	56.2%	49.9%	46.0%	44.1%	44.7%	**44.0%**	41.8%	44.0%
2001			80.0%	71.0%	70.5%	61.3%	53.7%	50.1%	48.8%	48.3%	**47.3%**	44.8%	47.3%
2002			80.0%	65.4%	57.7%	47.8%	42.7%	40.7%	38.4%	36.1%	**34.2%**	32.4%	34.2%
2003			36.0%	35.5%	35.3%	35.2%	34.4%	33.1%	31.4%	29.5%	**28.2%**	26.7%	28.2%
2004			36.0%	37.5%	42.5%	45.1%	44.6%	46.4%	43.8%	41.2%	**42.2%**	40.1%	42.2%
2005			80.0%	74.9%	66.3%	59.2%	52.2%	49.0%	45.9%	45.6%	**44.9%**	42.6%	44.9%
2006			80.0%	59.1%	45.9%	40.5%	40.1%	42.4%	44.1%	46.6%	**45.7%**	43.2%	45.7%
2007			70.4%	76.6%	68.0%	62.2%	53.4%	50.1%	48.8%	49.2%	**48.3%**	45.8%	48.3%
2008			80.0%	75.5%	67.1%	59.7%	53.3%	52.5%	50.3%	50.6%	**49.2%**	46.7%	49.2%
2009			80.0%	72.1%	65.5%	59.2%	56.0%	52.2%	50.3%	50.8%	**49.2%**	46.6%	49.2%
2010			80.0%	73.4%	66.8%	59.8%	56.3%	53.4%	50.1%	46.3%	**46.1%**	43.8%	46.1%
2011			80.0%	62.2%	56.1%	52.5%	47.7%	43.9%	41.0%	41.7%	**41.8%**	39.6%	41.8%
2012			57.0%	54.6%	48.0%	43.7%	40.6%	**38.3%**	36.1%	34.0%	32.1%	30.4%	38.3%
2013			36.0%	35.5%	35.7%	35.5%	34.8%	33.8%	32.8%	**34.5%**	32.9%	31.1%	34.5%
Average		80.0%	74.3%	69.3%	63.1%	56.1%	51.4%	48.7%	47.3%	47.0%	45.7%	43.3%	46.2%
Minimum		80.0%	36.0%	35.5%	35.3%	35.2%	34.4%	33.1%	31.4%	29.5%	28.2%	26.7%	28.2%
Maximum		80.0%	80.0%	79.5%	78.0%	70.8%	63.1%	57.4%	55.6%	54.8%	53.1%	50.3%	53.1%
Limit			80.0%	79.5%	74.2%	65.1%	59.2%	55.2%	53.7%	53.3%	51.8%	49.1%	52.0%

Table 23 - Transferrable Depletions Given Calculated On-Farm Depletion Factors

Farm Name or Designation: Hanagan-06

Farm Headgate Deliveries multiplied by Avg Monthly On-Farm Depletion Factors limited by Avg-Max-3 Monthly and Annual On-Farm Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1984	0.0	0.0	1.0	8.5	29.2	59.0	65.2	45.9	21.9	4.8	0.5	0.0	236.0
1985	0.0	0.0	1.5	11.9	19.4	53.6	59.4	48.1	24.1	6.9	0.5	0.0	225.5
1986	0.0	0.0	2.7	13.0	35.2	43.7	54.1	44.5	19.1	6.5	0.4	0.0	219.3
1987	0.0	0.0	1.7	11.2	26.5	52.7	54.8	41.3	20.9	7.1	0.8	0.0	216.9
1988	0.0	0.0	1.3	9.4	23.5	53.1	42.0	40.0	20.7	7.3	0.7	0.0	198.0
1989	0.0	0.0	2.0	13.0	26.2	49.3	47.0	48.4	16.4	4.1	0.6	0.0	207.0
1990	0.0	0.0	0.9	12.4	23.5	50.4	48.9	42.1	14.8	6.3	0.5	0.0	199.8
1991	0.0	0.0	1.6	7.5	20.6	53.9	52.6	49.0	19.3	6.7	0.0	0.0	211.3
1992	0.0	0.0	1.5	15.6	33.2	41.0	51.2	44.5	24.8	7.5	0.6	0.0	220.0
1993	0.0	0.0	1.0	11.1	33.9	57.1	55.3	50.4	25.6	7.3	0.6	0.0	242.5
1994	0.0	0.0	2.1	14.9	30.0	62.8	59.2	43.2	24.1	8.0	0.7	0.0	245.1
1995	0.0	0.0	2.2	15.7	29.2	43.2	65.7	59.6	32.4	6.3	0.0	0.0	254.4
1996	0.0	0.0	3.3	15.5	34.5	61.0	60.6	45.1	23.6	9.3	0.8	0.0	253.6
1997	0.0	0.0	1.8	11.6	31.9	52.5	66.3	30.0	23.4	5.8	0.0	0.0	223.3
1998	0.0	0.0	1.0	13.7	37.5	57.0	61.4	37.4	27.4	7.2	0.6	0.0	243.2
1999	0.0	0.0	2.2	11.5	16.2	46.8	53.4	39.8	25.9	7.0	0.6	0.0	203.3
2000	0.0	0.0	2.7	12.3	30.5	49.3	48.2	33.3	10.6	6.1	0.6	0.0	193.6
2001	0.0	0.0	1.4	9.8	29.5	51.1	53.8	50.8	19.4	5.9	0.7	0.0	222.2
2002	0.0	0.0	1.3	2.3	3.9	18.1	21.7	0.0	0.0	0.0	0.1	0.0	47.3
2003	0.0	0.0	0.7	1.1	18.0	51.1	28.4	7.8	2.8	0.0	0.3	0.0	110.2
2004	0.0	0.0	0.4	9.2	32.8	45.0	42.5	35.0	6.2	4.1	1.0	0.0	176.2
2005	0.0	0.0	1.4	13.7	33.9	50.8	44.7	42.1	7.8	6.0	0.7	0.0	201.2
2006	0.0	0.0	1.0	3.3	23.5	51.0	46.3	39.5	19.8	7.6	0.5	0.0	192.6
2007	0.0	0.0	1.2	11.9	29.9	43.2	51.3	45.5	25.1	9.0	0.8	0.0	217.9
2008	0.0	0.0	2.0	15.6	32.6	59.3	57.3	41.2	23.6	7.9	0.7	0.0	240.1
2009	0.0	0.0	1.7	13.8	33.3	47.0	53.8	38.7	19.2	7.6	0.5	0.0	215.7
2010	0.0	0.0	1.1	11.0	33.1	52.6	48.6	41.4	6.2	5.4	1.0	0.0	200.4
2011	0.0	0.0	1.3	3.9	23.3	59.1	56.8	32.9	14.8	6.1	0.7	0.0	199.0
2012	0.0	0.0	0.9	5.5	23.7	22.8	20.3	4.6	0.0	0.0	0.0	0.0	77.9
2013	0.0	0.0	0.2	0.2	21.1	49.0	28.0	33.0	19.1	10.4	0.0	0.0	161.0
Average	0.0	0.0	1.5	10.3	27.3	49.6	50.0	38.5	18.0	6.1	0.5	0.0	201.8
Minimum	0.0	0.0	0.2	0.2	3.9	18.1	20.3	0.0	0.0	0.0	0.0	0.0	47.3
Maximum	0.0	0.0	3.3	15.7	37.5	62.8	66.3	59.6	32.4	10.4	1.0	0.0	254.4

Table 24 - Comparison of Historic On-Farm Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Hanagan-06

Historic On-Farm Depletions less Transferrable Depletions Given Calculated On-Farm Depletion Factors

Notes:

Year (Cal)	Jan (AF)	Feb (AF)	Mar (AF)	Apr (AF)	May (AF)	Jun (AF)	Jul (AF)	Aug (AF)	Sep (AF)	Oct (AF)	Nov (AF)	Dec (AF)	Total (AF)
1984	0.0	0.0	-1.0	-8.5	-1.3	-1.3	-15.7	-0.3	1.7	-4.8	-0.5	0.0	-31.7
1985	0.0	0.0	-1.5	-11.9	-3.6	3.6	-6.2	6.1	-8.2	-6.9	-0.5	0.0	-29.1
1986	0.0	-0.0	2.2	2.6	-0.4	0.2	-12.5	-4.1	-15.7	-6.5	-0.4	0.0	-34.6
1987	0.0	0.0	-1.7	2.6	-16.6	-6.9	13.2	4.2	-3.1	-0.5	-0.8	0.0	-9.7
1988	0.0	0.0	-1.3	-7.9	-4.3	0.2	11.9	17.7	8.2	4.8	0.0	0.0	29.3
1989	0.0	0.0	-0.4	2.7	3.6	-7.8	13.3	-4.9	-9.7	4.3	-0.4	0.0	0.8
1990	0.0	0.0	-0.9	2.3	-18.5	15.9	-16.8	3.6	-5.9	-5.9	-0.5	0.0	-26.6
1991	0.0	0.0	-1.6	2.3	16.7	0.5	-1.4	1.9	-4.1	-1.5	0.0	0.0	12.7
1992	0.0	0.0	-1.5	3.5	-0.1	-14.8	0.1	-10.3	-1.1	-6.8	-0.6	0.0	-31.8
1993	0.0	0.0	-1.0	-9.4	-9.8	0.4	6.1	-7.0	-4.0	-3.5	-0.6	0.0	-28.9
1994	0.0	0.0	-2.1	-9.1	-9.2	6.1	5.8	-2.9	-5.8	-3.6	-0.7	0.0	-21.5
1995	0.0	0.0	-2.2	-15.7	-29.2	-15.3	-11.2	5.9	-4.0	1.9	0.8	0.0	-68.9
1996	0.0	-0.0	-3.3	2.1	-7.7	-4.8	-11.5	-0.2	-19.1	-1.8	-0.8	0.0	-47.0
1997	0.0	0.0	-1.8	-11.6	4.4	-13.6	-5.8	-5.8	-0.9	-5.8	0.0	0.0	-41.0
1998	0.0	0.0	-1.0	-3.8	-7.6	1.1	-14.6	-7.6	0.2	-7.2	-0.6	0.0	-41.0
1999	0.0	0.0	-2.2	-11.5	-0.4	1.8	-16.6	-1.4	2.4	-7.0	-0.1	0.0	-34.9
2000	0.0	0.0	-2.7	1.8	5.7	9.9	12.9	12.6	3.0	-3.8	-0.6	0.0	38.9
2001	0.0	0.0	-1.4	4.3	-19.6	-2.0	8.8	4.7	-0.4	-0.1	-0.7	0.0	-6.3
2002	0.0	0.0	-1.3	8.7	3.9	6.3	6.2	0.0	0.0	0.0	1.6	0.0	25.4
2003	0.0	0.0	12.8	4.1	18.2	17.8	8.1	3.4	3.1	0.0	9.1	0.0	76.6
2004	0.0	0.0	6.4	33.9	16.4	-7.3	-4.1	-17.3	7.0	17.2	-1.0	0.0	51.1
2005	0.0	0.0	-1.4	-4.0	0.8	-2.2	12.7	3.7	8.8	2.0	0.7	0.0	21.2
2006	0.0	0.0	-1.0	12.9	21.8	17.4	3.3	-10.7	-7.6	-7.6	-0.5	0.0	27.9
2007	0.0	0.0	3.7	-11.2	-1.6	-9.8	14.5	2.3	2.8	1.5	0.2	0.0	2.5
2008	0.0	0.0	-2.0	-5.3	2.4	-4.3	7.9	-19.0	5.9	-7.5	-0.7	0.0	-22.5
2009	0.0	0.0	-1.7	2.8	-1.0	-3.9	-14.3	3.5	1.3	-7.6	-0.5	0.0	-21.4
2010	0.0	0.0	-1.1	-0.8	-5.6	-5.8	-11.4	-5.0	6.9	25.3	-0.2	0.0	2.4
2011	0.0	0.0	-1.3	12.9	5.5	-6.4	7.5	14.6	16.7	2.4	-0.7	0.0	51.1
2012	0.0	0.0	8.2	10.4	15.8	8.0	5.8	2.1	0.0	0.0	0.0	0.0	50.1
2013	0.0	0.0	4.1	1.0	21.2	17.1	7.9	14.6	21.4	32.3	0.0	0.0	119.6
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	-0.0	0.1	0.0	0.0	0.4
Minimum	0.0	-0.0	-3.3	-15.7	-29.2	-15.3	-16.8	-19.0	-19.1	-7.6	-1.0	0.0	-68.9
Maximum	0.0	0.0	12.8	33.9	21.8	17.8	14.5	17.7	21.4	32.3	9.1	0.0	119.6

Table 25 - Deep Percolation/Ground Water Return Flows at Stream (lagged)

Farm Name or Designation: Hanagan-06

Deep Percolation Lagged to Stream using URF

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	32.9	30.7	28.4	26.8	26.9	28.6	30.9	33.5	36.0	37.3	37.8	37.2	387.0
1985	35.5	33.0	30.5	29.0	29.8	31.9	33.5	35.1	36.8	38.1	39.2	39.3	411.6
1986	37.8	35.2	32.6	31.5	33.1	35.7	37.8	39.2	40.5	41.4	41.9	41.6	448.3
1987	39.7	37.0	34.2	32.6	33.0	34.9	37.0	38.7	39.4	39.8	40.2	40.3	446.9
1988	39.1	36.6	34.0	32.3	32.4	33.8	35.4	36.6	36.8	36.8	37.0	37.2	427.9
1989	36.2	34.1	31.8	30.6	31.8	34.1	35.9	37.2	38.1	39.0	39.2	38.3	426.2
1990	36.7	34.4	32.0	30.3	30.5	32.6	34.5	36.0	37.5	38.3	38.6	38.5	419.9
1991	37.2	34.9	32.5	31.1	31.4	32.1	32.9	34.4	36.1	37.5	38.3	38.0	416.4
1992	36.1	33.6	31.3	30.0	31.2	34.3	36.8	38.6	39.9	41.1	42.0	42.3	437.2
1993	40.9	38.3	35.6	33.6	33.6	35.8	38.4	40.3	41.6	43.0	44.0	44.0	469.1
1994	42.5	39.9	37.0	35.6	36.9	39.9	42.2	43.8	44.8	45.5	46.2	46.2	500.7
1995	44.7	41.8	38.9	37.4	38.9	42.4	45.1	46.9	48.8	50.5	51.8	52.0	539.2
1996	50.3	47.0	43.7	42.6	44.4	47.1	49.3	50.9	52.0	52.5	53.0	53.0	585.9
1997	51.1	47.9	44.5	42.3	42.5	44.3	46.0	47.9	49.3	49.6	49.5	48.3	563.3
1998	45.6	42.5	39.7	37.7	37.9	40.5	43.3	45.6	47.3	48.2	48.8	48.7	525.9
1999	46.9	44.0	41.1	39.5	40.3	41.9	42.6	43.6	44.9	45.8	46.5	46.5	523.7
2000	45.0	42.3	39.6	38.5	39.9	42.0	43.4	44.0	43.9	43.1	42.4	41.9	505.9
2001	40.7	38.5	36.1	34.7	35.0	36.9	39.3	41.0	42.3	43.2	43.5	43.2	474.4
2002	41.8	39.4	36.9	35.2	34.3	33.2	32.0	31.3	30.5	29.1	27.8	26.4	398.0
2003	25.3	24.2	23.2	22.5	22.1	22.0	22.9	24.2	24.9	24.5	23.7	22.7	282.2
2004	21.9	21.0	20.1	19.5	19.5	20.9	23.5	26.0	28.2	29.6	29.2	28.9	288.2
2005	28.6	27.3	25.8	25.0	26.4	29.6	32.5	34.3	35.2	35.3	34.7	34.3	369.0
2006	33.4	31.5	29.5	28.1	27.5	27.2	27.8	29.0	30.7	32.4	34.0	35.0	366.0
2007	34.3	32.3	30.1	28.7	29.3	31.8	34.2	35.8	36.8	37.8	38.9	39.7	409.5
2008	38.8	36.5	33.9	32.6	34.1	37.2	39.6	41.4	42.7	43.5	44.1	44.1	468.5
2009	42.6	39.9	37.0	35.2	35.9	38.2	40.3	41.8	43.0	43.3	43.4	43.3	483.8
2010	41.6	39.0	36.3	34.3	34.2	36.2	38.4	40.4	41.8	41.9	40.4	39.1	463.6
2011	37.8	35.7	33.4	31.9	31.3	31.3	32.5	34.7	36.0	36.0	35.5	35.5	411.6
2012	34.6	32.7	30.7	29.1	28.4	28.5	28.9	28.8	28.2	27.0	25.5	24.1	346.4
2013	22.8	21.6	20.6	19.8	19.1	19.0	19.9	21.3	22.4	23.3	24.2	25.0	258.9
Average	38.1	35.8	33.4	31.9	32.4	34.1	35.9	37.4	38.5	39.1	39.4	39.2	435.2
Minimum	21.9	21.0	20.1	19.5	19.1	19.0	19.9	21.3	22.4	23.3	23.7	22.7	258.9
Maximum	51.1	47.9	44.5	42.6	44.4	47.1	49.3	50.9	52.0	52.5	53.0	53.0	585.9
Lagged DP RF Factors: Average Monthly Lagged Deep Perc. / GW Returns as a percent of Average Monthly Farm Headgate Delivery													
			65.4%	34.9%	32.5%	28.1%	30.7%	36.9%	55.6%	60.6%			58.4%

Table 26 - Total Return Flows at Stream

Farm Name or Designation: Hanagan-06

Lagged Deep Percolation plus Direct Tailwater/Surface Runoff Return Flows

Notes: Return Flow Factors are for Permanent Dry-up

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	32.9	30.7	35.4	41.9	42.7	46.0	51.4	48.5	48.1	47.3	42.5	37.2	504.5
1985	35.5	33.0	40.7	50.2	40.8	46.8	50.6	49.5	52.2	52.3	44.5	39.3	535.2
1986	37.8	35.4	50.2	51.5	51.8	48.3	54.7	54.5	54.5	54.8	46.4	41.6	581.6
1987	39.7	37.0	45.7	49.7	50.4	51.6	49.0	51.2	52.0	53.2	48.3	40.3	568.1
1988	39.1	36.6	42.7	48.6	45.7	49.2	44.2	46.0	47.0	49.4	44.2	37.2	529.9
1989	36.2	34.1	44.9	50.5	45.0	49.9	45.7	53.9	49.5	45.9	45.2	38.3	539.1
1990	36.7	34.4	37.8	49.4	46.7	44.0	50.9	49.0	47.2	51.3	44.1	38.5	529.9
1991	37.2	34.9	43.5	42.5	39.0	47.6	47.2	50.0	48.0	50.2	38.3	38.0	516.3
1992	36.1	33.6	41.6	53.8	48.9	49.1	50.5	55.1	54.3	56.3	48.6	42.3	570.2
1993	40.9	38.3	42.1	53.0	53.6	52.3	51.9	58.0	57.1	57.4	50.6	44.0	599.2
1994	42.5	39.9	51.4	60.8	54.7	56.9	56.9	58.4	59.8	61.3	53.2	46.2	642.0
1995	44.7	41.8	54.1	65.2	60.2	58.0	64.9	67.5	68.1	68.7	60.1	52.0	705.4
1996	50.3	49.5	66.0	66.5	64.2	65.8	67.8	65.6	69.3	70.2	61.2	53.0	749.5
1997	51.1	47.9	56.9	62.9	58.6	62.3	66.7	58.8	62.9	61.5	49.5	48.3	687.3
1998	45.6	42.5	46.2	60.0	59.3	56.9	62.7	59.2	62.9	63.0	55.1	48.7	662.1
1999	46.9	44.0	55.8	59.8	49.0	55.2	60.2	56.8	59.2	60.3	52.8	46.5	646.6
2000	45.0	42.9	57.7	57.5	54.9	54.3	53.7	52.3	49.3	55.3	48.9	41.9	613.7
2001	40.7	38.5	45.5	49.2	54.5	52.1	51.9	56.6	53.5	54.2	50.5	43.2	590.2
2002	41.8	39.4	45.9	37.0	35.6	37.2	36.6	31.3	30.5	29.1	28.0	26.4	418.8
2003	25.3	24.2	25.5	23.4	28.0	33.3	28.9	26.1	25.9	24.5	25.2	22.7	312.8
2004	21.9	21.0	21.3	27.2	33.6	35.5	35.6	40.8	30.4	33.8	39.4	28.9	369.3
2005	28.6	27.3	35.1	47.2	44.2	44.8	41.9	47.2	37.9	46.1	41.7	34.3	476.5
2006	33.4	31.5	36.5	30.7	35.6	38.5	39.5	43.9	43.5	48.2	39.4	35.0	455.8
2007	34.3	32.3	37.3	49.7	45.5	46.4	44.9	50.0	50.5	54.3	47.1	39.7	531.9
2008	38.8	36.5	47.8	58.2	50.8	55.2	53.3	58.6	55.0	59.7	51.0	44.1	609.1
2009	42.6	39.9	48.6	56.4	53.7	52.6	57.5	53.7	53.7	59.0	48.7	43.3	609.6
2010	41.6	39.0	43.4	51.8	52.9	52.6	53.7	54.8	44.0	46.9	50.0	39.1	569.9
2011	37.8	35.7	42.4	35.4	42.6	49.7	46.2	42.4	41.2	46.9	43.0	35.5	498.7
2012	34.6	32.7	35.2	35.6	37.8	33.6	33.2	29.9	28.2	27.0	25.5	24.1	377.3
2013	22.8	21.6	21.3	20.0	26.0	29.8	25.8	29.1	29.0	36.1	24.2	25.0	310.8
Average	38.1	35.9	43.3	48.2	46.9	48.5	49.3	50.0	48.8	50.8	44.9	39.2	543.7
Minimum	21.9	21.0	21.3	20.0	26.0	29.8	25.8	26.1	25.9	24.5	24.2	22.7	310.8
Maximum	51.1	49.5	66.0	66.5	64.2	65.8	67.8	67.5	69.3	70.2	61.2	53.0	749.5
Lagged Total Returns as a percent of Farm Headgate Delivery Average													
			84.8%	52.6%	47.0%	39.9%	42.1%	49.3%	70.4%	78.7%			73.0%

Table 27 - Historical Depletions at Stream including Depletion and Return Flow Factors

Farm Name or Designation: Hanagan-06

Farm Headgate Delivery less Total Lagged Return Flows at Stream

Notes: Factors are for use with permanent dry-up; Depl/RF Factors percent of monthly FHGD, Winter RF Factors percent of total annual FHGD

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	-32.9	-30.7	-0.4	33.4	63.8	98.8	100.8	71.8	36.4	2.4	-18.9	-37.2	287.3
1985	-35.5	-33.0	10.1	55.6	29.9	84.7	88.2	76.6	40.8	18.7	-17.9	-39.3	279.0
1986	-37.8	-34.4	42.9	64.0	76.8	58.7	71.5	62.3	19.1	12.2	-24.1	-41.6	269.6
1987	-39.7	-37.0	11.8	49.8	46.3	77.6	78.9	57.0	28.6	20.0	-7.8	-40.3	245.2
1988	-39.1	-36.6	0.7	34.3	40.3	81.1	53.8	58.9	32.9	25.6	-7.6	-37.2	207.2
1989	-36.2	-34.1	22.3	64.6	50.6	71.0	64.0	73.0	13.9	-3.2	-14.8	-38.3	232.8
1990	-36.7	-34.4	-8.8	60.8	39.1	79.5	63.1	61.5	10.0	14.2	-16.5	-38.5	193.4
1991	-37.2	-34.9	11.4	24.1	36.2	84.6	75.5	78.7	26.5	18.7	-38.3	-38.0	207.4
1992	-36.1	-33.6	9.8	84.3	72.3	51.5	69.0	61.7	41.5	20.7	-15.8	-42.3	283.0
1993	-40.9	-38.3	-9.6	45.6	70.4	87.8	77.2	74.3	41.9	18.3	-17.7	-44.0	264.9
1994	-42.5	-39.9	20.5	71.0	55.0	97.1	81.4	54.9	33.3	21.8	-18.2	-46.2	288.1
1995	-44.7	-41.8	21.7	74.0	46.3	48.0	88.6	100.7	57.0	30.8	-17.6	-52.0	310.9
1996	-50.3	-36.9	45.4	70.6	61.7	83.8	73.7	52.6	21.6	26.0	-20.4	-53.0	274.9
1997	-51.1	-47.9	5.1	40.0	57.8	66.5	97.2	19.8	27.3	-2.0	-49.5	-48.3	114.9
1998	-45.6	-42.5	-13.9	61.5	77.5	82.9	80.6	38.9	42.9	11.1	-23.7	-48.7	221.1
1999	-46.9	-44.0	17.9	41.9	10.1	59.6	64.4	47.5	40.6	12.2	-20.6	-46.5	136.2
2000	-45.0	-39.7	32.8	51.6	56.4	66.6	58.9	35.0	-8.5	7.8	-16.4	-41.9	157.6
2001	-40.7	-38.5	1.1	37.6	53.3	73.1	73.6	76.6	21.2	6.4	-15.5	-43.2	205.1
2002	-41.8	-39.4	-1.0	-17.0	-21.5	7.1	14.1	-31.3	-30.5	-29.1	-25.0	-26.4	-241.8
2003	-25.3	-24.2	-0.9	-14.0	37.8	92.0	37.4	-5.7	-15.0	-24.5	-8.1	-22.7	26.8
2004	-21.9	-21.0	-8.9	54.5	86.1	74.9	63.5	51.0	-6.3	8.8	11.6	-28.9	263.6
2005	-28.6	-27.3	11.6	73.9	79.8	79.9	62.5	63.2	-7.9	16.2	-5.2	-34.3	283.6
2006	-33.4	-31.5	-1.3	-1.3	50.2	86.4	68.6	59.8	32.9	30.6	-12.6	-35.0	213.6
2007	-34.3	-32.3	3.6	55.8	63.7	59.7	74.7	69.2	46.2	38.9	-5.1	-39.7	300.4
2008	-38.8	-36.5	21.4	79.9	68.1	90.2	80.4	49.5	36.1	21.6	-16.1	-44.1	311.6
2009	-42.6	-39.9	9.5	66.2	68.0	62.6	68.0	47.9	20.3	19.1	-22.5	-43.3	213.5
2010	-41.6	-39.0	-7.7	46.0	68.1	76.5	59.7	53.7	-20.1	8.9	-1.1	-39.1	164.2
2011	-37.8	-35.7	2.6	-1.2	42.5	95.2	86.4	43.9	16.1	16.0	-5.7	-35.5	186.9
2012	-34.6	-32.7	-3.5	12.8	48.9	22.4	14.3	-17.7	-28.2	-27.0	-25.5	-24.1	-94.9
2013	-22.8	-21.6	-13.5	-17.8	50.9	90.5	39.5	57.4	44.7	71.0	-24.2	-25.0	229.1
Average	-38.1	-35.3	7.8	43.4	52.9	73.0	67.7	51.4	20.5	13.7	-16.7	-39.2	201.2
Minimum	-51.1	-47.9	-13.9	-17.8	-21.5	7.1	14.1	-31.3	-30.5	-29.1	-49.5	-53.0	-241.8
Maximum	-21.9	-21.0	45.4	84.3	86.1	98.8	100.8	100.7	57.0	71.0	11.6	-22.7	311.6
Limit	-23.3	-22.3	40.4	79.4	81.1	97.0	95.5	85.3	49.3	46.9	1.8	-23.9	307.6
Stream Depletion and RF Factors: Average Monthly Depletions and Returns at Stream as a percent of Average Farm Headgate Delivery													
Depletion Factors			15.2%	47.4%	53.0%	60.1%	57.9%	50.7%	29.6%	21.3%			27.0%
Return Flow Factors			84.8%	52.6%	47.0%	39.9%	42.1%	49.3%	70.4%	78.7%			73.0%
Winter RF	-5.1%	-4.7%									-2.2%	-5.3%	
Sum			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			100.0%

Table 28 - Transferrable Depletions Given Calculated Stream Depletion Factors

Farm Name or Designation: Hanagan-06

Farm Headgate Deliveries multiplied by Avg Monthly Stream Depletion Factors limited by Avg-Max-3 Monthly and Annual Stream Depletions

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	5.3	35.7	56.5	87.0	88.1	35.1	0.0	0.0	0.0	0.0	307.6
1985	0.0	0.0	7.7	50.1	37.5	79.0	80.3	53.0	0.0	0.0	0.0	0.0	307.6
1986	0.0	0.0	14.1	54.7	68.2	64.3	73.1	33.2	0.0	0.0	0.0	0.0	307.6
1987	0.0	0.0	8.7	47.2	51.3	77.6	74.0	48.8	0.0	0.0	0.0	0.0	307.6
1988	0.0	0.0	6.6	39.3	45.6	78.3	56.7	53.2	23.7	4.3	0.0	0.0	307.6
1989	0.0	0.0	10.2	54.5	50.7	72.6	63.5	56.1	0.0	0.0	0.0	0.0	307.6
1990	0.0	0.0	4.4	52.2	45.4	74.2	66.0	56.1	9.3	0.0	0.0	0.0	307.6
1991	0.0	0.0	8.3	31.6	39.9	79.4	71.0	65.2	12.2	0.0	0.0	0.0	307.6
1992	0.0	0.0	7.8	65.5	64.2	60.4	69.1	40.5	0.0	0.0	0.0	0.0	307.6
1993	0.0	0.0	4.9	46.7	65.7	84.1	74.7	31.4	0.0	0.0	0.0	0.0	307.6
1994	0.0	0.0	10.9	62.4	58.1	92.5	80.0	3.6	0.0	0.0	0.0	0.0	307.6
1995	0.0	0.0	11.5	66.0	56.5	63.7	88.8	21.2	0.0	0.0	0.0	0.0	307.6
1996	0.0	0.0	16.9	65.0	66.8	89.9	69.1	0.0	0.0	0.0	0.0	0.0	307.6
1997	0.0	0.0	9.4	48.8	61.7	77.4	94.8	15.6	0.0	0.0	0.0	0.0	307.6
1998	0.0	0.0	4.9	57.6	72.5	84.0	82.9	5.7	0.0	0.0	0.0	0.0	307.6
1999	0.0	0.0	11.2	48.2	31.3	69.0	72.1	52.9	23.0	0.0	0.0	0.0	307.6
2000	0.0	0.0	13.8	51.7	59.0	72.6	65.1	44.3	1.2	0.0	0.0	0.0	307.6
2001	0.0	0.0	7.1	41.2	57.2	75.2	72.6	54.4	0.0	0.0	0.0	0.0	307.6
2002	0.0	0.0	6.8	9.5	7.5	26.6	29.3	0.0	0.0	0.0	0.0	0.0	79.7
2003	0.0	0.0	3.7	4.4	34.9	75.3	38.3	10.4	3.2	0.0	0.0	0.0	170.2
2004	0.0	0.0	1.9	38.7	63.5	66.3	57.4	46.6	7.1	9.1	0.0	0.0	290.5
2005	0.0	0.0	7.1	57.4	65.7	74.9	60.4	42.1	0.0	0.0	0.0	0.0	307.6
2006	0.0	0.0	5.4	14.0	45.5	75.1	62.6	52.6	22.6	16.8	0.0	0.0	294.5
2007	0.0	0.0	6.2	50.0	57.9	63.7	69.2	60.5	0.1	0.0	0.0	0.0	307.6
2008	0.0	0.0	10.5	65.4	63.0	87.4	77.4	3.9	0.0	0.0	0.0	0.0	307.6
2009	0.0	0.0	8.8	58.1	64.5	69.3	72.6	34.3	0.0	0.0	0.0	0.0	307.6
2010	0.0	0.0	5.4	46.3	64.2	77.6	65.6	48.6	0.0	0.0	0.0	0.0	307.6
2011	0.0	0.0	6.8	16.2	45.1	87.1	76.7	43.8	17.0	13.4	0.0	0.0	306.1
2012	0.0	0.0	4.8	23.0	46.0	33.6	27.5	6.2	0.0	0.0	0.0	0.0	141.0
2013	0.0	0.0	1.2	1.0	40.8	72.3	37.8	43.9	21.8	22.8	0.0	0.0	241.5
Average	0.0	0.0	7.8	43.4	52.9	73.0	67.2	35.4	4.7	2.2	0.0	0.0	286.6
Minimum	0.0	0.0	1.2	1.0	7.5	26.6	27.5	0.0	0.0	0.0	0.0	0.0	79.7
Maximum	0.0	0.0	16.9	66.0	72.5	92.5	94.8	65.2	23.7	22.8	0.0	0.0	307.6

Table 29 - Comparison of Historic Stream Depletions to Calculated Transferrable Depletions

Farm Name or Designation: Hanagan-06

Historic Stream Depletions less Transferrable Depletions Given Calculated Stream Depletion Factors

Notes:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(Cal)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
1984	0.0	0.0	-5.7	-2.3	7.4	11.8	12.7	36.7	36.4	2.4	0.0	0.0	99.4
1985	0.0	0.0	2.4	5.5	-7.6	5.7	7.9	23.6	40.8	18.7	0.0	0.0	97.0
1986	0.0	0.0	28.7	9.2	8.6	-5.6	-1.5	29.1	19.1	12.2	0.0	0.0	99.8
1987	0.0	0.0	3.1	2.6	-5.0	-0.0	4.9	8.2	28.6	20.0	0.0	0.0	62.4
1988	0.0	0.0	-5.9	-5.0	-5.3	2.8	-2.9	5.7	9.3	21.3	0.0	0.0	20.0
1989	0.0	0.0	12.1	10.0	-0.1	-1.7	0.5	16.9	13.9	-3.2	0.0	0.0	48.5
1990	0.0	0.0	-13.2	8.6	-6.4	5.3	-2.9	5.5	0.7	14.2	0.0	0.0	11.8
1991	0.0	0.0	3.1	-7.5	-3.6	5.2	4.5	13.4	14.4	18.7	0.0	0.0	48.1
1992	0.0	0.0	2.0	18.8	8.1	-9.0	-0.1	21.2	41.5	20.7	0.0	0.0	103.1
1993	0.0	0.0	-14.5	-1.1	4.7	3.6	2.5	42.9	41.9	18.3	0.0	0.0	98.2
1994	0.0	0.0	9.5	8.5	-3.1	4.6	1.4	51.2	33.3	21.8	0.0	0.0	127.2
1995	0.0	0.0	10.1	8.0	-10.2	-15.7	-0.2	79.6	57.0	30.8	0.0	0.0	159.4
1996	0.0	0.0	28.5	5.6	-5.1	-6.1	4.7	52.6	21.6	26.0	0.0	0.0	127.8
1997	0.0	0.0	-4.3	-8.8	-3.9	-10.9	2.3	4.2	27.3	-2.0	0.0	0.0	4.1
1998	0.0	0.0	-18.8	3.9	5.0	-1.1	-2.3	33.2	42.9	11.1	0.0	0.0	74.0
1999	0.0	0.0	6.7	-6.3	-21.2	-9.3	-7.7	-5.4	17.6	12.2	0.0	0.0	-13.4
2000	0.0	0.0	19.1	-0.1	-2.6	-6.1	-6.2	-9.2	-9.7	7.8	0.0	0.0	-7.0
2001	0.0	0.0	-5.9	-3.6	-3.9	-2.1	1.0	22.2	21.2	6.4	0.0	0.0	35.4
2002	0.0	0.0	-7.8	-26.5	-29.0	-19.5	-15.2	-31.3	-30.5	-29.1	0.0	0.0	-188.9
2003	0.0	0.0	-4.6	-18.4	2.9	16.7	-1.0	-16.0	-18.2	-24.5	0.0	0.0	-63.1
2004	0.0	0.0	-10.8	15.8	22.7	8.6	6.2	4.4	-13.4	-0.3	0.0	0.0	33.1
2005	0.0	0.0	4.5	16.5	14.0	5.0	2.1	21.0	-7.9	16.2	0.0	0.0	71.4
2006	0.0	0.0	-6.6	-15.2	4.7	11.4	6.1	7.2	10.3	13.8	0.0	0.0	31.6
2007	0.0	0.0	-2.7	5.8	5.8	-4.0	5.5	8.7	46.1	38.9	0.0	0.0	104.0
2008	0.0	0.0	10.9	14.4	5.0	2.8	3.0	45.6	36.1	21.6	0.0	0.0	139.5
2009	0.0	0.0	0.7	8.1	3.5	-6.6	-4.6	13.6	20.3	19.1	0.0	0.0	54.1
2010	0.0	0.0	-13.2	-0.4	3.9	-1.1	-5.9	5.1	-20.1	8.9	0.0	0.0	-22.6
2011	0.0	0.0	-4.3	-17.4	-2.6	8.1	9.7	0.1	-0.8	2.6	0.0	0.0	-4.5
2012	0.0	0.0	-8.4	-10.1	2.9	-11.2	-13.2	-23.9	-28.2	-27.0	0.0	0.0	-119.0
2013	0.0	0.0	-14.7	-18.8	10.2	18.2	1.7	13.5	22.9	48.2	0.0	0.0	81.1
Average	0.0	0.0	0.0	0.0	0.0	-0.0	0.4	16.0	15.8	11.5	0.0	0.0	43.8
Minimum	0.0	0.0	-18.8	-26.5	-29.0	-19.5	-15.2	-31.3	-30.5	-29.1	0.0	0.0	-188.9
Maximum	0.0	0.0	28.7	18.8	22.7	18.2	12.7	79.6	57.0	48.2	0.0	0.0	159.4

Table 30 - Other Input Data Used For Analysis

Farm Name or Designation: Hanagan-06

Notes:

Year (Cal)	Farm Shares	Ditch Shares	Ditch (acres)	Canal Loss	Off-Farm Lat Loss	On-Farm Lat Loss	SEVA Loss	Flood AppEff	Sprinkler AppEff	Drip AppEff	Flood Tailwater	Force Tailwater	Spray Loss	AWC (%)	RootDepth (ft)
1984	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1985	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1986	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1987	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1988	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1989	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1990	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1991	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1992	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1993	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1994	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1995	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1996	171	18660	16430	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1997	171	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1998	171	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
1999	171	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2000	171	18660	17914	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2001	171	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2002	171	18660	13301	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2003	171	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2004	171	18660	15021	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2005	171	18660	17281	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2006	171	18660	17491	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2007	171	18660	17380	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2008	171	18660	16321	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2009	171	18660	17480	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2010	171	18660	17657	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2011	171	18660	17493	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2012	171	18660	17348	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
2013	171	18660	14240	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Average	171	18660	16579.97	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Minimum	171	18660	13224	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4
Maximum	171	18660	17915	0.104309	0.035	0	0	0.55	0.55	0.55	0.1	0.2	0	0.125	4

APPENDIX

H

Schweizer Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
1	0.00	0.00	0.000000
2	0.02	0.02	0.000241
3	0.33	0.30	0.003371
4	1.31	0.98	0.010900
5	3.05	1.74	0.019220
6	5.38	2.34	0.025855
7	8.13	2.75	0.030387
8	11.12	2.99	0.033141
9	14.25	3.12	0.034576
10	17.42	3.17	0.035085
11	20.58	3.16	0.034968
12	23.69	3.11	0.034437
13	26.73	3.04	0.033641
14	29.68	2.95	0.032685
15	32.53	2.85	0.031538
16	35.29	2.76	0.030556
17	37.94	2.65	0.029315
18	40.49	2.56	0.028287
19	42.94	2.45	0.027143
20	45.30	2.35	0.026064
21	47.56	2.26	0.025014
22	49.73	2.17	0.023997
23	51.81	2.08	0.023019
24	53.80	1.99	0.022074
25	55.71	1.91	0.021165
26	57.55	1.83	0.020295
27	59.30	1.76	0.019458
28	60.99	1.69	0.018652
29	62.60	1.62	0.017881
30	64.15	1.55	0.017141
31	65.64	1.48	0.016434
32	67.06	1.42	0.015752
33	68.43	1.36	0.015101
34	69.73	1.31	0.014471
35	70.99	1.25	0.013873
36	72.19	1.20	0.013300
37	73.34	1.15	0.012746
38	74.44	1.10	0.012219
39	75.50	1.06	0.011705
40	76.51	1.01	0.011224
41	77.49	0.97	0.010757
42	78.44	0.95	0.010519
43	79.31	0.88	0.009723
44	80.17	0.86	0.009476
45	80.99	0.82	0.009086
46	81.80	0.81	0.008922
47	82.54	0.74	0.008182
48	83.26	0.72	0.008007

Schweizer Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
49	83.95	0.69	0.007674
50	84.62	0.66	0.007361
51	85.26	0.64	0.007059
52	85.87	0.61	0.006751
53	86.45	0.59	0.006481
54	87.01	0.56	0.006222
55	87.55	0.54	0.005954
56	88.07	0.52	0.005708
57	88.56	0.49	0.005470
58	89.04	0.47	0.005248
59	89.49	0.45	0.005021
60	89.93	0.44	0.004828
61	90.34	0.42	0.004621

Diamond A West Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
1	0.03	0.03	0.000359
2	1.38	1.35	0.014908
3	5.33	3.95	0.043755
4	10.18	4.86	0.053831
5	14.91	4.73	0.052384
6	19.22	4.31	0.047777
7	23.10	3.88	0.043057
8	26.62	3.51	0.038945
9	29.82	3.21	0.035559
10	32.78	2.96	0.032802
11	35.54	2.76	0.030541
12	38.13	2.59	0.028663
13	40.56	2.43	0.026982
14	42.88	2.32	0.025692
15	45.08	2.20	0.024425
16	47.19	2.10	0.023318
17	49.20	2.01	0.022308
18	51.13	1.93	0.021379
19	52.98	1.85	0.020507
20	54.75	1.78	0.019693
21	56.46	1.71	0.018922
22	58.10	1.64	0.018188
23	59.67	1.57	0.017397
24	61.19	1.52	0.016871
25	62.65	1.46	0.016175
26	64.06	1.40	0.015560
27	65.41	1.35	0.014972
28	66.71	1.30	0.014402
29	67.96	1.25	0.013865
30	69.16	1.20	0.013340
31	70.32	1.16	0.012836
32	71.43	1.11	0.012357
33	72.51	1.07	0.011889
34	73.54	1.03	0.011443
35	74.53	0.99	0.011010
36	75.49	0.96	0.010595
37	76.41	0.92	0.010199
38	77.29	0.89	0.009814
39	78.15	0.85	0.009443
40	78.98	0.84	0.009274
41	79.76	0.78	0.008614
42	80.52	0.76	0.008418
43	81.25	0.73	0.008118
44	81.96	0.70	0.007797
45	82.63	0.68	0.007510
46	83.29	0.65	0.007229
47	83.91	0.63	0.006957
48	84.52	0.60	0.006697

Diamond A West Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
49	85.10	0.58	0.006448
50	85.66	0.56	0.006197
51	86.20	0.54	0.005967
52	86.71	0.52	0.005744
53	87.21	0.50	0.005526
54	87.69	0.48	0.005322
55	88.15	0.46	0.005114
56	88.60	0.44	0.004931
57	89.03	0.43	0.004731
58	89.46	0.44	0.004851
59	89.84	0.38	0.004165
60	90.22	0.38	0.004228

Hirakata Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
1	0.00	0.00	0.000000
2	0.00	0.00	0.000026
3	0.07	0.06	0.000698
4	0.37	0.31	0.003423
5	1.06	0.69	0.007662
6	2.15	1.09	0.012075
7	3.58	1.43	0.015893
8	5.28	1.70	0.018911
9	7.18	1.90	0.021161
10	9.23	2.05	0.022752
11	11.37	2.14	0.023808
12	13.57	2.20	0.024445
13	15.80	2.23	0.024756
14	18.03	2.23	0.024820
15	20.25	2.22	0.024700
16	22.45	2.20	0.024442
17	24.62	2.17	0.024084
18	26.75	2.13	0.023654
19	28.83	2.08	0.023174
20	30.87	2.04	0.022661
21	32.85	1.98	0.021986
22	34.79	1.95	0.021641
23	36.68	1.89	0.020998
24	38.52	1.84	0.020443
25	40.30	1.78	0.019758
26	42.05	1.75	0.019414
27	43.74	1.69	0.018779
28	45.38	1.64	0.018252
29	46.97	1.60	0.017737
30	48.52	1.55	0.017220
31	50.03	1.51	0.016731
32	51.49	1.46	0.016246
33	52.91	1.42	0.015775
34	54.29	1.38	0.015314
35	55.62	1.34	0.014874
36	56.92	1.30	0.014438
37	58.18	1.26	0.014016
38	59.41	1.22	0.013607
39	60.60	1.19	0.013212
40	61.75	1.15	0.012823
41	62.87	1.12	0.012449
42	63.96	1.09	0.012086
43	65.01	1.06	0.011729
44	66.04	1.02	0.011390
45	67.03	0.99	0.011055
46	68.00	0.97	0.010729
47	68.93	0.94	0.010417
48	69.84	0.91	0.010107

Hirakata Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
49	70.73	0.88	0.009818
50	71.58	0.86	0.009525
51	72.41	0.83	0.009249
52	73.22	0.81	0.008975
53	74.01	0.78	0.008715
54	74.77	0.76	0.008452
55	75.50	0.74	0.008212
56	76.22	0.72	0.007966
57	76.92	0.70	0.007732
58	77.59	0.68	0.007503
59	78.27	0.68	0.007583
60	78.89	0.61	0.006827
61	79.51	0.62	0.006869
62	80.11	0.60	0.006670
63	80.69	0.58	0.006471
64	81.25	0.56	0.006279
65	81.80	0.55	0.006103
66	82.36	0.56	0.006214
67	82.86	0.49	0.005495
68	83.36	0.50	0.005580
69	83.84	0.49	0.005415
70	84.32	0.47	0.005265
71	84.78	0.46	0.005106
72	85.22	0.45	0.004955
73	85.66	0.43	0.004817
74	86.08	0.42	0.004659
75	86.48	0.41	0.004547
76	86.88	0.39	0.004383
77	87.26	0.39	0.004283
78	87.64	0.37	0.004150
79	88.00	0.36	0.004026
80	88.35	0.35	0.003908
81	88.69	0.34	0.003785
82	89.02	0.33	0.003683
83	89.35	0.32	0.003580
84	89.66	0.31	0.003472
85	89.96	0.30	0.003357

Hancock Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
1	8.41	8.41	0.093852
2	30.92	22.50	0.250987
3	46.15	15.23	0.169865
4	57.53	11.38	0.126946
5	66.44	8.92	0.099437
6	73.48	7.04	0.078475
7	79.04	5.56	0.062042
8	83.43	4.39	0.048999
9	86.91	3.47	0.038727
10	89.66	2.75	0.030670

Diamond A East Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
1	0.00	0.00	0.000000
2	0.00	0.00	0.000000
3	0.00	0.00	0.000000
4	0.00	0.00	0.000000
5	0.00	0.00	0.000000
6	0.00	0.00	0.000000
7	0.00	0.00	0.000000
8	0.00	0.00	0.000000
9	0.00	0.00	0.000000
10	0.02	0.02	0.000191
11	0.03	0.01	0.000095
12	0.05	0.02	0.000275
13	0.09	0.04	0.000432
14	0.15	0.06	0.000625
15	0.22	0.08	0.000852
16	0.32	0.10	0.001111
17	0.45	0.12	0.001387
18	0.60	0.15	0.001682
19	0.78	0.18	0.001986
20	0.98	0.21	0.002292
21	1.22	0.23	0.002602
22	1.48	0.26	0.002906
23	1.77	0.29	0.003200
24	2.08	0.31	0.003488
25	2.42	0.34	0.003763
26	2.78	0.36	0.004025
27	3.17	0.38	0.004273
28	3.57	0.41	0.004506
29	4.00	0.43	0.004726
30	4.44	0.44	0.004930
31	4.90	0.46	0.005121
32	5.38	0.48	0.005296
33	5.87	0.49	0.005458
34	6.38	0.50	0.005608
35	6.89	0.52	0.005742
36	7.42	0.53	0.005867
37	7.96	0.54	0.005980
38	8.51	0.55	0.006081
39	9.06	0.56	0.006171
40	9.63	0.56	0.006254
41	10.20	0.57	0.006325
42	10.77	0.58	0.006389
43	11.35	0.58	0.006444
44	11.94	0.58	0.006493
45	12.52	0.59	0.006534
46	13.12	0.59	0.006567
47	13.71	0.59	0.006596
48	14.31	0.60	0.006619

Diamond A East Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
49	14.90	0.60	0.006636
50	15.50	0.60	0.006649
51	16.10	0.60	0.006656
52	16.70	0.60	0.006660
53	17.30	0.60	0.006659
54	17.90	0.60	0.006657
55	18.50	0.60	0.006649
56	19.10	0.60	0.006639
57	19.69	0.60	0.006625
58	20.29	0.60	0.006609
59	20.88	0.59	0.006591
60	21.47	0.59	0.006572
61	22.06	0.59	0.006548
62	22.65	0.59	0.006524
63	23.23	0.59	0.006498
64	23.82	0.58	0.006471
65	24.40	0.58	0.006441
66	24.97	0.58	0.006411
67	25.55	0.57	0.006380
68	26.12	0.57	0.006347
69	26.69	0.57	0.006314
70	27.25	0.57	0.006279
71	27.82	0.56	0.006245
72	28.38	0.56	0.006208
73	28.93	0.56	0.006173
74	29.48	0.55	0.006135
75	30.03	0.55	0.006098
76	30.58	0.55	0.006060
77	31.12	0.54	0.006021
78	31.66	0.54	0.005982
79	32.19	0.54	0.005944
80	32.73	0.53	0.005905
81	33.25	0.53	0.005866
82	33.78	0.52	0.005826
83	34.23	0.45	0.005042
84	34.81	0.57	0.006382
85	35.32	0.51	0.005706
86	35.83	0.51	0.005659
87	36.34	0.51	0.005614
88	36.84	0.50	0.005583
89	37.34	0.50	0.005527
90	37.83	0.49	0.005492
91	38.32	0.49	0.005457
92	38.81	0.49	0.005408
93	39.29	0.48	0.005381
94	39.77	0.48	0.005332
95	40.25	0.48	0.005297
96	40.72	0.47	0.005256

Diamond A East Farm URFs

Pumping Period (months)	Volume of Depletion (%)	Volume of Depletion This Period (%)	Normalized This Period (URF)
97	41.19	0.47	0.005214
98	41.66	0.47	0.005170
99	42.12	0.46	0.005138
100	42.58	0.46	0.005097
101	43.03	0.45	0.005048
102	43.49	0.45	0.005029
103	43.94	0.45	0.004980
104	44.38	0.45	0.004945
105	44.82	0.44	0.004901
106	45.26	0.44	0.004868
107	45.70	0.44	0.004833
108	46.13	0.43	0.004786
109	46.55	0.43	0.004752
110	46.98	0.42	0.004718
111	47.40	0.42	0.004681
112	47.82	0.42	0.004639
113	48.23	0.41	0.004608
114	48.65	0.41	0.004577
115	49.05	0.41	0.004537
116	49.46	0.40	0.004498
117	49.86	0.40	0.004465
118	50.26	0.40	0.004428
119	50.66	0.40	0.004403
120	51.05	0.39	0.004356
121	51.44	0.39	0.004322
122	51.82	0.39	0.004294
123	52.21	0.38	0.004253
124	52.59	0.38	0.004229
125	52.96	0.38	0.004192
126	53.34	0.37	0.004151
127	53.71	0.37	0.004128
128	54.08	0.37	0.004097
129	54.44	0.37	0.004055
130	54.81	0.36	0.004032
131	55.17	0.36	0.003996
132	55.52	0.36	0.003960
133	55.88	0.35	0.003941
134	56.23	0.35	0.003894
135	56.58	0.35	0.003888
136	56.92	0.34	0.003825
137	57.27	0.34	0.003810
138	57.61	0.34	0.003778
139	57.94	0.34	0.003754
140	58.28	0.33	0.003717
141	58.61	0.33	0.003698
142	58.94	0.33	0.003647
143	59.27	0.33	0.003637
144	59.59	0.32	0.003605

Diamond A East Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
145	59.91	0.32	0.003572
146	60.23	0.32	0.003553
147	60.55	0.32	0.003515
148	60.86	0.31	0.003487
149	61.18	0.31	0.003464
150	61.49	0.31	0.003436
151	61.79	0.31	0.003403
152	62.10	0.30	0.003385
153	62.40	0.30	0.003351
154	62.70	0.30	0.003328
155	63.00	0.30	0.003300
156	63.29	0.29	0.003267
157	63.58	0.29	0.003255
158	63.87	0.29	0.003216
159	64.16	0.29	0.003194
160	64.45	0.29	0.003176
161	64.73	0.28	0.003143
162	65.01	0.28	0.003126
163	65.29	0.28	0.003083
164	65.56	0.28	0.003076
165	65.84	0.27	0.003049
166	66.11	0.27	0.003027
167	66.38	0.27	0.002983
168	66.65	0.27	0.002988
169	66.91	0.27	0.002945
170	67.18	0.26	0.002934
171	67.44	0.26	0.002901
172	67.70	0.26	0.002874
173	67.96	0.26	0.002864
174	68.21	0.25	0.002831
175	68.46	0.25	0.002816
176	68.72	0.25	0.002789
177	68.96	0.25	0.002762
178	69.21	0.25	0.002747
179	69.46	0.25	0.002727
180	69.70	0.24	0.002706
181	69.94	0.24	0.002674
182	70.18	0.24	0.002665
183	70.42	0.24	0.002627
184	70.65	0.24	0.002625
185	70.89	0.23	0.002587
186	71.12	0.23	0.002591
187	71.35	0.23	0.002541
188	71.58	0.23	0.002546
189	71.80	0.23	0.002501
190	72.03	0.23	0.002500
191	72.25	0.22	0.002481
192	72.47	0.22	0.002443

Diamond A East Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
193	72.69	0.22	0.002437
194	72.91	0.22	0.002411
195	73.13	0.22	0.002405
196	73.34	0.21	0.002374
197	73.55	0.21	0.002355
198	73.76	0.21	0.002337
199	73.97	0.21	0.002325
200	74.18	0.21	0.002300
201	74.38	0.21	0.002289
202	74.59	0.20	0.002264
203	74.79	0.20	0.002247
204	74.99	0.20	0.002215
205	75.19	0.20	0.002225
206	75.39	0.20	0.002187
207	75.58	0.20	0.002183
208	75.78	0.19	0.002153
209	75.97	0.19	0.002149
210	76.16	0.19	0.002119
211	76.35	0.19	0.002102
212	76.54	0.19	0.002099
213	76.73	0.19	0.002069
214	76.91	0.18	0.002052
215	77.09	0.18	0.002043
216	77.28	0.18	0.002034
217	77.46	0.18	0.001997
218	77.64	0.18	0.002002
219	77.82	0.18	0.001972
220	77.99	0.18	0.001957
221	78.17	0.18	0.001948
222	78.34	0.17	0.001933
223	78.51	0.17	0.001896
224	78.68	0.17	0.001910
225	78.85	0.17	0.001880
226	79.02	0.17	0.001866
227	79.19	0.17	0.001851
228	79.35	0.17	0.001844
229	79.52	0.16	0.001822
230	79.86	0.35	0.003840
231	79.85	-0.01	-0.000147
232	80.01	0.16	0.001780
233	80.17	0.16	0.001805
234	80.33	0.15	0.001722
235	80.49	0.16	0.001746
236	80.64	0.15	0.001717
237	80.80	0.16	0.001727
238	80.95	0.15	0.001691
239	81.10	0.15	0.001693
240	81.25	0.15	0.001656

Diamond A East Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
241	81.40	0.15	0.001675
242	81.55	0.15	0.001639
243	81.69	0.15	0.001618
244	81.84	0.15	0.001638
245	81.99	0.14	0.001609
246	82.13	0.14	0.001597
247	82.27	0.14	0.001577
248	82.41	0.14	0.001565
249	82.55	0.14	0.001561
250	82.69	0.14	0.001549
251	82.83	0.14	0.001521
252	82.97	0.14	0.001526
253	83.10	0.13	0.001498
254	83.24	0.14	0.001512
255	83.37	0.14	0.001501
256	83.50	0.13	0.001439
257	83.63	0.13	0.001454
258	83.77	0.13	0.001469
259	83.89	0.13	0.001424
260	84.02	0.13	0.001439
261	84.15	0.13	0.001394
262	84.28	0.13	0.001418
263	84.40	0.12	0.001374
264	84.53	0.13	0.001398
265	84.65	0.12	0.001354
266	84.77	0.12	0.001379
267	84.89	0.12	0.001308
268	85.01	0.12	0.001386
269	85.13	0.12	0.001288
270	85.25	0.12	0.001359
271	85.37	0.12	0.001288
272	85.48	0.11	0.001260
273	85.60	0.12	0.001323
274	85.72	0.12	0.001279
275	85.83	0.11	0.001270
276	85.94	0.11	0.001197
277	86.05	0.12	0.001289
278	86.16	0.11	0.001217
279	86.28	0.11	0.001236
280	86.39	0.11	0.001237
281	86.49	0.11	0.001183
282	86.60	0.11	0.001184
283	86.71	0.11	0.001186
284	86.82	0.11	0.001206
285	86.92	0.10	0.001133
286	87.02	0.11	0.001172
287	87.13	0.10	0.001137
288	87.23	0.10	0.001139

Diamond A East Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
289	87.33	0.10	0.001122
290	87.43	0.10	0.001163
291	87.53	0.10	0.001070
292	87.63	0.10	0.001131
293	87.73	0.10	0.001095
294	87.83	0.10	0.001059
295	87.92	0.10	0.001062
296	88.02	0.10	0.001105
297	88.12	0.09	0.001050
298	88.21	0.10	0.001073
299	88.31	0.09	0.001038
300	88.40	0.09	0.001022
301	88.49	0.09	0.001026
302	88.58	0.09	0.001010
303	88.68	0.09	0.001055
304	88.76	0.09	0.000959
305	88.85	0.09	0.001024
306	88.94	0.09	0.000968
307	89.03	0.09	0.000993
308	89.12	0.08	0.000938
309	89.20	0.09	0.000983
310	89.29	0.09	0.000948
311	89.38	0.09	0.000974
312	89.46	0.08	0.000939
313	89.54	0.08	0.000903
314	89.63	0.09	0.000950
315	89.71	0.08	0.000936
316	89.79	0.08	0.000838
317	89.88	0.09	0.000969
318	89.95	0.08	0.000871
319	90.03	0.08	0.000899

Hanagan Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
1	0.05	0.05	0.000532
2	1.71	1.67	0.018510
3	6.17	4.46	0.049536
4	11.39	5.22	0.057939
5	16.32	4.93	0.054762
6	20.72	4.40	0.048918
7	24.60	3.88	0.043095
8	28.02	3.42	0.037959
9	31.04	3.02	0.033590
10	33.74	2.69	0.029909
11	36.15	2.41	0.026804
12	38.32	2.18	0.024171
13	40.30	1.97	0.021925
14	42.10	1.80	0.019994
15	43.75	1.65	0.018324
16	45.27	1.52	0.016868
17	46.67	1.40	0.015592
18	47.97	1.30	0.014466
19	49.18	1.21	0.013467
20	50.32	1.13	0.012579
21	51.38	1.06	0.011779
22	52.37	1.00	0.011064
23	53.31	0.94	0.010415
24	54.20	0.88	0.009828
25	55.03	0.84	0.009292
26	55.82	0.79	0.008805
27	56.58	0.75	0.008356
28	57.29	0.72	0.007947
29	57.97	0.68	0.007567
30	58.63	0.66	0.007348
31	59.25	0.61	0.006820
32	59.84	0.59	0.006609
33	60.41	0.57	0.006340
34	60.96	0.55	0.006081
35	61.49	0.53	0.005839
36	61.99	0.51	0.005626
37	62.48	0.49	0.005418
38	62.95	0.47	0.005220
39	63.41	0.45	0.005039
40	63.84	0.44	0.004879
41	64.27	0.42	0.004717
42	64.68	0.41	0.004563
43	65.08	0.40	0.004433
44	65.47	0.39	0.004296
45	65.84	0.38	0.004180
46	66.21	0.37	0.004059
47	66.56	0.36	0.003955
48	66.89	0.33	0.003636

Hanagan Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
49	67.24	0.35	0.003913
50	67.57	0.33	0.003656
51	67.89	0.32	0.003569
52	68.21	0.31	0.003481
53	68.51	0.31	0.003409
54	68.81	0.30	0.003330
55	69.11	0.29	0.003259
56	69.40	0.29	0.003206
57	69.68	0.28	0.003126
58	69.95	0.28	0.003075
59	70.22	0.27	0.003010
60	70.49	0.27	0.002966
61	70.75	0.26	0.002910
62	71.01	0.26	0.002859
63	71.26	0.25	0.002809
64	71.51	0.25	0.002768
65	71.76	0.24	0.002718
66	72.00	0.24	0.002684
67	72.24	0.24	0.002646
68	72.47	0.23	0.002601
69	72.70	0.23	0.002564
70	72.93	0.23	0.002537
71	73.16	0.22	0.002493
72	73.38	0.22	0.002461
73	73.60	0.22	0.002433
74	73.81	0.22	0.002407
75	74.03	0.21	0.002372
76	74.24	0.21	0.002346
77	74.44	0.21	0.002310
78	74.65	0.21	0.002294
79	74.85	0.20	0.002261
80	75.06	0.20	0.002244
81	75.26	0.20	0.002209
82	75.45	0.20	0.002194
83	75.65	0.19	0.002162
84	75.84	0.19	0.002149
85	76.03	0.19	0.002123
86	76.22	0.19	0.002095
87	76.41	0.19	0.002087
88	76.59	0.18	0.002054
89	76.78	0.18	0.002047
90	76.96	0.18	0.002019
91	77.14	0.18	0.001993
92	77.32	0.18	0.001995
93	77.50	0.18	0.001956
94	77.67	0.18	0.001951
95	77.84	0.17	0.001929
96	78.02	0.17	0.001910

Hanagan Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
97	78.19	0.17	0.001892
98	78.36	0.17	0.001877
99	78.52	0.17	0.001864
100	78.69	0.17	0.001846
101	78.85	0.16	0.001824
102	79.02	0.16	0.001823
103	79.18	0.16	0.001784
104	79.34	0.16	0.001801
105	79.50	0.16	0.001765
106	79.66	0.16	0.001737
107	79.81	0.16	0.001752
108	79.97	0.15	0.001720
109	80.12	0.15	0.001711
110	80.28	0.15	0.001696
111	80.43	0.15	0.001682
112	80.58	0.15	0.001676
113	80.73	0.15	0.001643
114	80.87	0.15	0.001648
115	81.02	0.15	0.001631
116	81.17	0.15	0.001616
117	81.31	0.14	0.001594
118	81.45	0.14	0.001605
119	81.59	0.14	0.001562
120	81.74	0.14	0.001574
121	81.87	0.14	0.001540
122	82.02	0.14	0.001564
123	82.15	0.14	0.001507
124	82.29	0.14	0.001533
125	82.42	0.13	0.001494
126	82.56	0.13	0.001497
127	82.69	0.13	0.001484
128	82.82	0.13	0.001473
129	82.95	0.13	0.001445
130	83.09	0.13	0.001451
131	83.22	0.13	0.001451
132	83.34	0.13	0.001416
133	83.47	0.13	0.001417
134	83.60	0.13	0.001392
135	83.72	0.13	0.001412
136	83.85	0.12	0.001362
137	83.91	0.07	0.000766
138	84.09	0.17	0.001936
139	84.21	0.12	0.001329
140	84.33	0.12	0.001353
141	84.45	0.12	0.001323
142	84.57	0.12	0.001311
143	84.69	0.12	0.001310
144	84.80	0.12	0.001300

Hanagan Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
145	84.92	0.12	0.001290
146	85.03	0.11	0.001262
147	85.15	0.11	0.001272
148	85.26	0.11	0.001255
149	85.37	0.11	0.001237
150	85.48	0.11	0.001260
151	85.59	0.11	0.001223
152	85.70	0.11	0.001197
153	85.81	0.11	0.001241
154	85.92	0.11	0.001186
155	86.03	0.11	0.001181
156	86.13	0.11	0.001186
157	86.24	0.11	0.001183
158	86.34	0.10	0.001158
159	86.45	0.10	0.001155
160	86.55	0.10	0.001142
161	86.65	0.10	0.001129
162	86.76	0.10	0.001138
163	86.86	0.10	0.001115
164	86.96	0.10	0.001125
165	87.05	0.10	0.001080
166	87.15	0.10	0.001113
167	87.25	0.10	0.001069
168	87.35	0.10	0.001080
169	87.45	0.10	0.001081
170	87.54	0.09	0.001038
171	87.64	0.10	0.001073
172	87.80	0.16	0.001770
173	87.82	0.03	0.000330
174	87.92	0.10	0.001069
175	88.01	0.09	0.001003
176	88.10	0.09	0.001018
177	88.19	0.09	0.000998
178	88.28	0.09	0.001002
179	88.37	0.09	0.000971
180	88.46	0.09	0.001011
181	88.55	0.09	0.000969
182	88.64	0.09	0.000974
183	88.72	0.08	0.000944
184	88.81	0.09	0.000974
185	88.89	0.08	0.000931
186	88.98	0.09	0.000950
187	89.06	0.08	0.000932
188	89.15	0.08	0.000927
189	89.23	0.08	0.000910
190	89.31	0.08	0.000930
191	89.39	0.08	0.000900
192	89.47	0.08	0.000883

Hanagan Farm URFs

Pumping Period	Volume of Depletion	Volume of Depletion This Period	Normalized This Period
(months)	(%)	(%)	(URF)
193	89.55	0.08	0.000892
194	89.63	0.08	0.000901
195	89.71	0.08	0.000871
196	89.79	0.08	0.000868
197	89.87	0.08	0.000852
198	89.94	0.08	0.000862
199	90.02	0.08	0.000859

APPENDIX

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Table I-1
2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

RHD (River Headgate Delivery)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.2	16.4	29.5	32.1	39.1	37.6	32.6	22.3	20.8	9.1	0.0	239.7
Diamond A West	0.0	0.3	23.2	41.7	45.4	55.3	53.2	46.1	31.6	29.4	12.8	0.0	339.0
Hirakata Farms	0.0	0.1	13.2	23.6	25.7	31.3	30.1	26.1	17.9	16.6	7.3	0.0	192.1
Hancock	0.0	0.1	8.3	14.9	16.3	19.8	19.1	16.5	11.3	10.5	4.6	0.0	121.5
Diamond A East	0.0	0.3	29.0	52.0	56.6	69.0	66.4	57.6	39.4	36.6	16.0	0.0	422.9
Hanagan	0.0	0.2	17.8	31.9	34.8	42.4	40.8	35.3	24.2	22.5	9.8	0.0	259.6
Total	0.0	1.2	107.9	193.6	210.9	257.0	247.2	214.3	146.6	136.5	59.7	0.0	1574.8

Lossses - Ditch Loss and Off Farm Lateral Loss ((10.4309% + 3.5%) x RHD)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.0	2.3	4.1	4.5	5.4	5.2	4.5	3.1	2.9	1.3	0.0	33.4
Diamond A West	0.0	0.0	3.2	5.8	6.3	7.7	7.4	6.4	4.4	4.1	1.8	0.0	47.2
Hirakata Farms	0.0	0.0	1.8	3.3	3.6	4.4	4.2	3.6	2.5	2.3	1.0	0.0	26.8
Hancock	0.0	0.0	1.2	2.1	2.3	2.8	2.7	2.3	1.6	1.5	0.6	0.0	16.9
Diamond A East	0.0	0.0	4.0	7.2	7.9	9.6	9.2	8.0	5.5	5.1	2.2	0.0	58.9
Hanagan	0.0	0.0	2.5	4.4	4.8	5.9	5.7	4.9	3.4	3.1	1.4	0.0	36.2
Total	0.0	0.2	15.0	27.0	29.4	35.8	34.4	29.9	20.4	19.0	8.3	0.0	219.4

CU Factors (as a fraction of FHD)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.000	0.000	0.063	0.155	0.377	0.531	0.537	0.538	0.445	0.250	0.179	0.000	
Diamond A West	0.000	0.000	0.032	0.129	0.314	0.468	0.484	0.460	0.311	0.136	0.032	0.000	
Hirakata Farms	0.000	0.000	0.062	0.153	0.373	0.528	0.533	0.532	0.425	0.244	0.174	0.000	
Hancock	0.000	0.000	0.047	0.145	0.360	0.522	0.520	0.521	0.397	0.210	0.133	0.000	
Diamond A East	0.000	0.000	0.065	0.157	0.380	0.533	0.540	0.541	0.463	0.264	0.162	0.000	
Hanagan	0.000	0.000	0.030	0.113	0.274	0.408	0.428	0.381	0.259	0.097	0.020	0.000	
Total													

Consumptive Use ((RHD - Losses) x CU factor)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.0	0.9	3.9	10.4	17.9	17.4	15.1	8.5	4.5	1.4	0.0	80.0
Diamond A West	0.0	0.0	0.6	4.6	12.3	22.3	22.2	18.3	8.4	3.4	0.3	0.0	92.5
Hirakata Farms	0.0	0.0	0.7	3.1	8.3	14.2	13.8	12.0	6.5	3.5	1.1	0.0	63.2
Hancock	0.0	0.0	0.3	1.9	5.0	8.9	8.5	7.4	3.9	1.9	0.5	0.0	38.4
Diamond A East	0.0	0.0	1.6	7.0	18.5	31.7	30.9	26.8	15.7	8.3	2.2	0.0	142.7
Hanagan	0.0	0.0	0.5	3.1	8.2	14.9	15.0	11.6	5.4	1.9	0.2	0.0	60.7
Total	0.0	0.0	4.7	23.7	62.8	109.8	107.8	91.1	48.5	23.5	5.8	0.0	477.5

CUA - Allowed Consumptive Use (Lesser of Consumptive Use and Max3 Limits)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.0	0.7	3.4	10.4	17.9	17.4	15.1	8.5	4.5	1.4	0.0	79.3
Diamond A West	0.0	0.0	0.6	2.9	12.3	22.3	21.3	18.3	8.4	3.4	0.1	0.0	89.5
Hirakata Farms	0.0	0.0	0.6	2.7	8.3	14.2	13.8	12.0	6.5	3.5	1.1	0.0	62.7
Hancock	0.0	0.0	0.3	1.6	5.0	8.9	8.5	7.4	3.9	1.9	0.5	0.0	38.1
Diamond A East	0.0	0.0	1.6	4.2	18.5	31.7	30.9	26.8	15.7	8.3	2.2	0.0	140.0
Hanagan	0.0	0.0	0.4	3.1	8.2	14.9	15.0	11.6	5.4	1.9	0.0	0.0	60.5
Total	0.0	0.0	4.3	17.8	62.8	109.8	106.9	91.1	48.5	23.5	5.4	0.0	470.0

RHDA - RHD based on Allowed Consumptive Use (Allowed Consumptive Use/((1-0.104309-0.035) x CU Factor)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.2	13.7	25.1	32.1	39.1	37.6	32.6	22.3	20.8	9.1	0.0	232.6
Diamond A West	0.0	0.0	20.4	25.7	45.4	55.3	51.0	46.1	31.6	29.4	4.4	0.0	309.3
Hirakata Farms	0.0	0.0	10.9	20.3	25.7	31.3	30.1	26.1	17.9	16.6	7.3	0.0	186.4
Hancock	0.0	0.0	8.3	12.9	16.3	19.8	19.1	16.5	11.3	10.5	4.6	0.0	119.3
Diamond A East	0.0	0.3	29.0	31.5	56.6	69.0	66.4	57.6	39.4	36.6	16.0	0.0	402.4
Hanagan	0.0	0.2	16.9	31.9	34.8	42.4	40.8	35.3	24.2	22.5	0.0	0.0	248.9
Total	0.0	0.7	99.2	147.5	210.9	257.0	245.0	214.3	146.6	136.5	41.4	0.0	1498.9

DLA - Ditch Loss based on Allowed Consumptive Use ((0.104309 + 0.035) x RHDA)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.0	1.9	3.5	4.5	5.4	5.2	4.5	3.1	2.9	1.3	0.0	32.4
Diamond A West	0.0	0.0	2.8	3.6	6.3	7.7	7.1	6.4	4.4	4.1	0.6	0.0	43.1
Hirakata Farms	0.0	0.0	1.5	2.8	3.6	4.4	4.2	3.6	2.5	2.3	1.0	0.0	26.0
Hancock	0.0	0.0	1.2	1.8	2.3	2.8	2.7	2.3	1.6	1.5	0.6	0.0	16.6
Diamond A East	0.0	0.0	4.0	4.4	7.9	9.6	9.2	8.0	5.5	5.1	2.2	0.0	56.1
Hanagan	0.0	0.0	2.4	4.4	4.8	5.9	5.7	4.9	3.4	3.1	0.0	0.0	34.7
Total	0.0	0.1	13.8	20.5	29.4	35.8	34.1	29.9	20.4	19.0	5.8	0.0	208.8

Table I-1
2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

Return Flow (RHDA - DLA - CUA)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.2	11.1	18.2	17.2	15.8	15.0	13.0	10.7	13.4	6.4	0.0	120.9
Diamond A West	0.0	0.0	17.0	19.3	26.8	25.3	22.6	21.5	18.7	21.9	3.7	0.0	176.7
Hirakata Farms	0.0	0.0	8.8	14.8	13.9	12.7	12.1	10.5	8.8	10.8	5.2	0.0	97.8
Hancock	0.0	0.0	6.8	9.5	9.0	8.2	7.9	6.8	5.9	7.2	3.4	0.0	64.5
Diamond A East	0.0	0.3	23.3	22.9	30.2	27.7	26.3	22.8	18.2	23.2	11.6	0.0	206.4
Hanagan	0.0	0.2	14.1	24.4	21.7	21.6	20.0	18.8	15.4	17.5	0.0	0.0	153.8
Total	0.0	0.6	81.1	109.1	118.8	111.3	103.9	93.4	77.7	94.0	30.2	0.0	820.0

Tailwater (20% RF)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.0	2.2	3.6	3.4	3.2	3.0	2.6	2.1	2.7	1.3	0.0	24.2
Diamond A West	0.0	0.0	3.4	3.9	5.4	5.1	4.5	4.3	3.7	4.4	0.7	0.0	35.3
Hirakata Farms	0.0	0.0	1.8	3.0	2.8	2.5	2.4	2.1	1.8	2.2	1.0	0.0	19.6
Hancock	0.0	0.0	1.4	1.9	1.8	1.6	1.6	1.4	1.2	1.4	0.7	0.0	12.9
Diamond A East	0.0	0.1	4.7	4.6	6.0	5.5	5.3	4.6	3.6	4.6	2.3	0.0	41.3
Hanagan	0.0	0.0	2.8	4.9	4.3	4.3	4.0	3.8	3.1	3.5	0.0	0.0	30.8
Total	0.0	0.1	16.2	21.8	23.8	22.3	20.8	18.7	15.5	18.8	6.0	0.0	164.0

Deep Perc (80% RF)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.1	8.8	14.6	13.8	12.6	12.0	10.4	8.5	10.7	5.1	0.0	96.7
Diamond A West	0.0	0.0	13.6	15.4	21.4	20.3	18.1	17.2	15.0	17.5	2.9	0.0	141.4
Hirakata Farms	0.0	0.0	7.1	11.9	11.1	10.2	9.7	8.4	7.1	8.7	4.1	0.0	78.2
Hancock	0.0	0.0	5.4	7.6	7.2	6.5	6.3	5.5	4.7	5.7	2.7	0.0	51.6
Diamond A East	0.0	0.2	18.6	18.3	24.2	22.2	21.0	18.2	14.5	18.6	9.2	0.0	165.1
Hanagan	0.0	0.1	11.3	19.5	17.4	17.3	16.0	15.1	12.3	14.0	0.0	0.0	123.0
Total	0.0	0.5	64.8	87.3	95.0	89.1	83.2	74.7	62.2	75.2	24.2	0.0	656.0

Additional Augmentation Station Release Due to Application of Max3 Limits ((RHD - RHDA) * (1 - 0.2935))

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.0	2.4	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4
Diamond A West	0.0	0.2	2.6	14.3	0.0	0.0	2.0	0.0	0.0	0.0	7.6	0.0	26.7
Hirakata Farms	0.0	0.1	2.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
Hancock	0.0	0.1	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
Diamond A East	0.0	0.0	0.0	18.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.3
Hanagan	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	0.0	9.6
Total	0.0	0.4	7.8	41.4	0.0	0.0	2.0	0.0	0.0	0.0	16.4	0.0	68.0

Lagged Deep Percolation Total

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2015	0.0	0.0	-0.5	-2.5	-5.3	-8.3	-11.2	-13.8	-15.9	-17.7	-19.2	-19.3	-113.6
2016	-18.2	-16.8	-15.5	-14.4	-13.5	-12.6	-11.9	-11.2	-10.7	-10.3	-9.9	-9.6	-154.6
2017	-9.2	-8.9	-8.6	-8.3	-8.1	-7.8	-7.6	-7.3	-7.1	-6.9	-6.7	-6.5	-93.2
2018	-6.3	-6.2	-6.0	-5.8	-5.7	-5.5	-5.4	-5.2	-5.1	-5.0	-4.8	-4.7	-65.8
2019	-4.6	-4.5	-4.4	-4.3	-4.1	-4.0	-4.0	-3.8	-3.8	-3.7	-3.6	-3.5	-48.2
2020	-3.4	-3.3	-3.2	-3.0	-2.8	-2.6	-2.4	-2.3	-2.1	-2.0	-1.9	-1.8	-30.9
2021	-1.8	-1.8	-1.8	-1.8	-1.7	-1.7	-1.7	-1.7	-1.6	-1.6	-1.6	-1.6	-20.4
2022	-1.6	-1.5	-1.5	-1.5	-1.4	-1.4	-1.3	-1.3	-1.3	-1.2	-1.2	-1.1	-16.3
2023	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-13.1
2024	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-12.0
2025	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-10.9
2026	-0.9	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-9.9
2027	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-9.0
2028	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-8.2
2029	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-7.5
2030	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-0.5	-0.5	-6.7
2031	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.4	-6.1
2032	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-4.5
2033	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-4.0
2034	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.6
2035	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.3
2036	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-3.0
2037	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.7
2038	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.5
2039	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.2
2040	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.0
2041	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-1.7
2042	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
2043	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2044	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2045	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	-55.0	-52.9	-51.3	-51.3	-52.2	-53.4	-54.8	-56.0	-56.8	-57.5	-57.9	-57.1	-656.1

Table I-1

2015 Projection

Average Historical Use

Assuming Operations Beginning in March of 2015

Net Historical Accretions ((HCU + Deep Percolation - Lagged Deep Percolation) < 0)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2015	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-19.3	-19.3
2016	-18.2	-16.8	-15.5	-14.4	-13.5	-12.6	-11.9	-11.2	-10.7	-10.3	-9.9	-9.6	-154.6
2017	-9.2	-8.9	-8.6	-8.3	-8.1	-7.8	-7.6	-7.3	-7.1	-6.9	-6.7	-6.5	-93.2
2018	-6.3	-6.2	-6.0	-5.8	-5.7	-5.5	-5.4	-5.2	-5.1	-5.0	-4.8	-4.7	-65.8
2019	-4.6	-4.5	-4.4	-4.3	-4.1	-4.0	-4.0	-3.8	-3.8	-3.7	-3.6	-3.5	-48.2
2020	-3.4	-3.3	-3.2	-3.0	-2.8	-2.6	-2.4	-2.3	-2.1	-2.0	-1.9	-1.8	-30.9
2021	-1.8	-1.8	-1.8	-1.8	-1.7	-1.7	-1.7	-1.7	-1.6	-1.6	-1.6	-1.6	-20.4
2022	-1.6	-1.5	-1.5	-1.5	-1.4	-1.4	-1.3	-1.3	-1.3	-1.2	-1.2	-1.1	-16.3
2023	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-13.1
2024	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-12.0
2025	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-10.9
2026	-0.9	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-9.9
2027	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-9.0
2028	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-8.2
2029	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-7.5
2030	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-0.5	-0.5	-6.7
2031	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.4	-6.1
2032	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-4.5
2033	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-4.0
2034	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.6
2035	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.3
2036	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-3.0
2037	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.7
2038	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.5
2039	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.2
2040	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-2.0
2041	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-1.7
2042	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
2043	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2044	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2045	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	-55.0	-52.9	-50.8	-48.8	-46.8	-45.2	-43.6	-42.2	-40.9	-39.8	-38.8	-57.1	-561.8

Historical Depletions (HCU + Positive (Deep Perc - Lagged Deep Perc))

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Schweizer	0.0	0.1	9.6	17.9	24.2	30.4	29.0	24.8	16.0	13.7	4.6	0.0	170.2
Diamond A West	0.0	0.0	14.1	18.3	33.7	42.5	39.4	35.4	23.4	20.9	3.0	0.0	230.8
Hirakata Farms	0.0	0.0	7.6	14.5	19.4	24.4	23.5	20.4	13.6	12.2	5.2	0.0	140.9
Hancock	0.0	0.0	5.8	9.2	12.2	15.4	14.8	12.9	8.6	7.6	3.3	0.0	89.8
Diamond A East	0.0	0.2	20.3	22.6	42.7	53.8	51.9	45.0	30.2	26.9	11.5	0.0	305.1
Hanagan	0.0	0.0	10.8	21.6	24.6	31.2	30.1	25.7	16.8	14.9	0.0	0.0	175.8
Total	0.0	0.3	68.2	104.1	156.8	197.8	188.7	164.2	108.6	96.2	27.6	0.0	1112.6

Net Historical Winter (Nov 2014- Mar 2015) Accretions (Negative (Deep Perc - Lagged Deep Perc))

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2014												-19.3	-19.3
2015	-18.2	-16.8	-15.5										-50.5
Total	-18.2	-16.8	-15.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-19.3	-69.8

Net Historical Depletions ((HCU + Deep Percolation - Lagged Deep Percolation) > 0)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Total	0.0	0.5	68.6	102.6	152.5	190.6	178.9	152.0	94.7	81.0	10.4	0.0	1031.8

Abbreviations

RHD	River Headgate Delivery
FHD	Farm Headgate Delivery
CU	Consumptive Use
DL	Ditch Loss
RF	Return Flow

2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

Table I-2
Total Recharge in Acre-Feet (directing all deep percolation water to the recharge ponds)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Depletion	Accretion
2015	0.00	0.00	-0.51	-1.92	-2.96	-3.30	-3.12	-2.56	-1.64	-0.76	0.13	1.85	-14.78	-14.78	0.00
2016	3.83	5.18	6.00	6.43	6.61	6.61	6.44	6.26	5.94	5.55	5.17	4.80	68.83	0.00	68.83
2017	4.47	4.14	3.84	3.54	3.26	3.00	2.75	2.54	2.32	2.12	1.93	1.76	35.67	0.00	35.67
2018	1.59	1.44	1.30	1.16	1.03	0.91	0.80	0.71	0.60	0.51	0.42	0.35	10.81	0.00	10.81
2019	0.28	0.20	0.14	0.06	0.01	-0.04	-0.09	-0.13	-0.18	-0.22	-0.25	-0.28	-0.50	-0.50	0.00
2020	-0.32	-0.34	-0.32	-0.41	-0.49	-0.60	-0.70	-0.80	-0.88	-0.92	-1.04	-1.08	-7.88	-7.88	0.00
2021	-1.06	-1.05	-1.04	-1.02	-1.01	-1.00	-0.99	-0.97	-0.97	-0.95	-0.94	-0.93	-11.93	-11.93	0.00
2022	-0.91	-0.90	-0.89	-0.86	-0.81	-0.77	-0.72	-0.68	-0.66	-0.63	-0.59	-0.57	-8.98	-8.98	0.00
2023	-0.57	-0.56	-0.57	-0.56	-0.55	-0.55	-0.55	-0.54	-0.54	-0.54	-0.53	-0.53	-6.58	-6.58	0.00
2024	-0.52	-0.52	-0.52	-0.51	-0.51	-0.51	-0.50	-0.50	-0.49	-0.50	-0.49	-0.48	-6.04	-6.04	0.00
2025	-0.48	-0.47	-0.48	-0.47	-0.46	-0.46	-0.45	-0.46	-0.45	-0.45	-0.44	-0.43	-5.49	-5.49	0.00
2026	-0.44	-0.44	-0.43	-0.42	-0.42	-0.42	-0.43	-0.41	-0.42	-0.40	-0.40	-0.40	-5.02	-5.02	0.00
2027	-0.40	-0.39	-0.39	-0.38	-0.38	-0.38	-0.38	-0.38	-0.37	-0.36	-0.36	-0.36	-4.53	-4.53	0.00
2028	-0.36	-0.36	-0.35	-0.35	-0.34	-0.35	-0.34	-0.34	-0.34	-0.33	-0.33	-0.32	-4.11	-4.11	0.00
2029	-0.33	-0.33	-0.32	-0.32	-0.32	-0.30	-0.31	-0.30	-0.31	-0.30	-0.30	-0.30	-3.73	-3.73	0.00
2030	-0.29	-0.30	-0.30	-0.29	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-3.40	-3.40	0.00
2031	-0.27	-0.27	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.26	-0.28	-0.29	-3.16	-3.16	0.00
2032	-0.31	-0.33	-0.34	-0.35	-0.36	-0.37	-0.36	-0.36	-0.36	-0.35	-0.35	-0.35	-4.19	-4.19	0.00
2033	-0.35	-0.35	-0.34	-0.34	-0.34	-0.33	-0.33	-0.33	-0.32	-0.32	-0.32	-0.32	-3.99	-3.99	0.00
2034	-0.32	-0.31	-0.31	-0.35	-0.31	-0.32	-0.30	-0.30	-0.29	-0.29	-0.30	-0.27	-3.65	-3.65	0.00
2035	-0.27	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-0.27	-0.26	-0.26	-3.27	-3.27	0.00
2036	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.25	-0.24	-0.24	-0.24	-0.24	-2.99	-2.99	0.00
2037	-0.24	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.22	-0.22	-0.22	-0.22	-2.72	-2.72	0.00
2038	-0.22	-0.21	-0.21	-0.21	-0.21	-0.21	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-2.47	-2.47	0.00
2039	-0.20	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.18	-0.18	-0.18	-0.18	-0.18	-2.24	-2.24	0.00
2040	-0.18	-0.18	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.16	-2.04	-2.04	0.00
2041	-0.16	-0.16	-0.16	-0.16	-0.16	-0.15	-0.15	-0.15	-0.15	-0.13	-0.12	-0.09	-1.75	-1.75	0.00
2042	-0.07	-0.05	-0.04	-0.02	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.20	-0.20	0.00
2043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2044	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2045	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total													-0.33	-115.64	115.31

2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

Table I-3
Total Recharge in Acre-Feet (directing all deep percolation water to the recharge ponds less the shortfall from the Schweizer Recharge Pond)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Depletion	Accretion
2015	0.00	0.00	-0.51	-1.92	-2.96	-3.31	-3.17	-2.69	-1.89	-1.17	-0.47	1.01	-17.07	-17.07	0.00
2016	2.77	3.90	4.54	4.87	4.99	4.97	4.82	4.67	4.39	4.05	3.71	3.40	51.09	0.00	51.09
2017	3.12	2.84	2.58	2.34	2.11	1.90	1.69	1.52	1.35	1.18	1.03	0.90	22.56	0.00	22.56
2018	0.77	0.65	0.54	0.44	0.34	0.25	0.16	0.10	0.01	-0.05	-0.12	-0.17	2.91	0.00	2.91
2019	-0.22	-0.28	-0.32	-0.37	-0.40	-0.44	-0.47	-0.50	-0.53	-0.56	-0.58	-0.59	-5.26	-5.26	0.00
2020	-0.61	-0.63	-0.60	-0.67	-0.73	-0.81	-0.88	-0.94	-0.98	-0.99	-1.07	-1.08	-9.97	-9.97	0.00
2021	-1.06	-1.05	-1.04	-1.02	-1.01	-1.00	-0.99	-0.97	-0.97	-0.95	-0.94	-0.93	-11.93	-11.93	0.00
2022	-0.91	-0.90	-0.89	-0.86	-0.81	-0.77	-0.72	-0.68	-0.66	-0.63	-0.59	-0.57	-8.98	-8.98	0.00
2023	-0.57	-0.56	-0.57	-0.56	-0.55	-0.55	-0.55	-0.54	-0.54	-0.54	-0.53	-0.53	-6.58	-6.58	0.00
2024	-0.52	-0.52	-0.52	-0.51	-0.51	-0.51	-0.50	-0.50	-0.49	-0.50	-0.49	-0.48	-6.04	-6.04	0.00
2025	-0.48	-0.47	-0.48	-0.47	-0.46	-0.46	-0.45	-0.46	-0.45	-0.45	-0.44	-0.43	-5.49	-5.49	0.00
2026	0.24	0.24	0.24	0.24	0.24	0.23	0.22	0.23	0.22	0.23	0.23	-0.40	2.16	0.00	2.16
2027	0.22	0.22	0.22	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.21	-0.36	2.00	0.00	2.00
2028	0.20	0.20	0.20	0.20	0.20	0.19	0.19	0.19	0.19	0.19	0.19	-0.32	1.82	0.00	1.82
2029	0.18	0.18	0.18	0.18	0.18	0.19	0.18	0.18	0.17	0.17	0.17	-0.30	1.66	0.00	1.66
2030	-0.29	-0.30	-0.30	-0.29	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-3.40	-3.40	0.00
2031	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.13	0.11	-0.29	1.29	0.00	1.29
2032	-0.31	-0.33	-0.34	-0.35	-0.36	-0.37	-0.36	-0.36	-0.36	-0.35	-0.35	-0.35	-4.19	-4.19	0.00
2033	-0.35	-0.35	-0.34	-0.34	-0.34	-0.33	-0.33	-0.33	-0.32	-0.32	-0.32	-0.32	-3.99	-3.99	0.00
2034	-0.32	-0.31	-0.31	-0.35	-0.31	-0.32	-0.30	-0.30	-0.29	-0.29	-0.30	-0.27	-3.65	-3.65	0.00
2035	-0.27	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-0.27	-0.26	-0.26	-3.27	-3.27	0.00
2036	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.25	-0.24	-0.24	-0.24	-0.24	-2.99	-2.99	0.00
2037	-0.24	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.22	-0.22	-0.22	-0.22	-2.72	-2.72	0.00
2038	-0.22	-0.21	-0.21	-0.21	-0.21	-0.21	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-2.47	-2.47	0.00
2039	-0.20	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.18	-0.18	-0.18	-0.18	-0.18	-2.24	-2.24	0.00
2040	-0.18	-0.18	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.16	-2.04	-2.04	0.00
2041	-0.16	-0.16	-0.16	-0.16	-0.16	-0.15	-0.15	-0.15	-0.15	-0.13	-0.12	-0.09	-1.75	-1.75	0.00
2042	-0.07	-0.05	-0.04	-0.02	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.20	-0.20	0.00
2043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2044	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2045	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total													-18.75	-104.23	85.48

2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

Table I-4
Total Recharge in Acre-Feet (directing all deep percolation water to the recharge ponds less the shortfall from the Schweizer Recharge Pond, minus the deep percolation water released through the augmentation stations.)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Depletion	Accretion
2015	0.00	0.00	0.01	0.36	1.28	2.44	3.66	4.69	5.45	5.89	6.13	1.01	30.92	0.00	30.92
2016	2.77	3.90	4.54	4.87	4.99	4.97	4.82	4.67	4.39	4.05	3.71	3.40	51.09	0.00	51.09
2017	3.12	2.84	2.58	2.34	2.11	1.90	1.69	1.52	1.35	1.18	1.03	0.90	22.56	0.00	22.56
2018	0.77	0.65	0.54	0.44	0.34	0.25	0.16	0.10	0.01	-0.05	-0.12	-0.17	2.91	0.00	2.91
2019	-0.22	-0.28	-0.32	-0.37	-0.40	-0.44	-0.47	-0.50	-0.53	-0.56	-0.58	-0.59	-5.26	-5.26	0.00
2020	-0.61	-0.63	-0.60	-0.67	-0.73	-0.81	-0.88	-0.94	-0.98	-0.99	-1.07	-1.08	-9.97	-9.97	0.00
2021	-1.06	-1.05	-1.04	-1.02	-1.01	-1.00	-0.99	-0.97	-0.97	-0.95	-0.94	-0.93	-11.93	-11.93	0.00
2022	-0.91	-0.90	-0.89	-0.86	-0.81	-0.77	-0.72	-0.68	-0.66	-0.63	-0.59	-0.57	-8.98	-8.98	0.00
2023	-0.57	-0.56	-0.57	-0.56	-0.55	-0.55	-0.55	-0.54	-0.54	-0.54	-0.53	-0.53	-6.58	-6.58	0.00
2024	-0.52	-0.52	-0.52	-0.51	-0.51	-0.51	-0.50	-0.50	-0.49	-0.50	-0.49	-0.48	-6.04	-6.04	0.00
2025	-0.48	-0.47	-0.48	-0.47	-0.46	-0.46	-0.45	-0.46	-0.45	-0.45	-0.44	-0.43	-5.49	-5.49	0.00
2026	0.24	0.24	0.24	0.24	0.24	0.23	0.22	0.23	0.22	0.23	0.23	-0.40	2.16	0.00	2.16
2027	0.22	0.22	0.22	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.21	-0.36	2.00	0.00	2.00
2028	0.20	0.20	0.20	0.20	0.20	0.19	0.19	0.19	0.19	0.19	0.19	-0.32	1.82	0.00	1.82
2029	0.18	0.18	0.18	0.18	0.18	0.19	0.18	0.18	0.17	0.17	0.17	-0.30	1.66	0.00	1.66
2030	-0.29	-0.30	-0.30	-0.29	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-3.40	-3.40	0.00
2031	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.13	0.11	-0.29	1.29	0.00	1.29
2032	-0.31	-0.33	-0.34	-0.35	-0.36	-0.37	-0.36	-0.36	-0.36	-0.35	-0.35	-0.35	-4.19	-4.19	0.00
2033	-0.35	-0.35	-0.34	-0.34	-0.34	-0.33	-0.33	-0.33	-0.32	-0.32	-0.32	-0.32	-3.99	-3.99	0.00
2034	-0.32	-0.31	-0.31	-0.35	-0.31	-0.32	-0.30	-0.30	-0.29	-0.29	-0.30	-0.27	-3.65	-3.65	0.00
2035	-0.27	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-0.27	-0.26	-0.26	-3.27	-3.27	0.00
2036	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.25	-0.24	-0.24	-0.24	-0.24	-2.99	-2.99	0.00
2037	-0.24	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.22	-0.22	-0.22	-0.22	-2.72	-2.72	0.00
2038	-0.22	-0.21	-0.21	-0.21	-0.21	-0.21	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-2.47	-2.47	0.00
2039	-0.20	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.18	-0.18	-0.18	-0.18	-0.18	-2.24	-2.24	0.00
2040	-0.18	-0.18	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.16	-2.04	-2.04	0.00
2041	-0.16	-0.16	-0.16	-0.16	-0.16	-0.15	-0.15	-0.15	-0.15	-0.13	-0.12	-0.09	-1.75	-1.75	0.00
2042	-0.07	-0.05	-0.04	-0.02	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.20	-0.20	0.00
2043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2044	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2045	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total													29.24	-87.16	116.40

2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

Table I-5
Total Recharge in Acre-Feet (negative values, which are replacement shortfalls, from Table I-4)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Depletion
2015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	-0.12	-0.17	-0.34
2019	-0.22	-0.28	-0.32	-0.37	-0.40	-0.44	-0.47	-0.50	-0.53	-0.56	-0.58	-0.59	-5.26
2020	-0.61	-0.63	-0.60	-0.67	-0.73	-0.81	-0.88	-0.94	-0.98	-0.99	-1.07	-1.08	-9.97
2021	-1.06	-1.05	-1.04	-1.02	-1.01	-1.00	-0.99	-0.97	-0.97	-0.95	-0.94	-0.93	-11.93
2022	-0.91	-0.90	-0.89	-0.86	-0.81	-0.77	-0.72	-0.68	-0.66	-0.63	-0.59	-0.57	-8.98
2023	-0.57	-0.56	-0.57	-0.56	-0.55	-0.55	-0.55	-0.54	-0.54	-0.54	-0.53	-0.53	-6.58
2024	-0.52	-0.52	-0.52	-0.51	-0.51	-0.51	-0.50	-0.50	-0.49	-0.50	-0.49	-0.48	-6.04
2025	-0.48	-0.47	-0.48	-0.47	-0.46	-0.46	-0.45	-0.46	-0.45	-0.45	-0.44	-0.43	-5.49
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.40	-0.40
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.36	-0.36
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.32	-0.32
2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.30	-0.30
2030	-0.29	-0.30	-0.30	-0.29	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-3.40
2031	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.29	-0.29
2032	-0.31	-0.33	-0.34	-0.35	-0.36	-0.37	-0.36	-0.36	-0.36	-0.35	-0.35	-0.35	-4.19
2033	-0.35	-0.35	-0.34	-0.34	-0.34	-0.33	-0.33	-0.33	-0.32	-0.32	-0.32	-0.32	-3.99
2034	-0.32	-0.31	-0.31	-0.35	-0.31	-0.32	-0.30	-0.30	-0.29	-0.29	-0.30	-0.27	-3.65
2035	-0.27	-0.29	-0.28	-0.28	-0.28	-0.28	-0.27	-0.27	-0.27	-0.27	-0.26	-0.26	-3.27
2036	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.25	-0.24	-0.24	-0.24	-0.24	-2.99
2037	-0.24	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.22	-0.22	-0.22	-0.22	-2.72
2038	-0.22	-0.21	-0.21	-0.21	-0.21	-0.21	-0.20	-0.20	-0.20	-0.20	-0.20	-0.20	-2.47
2039	-0.20	-0.19	-0.19	-0.19	-0.19	-0.19	-0.19	-0.18	-0.18	-0.18	-0.18	-0.18	-2.24
2040	-0.18	-0.18	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.17	-0.16	-2.04
2041	-0.16	-0.16	-0.16	-0.16	-0.16	-0.15	-0.15	-0.15	-0.15	-0.13	-0.12	-0.09	-1.75
2042	-0.07	-0.05	-0.04	-0.02	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.20
2043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2044	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2045	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total													-89.18

2015 Projection
Average Historical Use
Assuming Operations Beginning in March of 2015

Table I-6
Total Recharge in Acre-Feet (positive values, which are excess replacements, from Table I-4)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Accretion
2015	0.00	0.00	0.01	0.36	1.28	2.44	3.66	4.69	5.45	5.89	6.13	1.01	30.92
2016	2.77	3.90	4.54	4.87	4.99	4.97	4.82	4.67	4.39	4.05	3.71	3.40	51.09
2017	3.12	2.84	2.58	2.34	2.11	1.90	1.69	1.52	1.35	1.18	1.03	0.90	22.56
2018	0.77	0.65	0.54	0.44	0.34	0.25	0.16	0.10	0.01	0.00	0.00	0.00	3.25
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.24	0.24	0.24	0.24	0.24	0.23	0.22	0.23	0.22	0.23	0.23	0.00	2.56
2027	0.22	0.22	0.22	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.00	2.36
2028	0.20	0.20	0.20	0.20	0.20	0.19	0.19	0.19	0.19	0.19	0.19	0.00	2.14
2029	0.18	0.18	0.18	0.18	0.18	0.19	0.18	0.18	0.17	0.17	0.17	0.00	1.96
2030	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2031	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.13	0.11	0.00	1.58
2032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2036	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2039	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2040	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2041	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2044	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2045	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
													118.42

Table I-7

Estimated Lagged Deep Percolation for a 10-year Pilot Project using Average Annual Historical Consumptive Use

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2015	0	0	0.02	0.37	1.28	2.44	3.68	4.70	5.44	5.89	6.14	1.03	30.98
2016	2.78	3.9	4.05	2.97	2.04	1.67	1.68	1.99	2.5	2.88	3.26	4.44	34.16
2017	5.9	6.74	6.63	5.31	4.16	3.57	3.38	3.51	3.85	4.07	4.3	5.34	56.76
2018	6.67	7.39	7.17	5.75	4.49	3.81	3.54	3.6	3.86	4.02	4.18	5.17	59.65
2019	6.44	7.11	6.86	5.38	4.09	3.37	3.08	3.09	3.33	3.47	3.61	4.57	54.40
2020	5.83	6.48	6.26	4.72	3.36	2.56	2.19	2.16	2.36	2.49	2.54	3.5	44.45
2021	4.76	5.43	5.23	3.7	2.35	1.56	1.21	1.19	1.4	1.53	1.59	2.57	32.52
2022	3.86	4.52	4.34	2.84	1.54	0.8	0.48	0.51	0.74	0.91	1.01	2	23.55
2023	3.29	3.96	3.78	2.28	0.99	0.25	-0.07	-0.04	0.2	0.37	0.47	1.47	16.95
2024	2.77	3.44	3.26	1.77	0.48	-0.26	-0.57	-0.53	-0.29	-0.12	-0.01	0.99	10.93
2025	2.29	2.96	3.29	3.21	2.97	2.59	2.13	1.7	1.16	0.61	0.01	-0.48	22.44
2026	-0.93	-1.37	-1.69	-2.1	-2.45	-2.8	-3.13	-3.38	-3.65	-3.85	-4.11	-4.29	-33.75
2027	-4.44	-4.6	-4.66	-4.82	-4.94	-5.08	-5.2	-5.28	-5.37	-5.4	-5.52	-5.55	-60.86
2028	-5.57	-5.61	-5.55	-5.6	-5.63	-5.67	-5.71	-5.71	-5.72	-5.68	-5.73	-5.71	-67.89
2029	-5.67	-5.65	-5.55	-5.55	-5.54	-5.53	-5.55	-5.5	-5.5	-5.44	-5.46	-5.41	-66.35
2030	-5.34	-5.32	-5.26	-5.18	-5.1	-5	-4.95	-4.85	-4.8	-4.73	-4.66	-4.6	-59.79
2031	-4.55	-4.53	-4.48	-4.42	-4.34	-4.26	-4.22	-4.13	-4.09	-4.04	-3.99	-3.97	-51.02
2032	-3.95	-3.95	-3.93	-3.91	-3.9	-3.86	-3.86	-3.81	-3.79	-3.77	-3.76	-3.75	-46.24
2033	-3.73	-3.73	-3.71	-3.69	-3.68	-3.64	-3.64	-3.59	-3.57	-3.56	-3.55	-3.54	-43.63
2034	-3.52	-3.53	-3.5	-3.52	-3.48	-3.46	-3.44	-3.39	-3.37	-3.35	-3.36	-3.33	-41.25
2035	-3.31	-3.33	-3.31	-3.33	-3.29	-3.27	-3.25	-3.21	-3.19	-3.18	-3.18	-3.15	-39.00
2036	-3.14	-3.16	-3.14	-3.16	-3.12	-3.1	-3.08	-3.05	-3.02	-3.01	-3.02	-2.99	-36.99
2037	-2.98	-3	-2.99	-3.01	-2.97	-2.95	-2.92	-2.9	-2.88	-2.87	-2.88	-2.85	-35.20
2038	-2.84	-2.86	-2.85	-2.87	-2.83	-2.81	-2.79	-2.76	-2.74	-2.73	-2.74	-2.72	-33.54
2039	-2.71	-2.73	-2.72	-2.74	-2.7	-2.7	-2.66	-2.65	-2.62	-2.61	-2.62	-2.6	-32.06
2040	-2.59	-2.61	-2.6	-2.63	-2.59	-2.59	-2.55	-2.53	-2.51	-2.5	-2.51	-2.49	-30.70
2041	-2.49	-2.5	-2.5	-2.53	-2.49	-2.49	-2.45	-2.43	-2.41	-2.37	-2.35	-2.29	-29.30
2042	-2.25	-2.23	-2.2	-2.2	-2.13	-2.12	-2.09	-2.07	-2.05	-2.02	-2	-1.94	-25.30
2043	-1.9	-1.89	-1.85	-1.86	-1.8	-1.79	-1.76	-1.75	-1.73	-1.7	-1.68	-1.62	-21.33
2044	-1.59	-1.57	-1.54	-1.52	-1.49	-1.47	-1.46	-1.45	-1.44	-1.41	-1.38	-1.35	-17.67
2045	-1.32	-1.29	-1.26	-1.24	-1.21	-1.2	-1.19	-1.18	-1.17	-1.14	-1.12	-1.09	-14.41
2046	-1.06	-1.03	-1.01	-0.99	-0.96	-0.95	-0.94	-0.93	-0.92	-0.9	-0.88	-0.85	-11.42
2047	-0.82	-0.8	-0.77	-0.76	-0.73	-0.72	-0.71	-0.71	-0.7	-0.68	-0.66	-0.63	-8.69
2048	-0.61	-0.58	-0.56	-0.55	-0.53	-0.51	-0.51	-0.5	-0.5	-0.48	-0.46	-0.44	-6.23
2049	-0.41	-0.39	-0.37	-0.35	-0.34	-0.32	-0.32	-0.32	-0.32	-0.3	-0.28	-0.26	-3.98
2050	-0.23	-0.21	-0.2	-0.18	-0.16	-0.15	-0.15	-0.15	-0.15	-0.13	-0.12	-0.09	-1.92
2051	-0.07	-0.05	-0.04	-0.02	-0.01	0	0	0	0	0	0	0	-0.19
Total Post Pilot Project Lagged Deep Percolation Return Flow Requirements (2026 through 2051)													-818.71

Martin and Wood Water Consultants, Inc.
Job No. 816.2

9/24/2014 2:15 PM

APPENDIX

J

Draft Accounting - Catlin Pilot Project
Fowler Operations
Schweizer Farm
Daily

March-15 **FHG CU%** 6.3% **Maximum CU** 3.1 **Ditch Loss** 10.431% **Lateral Loss** 3.500% **Ditch & Lateral Losses** 13.93% **SEV** 0.00% **Leased Shares** 25.96
Total Shares 18,660 **Recharge Pond Delivery Target** 1.48% **of deep percolation**

Day	River Call	Measured Headgate Diversions	Direct Diversions	Direct Flow Rights 4/10/1875 22	Direct Flow Rights 12/3/1884 226	Direct Flow Rights 11/14/1887 97	Direct Flow Rights NA	Direct Flow Rights NA	Direct Flow Rights NA	Direct Flow Rights NA	Total Native Ditch	WW HG Delivery	Farm Leased WW	Farm Direct Diversion	WW Ditch & Lateral Loss	Direct Ditch & Lateral Loss	Measured Farm Headgate Delivery	WW Leased FHD	Farm Direct FHD	Farm Return Flow Obligations (Exc. DL/LL) Total Return Flow Obligation	WW Tailwater 20% of RF	Direct Tailwater 20% of RF	WW Unlagged Deep Perc	Direct Unlagged Deep Perc	Recharge Pond Recharge Pond Delivery	Recharge Pond Recharge Pond Accretion
		cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(17a)	(17b)	(17c)	(18)	(19)	(20)	(21)	(22)	(22a)	(22b)
1			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31			0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
af	**af**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(1) Day of month
(2) River call
(3) Measured Headgate Diversions
(4) Measured Headgate Diversions minus Winter Water Headgate Delivery
(5) Allocate Diversions up to 22 cfs to 4/10/1875 water right
(6) Allocate Diversions between greater than 22 cfs, to a maximum of 226 cfs to the 12/3/1884 water right
(7) Allocate Diversions between greater than 248 cfs, to a maximum of 97 cfs to the 11/14/1887 water right
(8) Unused Column
(9) Unused Column
(10) Unused Column
(11) Unused Column
(12) Total of Columns (5) through (11)
(13) Winter Water Headgate Deliveries
(14) Pro-rata Winter Water Headgate Deliveries: Col (13) x Leased Shares ÷ Total Shares
(15) Pro-rata Direct Diversions: Col (12) x Leased Shares ÷ Total Shares
(16) Winter Water Ditch & Lateral Losses: Col (14) x Ditch & Lateral Losses
(17a) Direct Diversion Ditch & Lateral Losses: Col (15) x Ditch & Lateral Losses
(17b) Measured Farm Headgate Diversions (= Augmentation Station Discharge if piped)
(17c) Col (17a) x Col (13) ÷ Col (3)
(17g) Col (17d) x Col (4) ÷ Col (3)
(18) Total Return Flow Obligation: Col (17a) x (1 - CU%)
(19) Winter Water Tailwater Return Flow Obligation: Col (17b) x (1 - CU%) x 0.2
(20) Direct Diversion Tailwater Return Flow Obligation: Col (17c) x (1 - CU%) x 0.2
(21) Winter Water Unlagged Deep Perc: Col (17b) x (1 - CU%) x 0.8 - col (17e)
(22) Direct Diversion Unlagged Deep Perc: Col (17c) x (1 - CU%) x 0.8 - Col (17f)
(22a) Recharge Pond Delivery: Col (21) + Col (22) x Recharge Pond Delivery Target
(22b) Recharge Pond Accretions: From Schweizer Pond Recharge Tab

Unused Factor

Marting and Wood Water Consultants, Inc
Job No. 816.2

9/23/2014 11:07 AM

Draft Accounting - Catlin Pilot Project

Fowler Operations

Daily

Fowler Operations

Day	Target Aug Station Discharge								Actual Deliveries for Fowler Farms/Shares						
	Total Tailwater	Lagged Deep Perc	Excess/ Deficit Return Flows	WW CU	Direct CU	Total CU	Total Discharge	Aug Station Discharge	Farm Aug Station Discharge	Pueblo DRF Storage/ Release	Pueblo CU Storage/ Release	Fowler DRF Augmentation	Fowler CU Augmentation	Pueblo DRF Delivery	Amount Over/Under Aug Station
	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
(1)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(30a)	(31)	(32)	(33)	(34)	(35)	(36)
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
af	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Day	Aug Station Delivery Chec	
	Pro-Rata HG Delivery	Total Discharge
	cfs	cfs
(1)	(37)	(38)
1	0.00	0.00
2	0.00	0.00
3	0.00	0.00
4	0.00	0.00
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00
19	0.00	0.00
20	0.00	0.00
21	0.00	0.00
22	0.00	0.00
23	0.00	0.00
24	0.00	0.00
25	0.00	0.00
26	0.00	0.00
27	0.00	0.00
28	0.00	0.00
29	0.00	0.00
30	0.00	0.00
31	0.00	0.00
af	0.00	0.00

(23) Total of Fowler Farms March 15 Col (19) + Total of Fowler Farms March 15 Col (20)
(24) From Schweizer RF Laggging Tab
(25) Total of Fowler Farms March 15 Col (18) - Col (23) - Col (24)
(26) Total of Fowler Farms March 15 Col (14) * %CU
(27) Total of Fowler Farms March 15 Col (15) * %CU
(28) Col (26) + Col (27)
(29) Col (23) + Col (24) + Col (25) + Col (28)
(30) Measured
(30a) Pro-rata Augmentation Station Discharge: Col (30) x Leased Shares ÷ Total Shares

(31) Default: Col (25)
(32) Default: Col (28) - Col (34)
(33) Default: Col (25) - Col (31)
(34) Default: Col (28)
(35) As Delivered
(36) Col (30) + Col (29)
(37) Total of Fowler Farms March 15 Col (3) ÷ Total Shares x Leased Shares
(38) Col (37) x (1 - Ditch Loss)

Draft Accounting - Catlin Pilot Project
Fowler Operations
Schweizer Farm
Monthly

ALL VALUES IN ACRE-FEET

Ditch Loss 10.43%
Lateral Loss 3.50%
Recharge Pond I 1.48% of deep percolation

	Leased Native	Leased WW	Leased Native+WW	Canal/Lateral Loss	Farm Headgate Delivery	Efficiency	CU Credit	Tailwater	Deep Perc	DeepPerc =recharge	GW return flow at river	Estimated Return Flow Obligation (exc Ditch/lateral Loss) as if used for Historic irrig	Aug Station Return Flows (excludes exch of DRF or WW) AF	2014 Return Flows >Historic Flows	2014 Return Flows< Historic Flows	Remaining Return Flow Obligations from Prior Years	2014 CU Release	Obligation + -
(1)	(2)	(3)	(4)	(5)	(5a)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Totals	0	0	0	0	0	0.000	0	0	0	0	0	0	0					
Jan-14	0.0	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Feb-14	0.0	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Mar-14	0.0	0.0	0.0	0.0	0.0	0.255	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Apr-14	0.0	0.0	0.0	0.0	0.0	0.234	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May-14	0.0	0.0	0.0	0.0	0.0	0.302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jun-14	0.0	0.0	0.0	0.0	0.0	0.465	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul-14	0.0	0.0	0.0	0.0	0.0	0.521	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug-14	0.0	0.0	0.0	0.0	0.0	0.550	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sep-14	0.0	0.0	0.0	0.0	0.0	0.526	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oct-14	0.0	0.0	0.0	0.0	0.0	0.441	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nov-14	0.0	0.0	0.0	0.0	0.0	0.401	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dec-14	0.0	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jan-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Feb-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mar-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Apr-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jun-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sep-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oct-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nov-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dec-15											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jan-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Feb-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mar-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Apr-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jun-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sep-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oct-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nov-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dec-16											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jan-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Feb-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mar-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Apr-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jun-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sep-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oct-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nov-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dec-17											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jan-18											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Feb-18											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mar-18											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Apr-18											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May-18											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jun-18											0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUM							0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Draft Accounting - Catlin Pilot Project
Fowler Operations
Schweizer Farm
Return Flow Lagging

Pattern for Historic returns to river under irrigation practice

month	1	2	3	4	5	6	7	8	9	10	11	12
recharge	0	0	0	0	0	0	0	0	0	0	0	0

month	return flow	Return flow factors											
1	0.000000	0.000000											
2	0.000000	0.000241	0.000000										
3	0.000000	0.003371	0.000241	0.000000									
4	0.000000	0.010900	0.003371	0.000241	0.000000								
5	0.000000	0.019220	0.010900	0.003371	0.000241	0.000000							
6	0.000000	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000						
7	0.000000	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000					
8	0.000000	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000				
9	0.000000	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000			
10	0.000000	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000		
11	0.000000	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000	
12	0.000000	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000
13	0.000000	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241
14	0.000000	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371
15	0.000000	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900
16	0.000000	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220
17	0.000000	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855
18	0.000000	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387
19	0.000000	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141
20	0.000000	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576
21	0.000000	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085
22	0.000000	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968
23	0.000000	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437
24	0.000000	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641
25	0.000000	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685
26	0.000000	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538
27	0.000000	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556
28	0.000000	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315
29	0.000000	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287
30	0.000000	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143
31	0.000000	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064
32	0.000000	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014
33	0.000000	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997
34	0.000000	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019
35	0.000000	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074
36	0.000000	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165
37	0.000000	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295
38	0.000000	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458
39	0.000000	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652
40	0.000000	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881
41	0.000000	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141
42	0.000000	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434
43	0.000000	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752
44	0.000000	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101
45	0.000000	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471
46	0.000000	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873
47	0.000000	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300
48	0.000000	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746
49	0.000000	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219
50	0.000000	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705
51	0.000000	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224
52	0.000000	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757
53	0.000000	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519
54	0.000000	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723
55	0.000000	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476
56	0.000000	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086
57	0.000000	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922
58	0.000000	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182
59	0.000000	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007
60	0.000000	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674
61	0.000000	0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361
62	0.000000		0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059
63	0.000000			0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751
64	0.000000				0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481
65	0.000000					0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222
66	0.000000						0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954
67	0.000000							0.004621	0.004828	0.005021	0.005248	0.005470	0.005708
68	0.000000								0.004621	0.004828	0.005021	0.005248	0.005470
69	0.000000									0.004621	0.004828	0.005021	0.005248
70	0.000000										0.004621	0.004828	0.005021
71	0.000000											0.004621	0.004828
72	0.000000												0.004621

Draft Accounting - Catlin Pilot Project
Fowler Operations
Schweizer Pond
Recharge

Pattern for Historic returns to river under irrigation practice

month	1	2	3	4	5	6	7	8	9	10	11	12
recharge	0	0	0	0	0	0	0	0	0	0	0	0

month	return flow	Return flow factors											
1	0.000000	0.000000											
2	0.000000	0.000241	0.000000										
3	0.000000	0.003371	0.000241	0.000000									
4	0.000000	0.010900	0.003371	0.000241	0.000000								
5	0.000000	0.019220	0.010900	0.003371	0.000241	0.000000							
6	0.000000	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000						
7	0.000000	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000					
8	0.000000	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000				
9	0.000000	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000			
10	0.000000	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000		
11	0.000000	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000	
12	0.000000	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241	0.000000
13	0.000000	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371	0.000241
14	0.000000	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900	0.003371
15	0.000000	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220	0.010900
16	0.000000	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855	0.019220
17	0.000000	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387	0.025855
18	0.000000	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141	0.030387
19	0.000000	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576	0.033141
20	0.000000	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085	0.034576
21	0.000000	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968	0.035085
22	0.000000	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437	0.034968
23	0.000000	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641	0.034437
24	0.000000	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685	0.033641
25	0.000000	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538	0.032685
26	0.000000	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556	0.031538
27	0.000000	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315	0.030556
28	0.000000	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287	0.029315
29	0.000000	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143	0.028287
30	0.000000	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064	0.027143
31	0.000000	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014	0.026064
32	0.000000	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997	0.025014
33	0.000000	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019	0.023997
34	0.000000	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074	0.023019
35	0.000000	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165	0.022074
36	0.000000	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295	0.021165
37	0.000000	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458	0.020295
38	0.000000	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652	0.019458
39	0.000000	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881	0.018652
40	0.000000	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141	0.017881
41	0.000000	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434	0.017141
42	0.000000	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752	0.016434
43	0.000000	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101	0.015752
44	0.000000	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471	0.015101
45	0.000000	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873	0.014471
46	0.000000	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300	0.013873
47	0.000000	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746	0.013300
48	0.000000	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219	0.012746
49	0.000000	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705	0.012219
50	0.000000	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224	0.011705
51	0.000000	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757	0.011224
52	0.000000	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519	0.010757
53	0.000000	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723	0.010519
54	0.000000	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476	0.009723
55	0.000000	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086	0.009476
56	0.000000	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922	0.009086
57	0.000000	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182	0.008922
58	0.000000	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007	0.008182
59	0.000000	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674	0.008007
60	0.000000	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361	0.007674
61	0.000000	0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059	0.007361
62	0.000000		0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751	0.007059
63	0.000000			0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481	0.006751
64	0.000000				0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222	0.006481
65	0.000000					0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954	0.006222
66	0.000000						0.004621	0.004828	0.005021	0.005248	0.005470	0.005708	0.005954
67	0.000000							0.004621	0.004828	0.005021	0.005248	0.005470	0.005708
68	0.000000								0.004621	0.004828	0.005021	0.005248	0.005470
69	0.000000									0.004621	0.004828	0.005021	0.005248
70	0.000000										0.004621	0.004828	0.005021
71	0.000000											0.004621	0.004828
72	0.000000												0.004621

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix F

Supplemental Application Information

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September 25, 2014

To: All Parties on the Substitute Water Supply List for Water Division 2 (list attached) and for CWCB distribution to the CWCB Notification List

Re: Application for Fallowing Leasing Pilot Project – Catlin Pilot Project

Pursuant to C.R.S. § 30-60-115(8)(e)(II), the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. (collectively, "Applicants") are providing this written notice and a copy of the HB13-1248 Catlin Pilot Project Application and all accompanying materials by either first class mail or electronic mail to all parties that have subscribed to the substitute water supply plan notification list for Water Division 2. In addition, Applicants have asked the Colorado Water Conservation Board ("CWCB") to serve this application and accompanying materials on the appropriate CWCB e-mail notification list, which we understand is not currently publicly available. Please note that, due to the size constraints, appendices referenced in the Application can be accessed at:

ftp://server.martinandwood.com/
User name: pilot2015
Password: catlin

On July 14, 2014, Applicants submitted the HB13-1248 Catlin Pilot Project Proposal to the CWCB, which was served upon this Notification List. The Catlin Pilot Project Proposal requested that the CWCB select the Catlin Pilot Project pursuant to C.R.S. 37-60-115(8) and Section II.A of the Criteria and Guidelines for Fallowing Leasing Pilot Projects. On September 12, 2014, the CWCB adopted a resolution approving the Catlin Pilot Project Proposal for formal selection as an eligible project within the Arkansas River Basin. A copy of the Catlin Pilot Project Proposal, with exhibits, is available on the CWCB website at http://cwcb.state.co.us/water-management/water-projects-programs/Pages/Fallowing-LeasingPilotProjects.aspx

All parties may submit comments on the Catlin Pilot Project Application to the CWCB within 75 days of the date of this notice. Send comments to: Colorado Water Conservation Board, 1313 Sherman Street, Room 721, Denver, CO 80203. Comments may also be sent via email to tom.browning@state.co.us or by fax to (303) 866-4474. The CWCB will not consider comments received after the 75th day.

Comments may include: any claim of injury; terms and conditions that the person filing a comment believed should be imposed on the pilot project in order to prevent injury to other water rights, decreed conditional water rights, or contract rights to water; and other information that the person filing the comment believes the CWCB Board should consider in reviewing the application. All comments claiming injury must identify with specificity the water right(s) that the person either owns or has a contract right. As provided in Section II.I of the Criteria, commenting parties shall make every effort to: (1) provide analyses of the nature and extent of the claimed injury to the identified water right(s) based upon the methodologies and approaches, assumptions, and presumptive factors set forth in Section II.G of the Criteria and to propose specific terms and conditions that would protect the identified water right(s) from the claimed injury.

Pursuant to C.R.S. § 37-60-115(8)(d)(VI)(A) and Section II.I of the Criteria, CWCB staff is responsible for convening and facilitating a conference between the Applicants, the State Engineer, and owners of water rights or contract rights that file comments on the Catlin Pilot Project Application. Applicants have requested the CWCB schedule and convene this conference on **TUESDAY, DECEMBER 16TH AT 10:00AM** at the CWCB offices.

When the CWCB approves or denies a pilot project application, it shall serve a copy of the decision, along with a copy of the State Engineer's written determination and any conference reports submitted pursuant to C.R.S. § 37-60-115(8)(d)((IV) upon all parties to the application by first class mail, or if elected by the parties, by electronic mail. Please indicate your preferred method of service in your comments. The CWCB decision and the State Engineer's written determination are final agency actions and may be appealed to the Water Court for Water Division 2 within thirty-five days after the decision has been mailed to the water clerk for Water Division 2. C.R.S. § 37-60-115(8)(h)(I).

Sincerely,

Peter D. Nichols
Leah K. Martinsson

CERTIFICATE OF MAILING

I certify that on September 25, 2014, a true and correct copy of the **HB 13-1248 Catlin Pilot Project Application**, together with all accompanying materials, was served via email transmission or via United States mail, postage prepaid, to all parties that have subscribed to the substitute water supply plan notification list for Water Division 2, as set forth below. I further certify that a request has been made to the CWCB to serve this application and accompanying materials on the appropriate CWCB e-mail notification list.

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/s/ Linda D. Smith Linda D Smith

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Leah K. Martinsson

December 5, 2014

Via e-mail delivery (james.eklund@state.co.us; tom.browning@state.co.us)

Colorado Water Conservation Board
James Eklund, Director
Tom Browning, Deputy Director
1313 Sherman Street, Room 721
Denver, CO 80203

Re: HB 13-1248 Catlin Pilot Project Application – Supporting Materials

Dear Mr. Eklund and Mr. Browning:

In support of its September 25, 2014 Application for the Catlin Pilot Project, the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. (collectively, "Applicants") are providing the lease agreements between Super Ditch and the following participating Catlin Canal Company shareholders: (1) Diamond A Farms; (West); (2) Diamond A Farms (East); (3) Hirakata /K2 Farms; (4) Gary Hanagan; (5) Kenneth Schweizer; and (6) Lee Hancock. Applicants request that the CWCB post these supporting materials on its website.

We look forward to meeting with CWCB staff, the State Engineer, and owners of water rights or contract rights that file comments on the Catlin Pilot Project Application at the conference meeting to be held on Thursday, December 18. In the meantime, please let me if you have any questions or would like to discuss this matter further.

Sincerely,

Leah K. Martinsson

cc: Lynden Gill, Chairman, Lower Ark
John Schweizer, President, Super Ditch
Jay Winner, General Manager, Lower Ark

OPTION AGREEMENT FOR LEASE OF CATLIN CANAL COMPANY STOCK

This option agreement for lease of stock in the Catlin Canal Company ("Option Agreement") is entered into by and between the undersigned shareholder in the Catlin Canal Company ("Shareholder"), and the Lower Arkansas Valley Super Ditch Company, Inc., a Colorado corporation (the "Super Ditch"). The Super Ditch and Shareholder may collectively be referred to as the "Parties".

RECITALS

WHEREAS, irrigators in the Lower Arkansas Valley incorporated the Super Ditch to meet municipal water supply needs through the fallowing of their irrigated lands and leasing their water, rather than selling their water; and

WHEREAS, the Super Ditch is in the business of leasing water rights on behalf of irrigators in the Lower Arkansas Valley; and

WHEREAS, the Town of Fowler, the City of Fountain, and the Security Water District (the "Municipal Participants") support water leasing to meet municipal needs in certain circumstances to avoid the negative social, economic and environmental consequences of municipal buy-and-dry of agricultural water rights to meet municipal needs; and

WHEREAS, House Bill (HB) 13-1248, signed into law by the Governor on May 13, 2013, authorizes the Colorado Water Conservation Board (the "CWCB") to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up; and

WHEREAS, the Municipal Participants desire to lease water from irrigators to supplement their water supplies; and

WHEREAS, the Super Ditch is seeking approval of a ten-year pilot project pursuant to HB 13-1248 to use water available from certain shares of the Catlin Canal Company for temporary municipal purposes by the Municipal Participants (the "Catlin Pilot Project"); and

WHEREAS, Shareholder owns the shares of stock in the Catlin Canal Company as shown on Shareholder's Execution Page ("Subject Stock"), and represents that such shares are in good standing with the Company with all assessments current and paid; and

WHEREAS, the water derived from the Subject Stock is used to irrigate that certain real property further described on the Shareholder's Execution Page ("Historical Irrigated Land"); and

WHEREAS, the undersigned Shareholder desires to lease the Subject Stick through the Super Ditch to be included in and as a part of the Catlin Pilot Project to meet temporary municipal needs.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals and in consideration of the promises, agreements and payments herein after set forth, the adequacy and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Effective Date. This Option Agreement shall become effective only upon the occurrence of all of the following: (1) execution of this Option Agreement by the Parties; (2) the Super Ditch's acceptance of all the CWCB's conditions of approval of the Catlin Pilot Project, which acceptance or rejection of such conditions of approval shall be in the Super Ditch's sole discretion; (3) execution of agreements between Super Ditch and the Municipal Participants to the extent necessary and/or desirable in Super Ditch's sole discretion; (4) Shareholder obtaining approval of this Option Agreement from the Catlin Canal Company on terms acceptable to the Super Ditch, as more particularly set forth in paragraph 8, below; and (5) the Super Ditch's having obtained all other necessary approvals for operation of the Catlin Pilot Project on terms acceptable to the Super Ditch, in Super Ditch's sole discretion (the "Effective Date"). In the event that the Super Ditch does not obtain CWCB approval of the Catlin Pilot Project on terms acceptable to the Super Ditch, Shareholder does not obtain approval from the Catlin Canal Company, or the Super Ditch is unable to secure all approvals necessary for operation of the Catlin Pilot Project on terms acceptable to Super Ditch, this Option Agreement shall not take effect and no party shall have any rights, liabilities, or obligations hereunder.

2. Term of Option Agreement. This Option Agreement is for term beginning on the Effective Date and ending on March 14, 2025 (the "Agreement Term"), unless earlier terminated.

3. Grant of Option. Shareholder hereby grants the Super Ditch an exclusive option to lease up to all the Subject Stock for up to three years, or to lease up to 30% of the Subject Stock for each year during the Agreement Term, for use of water available from the Subject Stock in the Catlin Pilot Project pursuant to the terms of this Option Agreement ("Option to Lease").

4. Exercise of Option. For Catlin Pilot Project operations in 2015 only, the Super Ditch shall provide a Notice of Exercise (defined below) for all or part of the Subject Stock and Historical Irrigated Lands as identified in the Catlin Pilot Project Application within twenty (20) days of the Effective Date of this Option Agreement. In subsequent years, the Super Ditch shall notify Shareholder whether the Super Ditch desires to exercise of the Option to Lease during the upcoming irrigation season prior to September 15th. After such notification and prior to October 15th, the Super Ditch and Shareholder shall work cooperatively to identify portions of the Subject Stock and Historical Irrigated Lands that Shareholder will to commit to the Catlin Pilot Project for the upcoming year's operations. On or before December 1st, the Super Ditch shall provide a written notice to Shareholder stating whether

or not the Super Ditch elects to exercise the Option to Lease as to the identified shares and associated acreage for the upcoming irrigation season, or to exercise as to a lesser number of the shares and associated acreage ("Notice of Exercise"). The Super Ditch shall have sole discretion in determining if, when, and to what extent it may exercise the Option to Lease in any given year, including the first year of the Agreement Term.

5. Amount of Water. Upon the Super Ditch's exercise of the Option to Lease as provided in paragraphs 3 and 4, the Shareholder hereby agrees to lease to the Super Ditch all native water available to the Shareholder as a result of his ownership of the Subject Stock identified in that year's Notice of Exercise to the extent physically and legally available to Shareholder for lease and delivery to the Municipal Participants through the Super Ditch as a part of the Catlin Pilot Project for that year ("Leased Water").

6. Lease Price and Payment. Upon the Super Ditch's exercise of the Option to Lease, the Super Ditch agrees to pay to Shareholder a lease price consisting of two components: (1) a price per acre of land upon which the Leased Water has historically been used and that will be removed from irrigation as a part of Catlin Pilot Project operations for that year (the "Per Acre Price"); and (2) a price per acre-foot of historical consumptive use water associated with the Leased Water that is made available for lease to the Municipal Participants at their respective points of delivery (the "Acre-Foot Price").

    a. *Take-or-Pay.* The Parties agree that, upon the Super Ditch providing a Notice of Exercise in which the Super Ditch has elected to exercise the Option to Lease for the upcoming year and only to the extent that the Leased Water is physically made available for lease to the Municipal Participants at their point of delivery pursuant to the terms of the leases between Super Ditch and the Municipal Participants, the Leased Water is on a "take or pay" basis. As to that year only, the Super Ditch shall accordingly make the lease payments for the Leased Water available at the Municipal Participants' points of delivery, whether or not the quantities leased are actually taken and used by the Super Ditch or the Municipal Participants at such points.

    b. *Year One Pricing.* During the first year in which the Super Ditch exercises the Option to Lease, Super Ditch agrees to pay the Shareholder a Per-Acre Price of $150.00 and an Acre-Foot Price of $500.00. Unless otherwise agreed to by the Parties, this lease price shall apply to the first year only in recognition of the uncertainties associated with participating in the first leasing-fallowing pilot project.

    For the first year in which the Super Ditch exercises the Option to Lease, the Lower Arkansas Valley Water Conservancy District (the "District") has agreed to pay the Per-Acre Price to Shareholder to foster the demonstration of fallowing-leasing as an alternative to permanent agricultural dry-up. The Parties understand that this is a one-year commitment only by the District that the

District may or may not make in subsequent years at the sole discretion of the District's Board of Directors.

c. *Subsequent Pricing.* In subsequent years, the Acre-Foot Price and the Per-Acre Price may be adjusted from those identified in paragraph 6.b. It is currently anticipated that the Acre-Foot Price will be adjusted to a variable scale in recognition of the differing value of water relative to available supplies, whereby the Acre-Foot Price will be highest for the yield of Leased Water available under dry-year conditions and will decrease as yield of Leased Water increases. It is further contemplated that a Per-Acre Price will continue to be paid in order to more equitably allocate the risks associated with fluctuations in weather, hydrology, and commodity pricing.

d. *Remittance of Lease Payments.* In those years in which the Option to Lease has been exercised, the Super Ditch shall invoice the Acre-Foot Price to the Municipal Participants twice annually for deliveries or on such other invoice schedule as the Municipal Participants and Super Ditch shall establish. The Super Ditch shall remit lease payments of the Acre-Foot Price within thirty (30) days of receipt from its Municipal Participants. The Per-Acre Price shall be paid to Shareholder thirty (30) days after the Notice of Exercise is provided for those lands identified in the Notice of Exercise and to be removed from irrigation during the upcoming year's pilot project operations.

e. *Non-Exercise of Option.* There shall be no lease payment due to Shareholder for any year in which the Super Ditch does not elect to exercise the Option to Lease, nor shall any lease payments be due to Shareholder for any portion of the Subject Stock for which Super Ditch does not elect to exercise the Option to Lease in any given year.

7. Lease Administration Fee. The Super Ditch may retain a Lease Administration Fee out of the revenue it receives from leasing the Leased Water to partially defray the costs of leasing. Such fee shall be $25.00 per acre.

8. Approval of Catlin Canal Company. As a condition of this Option Agreement, Shareholder shall request the approval of the Catlin Canal Company for this Option Agreement and for the participation of the Subject Stock in the Catlin Pilot Project, pursuant to Article IV, Section 2 of the Catlin Canal Company Bylaws. This Option Agreement shall not take effect and no party shall have any rights or obligations hereunder until such time that Shareholder has obtained this approval, and all other conditions set forth in paragraph 1 above, have been satisfied.

The Parties to this Option Agreement understand that terms and conditions to prevent injury to non-leasing shareholders, including but not limited to, consideration of evaporation and seepage losses and operating conditions, so that non-leasing shareholders and shareholders leasing less than all of their shares will receive as much water, and in just as convenient

manner, as if the Option Agreement did not exist. It shall be the Shareholder's obligation to leave such reasonable portion of the Leased Water in the canals or other structures of the Catlin Canal Company as may be required in good faith and pursuant to commonly accepted engineering methods if determined necessary to prevent injury to non-leasing stockholders. The Catlin Canal Company is an intended beneficiary of this paragraph and may enforce the same. The Super Ditch shall be responsible for requesting any other approvals from the Company that are necessary and/or desirable for operation of the Catlin Pilot Project.

9. Lateral. Shareholder's headgate(s) on the Catlin Canal is either not on a lateral or Shareholder has the permission to use the lateral to lease the Subject Stock as shown on the Shareholder's Execution Page.

10. Dry up of Historical Irrigated Land Associated with Subject Stock. A fundamental requirement for the Catlin Pilot Project and this Option Agreement is the non-use of Leased Water available from the Subject Stock upon the Historical Irrigated Land ("Dry-up Land") during each year in which the Super Ditch elects to exercise the Option to Lease. In each year that the Super Ditch elects to exercise the Option to Lease, Shareholder will dry-up and withhold from irrigation such number of acres of Historical Irrigated Land as the Super Ditch identifies based upon the historic pattern of use in the Notice to Exercise, which acreage shall be finalized by February 1st. For each year in which Shareholder's Historical Irrigation Land or portion thereof is dried up as a part of operation of the Catlin Pilot Project, Shareholder shall submit an affidavit to the Super Ditch signed by a person familiar with the dry-up by December 31st following the irrigation season.

    a. The Historical Irrigated Land that is the subject of these provisions will be identified on the Shareholder Execution Page and on maps provided to the State Engineer and/or Division Two Engineer, the United States Department of Agriculture, and the Catlin Canal Company.

    b. The Shareholder hereby grants the Super Ditch permission to enter upon the Dry-up Land to post it in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005). The Super Ditch will monitor the subject Dry-up Land to insure no irrigation thereof during the years during which it exercises the Option to Lease, as required by the CWCB and/or the State or Division Engineer.

    c. Dry-up shall be in accordance with any terms and conditions imposed on the Catlin Pilot Project, including those set forth in the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" of the CWCB (Nov. 2013). Shareholder agrees to enter into a dry-up, weed control and erosion control covenant upon the request of the Super Ditch, which covenant may be recorded in the county clerk and recorders office.

11. Weed Control and Erosion Control. The Parties agree that weed control and erosion control of the Historical Irrigated Land taken out of production during years in which the Super

Ditch exercises the Option to Lease of the Subject Stock is very important. The Shareholder, at his sole cost, agrees to undertake operations to mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land. Specific operations will be determined in good faith consultation with Catlin Canal Company, and shall be conducted in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005) and any terms and conditions that may be imposed by the CWCB in the Catlin Pilot Project approval. Shareholder agrees to comply with terms and conditions of the Catlin Pilot Project approval regarding the fallow of the Dry-up Land, including compliance with any applicable county land use requirements to prevent erosion and blowing soils.

a. *Alfalfa Fields & Pasture Grass*

These fields will continue in an as is state. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

The CWCB and/or the State Engineer may impose special rules regarding the dry-up of such fields. All parcels containing alfalfa or pasture grass shall be subject to a reduction in the amount of Leased Water if the field is subirrigated. The reduction will be calculated pursuant to the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" and/or such other terms and conditions in the Catlin Pilot Project approval. Lease payments will be calculated based upon such reduced amounts.

If these fields require monitoring to determine depth to water table, any installation of monitoring wells will be at Super Ditch's expense. The Parties will determine the location of any such monitoring wells cooperatively.

b. *Stubble Fields*

Fields containing stubble from the previous year's crop will be left as is to provide protection from wind. If existing stubble is not deemed adequate, in Super Ditch's discretion, additional measures may be required. Such measures may include planting of a cover crop such as spring wheat and an irrigation of the crop, and mechanical operations on the field such as furrowing or chiseling. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

c. *Open Fields*

Open fields will require measures to control the blowing of dust. The measures may include furrowing or chiseling the fields, planting a cover crop such as spring wheat and some irrigation of the crop, or other measures the Parties may agree are

appropriate. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the exercise of the lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

d. *Weed Control*

Measures shall be undertaken by Shareholder to control the weeds on the Dry-Up Land. These measures may include the mowing of weeds or application of herbicide. Other measures, including grazing, may be undertaken at Super Ditch's discretion.

i. Land leveling, irrigation improvements. The Shareholder may level, install sprinkler or drip irrigation systems, and make other agricultural and irrigation system improvements on the Dry-up Land.

ii. County Regulation. The Shareholder agrees to comply with any applicable county land use regulations regarding noxious weed control/management.

12. Engineering and Legal Activities by Super Ditch. The Parties agree that it shall be the Super Ditch's sole responsibility to complete any legal, engineering, administrative and/or judicial activities necessary to obtain approval for the Catlin Pilot Project. The Shareholder shall cooperate with the Super Ditch in supplying any data and information as needed by the Super Ditch to obtain such approval. The Shareholder hereby grants the Super Ditch the authority to include the Subject Stock in the Catlin Pilot Project application. The Shareholder further agrees that Shareholder will cooperate with the Super Ditch in requesting and maintaining CWCB approval for the Catlin Pilot Project.

13. Automatic Termination. In the event that the Option to Lease is exercised on all of Shareholder's Subject Stock for three years and the water has been used in the Catlin Pilot Project, this Option Agreement shall automatically terminate following conclusion of the third year. This Option Agreement shall also automatically terminate in the event that the Catlin Pilot Project approval is permanently cancelled or revoked.

14. No Inclusion in SWSP, IWSA, or Another Pilot Project. The Shareholder agrees that the Subject Stock and the Historical Irrigated Lands shall not be included in a substitute water supply plan pursuant to C.R.S. 37-92-308(5) or (7), an interruptible water supply agreement pursuant to C.R.S. §37-92-309, or another pilot project pursuant to C.R.S. § 37-60-115(8) during the Agreement Term. The Shareholder further agrees not to enter into any lease, option, or other similar agreement for the Subject Stock and Historical Irrigated Lands that could be exercised during the Agreement Term in a manner that would interfere with the Super Ditch's full use and enjoyment of the Option to Lease or compromise operation of the Catlin Pilot Project.

15. Default and Remedies.

a. *Default*. The occurrence of any of the following events shall constitute a default and breach of this Option Agreement.

i. The failure by Super Ditch to timely make lease payments due.

ii. The failure by Shareholder to make the Leased Water available to the Super Ditch.

iii. The failure by Shareholder to cease irrigation of the Dry-Up Land during years in which Super Ditch has exercised the Option to Lease.

iv. The failure of Shareholder to satisfactorily mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land as required herein.

v. The failure of Shareholder to comply with applicable terms and conditions of any Catlin Pilot Project approval from the CWCB or any other lawful order of the State or Division Engineers or court of competent jurisdiction.

b. *Right to Cure*. In the event that either party believes that the other is in default of any obligation under this Option Agreement, the non-defaulting party shall promptly give written notice of the default to the defaulting party. If a notice of default is provided, the party accused of the default shall either cure it or provide a written statement explaining why it is not in default. If the alleged default is not cured or otherwise resolved within thirty (30) days, the Parties may resort to their remedies.

c. *Remedies*. In the event that either party defaults in the performance of any of its obligations under this Option Agreement, each party shall have all remedies provided in this Option Agreement or by law or equity and each Party shall have the right of specific performance against the other.

d. *Waiver*. Failure of either party to this Option Agreement to exercise any right hereunder shall not be deemed a waiver of such party's right and shall not affect the right of said party to exercise, at some future time, said right or rights or any other right it may have hereunder. No waiver of any of the provisions of this Option Agreement shall be deemed or shall constitute a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

16. Miscellaneous.

a. *Entire Agreement, Modification.* This Option Agreement constitutes the entire agreement between the Parties pertaining to the subject matter described in it and supersedes any and all prior contemporaneous agreements, representations, and understandings. This Option Agreement may be modified, amended, changed or terminated in whole or in any part only by an agreement in writing duly authorized and executed by the Parties hereto with the same formality as this Option Agreement.

b. *Notice.* All notices to be given with respect to this Option Agreement, including the Notice of Exercise, shall be in writing. Each notice shall be sent by United States mail, first class postage prepaid, to the Party to be notified at the address set forth herein or at such other address as either Party may from time to time designate in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing herein shall be construed to preclude personal service of any notice in the manner prescribed for personal services of a summons or other legal process. All notices required to be given to the Super Ditch hereunder shall be delivered to:

Lower Arkansas Valley Super Ditch Company
Attn: President
801 Swink Avenue
Rocky Ford, Colorado 81067
Tel: 719-254-5115
Fax: 719-254-5150

With copies to:

Bart Mendenhall, Esq.
Mendenhall & Malouff, R.L.L.P.
P.O. Box 552
Rocky Ford, CO 81067-0552
Tel: 719-254-7060
bmendenhall@centurytel.net

Peter Nichols, Esq.
Leah K. Martinsson, Esq.
1712 Pearl Street
Boulder, CO 80302
Tel: 303-402-1600
pdn@bhgrlaw.com
lkm@bhgrlaw.com

or at such other address as the Super Ditch may direct in accordance with this paragraph.

All notices required to be given to Shareholder hereunder shall be delivered to the address shown on Shareholder's Execution Page.

c. *Non-Business Days*. If the date for any action under this Option Agreement, other than the beginning or end of the Agreement Term, falls on a Saturday, Sunday or a day that is a "holiday," then the relevant date shall be extended automatically until the next day that is not a Saturday, Sunday or a "holiday."

d. *Governing Law and Venue*. This Option Agreement and its application shall be construed in accordance with the laws of the State of Colorado. The Parties agree that venue for any litigated disputes regarding this Agreement shall be the Water Court or, if the matter in dispute is not a water matter as defined by statute, the County District Court.

e. *No Construction Against Drafter*. This Option Agreement was drafted by the Super Ditch. The Shareholder is encouraged by the Super Ditch to review this Agreement with his own legal counsel prior to executing this Option Agreement. Accordingly, the Parties agree the legal doctrine of construction against the drafter will not be applied should any dispute arise concerning this Option Agreement.

f. *Headings for Convenience Only*. Paragraph headings and titles contained herein are intended for convenience and reference only and are not intended to define, limit or describe the scope or intent of any provision of this Option Agreement.

g. *Non-Severability*. Each Section in this Option Agreement is intertwined with the others and are not severable unless by mutual consent of the Super Ditch and Shareholder or as provided for under Paragraph 16 (a) above.

h. *Attorney Fees and Costs*. In the event of any litigation, mediation, arbitration or other dispute resolution proceedings arising out of or related to this Option Agreement, each party agrees to be responsible for its own attorney's fees and other professional fees, costs and expenses associated with any such proceedings.

i. *No Fees and Expenses and Apportionment.* Except as otherwise expressly set forth in this Option Agreement, each of the Parties hereto will bear its own expenses in connection with the transactions contemplated by this Agreement.

j. *Recordation.* At any time after the Effective Date, the Super Ditch may cause this Option Agreement to be recorded with the county clerk and recorder's office. Upon termination of this Option Agreement, the Super Ditch shall execute and record such additional documents as Shareholder reasonably may require so as to provide notice of termination.

k. *No Responsibility to Tenant Farmers.* All payments pursuant to this Option Agreement shall be made to Shareholder, or his assignee as he may direct in writing, except that the Super Ditch will have no responsibility for any payments whatsoever to any tenant farmer regardless of any agreement between a tenant farmer and Shareholder.

l. *Survival of Representations.* Each and every covenant, promise, and payment contained in this Option Agreement shall not merge in any deed, assignment, covenant, escrow agreement, easement, lease or any other document, but shall survive each nevertheless, and be binding and obligatory upon each of the Parties hereto.

m. *No Third-Party Beneficiaries.* Except as provided for in paragraph 8 herein, this Option Agreement is intended to describe the rights and responsibilities of and between the Parties hereto and is not intended to and shall not be deemed to confer rights upon any persons or entities not signatories hereto, nor to limit, impair, or enlarge in any way the powers, regulatory authority and responsibilities of either party or any other governmental entity not a party hereto.

n. *No Exclusive Right or Privilege.* Nothing in this Option Agreement is to be construed as a grant by the Super Ditch or Shareholder of any exclusive right or privilege, except as expressly provided herein.

17. <u>Taxes</u>. The Shareholder shall have sole responsibility for any taxes, property or otherwise, related to the Historical Irrigated Land or the Subject Stock. The Parties acknowledge that it is anticipated that such Historical Irrigated Land will be taxed as irrigated farmland notwithstanding the cessation of irrigation during the exercise of the Option to Lease under this Option Agreement.

18. Assessments. The Shareholder shall have sole responsibility for any assessments related to the Subject Stock, including any assessments for Winter Water and Fryingpan-Arkansas Project water and return flows, during the Agreement Term. The Super Ditch, however, may pay any outstanding assessments necessary for the Leased Water to be available for use by the Super Ditch or the Municipal Participants and deduct such amounts from subsequent lease payments.

19. Sublease and assignment. The Parties anticipate the Super Ditch will lease the water obtained from the Subject Stock under this Option Agreement. This Option Agreement may be assigned by Super Ditch to facilitate such lease.

20. Interruption of Supply Beyond the Shareholder's Control. While it is the intent and purpose of the Shareholder to provide the Leased Water to the Super Ditch for use in the Catlin Pilot Project, there are many natural and other factors that affect the quantity of Shareholder's water supply. The parties to the Option Agreement recognize that the water supply for Subject Stock is dependent upon sources of supply that are variable in quantity and beyond the control of Shareholder. No liability in tort or contract shall attach to Shareholder under this Option Agreement on account of any failure to accurately anticipate the availability of water for the contemplated lease or because of an actual failure of to supply water due to inadequate runoff or inadequate storage arising from an occurrence beyond the control of Shareholder, including, but not limited to, acts of God, strike, war, insurrection, or inability to deliver water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control.

21. Uniform Agreement. Except for the number of shares of Subject Stock and the description of the Historical Irrigated Land, the Parties agree the form of this Option Agreement will be uniform and with the identical terms between the Super Ditch and all leasing Shareholders of Catlin Canal Company stock.

22. Sale of Water Rights. The Parties recognize that Shareholder may desire to sell the Subject Stock and Historical Irrigated Lands during the term of this Option Agreement. Nothing herein shall preclude sale of the Subject Stock or Historical Irrigated Lands, so long as any such sale is subject to this Option Agreement pursuant the assignment provisions contained in paragraph 25, herein.

23. Title to Water Rights. Nothing herein shall be interpreted to give the Super Ditch any legal or equitable title in or to any water or water rights owned by Shareholder.

24. Right to Enter into Lease. Each party hereby warrants and represents that it has the full right and lawful authority to enter into this Option Agreement.

25. Assignment. The Shareholder may assign this Option Agreement with the approval of the Super Ditch, which approval shall not be unreasonably withheld.

26. Successors and Assigns. This Option Agreement and the rights and obligations created hereby shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.

27. Multiple Originals. This Option Agreement may be simultaneously executed in any number of counterparts, each one of which shall be deemed an original, but all of which constitute one and the same Agreement.

SHAREHOLDERS EXECUTION PAGE

To include the following:

1. **Subject Stock** available to lease by Super Ditch, number and certificate number(s)
2. Name, address, phone number, e-mail of contact and person with authority to lease shares
3. Map of **Historical Irrigated Land** of Subject Stock
4. Map of **Dry-up Land** (if different)

The undersigned represents that all assessments are paid on the Subject Stock and the shares are in good standing with the Catlin Canal Company.

The undersigned represents that the Subject Stock are not on a lateral, or that the undersigned has the permission of all other shareholders on the lateral to enter into this lease.

Frank D. Milenski 11/14/2014

Signature Date

Farm Manager of Diamond A Farms

Its (if Subject Stock not held as an individual)

Frank D. Milenski
23250 Cr. 23
La Junta Co 81050
fmilenski@yahoo.com

Lower Arkansas Valley Super Ditch Company, Inc.

By John Schweizer Jr

President

Its

11-24-14

Date

EXHIBIT A - Reflecting Subject Stock

July ~~10~~ 9, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner of approximately 4200 acres of lands irrigated under the Catlin Canal with 3410.583 shares represented by Share Certificate Nos. See below. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

Catlin Cert #	
3604	33.290
3603	3.300
3314	140.000
3329	80.000
3395	180.000
3543	550.940
3542	30.000
3541	72.000
3540	143.240
3539	287.000
3538	180.000
3537	100.500
3411	1610.313

Sincerely,

Diamond A

[print name]

Job No.: 816.2	Catlin Canal Pilot Project Proposal	Diamond A East Farm Exhibit B	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 4-Dec-2014				
Drawn: CML				
Checked: CRR				

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

OPTION AGREEMENT FOR LEASE OF CATLIN CANAL COMPANY STOCK

This option agreement for lease of stock in the Catlin Canal Company ("Option Agreement") is entered into by and between the undersigned shareholder in the Catlin Canal Company ("Shareholder"), and the Lower Arkansas Valley Super Ditch Company, Inc., a Colorado corporation (the "Super Ditch"). The Super Ditch and Shareholder may collectively be referred to as the "Parties".

RECITALS

WHEREAS, irrigators in the Lower Arkansas Valley incorporated the Super Ditch to meet municipal water supply needs through the fallowing of their irrigated lands and leasing their water, rather than selling their water; and

WHEREAS, the Super Ditch is in the business of leasing water rights on behalf of irrigators in the Lower Arkansas Valley; and

WHEREAS, the Town of Fowler, the City of Fountain, and the Security Water District (the "Municipal Participants") support water leasing to meet municipal needs in certain circumstances to avoid the negative social, economic and environmental consequences of municipal buy-and-dry of agricultural water rights to meet municipal needs; and

WHEREAS, House Bill (HB) 13-1248, signed into law by the Governor on May 13, 2013, authorizes the Colorado Water Conservation Board (the "CWCB") to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up; and

WHEREAS, the Municipal Participants desire to lease water from irrigators to supplement their water supplies; and

WHEREAS, the Super Ditch is seeking approval of a ten-year pilot project pursuant to HB 13-1248 to use water available from certain shares of the Catlin Canal Company for temporary municipal purposes by the Municipal Participants (the "Catlin Pilot Project"); and

WHEREAS, Shareholder owns the shares of stock in the Catlin Canal Company as shown on Shareholder's Execution Page ("Subject Stock"), and represents that such shares are in good standing with the Company with all assessments current and paid; and

WHEREAS, the water derived from the Subject Stock is used to irrigate that certain real property further described on the Shareholder's Execution Page ("Historical Irrigated Land"); and

WHEREAS, the undersigned Shareholder desires to lease the Subject Stick through the Super Ditch to be included in and as a part of the Catlin Pilot Project to meet temporary municipal needs.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals and in consideration of the promises, agreements and payments herein after set forth, the adequacy and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Effective Date. This Option Agreement shall become effective only upon the occurrence of all of the following: (1) execution of this Option Agreement by the Parties; (2) the Super Ditch's acceptance of all the CWCB's conditions of approval of the Catlin Pilot Project, which acceptance or rejection of such conditions of approval shall be in the Super Ditch's sole discretion; (3) execution of agreements between Super Ditch and the Municipal Participants to the extent necessary and/or desirable in Super Ditch's sole discretion; (4) Shareholder obtaining approval of this Option Agreement from the Catlin Canal Company on terms acceptable to the Super Ditch, as more particularly set forth in paragraph 8, below; and (5) the Super Ditch's having obtained all other necessary approvals for operation of the Catlin Pilot Project on terms acceptable to the Super Ditch, in Super Ditch's sole discretion (the "Effective Date"). In the event that the Super Ditch does not obtain CWCB approval of the Catlin Pilot Project on terms acceptable to the Super Ditch, Shareholder does not obtain approval from the Catlin Canal Company, or the Super Ditch is unable to secure all approvals necessary for operation of the Catlin Pilot Project on terms acceptable to Super Ditch, this Option Agreement shall not take effect and no party shall have any rights, liabilities, or obligations hereunder.

2. Term of Option Agreement. This Option Agreement is for term beginning on the Effective Date and ending on March 14, 2025 (the "Agreement Term"), unless earlier terminated.

3. Grant of Option. Shareholder hereby grants the Super Ditch an exclusive option to lease up to all the Subject Stock for up to three years, or to lease up to 30% of the Subject Stock for each year during the Agreement Term, for use of water available from the Subject Stock in the Catlin Pilot Project pursuant to the terms of this Option Agreement ("Option to Lease").

4. Exercise of Option. For Catlin Pilot Project operations in 2015 only, the Super Ditch shall provide a Notice of Exercise (defined below) for all or part of the Subject Stock and Historical Irrigated Lands as identified in the Catlin Pilot Project Application within twenty (20) days of the Effective Date of this Option Agreement. In subsequent years, the Super Ditch shall notify Shareholder whether the Super Ditch desires to exercise of the Option to Lease during the upcoming irrigation season prior to September 15th. After such notification and prior to October 15th, the Super Ditch and Shareholder shall work cooperatively to identify portions of the Subject Stock and Historical Irrigated Lands that Shareholder will to commit to the Catlin Pilot Project for the upcoming year's operations. On or before December 1st, the Super Ditch shall provide a written notice to Shareholder stating whether

or not the Super Ditch elects to exercise the Option to Lease as to the identified shares and associated acreage for the upcoming irrigation season, or to exercise as to a lesser number of the shares and associated acreage ("Notice of Exercise"). The Super Ditch shall have sole discretion in determining if, when, and to what extent it may exercise the Option to Lease in any given year, including the first year of the Agreement Term.

5. Amount of Water. Upon the Super Ditch's exercise of the Option to Lease as provided in paragraphs 3 and 4, the Shareholder hereby agrees to lease to the Super Ditch all native water available to the Shareholder as a result of his ownership of the Subject Stock identified in that year's Notice of Exercise to the extent physically and legally available to Shareholder for lease and delivery to the Municipal Participants through the Super Ditch as a part of the Catlin Pilot Project for that year ("Leased Water").

6. Lease Price and Payment. Upon the Super Ditch's exercise of the Option to Lease, the Super Ditch agrees to pay to Shareholder a lease price consisting of two components: (1) a price per acre of land upon which the Leased Water has historically been used and that will be removed from irrigation as a part of Catlin Pilot Project operations for that year (the "Per Acre Price"); and (2) a price per acre-foot of historical consumptive use water associated with the Leased Water that is made available for lease to the Municipal Participants at their respective points of delivery (the "Acre-Foot Price").

    a. *Take-or-Pay.* The Parties agree that, upon the Super Ditch providing a Notice of Exercise in which the Super Ditch has elected to exercise the Option to Lease for the upcoming year and only to the extent that the Leased Water is physically made available for lease to the Municipal Participants at their point of delivery pursuant to the terms of the leases between Super Ditch and the Municipal Participants, the Leased Water is on a "take or pay" basis. As to that year only, the Super Ditch shall accordingly make the lease payments for the Leased Water available at the Municipal Participants' points of delivery, whether or not the quantities leased are actually taken and used by the Super Ditch or the Municipal Participants at such points.

    b. *Year One Pricing.* During the first year in which the Super Ditch exercises the Option to Lease, Super Ditch agrees to pay the Shareholder a Per-Acre Price of \$150.00 and an Acre-Foot Price of \$500.00. Unless otherwise agreed to by the Parties, this lease price shall apply to the first year only in recognition of the uncertainties associated with participating in the first leasing-fallowing pilot project.

    For the first year in which the Super Ditch exercises the Option to Lease, the Lower Arkansas Valley Water Conservancy District (the "District") has agreed to pay the Per-Acre Price to Shareholder to foster the demonstration of fallowing-leasing as an alternative to permanent agricultural dry-up. The Parties understand that this is a one-year commitment only by the District that the

District may or may not make in subsequent years at the sole discretion of the District's Board of Directors.

c. *Subsequent Pricing.* In subsequent years, the Acre-Foot Price and the Per-Acre Price may be adjusted from those identified in paragraph 6.b. It is currently anticipated that the Acre-Foot Price will be adjusted to a variable scale in recognition of the differing value of water relative to available supplies, whereby the Acre-Foot Price will be highest for the yield of Leased Water available under dry-year conditions and will decrease as yield of Leased Water increases. It is further contemplated that a Per-Acre Price will continue to be paid in order to more equitably allocate the risks associated with fluctuations in weather, hydrology, and commodity pricing.

d. *Remittance of Lease Payments.* In those years in which the Option to Lease has been exercised, the Super Ditch shall invoice the Acre-Foot Price to the Municipal Participants twice annually for deliveries or on such other invoice schedule as the Municipal Participants and Super Ditch shall establish. The Super Ditch shall remit lease payments of the Acre-Foot Price within thirty (30) days of receipt from its Municipal Participants. The Per-Acre Price shall be paid to Shareholder thirty (30) days after the Notice of Exercise is provided for those lands identified in the Notice of Exercise and to be removed from irrigation during the upcoming year's pilot project operations.

e. *Non-Exercise of Option.* There shall be no lease payment due to Shareholder for any year in which the Super Ditch does not elect to exercise the Option to Lease, nor shall any lease payments be due to Shareholder for any portion of the Subject Stock for which Super Ditch does not elect to exercise the Option to Lease in any given year.

7. <u>Lease Administration Fee</u>. The Super Ditch may retain a Lease Administration Fee out of the revenue it receives from leasing the Leased Water to partially defray the costs of leasing. Such fee shall be $25.00 per acre.

8. <u>Approval of Catlin Canal Company</u>. As a condition of this Option Agreement, Shareholder shall request the approval of the Catlin Canal Company for this Option Agreement and for the participation of the Subject Stock in the Catlin Pilot Project, pursuant to Article IV, Section 2 of the Catlin Canal Company Bylaws. This Option Agreement shall not take effect and no party shall have any rights or obligations hereunder until such time that Shareholder has obtained this approval, and all other conditions set forth in paragraph 1 above, have been satisfied.

   The Parties to this Option Agreement understand that terms and conditions to prevent injury to non-leasing shareholders, including but not limited to, consideration of evaporation and seepage losses and operating conditions, so that non-leasing shareholders and shareholders leasing less than all of their shares will receive as much water, and in just as convenient

manner, as if the Option Agreement did not exist. It shall be the Shareholder's obligation to leave such reasonable portion of the Leased Water in the canals or other structures of the Catlin Canal Company as may be required in good faith and pursuant to commonly accepted engineering methods if determined necessary to prevent injury to non-leasing stockholders. The Catlin Canal Company is an intended beneficiary of this paragraph and may enforce the same. The Super Ditch shall be responsible for requesting any other approvals from the Company that are necessary and/or desirable for operation of the Catlin Pilot Project.

9. Lateral. Shareholder's headgate(s) on the Catlin Canal is either not on a lateral or Shareholder has the permission to use the lateral to lease the Subject Stock as shown on the Shareholder's Execution Page.

10. Dry up of Historical Irrigated Land Associated with Subject Stock. A fundamental requirement for the Catlin Pilot Project and this Option Agreement is the non-use of Leased Water available from the Subject Stock upon the Historical Irrigated Land ("Dry-up Land") during each year in which the Super Ditch elects to exercise the Option to Lease. In each year that the Super Ditch elects to exercise the Option to Lease, Shareholder will dry-up and withhold from irrigation such number of acres of Historical Irrigated Land as the Super Ditch identifies based upon the historic pattern of use in the Notice to Exercise, which acreage shall be finalized by February 1st. For each year in which Shareholder's Historical Irrigation Land or portion thereof is dried up as a part of operation of the Catlin Pilot Project, Shareholder shall submit an affidavit to the Super Ditch signed by a person familiar with the dry-up by December 31st following the irrigation season.

    a. The Historical Irrigated Land that is the subject of these provisions will be identified on the Shareholder Execution Page and on maps provided to the State Engineer and/or Division Two Engineer, the United States Department of Agriculture, and the Catlin Canal Company.

    b. The Shareholder hereby grants the Super Ditch permission to enter upon the Dry-up Land to post it in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005). The Super Ditch will monitor the subject Dry-up Land to insure no irrigation thereof during the years during which it exercises the Option to Lease, as required by the CWCB and/or the State or Division Engineer.

    c. Dry-up shall be in accordance with any terms and conditions imposed on the Catlin Pilot Project, including those set forth in the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" of the CWCB (Nov. 2013). Shareholder agrees to enter into a dry-up, weed control and erosion control covenant upon the request of the Super Ditch, which covenant may be recorded in the county clerk and recorders office.

11. Weed Control and Erosion Control. The Parties agree that weed control and erosion control of the Historical Irrigated Land taken out of production during years in which the Super

Ditch exercises the Option to Lease of the Subject Stock is very important. The Shareholder, at his sole cost, agrees to undertake operations to mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land. Specific operations will be determined in good faith consultation with Catlin Canal Company, and shall be conducted in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005) and any terms and conditions that may be imposed by the CWCB in the Catlin Pilot Project approval. Shareholder agrees to comply with terms and conditions of the Catlin Pilot Project approval regarding the fallow of the Dry-up Land, including compliance with any applicable county land use requirements to prevent erosion and blowing soils.

a. *Alfalfa Fields & Pasture Grass*

These fields will continue in an as is state. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

The CWCB and/or the State Engineer may impose special rules regarding the dry-up of such fields. All parcels containing alfalfa or pasture grass shall be subject to a reduction in the amount of Leased Water if the field is subirrigated. The reduction will be calculated pursuant to the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" and/or such other terms and conditions in the Catlin Pilot Project approval. Lease payments will be calculated based upon such reduced amounts.

If these fields require monitoring to determine depth to water table, any installation of monitoring wells will be at Super Ditch's expense. The Parties will determine the location of any such monitoring wells cooperatively.

b. *Stubble Fields*

Fields containing stubble from the previous year's crop will be left as is to provide protection from wind. If existing stubble is not deemed adequate, in Super Ditch's discretion, additional measures may be required. Such measures may include planting of a cover crop such as spring wheat and an irrigation of the crop, and mechanical operations on the field such as furrowing or chiseling. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

c. *Open Fields*

Open fields will require measures to control the blowing of dust. The measures may include furrowing or chiseling the fields, planting a cover crop such as spring wheat and some irrigation of the crop, or other measures the Parties may agree are

appropriate. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the exercise of the lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

d. *Weed Control*

Measures shall be undertaken by Shareholder to control the weeds on the Dry-Up Land. These measures may include the mowing of weeds or application of herbicide. Other measures, including grazing, may be undertaken at Super Ditch's discretion.

i. Land leveling, irrigation improvements. The Shareholder may level, install sprinkler or drip irrigation systems, and make other agricultural and irrigation system improvements on the Dry-up Land.

ii. County Regulation. The Shareholder agrees to comply with any applicable county land use regulations regarding noxious weed control/management.

12. Engineering and Legal Activities by Super Ditch. The Parties agree that it shall be the Super Ditch's sole responsibility to complete any legal, engineering, administrative and/or judicial activities necessary to obtain approval for the Catlin Pilot Project. The Shareholder shall cooperate with the Super Ditch in supplying any data and information as needed by the Super Ditch to obtain such approval. The Shareholder hereby grants the Super Ditch the authority to include the Subject Stock in the Catlin Pilot Project application. The Shareholder further agrees that Shareholder will cooperate with the Super Ditch in requesting and maintaining CWCB approval for the Catlin Pilot Project.

13. Automatic Termination. In the event that the Option to Lease is exercised on all of Shareholder's Subject Stock for three years and the water has been used in the Catlin Pilot Project, this Option Agreement shall automatically terminate following conclusion of the third year. This Option Agreement shall also automatically terminate in the event that the Catlin Pilot Project approval is permanently cancelled or revoked.

14. No Inclusion in SWSP, IWSA, or Another Pilot Project. The Shareholder agrees that the Subject Stock and the Historical Irrigated Lands shall not be included in a substitute water supply plan pursuant to C.R.S. 37-92-308(5) or (7), an interruptible water supply agreement pursuant to C.R.S. §37-92-309, or another pilot project pursuant to C.R.S. § 37-60-115(8) during the Agreement Term. The Shareholder further agrees not to enter into any lease, option, or other similar agreement for the Subject Stock and Historical Irrigated Lands that could be exercised during the Agreement Term in a manner that would interfere with the Super Ditch's full use and enjoyment of the Option to Lease or compromise operation of the Catlin Pilot Project.

15. Default and Remedies.

a. *Default*. The occurrence of any of the following events shall constitute a default and breach of this Option Agreement.

i. The failure by Super Ditch to timely make lease payments due.

ii. The failure by Shareholder to make the Leased Water available to the Super Ditch.

iii. The failure by Shareholder to cease irrigation of the Dry-Up Land during years in which Super Ditch has exercised the Option to Lease.

iv. The failure of Shareholder to satisfactorily mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land as required herein.

v. The failure of Shareholder to comply with applicable terms and conditions of any Catlin Pilot Project approval from the CWCB or any other lawful order of the State or Division Engineers or court of competent jurisdiction.

b. *Right to Cure*. In the event that either party believes that the other is in default of any obligation under this Option Agreement, the non-defaulting party shall promptly give written notice of the default to the defaulting party. If a notice of default is provided, the party accused of the default shall either cure it or provide a written statement explaining why it is not in default. If the alleged default is not cured or otherwise resolved within thirty (30) days, the Parties may resort to their remedies.

c. *Remedies*. In the event that either party defaults in the performance of any of its obligations under this Option Agreement, each party shall have all remedies provided in this Option Agreement or by law or equity and each Party shall have the right of specific performance against the other.

d. *Waiver*. Failure of either party to this Option Agreement to exercise any right hereunder shall not be deemed a waiver of such party's right and shall not affect the right of said party to exercise, at some future time, said right or rights or any other right it may have hereunder. No waiver of any of the provisions of this Option Agreement shall be deemed or shall constitute a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

16. Miscellaneous.

a. *Entire Agreement, Modification.* This Option Agreement constitutes the entire agreement between the Parties pertaining to the subject matter described in it and supersedes any and all prior contemporaneous agreements, representations, and understandings. This Option Agreement may be modified, amended, changed or terminated in whole or in any part only by an agreement in writing duly authorized and executed by the Parties hereto with the same formality as this Option Agreement.

b. *Notice.* All notices to be given with respect to this Option Agreement, including the Notice of Exercise, shall be in writing. Each notice shall be sent by United States mail, first class postage prepaid, to the Party to be notified at the address set forth herein or at such other address as either Party may from time to time designate in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing herein shall be construed to preclude personal service of any notice in the manner prescribed for personal services of a summons or other legal process. All notices required to be given to the Super Ditch hereunder shall be delivered to:

Lower Arkansas Valley Super Ditch Company
Attn: President
801 Swink Avenue
Rocky Ford, Colorado 81067
Tel: 719-254-5115
Fax: 719-254-5150

With copies to:

Bart Mendenhall, Esq.
Mendenhall & Malouff, R.L.L.P.
P.O. Box 552
Rocky Ford, CO 81067-0552
Tel: 719-254-7060
bmendenhall@centurytel.net

Peter Nichols, Esq.
Leah K. Martinsson, Esq.
1712 Pearl Street
Boulder, CO 80302
Tel: 303-402-1600
pdn@bhgrlaw.com
lkm@bhgrlaw.com

or at such other address as the Super Ditch may direct in accordance with this paragraph.

All notices required to be given to Shareholder hereunder shall be delivered to the address shown on Shareholder's Execution Page.

c. *Non-Business Days.* If the date for any action under this Option Agreement, other than the beginning or end of the Agreement Term, falls on a Saturday, Sunday or a day that is a "holiday," then the relevant date shall be extended automatically until the next day that is not a Saturday, Sunday or a "holiday."

d. *Governing Law and Venue.* This Option Agreement and its application shall be construed in accordance with the laws of the State of Colorado. The Parties agree that venue for any litigated disputes regarding this Agreement shall be the Water Court or, if the matter in dispute is not a water matter as defined by statute, the County District Court.

e. *No Construction Against Drafter.* This Option Agreement was drafted by the Super Ditch. The Shareholder is encouraged by the Super Ditch to review this Agreement with his own legal counsel prior to executing this Option Agreement. Accordingly, the Parties agree the legal doctrine of construction against the drafter will not be applied should any dispute arise concerning this Option Agreement.

f. *Headings for Convenience Only.* Paragraph headings and titles contained herein are intended for convenience and reference only and are not intended to define, limit or describe the scope or intent of any provision of this Option Agreement.

g. *Non-Severability.* Each Section in this Option Agreement is intertwined with the others and are not severable unless by mutual consent of the Super Ditch and Shareholder or as provided for under Paragraph 16 (a) above.

h. *Attorney Fees and Costs.* In the event of any litigation, mediation, arbitration or other dispute resolution proceedings arising out of or related to this Option Agreement, each party agrees to be responsible for its own attorney's fees and other professional fees, costs and expenses associated with any such proceedings.

i. *No Fees and Expenses and Apportionment.* Except as otherwise expressly set forth in this Option Agreement, each of the Parties hereto will bear its own expenses in connection with the transactions contemplated by this Agreement.

j. *Recordation.* At any time after the Effective Date, the Super Ditch may cause this Option Agreement to be recorded with the county clerk and recorder's office. Upon termination of this Option Agreement, the Super Ditch shall execute and record such additional documents as Shareholder reasonably may require so as to provide notice of termination.

k. *No Responsibility to Tenant Farmers.* All payments pursuant to this Option Agreement shall be made to Shareholder, or his assignee as he may direct in writing, except that the Super Ditch will have no responsibility for any payments whatsoever to any tenant farmer regardless of any agreement between a tenant farmer and Shareholder.

l. *Survival of Representations.* Each and every covenant, promise, and payment contained in this Option Agreement shall not merge in any deed, assignment, covenant, escrow agreement, easement, lease or any other document, but shall survive each nevertheless, and be binding and obligatory upon each of the Parties hereto.

m. *No Third-Party Beneficiaries.* Except as provided for in paragraph 8 herein, this Option Agreement is intended to describe the rights and responsibilities of and between the Parties hereto and is not intended to and shall not be deemed to confer rights upon any persons or entities not signatories hereto, nor to limit, impair, or enlarge in any way the powers, regulatory authority and responsibilities of either party or any other governmental entity not a party hereto.

n. *No Exclusive Right or Privilege.* Nothing in this Option Agreement is to be construed as a grant by the Super Ditch or Shareholder of any exclusive right or privilege, except as expressly provided herein.

17. <u>Taxes</u>. The Shareholder shall have sole responsibility for any taxes, property or otherwise, related to the Historical Irrigated Land or the Subject Stock. The Parties acknowledge that it is anticipated that such Historical Irrigated Land will be taxed as irrigated farmland notwithstanding the cessation of irrigation during the exercise of the Option to Lease under this Option Agreement.

18. Assessments. The Shareholder shall have sole responsibility for any assessments related to the Subject Stock, including any assessments for Winter Water and Fryingpan-Arkansas Project water and return flows, during the Agreement Term. The Super Ditch, however, may pay any outstanding assessments necessary for the Leased Water to be available for use by the Super Ditch or the Municipal Participants and deduct such amounts from subsequent lease payments.

19. Sublease and assignment. The Parties anticipate the Super Ditch will lease the water obtained from the Subject Stock under this Option Agreement. This Option Agreement may be assigned by Super Ditch to facilitate such lease.

20. Interruption of Supply Beyond the Shareholder's Control. While it is the intent and purpose of the Shareholder to provide the Leased Water to the Super Ditch for use in the Catlin Pilot Project, there are many natural and other factors that affect the quantity of Shareholder's water supply. The parties to the Option Agreement recognize that the water supply for Subject Stock is dependent upon sources of supply that are variable in quantity and beyond the control of Shareholder. No liability in tort or contract shall attach to Shareholder under this Option Agreement on account of any failure to accurately anticipate the availability of water for the contemplated lease or because of an actual failure of to supply water due to inadequate runoff or inadequate storage arising from an occurrence beyond the control of Shareholder, including, but not limited to, acts of God, strike, war, insurrection, or inability to deliver water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control.

21. Uniform Agreement. Except for the number of shares of Subject Stock and the description of the Historical Irrigated Land, the Parties agree the form of this Option Agreement will be uniform and with the identical terms between the Super Ditch and all leasing Shareholders of Catlin Canal Company stock.

22. Sale of Water Rights. The Parties recognize that Shareholder may desire to sell the Subject Stock and Historical Irrigated Lands during the term of this Option Agreement. Nothing herein shall preclude sale of the Subject Stock or Historical Irrigated Lands, so long as any such sale is subject to this Option Agreement pursuant the assignment provisions contained in paragraph 25, herein.

23. Title to Water Rights. Nothing herein shall be interpreted to give the Super Ditch any legal or equitable title in or to any water or water rights owned by Shareholder.

24. Right to Enter into Lease. Each party hereby warrants and represents that it has the full right and lawful authority to enter into this Option Agreement.

25. Assignment. The Shareholder may assign this Option Agreement with the approval of the Super Ditch, which approval shall not be unreasonably withheld.

26. Successors and Assigns. This Option Agreement and the rights and obligations created hereby shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.

27. Multiple Originals. This Option Agreement may be simultaneously executed in any number of counterparts, each one of which shall be deemed an original, but all of which constitute one and the same Agreement.

SHAREHOLDERS EXECUTION PAGE

To include the following:

1. **Subject Stock** available to lease by Super Ditch, number and certificate number(s)
2. Name, address, phone number, e-mail of contact and person with authority to lease shares
3. Map of **Historical Irrigated Land** of Subject Stock
4. Map of **Dry-up Land** (if different)

The undersigned represents that all assessments are paid on the Subject Stock and the shares are in good standing with the Catlin Canal Company.

The undersigned represents that the Subject Stock are not on a lateral, or that the undersigned has the permission of all other shareholders on the lateral to enter into this lease.

Frank D. Milenski 11/14/2014
Signature Date

Farm Manager Diamond A Farms
Its (if Subject Stock not held as an individual)

Frank D. Milenski
23250 Cr. 23
La Junta Co.
81050

fmilenski@yahoo.com

Lower Arkansas Valley Super Ditch Company, Inc.

John Schweizer, Jr.
By

President
Its

11-24-14
Date

EXHIBIT A - Reflecting Subject Stock

July ~~10~~ 9, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner of approximately 4200 acres of lands irrigated under the Catlin Canal with 3410.583 shares represented by Share Certificate Nos. See below. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

Catlin Cert #	
3604	33.290
3603	3.300
3314	140.000
3329	80.000
3395	180.000
3543	550.940
3542	30.000
3541	72.000
3540	143.240
3539	287.000
3538	180.000
3537	100.500
3411	1610.313

Sincerely,

[signature]

Diamond A

[print name]

Job No.:	816.2
Date:	4-Dec-2014
Drawn:	CML
Checked:	CRR

Catlin Canal
Pilot Project Proposal

Diamond A West Farm
Exhibit B

MARTIN AND WOOD WATER CONSULTANTS, INC.

538 Commons Drive
Golden, CO 80401
(303) 526-2600
www.martinandwood.com

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

OPTION AGREEMENT FOR LEASE OF CATLIN CANAL COMPANY STOCK

This option agreement for lease of stock in the Catlin Canal Company ("Option Agreement") is entered into by and between the undersigned shareholder in the Catlin Canal Company ("Shareholder"), and the Lower Arkansas Valley Super Ditch Company, Inc., a Colorado corporation (the "Super Ditch"). The Super Ditch and Shareholder may collectively be referred to as the "Parties".

RECITALS

WHEREAS, irrigators in the Lower Arkansas Valley incorporated the Super Ditch to meet municipal water supply needs through the fallowing of their irrigated lands and leasing their water, rather than selling their water; and

WHEREAS, the Super Ditch is in the business of leasing water rights on behalf of irrigators in the Lower Arkansas Valley; and

WHEREAS, the Town of Fowler, the City of Fountain, and the Security Water District (the "Municipal Participants") support water leasing to meet municipal needs in certain circumstances to avoid the negative social, economic and environmental consequences of municipal buy-and-dry of agricultural water rights to meet municipal needs; and

WHEREAS, House Bill (HB) 13-1248, signed into law by the Governor on May 13, 2013, authorizes the Colorado Water Conservation Board (the "CWCB") to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up; and

WHEREAS, the Municipal Participants desire to lease water from irrigators to supplement their water supplies; and

WHEREAS, the Super Ditch is seeking approval of a ten-year pilot project pursuant to HB 13-1248 to use water available from certain shares of the Catlin Canal Company for temporary municipal purposes by the Municipal Participants (the "Catlin Pilot Project"); and

WHEREAS, Shareholder owns the shares of stock in the Catlin Canal Company as shown on Shareholder's Execution Page ("Subject Stock"), and represents that such shares are in good standing with the Company with all assessments current and paid; and

WHEREAS, the water derived from the Subject Stock is used to irrigate that certain real property further described on the Shareholder's Execution Page ("Historical Irrigated Land"); and

WHEREAS, the undersigned Shareholder desires to lease the Subject Stick through the Super Ditch to be included in and as a part of the Catlin Pilot Project to meet temporary municipal needs.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals and in consideration of the promises, agreements and payments herein after set forth, the adequacy and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Effective Date. This Option Agreement shall become effective only upon the occurrence of all of the following: (1) execution of this Option Agreement by the Parties; (2) the Super Ditch's acceptance of all the CWCB's conditions of approval of the Catlin Pilot Project, which acceptance or rejection of such conditions of approval shall be in the Super Ditch's sole discretion; (3) execution of agreements between Super Ditch and the Municipal Participants to the extent necessary and/or desirable in Super Ditch's sole discretion; (4) Shareholder obtaining approval of this Option Agreement from the Catlin Canal Company on terms acceptable to the Super Ditch, as more particularly set forth in paragraph 8, below; and (5) the Super Ditch's having obtained all other necessary approvals for operation of the Catlin Pilot Project on terms acceptable to the Super Ditch, in Super Ditch's sole discretion (the "Effective Date"). In the event that the Super Ditch does not obtain CWCB approval of the Catlin Pilot Project on terms acceptable to the Super Ditch, Shareholder does not obtain approval from the Catlin Canal Company, or the Super Ditch is unable to secure all approvals necessary for operation of the Catlin Pilot Project on terms acceptable to Super Ditch, this Option Agreement shall not take effect and no party shall have any rights, liabilities, or obligations hereunder.

2. Term of Option Agreement. This Option Agreement is for term beginning on the Effective Date and ending on March 14, 2025 (the "Agreement Term"), unless earlier terminated.

3. Grant of Option. Shareholder hereby grants the Super Ditch an exclusive option to lease up to all the Subject Stock for up to three years, or to lease up to 30% of the Subject Stock for each year during the Agreement Term, for use of water available from the Subject Stock in the Catlin Pilot Project pursuant to the terms of this Option Agreement ("Option to Lease").

4. Exercise of Option. For Catlin Pilot Project operations in 2015 only, the Super Ditch shall provide a Notice of Exercise (defined below) for all or part of the Subject Stock and Historical Irrigated Lands as identified in the Catlin Pilot Project Application within twenty (20) days of the Effective Date of this Option Agreement. In subsequent years, the Super Ditch shall notify Shareholder whether the Super Ditch desires to exercise of the Option to Lease during the upcoming irrigation season prior to September 15th. After such notification and prior to October 15th, the Super Ditch and Shareholder shall work cooperatively to identify portions of the Subject Stock and Historical Irrigated Lands that Shareholder will to commit to the Catlin Pilot Project for the upcoming year's operations. On or before December 1st, the Super Ditch shall provide a written notice to Shareholder stating whether

or not the Super Ditch elects to exercise the Option to Lease as to the identified shares and associated acreage for the upcoming irrigation season, or to exercise as to a lesser number of the shares and associated acreage ("Notice of Exercise"). The Super Ditch shall have sole discretion in determining if, when, and to what extent it may exercise the Option to Lease in any given year, including the first year of the Agreement Term.

5. Amount of Water. Upon the Super Ditch's exercise of the Option to Lease as provided in paragraphs 3 and 4, the Shareholder hereby agrees to lease to the Super Ditch all native water available to the Shareholder as a result of his ownership of the Subject Stock identified in that year's Notice of Exercise to the extent physically and legally available to Shareholder for lease and delivery to the Municipal Participants through the Super Ditch as a part of the Catlin Pilot Project for that year ("Leased Water").

6. Lease Price and Payment. Upon the Super Ditch's exercise of the Option to Lease, the Super Ditch agrees to pay to Shareholder a lease price consisting of two components: (1) a price per acre of land upon which the Leased Water has historically been used and that will be removed from irrigation as a part of Catlin Pilot Project operations for that year (the "Per Acre Price"); and (2) a price per acre-foot of historical consumptive use water associated with the Leased Water that is made available for lease to the Municipal Participants at their respective points of delivery (the "Acre-Foot Price").

    a. *Take-or-Pay.* The Parties agree that, upon the Super Ditch providing a Notice of Exercise in which the Super Ditch has elected to exercise the Option to Lease for the upcoming year and only to the extent that the Leased Water is physically made available for lease to the Municipal Participants at their point of delivery pursuant to the terms of the leases between Super Ditch and the Municipal Participants, the Leased Water is on a "take or pay" basis. As to that year only, the Super Ditch shall accordingly make the lease payments for the Leased Water available at the Municipal Participants' points of delivery, whether or not the quantities leased are actually taken and used by the Super Ditch or the Municipal Participants at such points.

    b. *Year One Pricing*. During the first year in which the Super Ditch exercises the Option to Lease, Super Ditch agrees to pay the Shareholder a Per-Acre Price of \$150.00 and an Acre-Foot Price of \$500.00. Unless otherwise agreed to by the Parties, this lease price shall apply to the first year only in recognition of the uncertainties associated with participating in the first leasing-fallowing pilot project.

       For the first year in which the Super Ditch exercises the Option to Lease, the Lower Arkansas Valley Water Conservancy District (the "District") has agreed to pay the Per-Acre Price to Shareholder to foster the demonstration of fallowing-leasing as an alternative to permanent agricultural dry-up. The Parties understand that this is a one-year commitment only by the District that the

District may or may not make in subsequent years at the sole discretion of the District's Board of Directors.

c. *Subsequent Pricing.* In subsequent years, the Acre-Foot Price and the Per-Acre Price may be adjusted from those identified in paragraph 6.b. It is currently anticipated that the Acre-Foot Price will be adjusted to a variable scale in recognition of the differing value of water relative to available supplies, whereby the Acre-Foot Price will be highest for the yield of Leased Water available under dry-year conditions and will decrease as yield of Leased Water increases. It is further contemplated that a Per-Acre Price will continue to be paid in order to more equitably allocate the risks associated with fluctuations in weather, hydrology, and commodity pricing.

d. *Remittance of Lease Payments*. In those years in which the Option to Lease has been exercised, the Super Ditch shall invoice the Acre-Foot Price to the Municipal Participants twice annually for deliveries or on such other invoice schedule as the Municipal Participants and Super Ditch shall establish. The Super Ditch shall remit lease payments of the Acre-Foot Price within thirty (30) days of receipt from its Municipal Participants. The Per-Acre Price shall be paid to Shareholder thirty (30) days after the Notice of Exercise is provided for those lands identified in the Notice of Exercise and to be removed from irrigation during the upcoming year's pilot project operations.

e. *Non-Exercise of Option*. There shall be no lease payment due to Shareholder for any year in which the Super Ditch does not elect to exercise the Option to Lease, nor shall any lease payments be due to Shareholder for any portion of the Subject Stock for which Super Ditch does not elect to exercise the Option to Lease in any given year.

7. Lease Administration Fee. The Super Ditch may retain a Lease Administration Fee out of the revenue it receives from leasing the Leased Water to partially defray the costs of leasing. Such fee shall be $25.00 per acre.

8. Approval of Catlin Canal Company. As a condition of this Option Agreement, Shareholder shall request the approval of the Catlin Canal Company for this Option Agreement and for the participation of the Subject Stock in the Catlin Pilot Project, pursuant to Article IV, Section 2 of the Catlin Canal Company Bylaws. This Option Agreement shall not take effect and no party shall have any rights or obligations hereunder until such time that Shareholder has obtained this approval, and all other conditions set forth in paragraph 1 above, have been satisfied.

The Parties to this Option Agreement understand that terms and conditions to prevent injury to non-leasing shareholders, including but not limited to, consideration of evaporation and seepage losses and operating conditions, so that non-leasing shareholders and shareholders leasing less than all of their shares will receive as much water, and in just as convenient

manner, as if the Option Agreement did not exist. It shall be the Shareholder's obligation to leave such reasonable portion of the Leased Water in the canals or other structures of the Catlin Canal Company as may be required in good faith and pursuant to commonly accepted engineering methods if determined necessary to prevent injury to non-leasing stockholders. The Catlin Canal Company is an intended beneficiary of this paragraph and may enforce the same. The Super Ditch shall be responsible for requesting any other approvals from the Company that are necessary and/or desirable for operation of the Catlin Pilot Project.

9. Lateral. Shareholder's headgate(s) on the Catlin Canal is either not on a lateral or Shareholder has the permission to use the lateral to lease the Subject Stock as shown on the Shareholder's Execution Page.

10. Dry up of Historical Irrigated Land Associated with Subject Stock. A fundamental requirement for the Catlin Pilot Project and this Option Agreement is the non-use of Leased Water available from the Subject Stock upon the Historical Irrigated Land ("Dry-up Land") during each year in which the Super Ditch elects to exercise the Option to Lease. In each year that the Super Ditch elects to exercise the Option to Lease, Shareholder will dry-up and withhold from irrigation such number of acres of Historical Irrigated Land as the Super Ditch identifies based upon the historic pattern of use in the Notice to Exercise, which acreage shall be finalized by February 1st. For each year in which Shareholder's Historical Irrigation Land or portion thereof is dried up as a part of operation of the Catlin Pilot Project, Shareholder shall submit an affidavit to the Super Ditch signed by a person familiar with the dry-up by December 31st following the irrigation season.

    a. The Historical Irrigated Land that is the subject of these provisions will be identified on the Shareholder Execution Page and on maps provided to the State Engineer and/or Division Two Engineer, the United States Department of Agriculture, and the Catlin Canal Company.

    b. The Shareholder hereby grants the Super Ditch permission to enter upon the Dry-up Land to post it in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005). The Super Ditch will monitor the subject Dry-up Land to insure no irrigation thereof during the years during which it exercises the Option to Lease, as required by the CWCB and/or the State or Division Engineer.

    c. Dry-up shall be in accordance with any terms and conditions imposed on the Catlin Pilot Project, including those set forth in the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" of the CWCB (Nov. 2013). Shareholder agrees to enter into a dry-up, weed control and erosion control covenant upon the request of the Super Ditch, which covenant may be recorded in the county clerk and recorders office.

11. Weed Control and Erosion Control. The Parties agree that weed control and erosion control of the Historical Irrigated Land taken out of production during years in which the Super

Ditch exercises the Option to Lease of the Subject Stock is very important. The Shareholder, at his sole cost, agrees to undertake operations to mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land. Specific operations will be determined in good faith consultation with Catlin Canal Company, and shall be conducted in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005) and any terms and conditions that may be imposed by the CWCB in the Catlin Pilot Project approval. Shareholder agrees to comply with terms and conditions of the Catlin Pilot Project approval regarding the fallow of the Dry-up Land, including compliance with any applicable county land use requirements to prevent erosion and blowing soils.

a. *Alfalfa Fields & Pasture Grass*

These fields will continue in an as is state. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

The CWCB and/or the State Engineer may impose special rules regarding the dry-up of such fields. All parcels containing alfalfa or pasture grass shall be subject to a reduction in the amount of Leased Water if the field is subirrigated. The reduction will be calculated pursuant to the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" and/or such other terms and conditions in the Catlin Pilot Project approval. Lease payments will be calculated based upon such reduced amounts.

If these fields require monitoring to determine depth to water table, any installation of monitoring wells will be at Super Ditch's expense. The Parties will determine the location of any such monitoring wells cooperatively.

b. *Stubble Fields*

Fields containing stubble from the previous year's crop will be left as is to provide protection from wind. If existing stubble is not deemed adequate, in Super Ditch's discretion, additional measures may be required. Such measures may include planting of a cover crop such as spring wheat and an irrigation of the crop, and mechanical operations on the field such as furrowing or chiseling. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

c. *Open Fields*

Open fields will require measures to control the blowing of dust. The measures may include furrowing or chiseling the fields, planting a cover crop such as spring wheat and some irrigation of the crop, or other measures the Parties may agree are

appropriate. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the exercise of the lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

d. *Weed Control*

Measures shall be undertaken by Shareholder to control the weeds on the Dry-Up Land. These measures may include the mowing of weeds or application of herbicide. Other measures, including grazing, may be undertaken at Super Ditch's discretion.

i. Land leveling, irrigation improvements. The Shareholder may level, install sprinkler or drip irrigation systems, and make other agricultural and irrigation system improvements on the Dry-up Land.

ii. County Regulation. The Shareholder agrees to comply with any applicable county land use regulations regarding noxious weed control/management.

12. Engineering and Legal Activities by Super Ditch. The Parties agree that it shall be the Super Ditch's sole responsibility to complete any legal, engineering, administrative and/or judicial activities necessary to obtain approval for the Catlin Pilot Project. The Shareholder shall cooperate with the Super Ditch in supplying any data and information as needed by the Super Ditch to obtain such approval. The Shareholder hereby grants the Super Ditch the authority to include the Subject Stock in the Catlin Pilot Project application. The Shareholder further agrees that Shareholder will cooperate with the Super Ditch in requesting and maintaining CWCB approval for the Catlin Pilot Project.

13. Automatic Termination. In the event that the Option to Lease is exercised on all of Shareholder's Subject Stock for three years and the water has been used in the Catlin Pilot Project, this Option Agreement shall automatically terminate following conclusion of the third year. This Option Agreement shall also automatically terminate in the event that the Catlin Pilot Project approval is permanently cancelled or revoked.

14. No Inclusion in SWSP, IWSA, or Another Pilot Project. The Shareholder agrees that the Subject Stock and the Historical Irrigated Lands shall not be included in a substitute water supply plan pursuant to C.R.S. 37-92-308(5) or (7), an interruptible water supply agreement pursuant to C.R.S. §37-92-309, or another pilot project pursuant to C.R.S. § 37-60-115(8) during the Agreement Term. The Shareholder further agrees not to enter into any lease, option, or other similar agreement for the Subject Stock and Historical Irrigated Lands that could be exercised during the Agreement Term in a manner that would interfere with the Super Ditch's full use and enjoyment of the Option to Lease or compromise operation of the Catlin Pilot Project.

15. Default and Remedies.

a. *Default*. The occurrence of any of the following events shall constitute a default and breach of this Option Agreement.

i. The failure by Super Ditch to timely make lease payments due.

ii. The failure by Shareholder to make the Leased Water available to the Super Ditch.

iii. The failure by Shareholder to cease irrigation of the Dry-Up Land during years in which Super Ditch has exercised the Option to Lease.

iv. The failure of Shareholder to satisfactorily mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land as required herein.

v. The failure of Shareholder to comply with applicable terms and conditions of any Catlin Pilot Project approval from the CWCB or any other lawful order of the State or Division Engineers or court of competent jurisdiction.

b. *Right to Cure*. In the event that either party believes that the other is in default of any obligation under this Option Agreement, the non-defaulting party shall promptly give written notice of the default to the defaulting party. If a notice of default is provided, the party accused of the default shall either cure it or provide a written statement explaining why it is not in default. If the alleged default is not cured or otherwise resolved within thirty (30) days, the Parties may resort to their remedies.

c. *Remedies*. In the event that either party defaults in the performance of any of its obligations under this Option Agreement, each party shall have all remedies provided in this Option Agreement or by law or equity and each Party shall have the right of specific performance against the other.

d. *Waiver*. Failure of either party to this Option Agreement to exercise any right hereunder shall not be deemed a waiver of such party's right and shall not affect the right of said party to exercise, at some future time, said right or rights or any other right it may have hereunder. No waiver of any of the provisions of this Option Agreement shall be deemed or shall constitute a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

16. Miscellaneous.

a. *Entire Agreement, Modification.* This Option Agreement constitutes the entire agreement between the Parties pertaining to the subject matter described in it and supersedes any and all prior contemporaneous agreements, representations, and understandings. This Option Agreement may be modified, amended, changed or terminated in whole or in any part only by an agreement in writing duly authorized and executed by the Parties hereto with the same formality as this Option Agreement.

b. *Notice*. All notices to be given with respect to this Option Agreement, including the Notice of Exercise, shall be in writing. Each notice shall be sent by United States mail, first class postage prepaid, to the Party to be notified at the address set forth herein or at such other address as either Party may from time to time designate in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing herein shall be construed to preclude personal service of any notice in the manner prescribed for personal services of a summons or other legal process. All notices required to be given to the Super Ditch hereunder shall be delivered to:

Lower Arkansas Valley Super Ditch Company
Attn: President
801 Swink Avenue
Rocky Ford, Colorado 81067
Tel: 719-254-5115
Fax: 719-254-5150

With copies to:

Bart Mendenhall, Esq.
Mendenhall & Malouff, R.L.L.P.
P.O. Box 552
Rocky Ford, CO 81067-0552
Tel: 719-254-7060
bmendenhall@centurytel.net

Peter Nichols, Esq.
Leah K. Martinsson, Esq.
1712 Pearl Street
Boulder, CO 80302
Tel: 303-402-1600
pdn@bhgrlaw.com
lkm@bhgrlaw.com

or at such other address as the Super Ditch may direct in accordance with this paragraph.

All notices required to be given to Shareholder hereunder shall be delivered to the address shown on Shareholder's Execution Page.

c. *Non-Business Days*. If the date for any action under this Option Agreement, other than the beginning or end of the Agreement Term, falls on a Saturday, Sunday or a day that is a "holiday," then the relevant date shall be extended automatically until the next day that is not a Saturday, Sunday or a "holiday."

d. *Governing Law and Venue*. This Option Agreement and its application shall be construed in accordance with the laws of the State of Colorado. The Parties agree that venue for any litigated disputes regarding this Agreement shall be the Water Court or, if the matter in dispute is not a water matter as defined by statute, the County District Court.

e. *No Construction Against Drafter*. This Option Agreement was drafted by the Super Ditch. The Shareholder is encouraged by the Super Ditch to review this Agreement with his own legal counsel prior to executing this Option Agreement. Accordingly, the Parties agree the legal doctrine of construction against the drafter will not be applied should any dispute arise concerning this Option Agreement.

f. *Headings for Convenience Only*. Paragraph headings and titles contained herein are intended for convenience and reference only and are not intended to define, limit or describe the scope or intent of any provision of this Option Agreement.

g. *Non-Severability*. Each Section in this Option Agreement is intertwined with the others and are not severable unless by mutual consent of the Super Ditch and Shareholder or as provided for under Paragraph 16 (a) above.

h. *Attorney Fees and Costs*. In the event of any litigation, mediation, arbitration or other dispute resolution proceedings arising out of or related to this Option Agreement, each party agrees to be responsible for its own attorney's fees and other professional fees, costs and expenses associated with any such proceedings.

i. *No Fees and Expenses and Apportionment.* Except as otherwise expressly set forth in this Option Agreement, each of the Parties hereto will bear its own expenses in connection with the transactions contemplated by this Agreement.

j. *Recordation.* At any time after the Effective Date, the Super Ditch may cause this Option Agreement to be recorded with the county clerk and recorder's office. Upon termination of this Option Agreement, the Super Ditch shall execute and record such additional documents as Shareholder reasonably may require so as to provide notice of termination.

k. *No Responsibility to Tenant Farmers.* All payments pursuant to this Option Agreement shall be made to Shareholder, or his assignee as he may direct in writing, except that the Super Ditch will have no responsibility for any payments whatsoever to any tenant farmer regardless of any agreement between a tenant farmer and Shareholder.

l. *Survival of Representations.* Each and every covenant, promise, and payment contained in this Option Agreement shall not merge in any deed, assignment, covenant, escrow agreement, easement, lease or any other document, but shall survive each nevertheless, and be binding and obligatory upon each of the Parties hereto.

m. *No Third-Party Beneficiaries.* Except as provided for in paragraph 8 herein, this Option Agreement is intended to describe the rights and responsibilities of and between the Parties hereto and is not intended to and shall not be deemed to confer rights upon any persons or entities not signatories hereto, nor to limit, impair, or enlarge in any way the powers, regulatory authority and responsibilities of either party or any other governmental entity not a party hereto.

n. *No Exclusive Right or Privilege.* Nothing in this Option Agreement is to be construed as a grant by the Super Ditch or Shareholder of any exclusive right or privilege, except as expressly provided herein.

17. <u>Taxes</u>. The Shareholder shall have sole responsibility for any taxes, property or otherwise, related to the Historical Irrigated Land or the Subject Stock. The Parties acknowledge that it is anticipated that such Historical Irrigated Land will be taxed as irrigated farmland notwithstanding the cessation of irrigation during the exercise of the Option to Lease under this Option Agreement.

18. Assessments. The Shareholder shall have sole responsibility for any assessments related to the Subject Stock, including any assessments for Winter Water and Fryingpan-Arkansas Project water and return flows, during the Agreement Term. The Super Ditch, however, may pay any outstanding assessments necessary for the Leased Water to be available for use by the Super Ditch or the Municipal Participants and deduct such amounts from subsequent lease payments.

19. Sublease and assignment. The Parties anticipate the Super Ditch will lease the water obtained from the Subject Stock under this Option Agreement. This Option Agreement may be assigned by Super Ditch to facilitate such lease.

20. Interruption of Supply Beyond the Shareholder's Control. While it is the intent and purpose of the Shareholder to provide the Leased Water to the Super Ditch for use in the Catlin Pilot Project, there are many natural and other factors that affect the quantity of Shareholder's water supply. The parties to the Option Agreement recognize that the water supply for Subject Stock is dependent upon sources of supply that are variable in quantity and beyond the control of Shareholder. No liability in tort or contract shall attach to Shareholder under this Option Agreement on account of any failure to accurately anticipate the availability of water for the contemplated lease or because of an actual failure of to supply water due to inadequate runoff or inadequate storage arising from an occurrence beyond the control of Shareholder, including, but not limited to, acts of God, strike, war, insurrection, or inability to deliver water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control.

21. Uniform Agreement. Except for the number of shares of Subject Stock and the description of the Historical Irrigated Land, the Parties agree the form of this Option Agreement will be uniform and with the identical terms between the Super Ditch and all leasing Shareholders of Catlin Canal Company stock.

22. Sale of Water Rights. The Parties recognize that Shareholder may desire to sell the Subject Stock and Historical Irrigated Lands during the term of this Option Agreement. Nothing herein shall preclude sale of the Subject Stock or Historical Irrigated Lands, so long as any such sale is subject to this Option Agreement pursuant the assignment provisions contained in paragraph 25, herein.

23. Title to Water Rights. Nothing herein shall be interpreted to give the Super Ditch any legal or equitable title in or to any water or water rights owned by Shareholder.

24. Right to Enter into Lease. Each party hereby warrants and represents that it has the full right and lawful authority to enter into this Option Agreement.

25. Assignment. The Shareholder may assign this Option Agreement with the approval of the Super Ditch, which approval shall not be unreasonably withheld.

26. Successors and Assigns. This Option Agreement and the rights and obligations created hereby shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.

27. Multiple Originals. This Option Agreement may be simultaneously executed in any number of counterparts, each one of which shall be deemed an original, but all of which constitute one and the same Agreement.

SHAREHOLDERS EXECUTION PAGE

To include the following:

1. **Subject Stock** available to lease by Super Ditch, number and certificate number(s)
2. Name, address, phone number, e-mail of contact and person with authority to lease shares
3. Map of **Historical Irrigated Land** of Subject Stock
4. Map of **Dry-up Land** (if different)

The undersigned represents that all assessments are paid on the Subject Stock and the shares are in good standing with the Catlin Canal Company.

The undersigned represents that the Subject Stock are not on a lateral, or that the undersigned has the permission of all other shareholders on the lateral to enter into this lease.

x Gary Hanagan
Signature

Its (if Subject Stock not held as an individual)

11/20/14
Date

Gary HANAGAN
Name

719-469-5067
Phone

ehanagan@live.com
Email

25388 Rd 24.5

La Junta CO 81050
Address

Lower Arkansas Valley Super Ditch Company, Inc.

John Schweizer Jr
By

President
Its

11-24-14
Date

EXHIBIT A - Reflecting Subject Stock

July 10, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

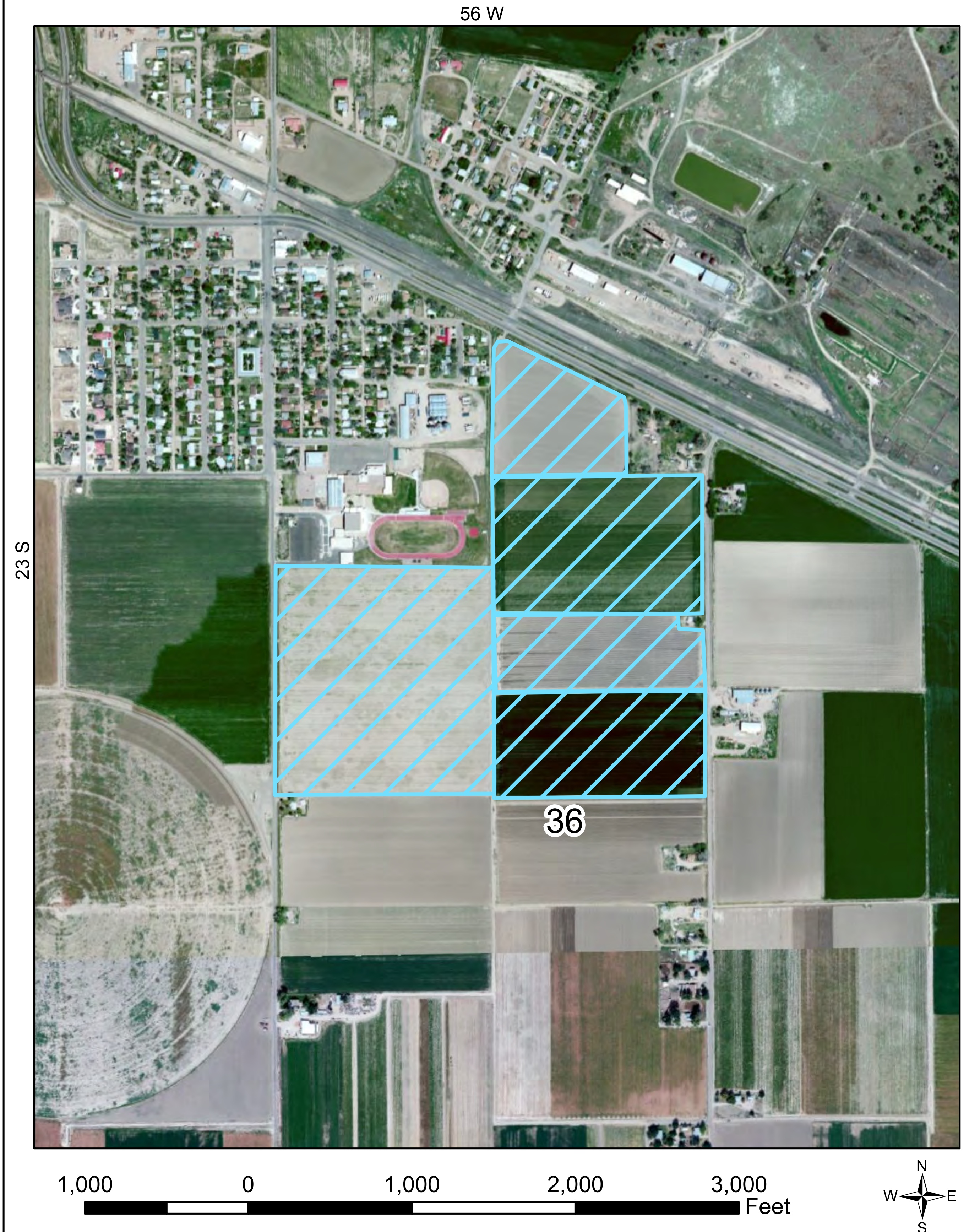
I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the ~~owner~~ Operator of approximately 1200 acres of lands irrigated under the Catlin Canal with 1300 shares represented by Share Certificate Nos. see below. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

Catlin Cert. #	Shares
3606	61.81
3607	121.26
3317	171.00

Sincerely,

Eric Hanagan
[print name]



Job No.:	816.2
Date:	4-Dec-2014
Drawn:	CML
Checked:	CRR

Catlin Canal
Pilot Project Proposal

Hanagan Farm
Exhibit B

MARTIN AND WOOD WATER CONSULTANTS, INC.
538 Commons Drive
Golden, CO 80401
(303) 526-2600
www.martinandwood.com

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

OPTION AGREEMENT FOR LEASE OF CATLIN CANAL COMPANY STOCK

This option agreement for lease of stock in the Catlin Canal Company ("Option Agreement") is entered into by and between the undersigned shareholder in the Catlin Canal Company ("Shareholder"), and the Lower Arkansas Valley Super Ditch Company, Inc., a Colorado corporation (the "Super Ditch"). The Super Ditch and Shareholder may collectively be referred to as the "Parties".

RECITALS

WHEREAS, irrigators in the Lower Arkansas Valley incorporated the Super Ditch to meet municipal water supply needs through the fallowing of their irrigated lands and leasing their water, rather than selling their water; and

WHEREAS, the Super Ditch is in the business of leasing water rights on behalf of irrigators in the Lower Arkansas Valley; and

WHEREAS, the Town of Fowler, the City of Fountain, and the Security Water District (the "Municipal Participants") support water leasing to meet municipal needs in certain circumstances to avoid the negative social, economic and environmental consequences of municipal buy-and-dry of agricultural water rights to meet municipal needs; and

WHEREAS, House Bill (HB) 13-1248, signed into law by the Governor on May 13, 2013, authorizes the Colorado Water Conservation Board (the "CWCB") to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up; and

WHEREAS, the Municipal Participants desire to lease water from irrigators to supplement their water supplies; and

WHEREAS, the Super Ditch is seeking approval of a ten-year pilot project pursuant to HB 13-1248 to use water available from certain shares of the Catlin Canal Company for temporary municipal purposes by the Municipal Participants (the "Catlin Pilot Project"); and

WHEREAS, Shareholder owns the shares of stock in the Catlin Canal Company as shown on Shareholder's Execution Page ("Subject Stock"), and represents that such shares are in good standing with the Company with all assessments current and paid; and

WHEREAS, the water derived from the Subject Stock is used to irrigate that certain real property further described on the Shareholder's Execution Page ("Historical Irrigated Land"); and

WHEREAS, the undersigned Shareholder desires to lease the Subject Stick through the Super Ditch to be included in and as a part of the Catlin Pilot Project to meet temporary municipal needs.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals and in consideration of the promises, agreements and payments herein after set forth, the adequacy and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Effective Date. This Option Agreement shall become effective only upon the occurrence of all of the following: (1) execution of this Option Agreement by the Parties; (2) the Super Ditch's acceptance of all the CWCB's conditions of approval of the Catlin Pilot Project, which acceptance or rejection of such conditions of approval shall be in the Super Ditch's sole discretion; (3) execution of agreements between Super Ditch and the Municipal Participants to the extent necessary and/or desirable in Super Ditch's sole discretion; (4) Shareholder obtaining approval of this Option Agreement from the Catlin Canal Company on terms acceptable to the Super Ditch, as more particularly set forth in paragraph 8, below; and (5) the Super Ditch's having obtained all other necessary approvals for operation of the Catlin Pilot Project on terms acceptable to the Super Ditch, in Super Ditch's sole discretion (the "Effective Date"). In the event that the Super Ditch does not obtain CWCB approval of the Catlin Pilot Project on terms acceptable to the Super Ditch, Shareholder does not obtain approval from the Catlin Canal Company, or the Super Ditch is unable to secure all approvals necessary for operation of the Catlin Pilot Project on terms acceptable to Super Ditch, this Option Agreement shall not take effect and no party shall have any rights, liabilities, or obligations hereunder.

2. Term of Option Agreement. This Option Agreement is for term beginning on the Effective Date and ending on March 14, 2025 (the "Agreement Term"), unless earlier terminated.

3. Grant of Option. Shareholder hereby grants the Super Ditch an exclusive option to lease up to all the Subject Stock for up to three years, or to lease up to 30% of the Subject Stock for each year during the Agreement Term, for use of water available from the Subject Stock in the Catlin Pilot Project pursuant to the terms of this Option Agreement ("Option to Lease").

4. Exercise of Option. For Catlin Pilot Project operations in 2015 only, the Super Ditch shall provide a Notice of Exercise (defined below) for all or part of the Subject Stock and Historical Irrigated Lands as identified in the Catlin Pilot Project Application within twenty (20) days of the Effective Date of this Option Agreement. In subsequent years, the Super Ditch shall notify Shareholder whether the Super Ditch desires to exercise of the Option to Lease during the upcoming irrigation season prior to September 15th. After such notification and prior to October 15th, the Super Ditch and Shareholder shall work cooperatively to identify portions of the Subject Stock and Historical Irrigated Lands that Shareholder will to commit to the Catlin Pilot Project for the upcoming year's operations. On or before December 1st, the Super Ditch shall provide a written notice to Shareholder stating whether

or not the Super Ditch elects to exercise the Option to Lease as to the identified shares and associated acreage for the upcoming irrigation season, or to exercise as to a lesser number of the shares and associated acreage ("Notice of Exercise"). The Super Ditch shall have sole discretion in determining if, when, and to what extent it may exercise the Option to Lease in any given year, including the first year of the Agreement Term.

5. Amount of Water. Upon the Super Ditch's exercise of the Option to Lease as provided in paragraphs 3 and 4, the Shareholder hereby agrees to lease to the Super Ditch all native water available to the Shareholder as a result of his ownership of the Subject Stock identified in that year's Notice of Exercise to the extent physically and legally available to Shareholder for lease and delivery to the Municipal Participants through the Super Ditch as a part of the Catlin Pilot Project for that year ("Leased Water").

6. Lease Price and Payment. Upon the Super Ditch's exercise of the Option to Lease, the Super Ditch agrees to pay to Shareholder a lease price consisting of two components: (1) a price per acre of land upon which the Leased Water has historically been used and that will be removed from irrigation as a part of Catlin Pilot Project operations for that year (the "Per Acre Price"); and (2) a price per acre-foot of historical consumptive use water associated with the Leased Water that is made available for lease to the Municipal Participants at their respective points of delivery (the "Acre-Foot Price").

    a. *Take-or-Pay.* The Parties agree that, upon the Super Ditch providing a Notice of Exercise in which the Super Ditch has elected to exercise the Option to Lease for the upcoming year and only to the extent that the Leased Water is physically made available for lease to the Municipal Participants at their point of delivery pursuant to the terms of the leases between Super Ditch and the Municipal Participants, the Leased Water is on a "take or pay" basis. As to that year only, the Super Ditch shall accordingly make the lease payments for the Leased Water available at the Municipal Participants' points of delivery, whether or not the quantities leased are actually taken and used by the Super Ditch or the Municipal Participants at such points.

    b. *Year One Pricing.* During the first year in which the Super Ditch exercises the Option to Lease, Super Ditch agrees to pay the Shareholder a Per-Acre Price of $150.00 and an Acre-Foot Price of $500.00. Unless otherwise agreed to by the Parties, this lease price shall apply to the first year only in recognition of the uncertainties associated with participating in the first leasing-fallowing pilot project.

       For the first year in which the Super Ditch exercises the Option to Lease, the Lower Arkansas Valley Water Conservancy District (the "District") has agreed to pay the Per-Acre Price to Shareholder to foster the demonstration of fallowing-leasing as an alternative to permanent agricultural dry-up. The Parties understand that this is a one-year commitment only by the District that the

District may or may not make in subsequent years at the sole discretion of the District's Board of Directors.

c. *Subsequent Pricing.* In subsequent years, the Acre-Foot Price and the Per-Acre Price may be adjusted from those identified in paragraph 6.b. It is currently anticipated that the Acre-Foot Price will be adjusted to a variable scale in recognition of the differing value of water relative to available supplies, whereby the Acre-Foot Price will be highest for the yield of Leased Water available under dry-year conditions and will decrease as yield of Leased Water increases. It is further contemplated that a Per-Acre Price will continue to be paid in order to more equitably allocate the risks associated with fluctuations in weather, hydrology, and commodity pricing.

d. *Remittance of Lease Payments.* In those years in which the Option to Lease has been exercised, the Super Ditch shall invoice the Acre-Foot Price to the Municipal Participants twice annually for deliveries or on such other invoice schedule as the Municipal Participants and Super Ditch shall establish. The Super Ditch shall remit lease payments of the Acre-Foot Price within thirty (30) days of receipt from its Municipal Participants. The Per-Acre Price shall be paid to Shareholder thirty (30) days after the Notice of Exercise is provided for those lands identified in the Notice of Exercise and to be removed from irrigation during the upcoming year's pilot project operations.

e. *Non-Exercise of Option.* There shall be no lease payment due to Shareholder for any year in which the Super Ditch does not elect to exercise the Option to Lease, nor shall any lease payments be due to Shareholder for any portion of the Subject Stock for which Super Ditch does not elect to exercise the Option to Lease in any given year.

7. Lease Administration Fee. The Super Ditch may retain a Lease Administration Fee out of the revenue it receives from leasing the Leased Water to partially defray the costs of leasing. Such fee shall be $25.00 per acre.

8. Approval of Catlin Canal Company. As a condition of this Option Agreement, Shareholder shall request the approval of the Catlin Canal Company for this Option Agreement and for the participation of the Subject Stock in the Catlin Pilot Project, pursuant to Article IV, Section 2 of the Catlin Canal Company Bylaws. This Option Agreement shall not take effect and no party shall have any rights or obligations hereunder until such time that Shareholder has obtained this approval, and all other conditions set forth in paragraph 1 above, have been satisfied.

   The Parties to this Option Agreement understand that terms and conditions to prevent injury to non-leasing shareholders, including but not limited to, consideration of evaporation and seepage losses and operating conditions, so that non-leasing shareholders and shareholders leasing less than all of their shares will receive as much water, and in just as convenient

manner, as if the Option Agreement did not exist. It shall be the Shareholder's obligation to leave such reasonable portion of the Leased Water in the canals or other structures of the Catlin Canal Company as may be required in good faith and pursuant to commonly accepted engineering methods if determined necessary to prevent injury to non-leasing stockholders. The Catlin Canal Company is an intended beneficiary of this paragraph and may enforce the same. The Super Ditch shall be responsible for requesting any other approvals from the Company that are necessary and/or desirable for operation of the Catlin Pilot Project.

9. Lateral. Shareholder's headgate(s) on the Catlin Canal is either not on a lateral or Shareholder has the permission to use the lateral to lease the Subject Stock as shown on the Shareholder's Execution Page.

10. Dry up of Historical Irrigated Land Associated with Subject Stock. A fundamental requirement for the Catlin Pilot Project and this Option Agreement is the non-use of Leased Water available from the Subject Stock upon the Historical Irrigated Land ("Dry-up Land") during each year in which the Super Ditch elects to exercise the Option to Lease. In each year that the Super Ditch elects to exercise the Option to Lease, Shareholder will dry-up and withhold from irrigation such number of acres of Historical Irrigated Land as the Super Ditch identifies based upon the historic pattern of use in the Notice to Exercise, which acreage shall be finalized by February 1st. For each year in which Shareholder's Historical Irrigation Land or portion thereof is dried up as a part of operation of the Catlin Pilot Project, Shareholder shall submit an affidavit to the Super Ditch signed by a person familiar with the dry-up by December 31st following the irrigation season.

    a. The Historical Irrigated Land that is the subject of these provisions will be identified on the Shareholder Execution Page and on maps provided to the State Engineer and/or Division Two Engineer, the United States Department of Agriculture, and the Catlin Canal Company.

    b. The Shareholder hereby grants the Super Ditch permission to enter upon the Dry-up Land to post it in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005). The Super Ditch will monitor the subject Dry-up Land to insure no irrigation thereof during the years during which it exercises the Option to Lease, as required by the CWCB and/or the State or Division Engineer.

    c. Dry-up shall be in accordance with any terms and conditions imposed on the Catlin Pilot Project, including those set forth in the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" of the CWCB (Nov. 2013). Shareholder agrees to enter into a dry-up, weed control and erosion control covenant upon the request of the Super Ditch, which covenant may be recorded in the county clerk and recorders office.

11. Weed Control and Erosion Control. The Parties agree that weed control and erosion control of the Historical Irrigated Land taken out of production during years in which the Super

Ditch exercises the Option to Lease of the Subject Stock is very important. The Shareholder, at his sole cost, agrees to undertake operations to mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land. Specific operations will be determined in good faith consultation with Catlin Canal Company, and shall be conducted in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005) and any terms and conditions that may be imposed by the CWCB in the Catlin Pilot Project approval. Shareholder agrees to comply with terms and conditions of the Catlin Pilot Project approval regarding the fallow of the Dry-up Land, including compliance with any applicable county land use requirements to prevent erosion and blowing soils.

a. *Alfalfa Fields & Pasture Grass*

These fields will continue in an as is state. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

The CWCB and/or the State Engineer may impose special rules regarding the dry-up of such fields. All parcels containing alfalfa or pasture grass shall be subject to a reduction in the amount of Leased Water if the field is subirrigated. The reduction will be calculated pursuant to the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" and/or such other terms and conditions in the Catlin Pilot Project approval. Lease payments will be calculated based upon such reduced amounts.

If these fields require monitoring to determine depth to water table, any installation of monitoring wells will be at Super Ditch's expense. The Parties will determine the location of any such monitoring wells cooperatively.

b. *Stubble Fields*

Fields containing stubble from the previous year's crop will be left as is to provide protection from wind. If existing stubble is not deemed adequate, in Super Ditch's discretion, additional measures may be required. Such measures may include planting of a cover crop such as spring wheat and an irrigation of the crop, and mechanical operations on the field such as furrowing or chiseling. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

c. *Open Fields*

Open fields will require measures to control the blowing of dust. The measures may include furrowing or chiseling the fields, planting a cover crop such as spring wheat and some irrigation of the crop, or other measures the Parties may agree are

appropriate. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the exercise of the lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

d. *Weed Control*

Measures shall be undertaken by Shareholder to control the weeds on the Dry-Up Land. These measures may include the mowing of weeds or application of herbicide. Other measures, including grazing, may be undertaken at Super Ditch's discretion.

i. Land leveling, irrigation improvements. The Shareholder may level, install sprinkler or drip irrigation systems, and make other agricultural and irrigation system improvements on the Dry-up Land.

ii. County Regulation. The Shareholder agrees to comply with any applicable county land use regulations regarding noxious weed control/management.

12. Engineering and Legal Activities by Super Ditch. The Parties agree that it shall be the Super Ditch's sole responsibility to complete any legal, engineering, administrative and/or judicial activities necessary to obtain approval for the Catlin Pilot Project. The Shareholder shall cooperate with the Super Ditch in supplying any data and information as needed by the Super Ditch to obtain such approval. The Shareholder hereby grants the Super Ditch the authority to include the Subject Stock in the Catlin Pilot Project application. The Shareholder further agrees that Shareholder will cooperate with the Super Ditch in requesting and maintaining CWCB approval for the Catlin Pilot Project.

13. Automatic Termination. In the event that the Option to Lease is exercised on all of Shareholder's Subject Stock for three years and the water has been used in the Catlin Pilot Project, this Option Agreement shall automatically terminate following conclusion of the third year. This Option Agreement shall also automatically terminate in the event that the Catlin Pilot Project approval is permanently cancelled or revoked.

14. No Inclusion in SWSP, IWSA, or Another Pilot Project. The Shareholder agrees that the Subject Stock and the Historical Irrigated Lands shall not be included in a substitute water supply plan pursuant to C.R.S. 37-92-308(5) or (7), an interruptible water supply agreement pursuant to C.R.S. §37-92-309, or another pilot project pursuant to C.R.S. § 37-60-115(8) during the Agreement Term. The Shareholder further agrees not to enter into any lease, option, or other similar agreement for the Subject Stock and Historical Irrigated Lands that could be exercised during the Agreement Term in a manner that would interfere with the Super Ditch's full use and enjoyment of the Option to Lease or compromise operation of the Catlin Pilot Project.

15. Default and Remedies.

a. *Default*. The occurrence of any of the following events shall constitute a default and breach of this Option Agreement.

i. The failure by Super Ditch to timely make lease payments due.

ii. The failure by Shareholder to make the Leased Water available to the Super Ditch.

iii. The failure by Shareholder to cease irrigation of the Dry-Up Land during years in which Super Ditch has exercised the Option to Lease.

iv. The failure of Shareholder to satisfactorily mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land as required herein.

v. The failure of Shareholder to comply with applicable terms and conditions of any Catlin Pilot Project approval from the CWCB or any other lawful order of the State or Division Engineers or court of competent jurisdiction.

b. *Right to Cure*. In the event that either party believes that the other is in default of any obligation under this Option Agreement, the non-defaulting party shall promptly give written notice of the default to the defaulting party. If a notice of default is provided, the party accused of the default shall either cure it or provide a written statement explaining why it is not in default. If the alleged default is not cured or otherwise resolved within thirty (30) days, the Parties may resort to their remedies.

c. *Remedies*. In the event that either party defaults in the performance of any of its obligations under this Option Agreement, each party shall have all remedies provided in this Option Agreement or by law or equity and each Party shall have the right of specific performance against the other.

d. *Waiver*. Failure of either party to this Option Agreement to exercise any right hereunder shall not be deemed a waiver of such party's right and shall not affect the right of said party to exercise, at some future time, said right or rights or any other right it may have hereunder. No waiver of any of the provisions of this Option Agreement shall be deemed or shall constitute a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

16. Miscellaneous.

a. *Entire Agreement, Modification.* This Option Agreement constitutes the entire agreement between the Parties pertaining to the subject matter described in it and supersedes any and all prior contemporaneous agreements, representations, and understandings. This Option Agreement may be modified, amended, changed or terminated in whole or in any part only by an agreement in writing duly authorized and executed by the Parties hereto with the same formality as this Option Agreement.

b. *Notice*. All notices to be given with respect to this Option Agreement, including the Notice of Exercise, shall be in writing. Each notice shall be sent by United States mail, first class postage prepaid, to the Party to be notified at the address set forth herein or at such other address as either Party may from time to time designate in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing herein shall be construed to preclude personal service of any notice in the manner prescribed for personal services of a summons or other legal process. All notices required to be given to the Super Ditch hereunder shall be delivered to:

Lower Arkansas Valley Super Ditch Company
Attn: President
801 Swink Avenue
Rocky Ford, Colorado 81067
Tel: 719-254-5115
Fax: 719-254-5150

With copies to:

Bart Mendenhall, Esq.
Mendenhall & Malouff, R.L.L.P.
P.O. Box 552
Rocky Ford, CO 81067-0552
Tel: 719-254-7060
bmendenhall@centurytel.net

Peter Nichols, Esq.
Leah K. Martinsson, Esq.
1712 Pearl Street
Boulder, CO 80302
Tel: 303-402-1600
pdn@bhgrlaw.com
lkm@bhgrlaw.com

or at such other address as the Super Ditch may direct in accordance with this paragraph.

All notices required to be given to Shareholder hereunder shall be delivered to the address shown on Shareholder's Execution Page.

c. *Non-Business Days*. If the date for any action under this Option Agreement, other than the beginning or end of the Agreement Term, falls on a Saturday, Sunday or a day that is a "holiday," then the relevant date shall be extended automatically until the next day that is not a Saturday, Sunday or a "holiday."

d. *Governing Law and Venue*. This Option Agreement and its application shall be construed in accordance with the laws of the State of Colorado. The Parties agree that venue for any litigated disputes regarding this Agreement shall be the Water Court or, if the matter in dispute is not a water matter as defined by statute, the County District Court.

e. *No Construction Against Drafter*. This Option Agreement was drafted by the Super Ditch. The Shareholder is encouraged by the Super Ditch to review this Agreement with his own legal counsel prior to executing this Option Agreement. Accordingly, the Parties agree the legal doctrine of construction against the drafter will not be applied should any dispute arise concerning this Option Agreement.

f. *Headings for Convenience Only*. Paragraph headings and titles contained herein are intended for convenience and reference only and are not intended to define, limit or describe the scope or intent of any provision of this Option Agreement.

g. *Non-Severability*. Each Section in this Option Agreement is intertwined with the others and are not severable unless by mutual consent of the Super Ditch and Shareholder or as provided for under Paragraph 16 (a) above.

h. *Attorney Fees and Costs*. In the event of any litigation, mediation, arbitration or other dispute resolution proceedings arising out of or related to this Option Agreement, each party agrees to be responsible for its own attorney's fees and other professional fees, costs and expenses associated with any such proceedings.

i. *No Fees and Expenses and Apportionment.* Except as otherwise expressly set forth in this Option Agreement, each of the Parties hereto will bear its own expenses in connection with the transactions contemplated by this Agreement.

j. *Recordation.* At any time after the Effective Date, the Super Ditch may cause this Option Agreement to be recorded with the county clerk and recorder's office. Upon termination of this Option Agreement, the Super Ditch shall execute and record such additional documents as Shareholder reasonably may require so as to provide notice of termination.

k. *No Responsibility to Tenant Farmers.* All payments pursuant to this Option Agreement shall be made to Shareholder, or his assignee as he may direct in writing, except that the Super Ditch will have no responsibility for any payments whatsoever to any tenant farmer regardless of any agreement between a tenant farmer and Shareholder.

l. *Survival of Representations.* Each and every covenant, promise, and payment contained in this Option Agreement shall not merge in any deed, assignment, covenant, escrow agreement, easement, lease or any other document, but shall survive each nevertheless, and be binding and obligatory upon each of the Parties hereto.

m. *No Third-Party Beneficiaries.* Except as provided for in paragraph 8 herein, this Option Agreement is intended to describe the rights and responsibilities of and between the Parties hereto and is not intended to and shall not be deemed to confer rights upon any persons or entities not signatories hereto, nor to limit, impair, or enlarge in any way the powers, regulatory authority and responsibilities of either party or any other governmental entity not a party hereto.

n. *No Exclusive Right or Privilege.* Nothing in this Option Agreement is to be construed as a grant by the Super Ditch or Shareholder of any exclusive right or privilege, except as expressly provided herein.

17. Taxes. The Shareholder shall have sole responsibility for any taxes, property or otherwise, related to the Historical Irrigated Land or the Subject Stock. The Parties acknowledge that it is anticipated that such Historical Irrigated Land will be taxed as irrigated farmland notwithstanding the cessation of irrigation during the exercise of the Option to Lease under this Option Agreement.

18. Assessments. The Shareholder shall have sole responsibility for any assessments related to the Subject Stock, including any assessments for Winter Water and Fryingpan-Arkansas Project water and return flows, during the Agreement Term. The Super Ditch, however, may pay any outstanding assessments necessary for the Leased Water to be available for use by the Super Ditch or the Municipal Participants and deduct such amounts from subsequent lease payments.

19. Sublease and assignment. The Parties anticipate the Super Ditch will lease the water obtained from the Subject Stock under this Option Agreement. This Option Agreement may be assigned by Super Ditch to facilitate such lease.

20. Interruption of Supply Beyond the Shareholder's Control. While it is the intent and purpose of the Shareholder to provide the Leased Water to the Super Ditch for use in the Catlin Pilot Project, there are many natural and other factors that affect the quantity of Shareholder's water supply. The parties to the Option Agreement recognize that the water supply for Subject Stock is dependent upon sources of supply that are variable in quantity and beyond the control of Shareholder. No liability in tort or contract shall attach to Shareholder under this Option Agreement on account of any failure to accurately anticipate the availability of water for the contemplated lease or because of an actual failure of to supply water due to inadequate runoff or inadequate storage arising from an occurrence beyond the control of Shareholder, including, but not limited to, acts of God, strike, war, insurrection, or inability to deliver water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control.

21. Uniform Agreement. Except for the number of shares of Subject Stock and the description of the Historical Irrigated Land, the Parties agree the form of this Option Agreement will be uniform and with the identical terms between the Super Ditch and all leasing Shareholders of Catlin Canal Company stock.

22. Sale of Water Rights. The Parties recognize that Shareholder may desire to sell the Subject Stock and Historical Irrigated Lands during the term of this Option Agreement. Nothing herein shall preclude sale of the Subject Stock or Historical Irrigated Lands, so long as any such sale is subject to this Option Agreement pursuant the assignment provisions contained in paragraph 25, herein.

23. Title to Water Rights. Nothing herein shall be interpreted to give the Super Ditch any legal or equitable title in or to any water or water rights owned by Shareholder.

24. Right to Enter into Lease. Each party hereby warrants and represents that it has the full right and lawful authority to enter into this Option Agreement.

25. Assignment. The Shareholder may assign this Option Agreement with the approval of the Super Ditch, which approval shall not be unreasonably withheld.

26. Successors and Assigns. This Option Agreement and the rights and obligations created hereby shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.

27. Multiple Originals. This Option Agreement may be simultaneously executed in any number of counterparts, each one of which shall be deemed an original, but all of which constitute one and the same Agreement.

SHAREHOLDERS EXECUTION PAGE

To include the following:

1. **Subject Stock** available to lease by Super Ditch, number and certificate number(s)
2. Name, address, phone number, e-mail of contact and person with authority to lease shares
3. Map of **Historical Irrigated Land** of Subject Stock
4. Map of **Dry-up Land** (if different)

The undersigned represents that all assessments are paid on the Subject Stock and the shares are in good standing with the Catlin Canal Company.

The undersigned represents that the Subject Stock are not on a lateral, or that the undersigned has the permission of all other shareholders on the lateral to enter into this lease.

Glenn Hinkata

Signature

Its (if Subject Stock not held as an individual)

11-24-14

Date

Glenn Hinkata

Name

719-469-1117

Phone

grhinkata@hotmail.com

Email

26250 County Road 22

Rocky Ford, CO 81067

Address

Lower Arkansas Valley Super Ditch Company, Inc.

John Schweizer Jr.

By

President

Its

11-24-14

Date

EXHIBIT A - Reflecting Subject Stock

July 10, ~~2013~~ 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner of approximately 600 acres of lands irrigated under the Catlin Canal with 575 shares represented by Share Certificate Nos. see below. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

for Pilot Project

Cert. #	
3550	151.000
~~3549~~	~~30.000~~
3481	79.000
3479	86.100
3480	130.000
2484	68.900
3525	30.000

Sincerely,

[signatures]

Hirakata / K2 Farms

[print name]

Job No.:	816.2
Date:	4-Dec-2014
Drawn:	CML
Checked:	CRR

Catlin Canal
Pilot Project Proposal

Hirakata Farm
Exhibit B

MARTIN AND WOOD WATER CONSULTANTS, INC.

538 Commons Drive
Golden, CO 80401
(303) 526-2600
www.martinandwood.com

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

OPTION AGREEMENT FOR LEASE OF CATLIN CANAL COMPANY STOCK

This option agreement for lease of stock in the Catlin Canal Company ("Option Agreement") is entered into by and between the undersigned shareholder in the Catlin Canal Company ("Shareholder"), and the Lower Arkansas Valley Super Ditch Company, Inc., a Colorado corporation (the "Super Ditch"). The Super Ditch and Shareholder may collectively be referred to as the "Parties".

RECITALS

WHEREAS, irrigators in the Lower Arkansas Valley incorporated the Super Ditch to meet municipal water supply needs through the fallowing of their irrigated lands and leasing their water, rather than selling their water; and

WHEREAS, the Super Ditch is in the business of leasing water rights on behalf of irrigators in the Lower Arkansas Valley; and

WHEREAS, the Town of Fowler, the City of Fountain, and the Security Water District (the "Municipal Participants") support water leasing to meet municipal needs in certain circumstances to avoid the negative social, economic and environmental consequences of municipal buy-and-dry of agricultural water rights to meet municipal needs; and

WHEREAS, House Bill (HB) 13-1248, signed into law by the Governor on May 13, 2013, authorizes the Colorado Water Conservation Board (the "CWCB") to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up; and

WHEREAS, the Municipal Participants desire to lease water from irrigators to supplement their water supplies; and

WHEREAS, the Super Ditch is seeking approval of a ten-year pilot project pursuant to HB 13-1248 to use water available from certain shares of the Catlin Canal Company for temporary municipal purposes by the Municipal Participants (the "Catlin Pilot Project"); and

WHEREAS, Shareholder owns the shares of stock in the Catlin Canal Company as shown on Shareholder's Execution Page ("Subject Stock"), and represents that such shares are in good standing with the Company with all assessments current and paid; and

WHEREAS, the water derived from the Subject Stock is used to irrigate that certain real property further described on the Shareholder's Execution Page ("Historical Irrigated Land"); and

WHEREAS, the undersigned Shareholder desires to lease the Subject Stick through the Super Ditch to be included in and as a part of the Catlin Pilot Project to meet temporary municipal needs.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals and in consideration of the promises, agreements and payments herein after set forth, the adequacy and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Effective Date. This Option Agreement shall become effective only upon the occurrence of all of the following: (1) execution of this Option Agreement by the Parties; (2) the Super Ditch's acceptance of all the CWCB's conditions of approval of the Catlin Pilot Project, which acceptance or rejection of such conditions of approval shall be in the Super Ditch's sole discretion; (3) execution of agreements between Super Ditch and the Municipal Participants to the extent necessary and/or desirable in Super Ditch's sole discretion; (4) Shareholder obtaining approval of this Option Agreement from the Catlin Canal Company on terms acceptable to the Super Ditch, as more particularly set forth in paragraph 8, below; and (5) the Super Ditch's having obtained all other necessary approvals for operation of the Catlin Pilot Project on terms acceptable to the Super Ditch, in Super Ditch's sole discretion (the "Effective Date"). In the event that the Super Ditch does not obtain CWCB approval of the Catlin Pilot Project on terms acceptable to the Super Ditch, Shareholder does not obtain approval from the Catlin Canal Company, or the Super Ditch is unable to secure all approvals necessary for operation of the Catlin Pilot Project on terms acceptable to Super Ditch, this Option Agreement shall not take effect and no party shall have any rights, liabilities, or obligations hereunder.

2. Term of Option Agreement. This Option Agreement is for term beginning on the Effective Date and ending on March 14, 2025 (the "Agreement Term"), unless earlier terminated.

3. Grant of Option. Shareholder hereby grants the Super Ditch an exclusive option to lease up to all the Subject Stock for up to three years, or to lease up to 30% of the Subject Stock for each year during the Agreement Term, for use of water available from the Subject Stock in the Catlin Pilot Project pursuant to the terms of this Option Agreement ("Option to Lease").

4. Exercise of Option. For Catlin Pilot Project operations in 2015 only, the Super Ditch shall provide a Notice of Exercise (defined below) for all or part of the Subject Stock and Historical Irrigated Lands as identified in the Catlin Pilot Project Application within twenty (20) days of the Effective Date of this Option Agreement. In subsequent years, the Super Ditch shall notify Shareholder whether the Super Ditch desires to exercise of the Option to Lease during the upcoming irrigation season prior to September 15th. After such notification and prior to October 15th, the Super Ditch and Shareholder shall work cooperatively to identify portions of the Subject Stock and Historical Irrigated Lands that Shareholder will to commit to the Catlin Pilot Project for the upcoming year's operations. On or before December 1st, the Super Ditch shall provide a written notice to Shareholder stating whether

or not the Super Ditch elects to exercise the Option to Lease as to the identified shares and associated acreage for the upcoming irrigation season, or to exercise as to a lesser number of the shares and associated acreage ("Notice of Exercise"). The Super Ditch shall have sole discretion in determining if, when, and to what extent it may exercise the Option to Lease in any given year, including the first year of the Agreement Term.

5. Amount of Water. Upon the Super Ditch's exercise of the Option to Lease as provided in paragraphs 3 and 4, the Shareholder hereby agrees to lease to the Super Ditch all native water available to the Shareholder as a result of his ownership of the Subject Stock identified in that year's Notice of Exercise to the extent physically and legally available to Shareholder for lease and delivery to the Municipal Participants through the Super Ditch as a part of the Catlin Pilot Project for that year ("Leased Water").

6. Lease Price and Payment. Upon the Super Ditch's exercise of the Option to Lease, the Super Ditch agrees to pay to Shareholder a lease price consisting of two components: (1) a price per acre of land upon which the Leased Water has historically been used and that will be removed from irrigation as a part of Catlin Pilot Project operations for that year (the "Per Acre Price"); and (2) a price per acre-foot of historical consumptive use water associated with the Leased Water that is made available for lease to the Municipal Participants at their respective points of delivery (the "Acre-Foot Price").

    a. *Take-or-Pay.* The Parties agree that, upon the Super Ditch providing a Notice of Exercise in which the Super Ditch has elected to exercise the Option to Lease for the upcoming year and only to the extent that the Leased Water is physically made available for lease to the Municipal Participants at their point of delivery pursuant to the terms of the leases between Super Ditch and the Municipal Participants, the Leased Water is on a "take or pay" basis. As to that year only, the Super Ditch shall accordingly make the lease payments for the Leased Water available at the Municipal Participants' points of delivery, whether or not the quantities leased are actually taken and used by the Super Ditch or the Municipal Participants at such points.

    b. *Year One Pricing*. During the first year in which the Super Ditch exercises the Option to Lease, Super Ditch agrees to pay the Shareholder a Per-Acre Price of \$150.00 and an Acre-Foot Price of \$500.00. Unless otherwise agreed to by the Parties, this lease price shall apply to the first year only in recognition of the uncertainties associated with participating in the first leasing-fallowing pilot project.

       For the first year in which the Super Ditch exercises the Option to Lease, the Lower Arkansas Valley Water Conservancy District (the "District") has agreed to pay the Per-Acre Price to Shareholder to foster the demonstration of fallowing-leasing as an alternative to permanent agricultural dry-up. The Parties understand that this is a one-year commitment only by the District that the

District may or may not make in subsequent years at the sole discretion of the District's Board of Directors.

c. *Subsequent Pricing.* In subsequent years, the Acre-Foot Price and the Per-Acre Price may be adjusted from those identified in paragraph 6.b. It is currently anticipated that the Acre-Foot Price will be adjusted to a variable scale in recognition of the differing value of water relative to available supplies, whereby the Acre-Foot Price will be highest for the yield of Leased Water available under dry-year conditions and will decrease as yield of Leased Water increases. It is further contemplated that a Per-Acre Price will continue to be paid in order to more equitably allocate the risks associated with fluctuations in weather, hydrology, and commodity pricing.

d. *Remittance of Lease Payments.* In those years in which the Option to Lease has been exercised, the Super Ditch shall invoice the Acre-Foot Price to the Municipal Participants twice annually for deliveries or on such other invoice schedule as the Municipal Participants and Super Ditch shall establish. The Super Ditch shall remit lease payments of the Acre-Foot Price within thirty (30) days of receipt from its Municipal Participants. The Per-Acre Price shall be paid to Shareholder thirty (30) days after the Notice of Exercise is provided for those lands identified in the Notice of Exercise and to be removed from irrigation during the upcoming year's pilot project operations.

e. *Non-Exercise of Option.* There shall be no lease payment due to Shareholder for any year in which the Super Ditch does not elect to exercise the Option to Lease, nor shall any lease payments be due to Shareholder for any portion of the Subject Stock for which Super Ditch does not elect to exercise the Option to Lease in any given year.

7. <u>Lease Administration Fee</u>. The Super Ditch may retain a Lease Administration Fee out of the revenue it receives from leasing the Leased Water to partially defray the costs of leasing. Such fee shall be $25.00 per acre.

8. <u>Approval of Catlin Canal Company</u>. As a condition of this Option Agreement, Shareholder shall request the approval of the Catlin Canal Company for this Option Agreement and for the participation of the Subject Stock in the Catlin Pilot Project, pursuant to Article IV, Section 2 of the Catlin Canal Company Bylaws. This Option Agreement shall not take effect and no party shall have any rights or obligations hereunder until such time that Shareholder has obtained this approval, and all other conditions set forth in paragraph 1 above, have been satisfied.

   The Parties to this Option Agreement understand that terms and conditions to prevent injury to non-leasing shareholders, including but not limited to, consideration of evaporation and seepage losses and operating conditions, so that non-leasing shareholders and shareholders leasing less than all of their shares will receive as much water, and in just as convenient

manner, as if the Option Agreement did not exist. It shall be the Shareholder's obligation to leave such reasonable portion of the Leased Water in the canals or other structures of the Catlin Canal Company as may be required in good faith and pursuant to commonly accepted engineering methods if determined necessary to prevent injury to non-leasing stockholders. The Catlin Canal Company is an intended beneficiary of this paragraph and may enforce the same. The Super Ditch shall be responsible for requesting any other approvals from the Company that are necessary and/or desirable for operation of the Catlin Pilot Project.

9. Lateral. Shareholder's headgate(s) on the Catlin Canal is either not on a lateral or Shareholder has the permission to use the lateral to lease the Subject Stock as shown on the Shareholder's Execution Page.

10. Dry up of Historical Irrigated Land Associated with Subject Stock. A fundamental requirement for the Catlin Pilot Project and this Option Agreement is the non-use of Leased Water available from the Subject Stock upon the Historical Irrigated Land ("Dry-up Land") during each year in which the Super Ditch elects to exercise the Option to Lease. In each year that the Super Ditch elects to exercise the Option to Lease, Shareholder will dry-up and withhold from irrigation such number of acres of Historical Irrigated Land as the Super Ditch identifies based upon the historic pattern of use in the Notice to Exercise, which acreage shall be finalized by February 1st. For each year in which Shareholder's Historical Irrigation Land or portion thereof is dried up as a part of operation of the Catlin Pilot Project, Shareholder shall submit an affidavit to the Super Ditch signed by a person familiar with the dry-up by December 31st following the irrigation season.

    a. The Historical Irrigated Land that is the subject of these provisions will be identified on the Shareholder Execution Page and on maps provided to the State Engineer and/or Division Two Engineer, the United States Department of Agriculture, and the Catlin Canal Company.

    b. The Shareholder hereby grants the Super Ditch permission to enter upon the Dry-up Land to post it in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005). The Super Ditch will monitor the subject Dry-up Land to insure no irrigation thereof during the years during which it exercises the Option to Lease, as required by the CWCB and/or the State or Division Engineer.

    c. Dry-up shall be in accordance with any terms and conditions imposed on the Catlin Pilot Project, including those set forth in the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" of the CWCB (Nov. 2013). Shareholder agrees to enter into a dry-up, weed control and erosion control covenant upon the request of the Super Ditch, which covenant may be recorded in the county clerk and recorders office.

11. Weed Control and Erosion Control. The Parties agree that weed control and erosion control of the Historical Irrigated Land taken out of production during years in which the Super

Ditch exercises the Option to Lease of the Subject Stock is very important. The Shareholder, at his sole cost, agrees to undertake operations to mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land. Specific operations will be determined in good faith consultation with Catlin Canal Company, and shall be conducted in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005) and any terms and conditions that may be imposed by the CWCB in the Catlin Pilot Project approval. Shareholder agrees to comply with terms and conditions of the Catlin Pilot Project approval regarding the fallow of the Dry-up Land, including compliance with any applicable county land use requirements to prevent erosion and blowing soils.

a. *Alfalfa Fields & Pasture Grass*

These fields will continue in an as is state. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

The CWCB and/or the State Engineer may impose special rules regarding the dry-up of such fields. All parcels containing alfalfa or pasture grass shall be subject to a reduction in the amount of Leased Water if the field is subirrigated. The reduction will be calculated pursuant to the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" and/or such other terms and conditions in the Catlin Pilot Project approval. Lease payments will be calculated based upon such reduced amounts.

If these fields require monitoring to determine depth to water table, any installation of monitoring wells will be at Super Ditch's expense. The Parties will determine the location of any such monitoring wells cooperatively.

b. *Stubble Fields*

Fields containing stubble from the previous year's crop will be left as is to provide protection from wind. If existing stubble is not deemed adequate, in Super Ditch's discretion, additional measures may be required. Such measures may include planting of a cover crop such as spring wheat and an irrigation of the crop, and mechanical operations on the field such as furrowing or chiseling. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

c. *Open Fields*

Open fields will require measures to control the blowing of dust. The measures may include furrowing or chiseling the fields, planting a cover crop such as spring wheat and some irrigation of the crop, or other measures the Parties may agree are

appropriate. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the exercise of the lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

d. *Weed Control*

Measures shall be undertaken by Shareholder to control the weeds on the Dry-Up Land. These measures may include the mowing of weeds or application of herbicide. Other measures, including grazing, may be undertaken at Super Ditch's discretion.

i. Land leveling, irrigation improvements. The Shareholder may level, install sprinkler or drip irrigation systems, and make other agricultural and irrigation system improvements on the Dry-up Land.

ii. County Regulation. The Shareholder agrees to comply with any applicable county land use regulations regarding noxious weed control/management.

12. Engineering and Legal Activities by Super Ditch. The Parties agree that it shall be the Super Ditch's sole responsibility to complete any legal, engineering, administrative and/or judicial activities necessary to obtain approval for the Catlin Pilot Project. The Shareholder shall cooperate with the Super Ditch in supplying any data and information as needed by the Super Ditch to obtain such approval. The Shareholder hereby grants the Super Ditch the authority to include the Subject Stock in the Catlin Pilot Project application. The Shareholder further agrees that Shareholder will cooperate with the Super Ditch in requesting and maintaining CWCB approval for the Catlin Pilot Project.

13. Automatic Termination. In the event that the Option to Lease is exercised on all of Shareholder's Subject Stock for three years and the water has been used in the Catlin Pilot Project, this Option Agreement shall automatically terminate following conclusion of the third year. This Option Agreement shall also automatically terminate in the event that the Catlin Pilot Project approval is permanently cancelled or revoked.

14. No Inclusion in SWSP, IWSA, or Another Pilot Project. The Shareholder agrees that the Subject Stock and the Historical Irrigated Lands shall not be included in a substitute water supply plan pursuant to C.R.S. 37-92-308(5) or (7), an interruptible water supply agreement pursuant to C.R.S. §37-92-309, or another pilot project pursuant to C.R.S. § 37-60-115(8) during the Agreement Term. The Shareholder further agrees not to enter into any lease, option, or other similar agreement for the Subject Stock and Historical Irrigated Lands that could be exercised during the Agreement Term in a manner that would interfere with the Super Ditch's full use and enjoyment of the Option to Lease or compromise operation of the Catlin Pilot Project.

15. Default and Remedies.

a. *Default*. The occurrence of any of the following events shall constitute a default and breach of this Option Agreement.

i. The failure by Super Ditch to timely make lease payments due.

ii. The failure by Shareholder to make the Leased Water available to the Super Ditch.

iii. The failure by Shareholder to cease irrigation of the Dry-Up Land during years in which Super Ditch has exercised the Option to Lease.

iv. The failure of Shareholder to satisfactorily mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land as required herein.

v. The failure of Shareholder to comply with applicable terms and conditions of any Catlin Pilot Project approval from the CWCB or any other lawful order of the State or Division Engineers or court of competent jurisdiction.

b. *Right to Cure*. In the event that either party believes that the other is in default of any obligation under this Option Agreement, the non-defaulting party shall promptly give written notice of the default to the defaulting party. If a notice of default is provided, the party accused of the default shall either cure it or provide a written statement explaining why it is not in default. If the alleged default is not cured or otherwise resolved within thirty (30) days, the Parties may resort to their remedies.

c. *Remedies*. In the event that either party defaults in the performance of any of its obligations under this Option Agreement, each party shall have all remedies provided in this Option Agreement or by law or equity and each Party shall have the right of specific performance against the other.

d. *Waiver*. Failure of either party to this Option Agreement to exercise any right hereunder shall not be deemed a waiver of such party's right and shall not affect the right of said party to exercise, at some future time, said right or rights or any other right it may have hereunder. No waiver of any of the provisions of this Option Agreement shall be deemed or shall constitute a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

16. Miscellaneous.

a. *Entire Agreement, Modification.* This Option Agreement constitutes the entire agreement between the Parties pertaining to the subject matter described in it and supersedes any and all prior contemporaneous agreements, representations, and understandings. This Option Agreement may be modified, amended, changed or terminated in whole or in any part only by an agreement in writing duly authorized and executed by the Parties hereto with the same formality as this Option Agreement.

b. *Notice.* All notices to be given with respect to this Option Agreement, including the Notice of Exercise, shall be in writing. Each notice shall be sent by United States mail, first class postage prepaid, to the Party to be notified at the address set forth herein or at such other address as either Party may from time to time designate in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing herein shall be construed to preclude personal service of any notice in the manner prescribed for personal services of a summons or other legal process. All notices required to be given to the Super Ditch hereunder shall be delivered to:

Lower Arkansas Valley Super Ditch Company
Attn: President
801 Swink Avenue
Rocky Ford, Colorado 81067
Tel: 719-254-5115
Fax: 719-254-5150

With copies to:

Bart Mendenhall, Esq.
Mendenhall & Malouff, R.L.L.P.
P.O. Box 552
Rocky Ford, CO 81067-0552
Tel: 719-254-7060
bmendenhall@centurytel.net

Peter Nichols, Esq.
Leah K. Martinsson, Esq.
1712 Pearl Street
Boulder, CO 80302
Tel: 303-402-1600
pdn@bhgrlaw.com
lkm@bhgrlaw.com

or at such other address as the Super Ditch may direct in accordance with this paragraph.

All notices required to be given to Shareholder hereunder shall be delivered to the address shown on Shareholder's Execution Page.

c. *Non-Business Days*. If the date for any action under this Option Agreement, other than the beginning or end of the Agreement Term, falls on a Saturday, Sunday or a day that is a "holiday," then the relevant date shall be extended automatically until the next day that is not a Saturday, Sunday or a "holiday."

d. *Governing Law and Venue*. This Option Agreement and its application shall be construed in accordance with the laws of the State of Colorado. The Parties agree that venue for any litigated disputes regarding this Agreement shall be the Water Court or, if the matter in dispute is not a water matter as defined by statute, the County District Court.

e. *No Construction Against Drafter*. This Option Agreement was drafted by the Super Ditch. The Shareholder is encouraged by the Super Ditch to review this Agreement with his own legal counsel prior to executing this Option Agreement. Accordingly, the Parties agree the legal doctrine of construction against the drafter will not be applied should any dispute arise concerning this Option Agreement.

f. *Headings for Convenience Only*. Paragraph headings and titles contained herein are intended for convenience and reference only and are not intended to define, limit or describe the scope or intent of any provision of this Option Agreement.

g. *Non-Severability*. Each Section in this Option Agreement is intertwined with the others and are not severable unless by mutual consent of the Super Ditch and Shareholder or as provided for under Paragraph 16 (a) above.

h. *Attorney Fees and Costs*. In the event of any litigation, mediation, arbitration or other dispute resolution proceedings arising out of or related to this Option Agreement, each party agrees to be responsible for its own attorney's fees and other professional fees, costs and expenses associated with any such proceedings.

i. *No Fees and Expenses and Apportionment.* Except as otherwise expressly set forth in this Option Agreement, each of the Parties hereto will bear its own expenses in connection with the transactions contemplated by this Agreement.

j. *Recordation.* At any time after the Effective Date, the Super Ditch may cause this Option Agreement to be recorded with the county clerk and recorder's office. Upon termination of this Option Agreement, the Super Ditch shall execute and record such additional documents as Shareholder reasonably may require so as to provide notice of termination.

k. *No Responsibility to Tenant Farmers.* All payments pursuant to this Option Agreement shall be made to Shareholder, or his assignee as he may direct in writing, except that the Super Ditch will have no responsibility for any payments whatsoever to any tenant farmer regardless of any agreement between a tenant farmer and Shareholder.

l. *Survival of Representations.* Each and every covenant, promise, and payment contained in this Option Agreement shall not merge in any deed, assignment, covenant, escrow agreement, easement, lease or any other document, but shall survive each nevertheless, and be binding and obligatory upon each of the Parties hereto.

m. *No Third-Party Beneficiaries.* Except as provided for in paragraph 8 herein, this Option Agreement is intended to describe the rights and responsibilities of and between the Parties hereto and is not intended to and shall not be deemed to confer rights upon any persons or entities not signatories hereto, nor to limit, impair, or enlarge in any way the powers, regulatory authority and responsibilities of either party or any other governmental entity not a party hereto.

n. *No Exclusive Right or Privilege.* Nothing in this Option Agreement is to be construed as a grant by the Super Ditch or Shareholder of any exclusive right or privilege, except as expressly provided herein.

17. <u>Taxes</u>. The Shareholder shall have sole responsibility for any taxes, property or otherwise, related to the Historical Irrigated Land or the Subject Stock. The Parties acknowledge that it is anticipated that such Historical Irrigated Land will be taxed as irrigated farmland notwithstanding the cessation of irrigation during the exercise of the Option to Lease under this Option Agreement.

18. Assessments. The Shareholder shall have sole responsibility for any assessments related to the Subject Stock, including any assessments for Winter Water and Fryingpan-Arkansas Project water and return flows, during the Agreement Term. The Super Ditch, however, may pay any outstanding assessments necessary for the Leased Water to be available for use by the Super Ditch or the Municipal Participants and deduct such amounts from subsequent lease payments.

19. Sublease and assignment. The Parties anticipate the Super Ditch will lease the water obtained from the Subject Stock under this Option Agreement. This Option Agreement may be assigned by Super Ditch to facilitate such lease.

20. Interruption of Supply Beyond the Shareholder's Control. While it is the intent and purpose of the Shareholder to provide the Leased Water to the Super Ditch for use in the Catlin Pilot Project, there are many natural and other factors that affect the quantity of Shareholder's water supply. The parties to the Option Agreement recognize that the water supply for Subject Stock is dependent upon sources of supply that are variable in quantity and beyond the control of Shareholder. No liability in tort or contract shall attach to Shareholder under this Option Agreement on account of any failure to accurately anticipate the availability of water for the contemplated lease or because of an actual failure of to supply water due to inadequate runoff or inadequate storage arising from an occurrence beyond the control of Shareholder, including, but not limited to, acts of God, strike, war, insurrection, or inability to deliver water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control.

21. Uniform Agreement. Except for the number of shares of Subject Stock and the description of the Historical Irrigated Land, the Parties agree the form of this Option Agreement will be uniform and with the identical terms between the Super Ditch and all leasing Shareholders of Catlin Canal Company stock.

22. Sale of Water Rights. The Parties recognize that Shareholder may desire to sell the Subject Stock and Historical Irrigated Lands during the term of this Option Agreement. Nothing herein shall preclude sale of the Subject Stock or Historical Irrigated Lands, so long as any such sale is subject to this Option Agreement pursuant the assignment provisions contained in paragraph 25, herein.

23. Title to Water Rights. Nothing herein shall be interpreted to give the Super Ditch any legal or equitable title in or to any water or water rights owned by Shareholder.

24. Right to Enter into Lease. Each party hereby warrants and represents that it has the full right and lawful authority to enter into this Option Agreement.

25. Assignment. The Shareholder may assign this Option Agreement with the approval of the Super Ditch, which approval shall not be unreasonably withheld.

26. Successors and Assigns. This Option Agreement and the rights and obligations created hereby shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.

27. Multiple Originals. This Option Agreement may be simultaneously executed in any number of counterparts, each one of which shall be deemed an original, but all of which constitute one and the same Agreement.

SHAREHOLDERS EXECUTION PAGE

To include the following:

1. **Subject Stock** available to lease by Super Ditch, number and certificate number(s)
2. Name, address, phone number, e-mail of contact and person with authority to lease shares
3. Map of **Historical Irrigated Land** of Subject Stock
4. Map of **Dry-up Land** (if different)

The undersigned represents that all assessments are paid on the Subject Stock and the shares are in good standing with the Catlin Canal Company.

The undersigned represents that the Subject Stock are not on a lateral, or that the undersigned has the permission of all other shareholders on the lateral to enter into this lease.

Lee Hancock
Signature

Its (if Subject Stock not held as an individual)

11-19-14
Date

Lee Hancock
Name

719-469-2746
Phone

hancockle rural-com.com
Email

19519 CR Z
Rocky Ford Co 81067
Address

Lower Arkansas Valley Super Ditch Company, Inc.

John Schweizer
By

President
Its

11-24-14
Date

EXHIBIT A - Reflecting Subject Stock

July 10th, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner of approximately 80 acres of lands irrigated under the Catlin Canal with 80 shares represented by Share Certificate Nos. 3116. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

Sincerely,

Lee Hancock

Lee Hancock

[print name]

Job No.: 816.2	Catlin Canal Pilot Project Proposal	Hancock Farm Exhibit B	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 4-Dec-2014				
Drawn: CML				
Checked: CRR				

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

OPTION AGREEMENT FOR LEASE OF CATLIN CANAL COMPANY STOCK

This option agreement for lease of stock in the Catlin Canal Company ("Option Agreement") is entered into by and between the undersigned shareholder in the Catlin Canal Company ("Shareholder"), and the Lower Arkansas Valley Super Ditch Company, Inc., a Colorado corporation (the "Super Ditch"). The Super Ditch and Shareholder may collectively be referred to as the "Parties".

RECITALS

WHEREAS, irrigators in the Lower Arkansas Valley incorporated the Super Ditch to meet municipal water supply needs through the fallowing of their irrigated lands and leasing their water, rather than selling their water; and

WHEREAS, the Super Ditch is in the business of leasing water rights on behalf of irrigators in the Lower Arkansas Valley; and

WHEREAS, the Town of Fowler, the City of Fountain, and the Security Water District (the "Municipal Participants") support water leasing to meet municipal needs in certain circumstances to avoid the negative social, economic and environmental consequences of municipal buy-and-dry of agricultural water rights to meet municipal needs; and

WHEREAS, House Bill (HB) 13-1248, signed into law by the Governor on May 13, 2013, authorizes the Colorado Water Conservation Board (the "CWCB") to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up; and

WHEREAS, the Municipal Participants desire to lease water from irrigators to supplement their water supplies; and

WHEREAS, the Super Ditch is seeking approval of a ten-year pilot project pursuant to HB 13-1248 to use water available from certain shares of the Catlin Canal Company for temporary municipal purposes by the Municipal Participants (the "Catlin Pilot Project"); and

WHEREAS, Shareholder owns the shares of stock in the Catlin Canal Company as shown on Shareholder's Execution Page ("Subject Stock"), and represents that such shares are in good standing with the Company with all assessments current and paid; and

WHEREAS, the water derived from the Subject Stock is used to irrigate that certain real property further described on the Shareholder's Execution Page ("Historical Irrigated Land"); and

WHEREAS, the undersigned Shareholder desires to lease the Subject Stick through the Super Ditch to be included in and as a part of the Catlin Pilot Project to meet temporary municipal needs.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals and in consideration of the promises, agreements and payments herein after set forth, the adequacy and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Effective Date. This Option Agreement shall become effective only upon the occurrence of all of the following: (1) execution of this Option Agreement by the Parties; (2) the Super Ditch's acceptance of all the CWCB's conditions of approval of the Catlin Pilot Project, which acceptance or rejection of such conditions of approval shall be in the Super Ditch's sole discretion; (3) execution of agreements between Super Ditch and the Municipal Participants to the extent necessary and/or desirable in Super Ditch's sole discretion; (4) Shareholder obtaining approval of this Option Agreement from the Catlin Canal Company on terms acceptable to the Super Ditch, as more particularly set forth in paragraph 8, below; and (5) the Super Ditch's having obtained all other necessary approvals for operation of the Catlin Pilot Project on terms acceptable to the Super Ditch, in Super Ditch's sole discretion (the "Effective Date"). In the event that the Super Ditch does not obtain CWCB approval of the Catlin Pilot Project on terms acceptable to the Super Ditch, Shareholder does not obtain approval from the Catlin Canal Company, or the Super Ditch is unable to secure all approvals necessary for operation of the Catlin Pilot Project on terms acceptable to Super Ditch, this Option Agreement shall not take effect and no party shall have any rights, liabilities, or obligations hereunder.

2. Term of Option Agreement. This Option Agreement is for term beginning on the Effective Date and ending on March 14, 2025 (the "Agreement Term"), unless earlier terminated.

3. Grant of Option. Shareholder hereby grants the Super Ditch an exclusive option to lease up to all the Subject Stock for up to three years, or to lease up to 30% of the Subject Stock for each year during the Agreement Term, for use of water available from the Subject Stock in the Catlin Pilot Project pursuant to the terms of this Option Agreement ("Option to Lease").

4. Exercise of Option. For Catlin Pilot Project operations in 2015 only, the Super Ditch shall provide a Notice of Exercise (defined below) for all or part of the Subject Stock and Historical Irrigated Lands as identified in the Catlin Pilot Project Application within twenty (20) days of the Effective Date of this Option Agreement. In subsequent years, the Super Ditch shall notify Shareholder whether the Super Ditch desires to exercise of the Option to Lease during the upcoming irrigation season prior to September 15th. After such notification and prior to October 15th, the Super Ditch and Shareholder shall work cooperatively to identify portions of the Subject Stock and Historical Irrigated Lands that Shareholder will to commit to the Catlin Pilot Project for the upcoming year's operations. On or before December 1st, the Super Ditch shall provide a written notice to Shareholder stating whether

or not the Super Ditch elects to exercise the Option to Lease as to the identified shares and associated acreage for the upcoming irrigation season, or to exercise as to a lesser number of the shares and associated acreage ("Notice of Exercise"). The Super Ditch shall have sole discretion in determining if, when, and to what extent it may exercise the Option to Lease in any given year, including the first year of the Agreement Term.

5. <u>Amount of Water</u>. Upon the Super Ditch's exercise of the Option to Lease as provided in paragraphs 3 and 4, the Shareholder hereby agrees to lease to the Super Ditch all native water available to the Shareholder as a result of his ownership of the Subject Stock identified in that year's Notice of Exercise to the extent physically and legally available to Shareholder for lease and delivery to the Municipal Participants through the Super Ditch as a part of the Catlin Pilot Project for that year ("Leased Water").

6. <u>Lease Price and Payment</u>. Upon the Super Ditch's exercise of the Option to Lease, the Super Ditch agrees to pay to Shareholder a lease price consisting of two components: (1) a price per acre of land upon which the Leased Water has historically been used and that will be removed from irrigation as a part of Catlin Pilot Project operations for that year (the "Per Acre Price"); and (2) a price per acre-foot of historical consumptive use water associated with the Leased Water that is made available for lease to the Municipal Participants at their respective points of delivery (the "Acre-Foot Price").

    a. *Take-or-Pay.* The Parties agree that, upon the Super Ditch providing a Notice of Exercise in which the Super Ditch has elected to exercise the Option to Lease for the upcoming year and only to the extent that the Leased Water is physically made available for lease to the Municipal Participants at their point of delivery pursuant to the terms of the leases between Super Ditch and the Municipal Participants, the Leased Water is on a "take or pay" basis. As to that year only, the Super Ditch shall accordingly make the lease payments for the Leased Water available at the Municipal Participants' points of delivery, whether or not the quantities leased are actually taken and used by the Super Ditch or the Municipal Participants at such points.

    b. *Year One Pricing*. During the first year in which the Super Ditch exercises the Option to Lease, Super Ditch agrees to pay the Shareholder a Per-Acre Price of $150.00 and an Acre-Foot Price of $500.00. Unless otherwise agreed to by the Parties, this lease price shall apply to the first year only in recognition of the uncertainties associated with participating in the first leasing-fallowing pilot project.

    For the first year in which the Super Ditch exercises the Option to Lease, the Lower Arkansas Valley Water Conservancy District (the "District") has agreed to pay the Per-Acre Price to Shareholder to foster the demonstration of fallowing-leasing as an alternative to permanent agricultural dry-up. The Parties understand that this is a one-year commitment only by the District that the

District may or may not make in subsequent years at the sole discretion of the District's Board of Directors.

c. *Subsequent Pricing.* In subsequent years, the Acre-Foot Price and the Per-Acre Price may be adjusted from those identified in paragraph 6.b. It is currently anticipated that the Acre-Foot Price will be adjusted to a variable scale in recognition of the differing value of water relative to available supplies, whereby the Acre-Foot Price will be highest for the yield of Leased Water available under dry-year conditions and will decrease as yield of Leased Water increases. It is further contemplated that a Per-Acre Price will continue to be paid in order to more equitably allocate the risks associated with fluctuations in weather, hydrology, and commodity pricing.

d. *Remittance of Lease Payments.* In those years in which the Option to Lease has been exercised, the Super Ditch shall invoice the Acre-Foot Price to the Municipal Participants twice annually for deliveries or on such other invoice schedule as the Municipal Participants and Super Ditch shall establish. The Super Ditch shall remit lease payments of the Acre-Foot Price within thirty (30) days of receipt from its Municipal Participants. The Per-Acre Price shall be paid to Shareholder thirty (30) days after the Notice of Exercise is provided for those lands identified in the Notice of Exercise and to be removed from irrigation during the upcoming year's pilot project operations.

e. *Non-Exercise of Option.* There shall be no lease payment due to Shareholder for any year in which the Super Ditch does not elect to exercise the Option to Lease, nor shall any lease payments be due to Shareholder for any portion of the Subject Stock for which Super Ditch does not elect to exercise the Option to Lease in any given year.

7. Lease Administration Fee. The Super Ditch may retain a Lease Administration Fee out of the revenue it receives from leasing the Leased Water to partially defray the costs of leasing. Such fee shall be $25.00 per acre.

8. Approval of Catlin Canal Company. As a condition of this Option Agreement, Shareholder shall request the approval of the Catlin Canal Company for this Option Agreement and for the participation of the Subject Stock in the Catlin Pilot Project, pursuant to Article IV, Section 2 of the Catlin Canal Company Bylaws. This Option Agreement shall not take effect and no party shall have any rights or obligations hereunder until such time that Shareholder has obtained this approval, and all other conditions set forth in paragraph 1 above, have been satisfied.

   The Parties to this Option Agreement understand that terms and conditions to prevent injury to non-leasing shareholders, including but not limited to, consideration of evaporation and seepage losses and operating conditions, so that non-leasing shareholders and shareholders leasing less than all of their shares will receive as much water, and in just as convenient

manner, as if the Option Agreement did not exist. It shall be the Shareholder's obligation to leave such reasonable portion of the Leased Water in the canals or other structures of the Catlin Canal Company as may be required in good faith and pursuant to commonly accepted engineering methods if determined necessary to prevent injury to non-leasing stockholders. The Catlin Canal Company is an intended beneficiary of this paragraph and may enforce the same. The Super Ditch shall be responsible for requesting any other approvals from the Company that are necessary and/or desirable for operation of the Catlin Pilot Project.

9. Lateral. Shareholder's headgate(s) on the Catlin Canal is either not on a lateral or Shareholder has the permission to use the lateral to lease the Subject Stock as shown on the Shareholder's Execution Page.

10. Dry up of Historical Irrigated Land Associated with Subject Stock. A fundamental requirement for the Catlin Pilot Project and this Option Agreement is the non-use of Leased Water available from the Subject Stock upon the Historical Irrigated Land ("Dry-up Land") during each year in which the Super Ditch elects to exercise the Option to Lease. In each year that the Super Ditch elects to exercise the Option to Lease, Shareholder will dry-up and withhold from irrigation such number of acres of Historical Irrigated Land as the Super Ditch identifies based upon the historic pattern of use in the Notice to Exercise, which acreage shall be finalized by February 1st. For each year in which Shareholder's Historical Irrigation Land or portion thereof is dried up as a part of operation of the Catlin Pilot Project, Shareholder shall submit an affidavit to the Super Ditch signed by a person familiar with the dry-up by December 31st following the irrigation season.

    a. The Historical Irrigated Land that is the subject of these provisions will be identified on the Shareholder Execution Page and on maps provided to the State Engineer and/or Division Two Engineer, the United States Department of Agriculture, and the Catlin Canal Company.

    b. The Shareholder hereby grants the Super Ditch permission to enter upon the Dry-up Land to post it in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005). The Super Ditch will monitor the subject Dry-up Land to insure no irrigation thereof during the years during which it exercises the Option to Lease, as required by the CWCB and/or the State or Division Engineer.

    c. Dry-up shall be in accordance with any terms and conditions imposed on the Catlin Pilot Project, including those set forth in the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" of the CWCB (Nov. 2013). Shareholder agrees to enter into a dry-up, weed control and erosion control covenant upon the request of the Super Ditch, which covenant may be recorded in the county clerk and recorders office.

11. Weed Control and Erosion Control. The Parties agree that weed control and erosion control of the Historical Irrigated Land taken out of production during years in which the Super

Ditch exercises the Option to Lease of the Subject Stock is very important. The Shareholder, at his sole cost, agrees to undertake operations to mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land. Specific operations will be determined in good faith consultation with Catlin Canal Company, and shall be conducted in accordance with "Operating Procedures of Administration of Parcels Claimed for Augmentation Credit" of the State Engineer (Sept. 2005) and any terms and conditions that may be imposed by the CWCB in the Catlin Pilot Project approval. Shareholder agrees to comply with terms and conditions of the Catlin Pilot Project approval regarding the fallow of the Dry-up Land, including compliance with any applicable county land use requirements to prevent erosion and blowing soils.

a. *Alfalfa Fields & Pasture Grass*

These fields will continue in an as is state. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

The CWCB and/or the State Engineer may impose special rules regarding the dry-up of such fields. All parcels containing alfalfa or pasture grass shall be subject to a reduction in the amount of Leased Water if the field is subirrigated. The reduction will be calculated pursuant to the "Criteria and Guidelines for Fallowing-Leasing Pilot Projects" and/or such other terms and conditions in the Catlin Pilot Project approval. Lease payments will be calculated based upon such reduced amounts.

If these fields require monitoring to determine depth to water table, any installation of monitoring wells will be at Super Ditch's expense. The Parties will determine the location of any such monitoring wells cooperatively.

b. *Stubble Fields*

Fields containing stubble from the previous year's crop will be left as is to provide protection from wind. If existing stubble is not deemed adequate, in Super Ditch's discretion, additional measures may be required. Such measures may include planting of a cover crop such as spring wheat and an irrigation of the crop, and mechanical operations on the field such as furrowing or chiseling. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the term of this Lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

c. *Open Fields*

Open fields will require measures to control the blowing of dust. The measures may include furrowing or chiseling the fields, planting a cover crop such as spring wheat and some irrigation of the crop, or other measures the Parties may agree are

appropriate. Irrigation associated with the establishment of a cover crop will use water attributable to the Subject Stock being leased by Super Ditch. Harvesting or grazing during the exercise of the lease may be allowed at Super Ditch's sole discretion in accordance with terms and conditions in the Catlin Pilot Project approval.

d. *Weed Control*

Measures shall be undertaken by Shareholder to control the weeds on the Dry-Up Land. These measures may include the mowing of weeds or application of herbicide. Other measures, including grazing, may be undertaken at Super Ditch's discretion.

i. Land leveling, irrigation improvements. The Shareholder may level, install sprinkler or drip irrigation systems, and make other agricultural and irrigation system improvements on the Dry-up Land.

ii. County Regulation. The Shareholder agrees to comply with any applicable county land use regulations regarding noxious weed control/management.

12. Engineering and Legal Activities by Super Ditch. The Parties agree that it shall be the Super Ditch's sole responsibility to complete any legal, engineering, administrative and/or judicial activities necessary to obtain approval for the Catlin Pilot Project. The Shareholder shall cooperate with the Super Ditch in supplying any data and information as needed by the Super Ditch to obtain such approval. The Shareholder hereby grants the Super Ditch the authority to include the Subject Stock in the Catlin Pilot Project application. The Shareholder further agrees that Shareholder will cooperate with the Super Ditch in requesting and maintaining CWCB approval for the Catlin Pilot Project.

13. Automatic Termination. In the event that the Option to Lease is exercised on all of Shareholder's Subject Stock for three years and the water has been used in the Catlin Pilot Project, this Option Agreement shall automatically terminate following conclusion of the third year. This Option Agreement shall also automatically terminate in the event that the Catlin Pilot Project approval is permanently cancelled or revoked.

14. No Inclusion in SWSP, IWSA, or Another Pilot Project. The Shareholder agrees that the Subject Stock and the Historical Irrigated Lands shall not be included in a substitute water supply plan pursuant to C.R.S. 37-92-308(5) or (7), an interruptible water supply agreement pursuant to C.R.S. §37-92-309, or another pilot project pursuant to C.R.S. § 37-60-115(8) during the Agreement Term. The Shareholder further agrees not to enter into any lease, option, or other similar agreement for the Subject Stock and Historical Irrigated Lands that could be exercised during the Agreement Term in a manner that would interfere with the Super Ditch's full use and enjoyment of the Option to Lease or compromise operation of the Catlin Pilot Project.

15. Default and Remedies.

a. *Default*. The occurrence of any of the following events shall constitute a default and breach of this Option Agreement.

i. The failure by Super Ditch to timely make lease payments due.

ii. The failure by Shareholder to make the Leased Water available to the Super Ditch.

iii. The failure by Shareholder to cease irrigation of the Dry-Up Land during years in which Super Ditch has exercised the Option to Lease.

iv. The failure of Shareholder to satisfactorily mitigate the blowing of dust and other erosion and the control of weed growth on his Dry-up Land as required herein.

v. The failure of Shareholder to comply with applicable terms and conditions of any Catlin Pilot Project approval from the CWCB or any other lawful order of the State or Division Engineers or court of competent jurisdiction.

b. *Right to Cure*. In the event that either party believes that the other is in default of any obligation under this Option Agreement, the non-defaulting party shall promptly give written notice of the default to the defaulting party. If a notice of default is provided, the party accused of the default shall either cure it or provide a written statement explaining why it is not in default. If the alleged default is not cured or otherwise resolved within thirty (30) days, the Parties may resort to their remedies.

c. *Remedies*. In the event that either party defaults in the performance of any of its obligations under this Option Agreement, each party shall have all remedies provided in this Option Agreement or by law or equity and each Party shall have the right of specific performance against the other.

d. *Waiver*. Failure of either party to this Option Agreement to exercise any right hereunder shall not be deemed a waiver of such party's right and shall not affect the right of said party to exercise, at some future time, said right or rights or any other right it may have hereunder. No waiver of any of the provisions of this Option Agreement shall be deemed or shall constitute a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

16. Miscellaneous.

a. *Entire Agreement, Modification.* This Option Agreement constitutes the entire agreement between the Parties pertaining to the subject matter described in it and supersedes any and all prior contemporaneous agreements, representations, and understandings. This Option Agreement may be modified, amended, changed or terminated in whole or in any part only by an agreement in writing duly authorized and executed by the Parties hereto with the same formality as this Option Agreement.

b. *Notice.* All notices to be given with respect to this Option Agreement, including the Notice of Exercise, shall be in writing. Each notice shall be sent by United States mail, first class postage prepaid, to the Party to be notified at the address set forth herein or at such other address as either Party may from time to time designate in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing herein shall be construed to preclude personal service of any notice in the manner prescribed for personal services of a summons or other legal process. All notices required to be given to the Super Ditch hereunder shall be delivered to:

Lower Arkansas Valley Super Ditch Company
Attn: President
801 Swink Avenue
Rocky Ford, Colorado 81067
Tel: 719-254-5115
Fax: 719-254-5150

With copies to:

Bart Mendenhall, Esq.
Mendenhall & Malouff, R.L.L.P.
P.O. Box 552
Rocky Ford, CO 81067-0552
Tel: 719-254-7060
bmendenhall@centurytel.net

Peter Nichols, Esq.
Leah K. Martinsson, Esq.
1712 Pearl Street
Boulder, CO 80302
Tel: 303-402-1600
pdn@bhgrlaw.com
lkm@bhgrlaw.com

or at such other address as the Super Ditch may direct in accordance with this paragraph.

All notices required to be given to Shareholder hereunder shall be delivered to the address shown on Shareholder's Execution Page.

c. *Non-Business Days.* If the date for any action under this Option Agreement, other than the beginning or end of the Agreement Term, falls on a Saturday, Sunday or a day that is a "holiday," then the relevant date shall be extended automatically until the next day that is not a Saturday, Sunday or a "holiday."

d. *Governing Law and Venue.* This Option Agreement and its application shall be construed in accordance with the laws of the State of Colorado. The Parties agree that venue for any litigated disputes regarding this Agreement shall be the Water Court or, if the matter in dispute is not a water matter as defined by statute, the County District Court.

e. *No Construction Against Drafter.* This Option Agreement was drafted by the Super Ditch. The Shareholder is encouraged by the Super Ditch to review this Agreement with his own legal counsel prior to executing this Option Agreement. Accordingly, the Parties agree the legal doctrine of construction against the drafter will not be applied should any dispute arise concerning this Option Agreement.

f. *Headings for Convenience Only.* Paragraph headings and titles contained herein are intended for convenience and reference only and are not intended to define, limit or describe the scope or intent of any provision of this Option Agreement.

g. *Non-Severability.* Each Section in this Option Agreement is intertwined with the others and are not severable unless by mutual consent of the Super Ditch and Shareholder or as provided for under Paragraph 16 (a) above.

h. *Attorney Fees and Costs.* In the event of any litigation, mediation, arbitration or other dispute resolution proceedings arising out of or related to this Option Agreement, each party agrees to be responsible for its own attorney's fees and other professional fees, costs and expenses associated with any such proceedings.

i. *No Fees and Expenses and Apportionment*. Except as otherwise expressly set forth in this Option Agreement, each of the Parties hereto will bear its own expenses in connection with the transactions contemplated by this Agreement.

j. *Recordation*. At any time after the Effective Date, the Super Ditch may cause this Option Agreement to be recorded with the county clerk and recorder's office. Upon termination of this Option Agreement, the Super Ditch shall execute and record such additional documents as Shareholder reasonably may require so as to provide notice of termination.

k. *No Responsibility to Tenant Farmers.* All payments pursuant to this Option Agreement shall be made to Shareholder, or his assignee as he may direct in writing, except that the Super Ditch will have no responsibility for any payments whatsoever to any tenant farmer regardless of any agreement between a tenant farmer and Shareholder.

l. *Survival of Representations*. Each and every covenant, promise, and payment contained in this Option Agreement shall not merge in any deed, assignment, covenant, escrow agreement, easement, lease or any other document, but shall survive each nevertheless, and be binding and obligatory upon each of the Parties hereto.

m. *No Third-Party Beneficiaries*. Except as provided for in paragraph 8 herein, this Option Agreement is intended to describe the rights and responsibilities of and between the Parties hereto and is not intended to and shall not be deemed to confer rights upon any persons or entities not signatories hereto, nor to limit, impair, or enlarge in any way the powers, regulatory authority and responsibilities of either party or any other governmental entity not a party hereto.

n. *No Exclusive Right or Privilege*. Nothing in this Option Agreement is to be construed as a grant by the Super Ditch or Shareholder of any exclusive right or privilege, except as expressly provided herein.

17. Taxes. The Shareholder shall have sole responsibility for any taxes, property or otherwise, related to the Historical Irrigated Land or the Subject Stock. The Parties acknowledge that it is anticipated that such Historical Irrigated Land will be taxed as irrigated farmland notwithstanding the cessation of irrigation during the exercise of the Option to Lease under this Option Agreement.

18. Assessments. The Shareholder shall have sole responsibility for any assessments related to the Subject Stock, including any assessments for Winter Water and Fryingpan-Arkansas Project water and return flows, during the Agreement Term. The Super Ditch, however, may pay any outstanding assessments necessary for the Leased Water to be available for use by the Super Ditch or the Municipal Participants and deduct such amounts from subsequent lease payments.

19. Sublease and assignment. The Parties anticipate the Super Ditch will lease the water obtained from the Subject Stock under this Option Agreement. This Option Agreement may be assigned by Super Ditch to facilitate such lease.

20. Interruption of Supply Beyond the Shareholder's Control. While it is the intent and purpose of the Shareholder to provide the Leased Water to the Super Ditch for use in the Catlin Pilot Project, there are many natural and other factors that affect the quantity of Shareholder's water supply. The parties to the Option Agreement recognize that the water supply for Subject Stock is dependent upon sources of supply that are variable in quantity and beyond the control of Shareholder. No liability in tort or contract shall attach to Shareholder under this Option Agreement on account of any failure to accurately anticipate the availability of water for the contemplated lease or because of an actual failure of to supply water due to inadequate runoff or inadequate storage arising from an occurrence beyond the control of Shareholder, including, but not limited to, acts of God, strike, war, insurrection, or inability to deliver water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control.

21. Uniform Agreement. Except for the number of shares of Subject Stock and the description of the Historical Irrigated Land, the Parties agree the form of this Option Agreement will be uniform and with the identical terms between the Super Ditch and all leasing Shareholders of Catlin Canal Company stock.

22. Sale of Water Rights. The Parties recognize that Shareholder may desire to sell the Subject Stock and Historical Irrigated Lands during the term of this Option Agreement. Nothing herein shall preclude sale of the Subject Stock or Historical Irrigated Lands, so long as any such sale is subject to this Option Agreement pursuant the assignment provisions contained in paragraph 25, herein.

23. Title to Water Rights. Nothing herein shall be interpreted to give the Super Ditch any legal or equitable title in or to any water or water rights owned by Shareholder.

24. Right to Enter into Lease. Each party hereby warrants and represents that it has the full right and lawful authority to enter into this Option Agreement.

25. Assignment. The Shareholder may assign this Option Agreement with the approval of the Super Ditch, which approval shall not be unreasonably withheld.

26. Successors and Assigns. This Option Agreement and the rights and obligations created hereby shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.

27. Multiple Originals. This Option Agreement may be simultaneously executed in any number of counterparts, each one of which shall be deemed an original, but all of which constitute one and the same Agreement.

SHAREHOLDERS EXECUTION PAGE

To include the following:

1. **Subject Stock** available to lease by Super Ditch, number and certificate number(s)
2. Name, address, phone number, e-mail of contact and person with authority to lease shares
3. Map of **Historical Irrigated Land** of Subject Stock
4. Map of **Dry-up Land** (if different)

The undersigned represents that all assessments are paid on the Subject Stock and the shares are in good standing with the Catlin Canal Company.

The undersigned represents that the Subject Stock are not on a lateral, or that the undersigned has the permission of all other shareholders on the lateral to enter into this lease.

Kenneth Schweizer
Signature

Its (if Subject Stock not held as an individual)

11-24-14
Date

Ken Schweizer
Name

719-~~[illegible]~~ 980-0623
Phone

schweizerfarms@hotmail
Email

30102 Co Rd 15
Rocky Ford Co 81067
Address

Lower Arkansas Valley Super Ditch Company, Inc.

John Schweizer Jr
By

President
Its

11-24-14
Date

EXHIBIT A - Reflecting Subject Stock

July 10th, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner of approximately 214 acres of lands irrigated under the Catlin Canal with 94 shares represented by Share Certificate Nos. 2754. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

Sincerely,

Kenneth Schweizer

Ken Schweizer
[print name]

Job No.: 816.2	Catlin Canal Pilot Project Proposal	Schweizer Farm Exhibit B	M&W MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 4-Dec-2014				
Drawn: CML				
Checked: CRR				

S:\816 - LAVWCD\816.2 - Superditch - 10CW04\Pilot project 2013\GIS\Pilot Project.mxd

BERG HILL GREENLEAF & RUSCITTI LLP

ATTORNEYS & COUNSELORS AT LAW

1712 Pearl Street • Boulder, Colorado 80302

Tel: 303.402.1600 • Fax: 303.402.1601

bhgrlaw.com

Leah K. Martinsson
Special Counsel

Email: lkm@bhgrlaw.com

December 11, 2014

Via e-mail delivery (james.eklund@state.co.us; tom.browning@state.co.us)

Colorado Water Conservation Board
James Eklund, Director
Tom Browning, Deputy Director
1313 Sherman Street, Room 721
Denver, CO 80203

Re: HB 13-1248 Catlin Pilot Project Application – Fowler Water Lease

Dear Mr. Eklund and Mr. Browning:

In support of its September 25, 2014 Application for the Catlin Pilot Project, the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. (collectively, "Applicants") are providing the enclosed water lease agreement between Super Ditch and the Town of Fowler. Applicants request that the CWCB post this supporting material on its website.

We look forward to meeting with CWCB staff, the State Engineer, and owners of water rights or contract rights that file comments on the Catlin Pilot Project Application at the conference meeting to be held on Thursday, December 18. In the meantime, please let me if you have any questions or would like to discuss this matter further.

Sincerely,

Leah K. Martinsson

WATER LEASE

This Water Lease (the "Lease") is made and entered into this 8th day of December, 2014, by and between The Lower Arkansas Valley Super Ditch Company, a Colorado corporation (the "Super Ditch") and the Town of Fowler, Colorado ("Fowler"), collectively referred to as the "Parties."

RECITALS

WHEREAS, irrigators in the Lower Arkansas Valley incorporated the Super Ditch to meet municipal water supply needs through leasing their water rather than selling their water; and

WHEREAS, Fowler supports water leasing in certain circumstances to meet municipal needs as an alternative to buy-and-dry of agricultural water rights to meet municipal needs; and

WHEREAS, the Super Ditch is in the business of leasing water supplies on behalf of irrigators in the Lower Arkansas Valley; and

WHEREAS, House Bill 13-1248, signed into law by the Governor on May 13, 2013, authorizes the Colorado Water Conservation Board ("CWCB") to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up; and

WHEREAS, Fowler obtains its water supply through the operation of wells whose source of groundwater tributary to the Arkansas River and out-of-priority depletions from which are replaced through Fowler's membership in the Colorado Water Protection and Development Association's Rule 14 Plan; and

WHEREAS, in recent years, Fowler has experienced a reduction in its available water supply and it has been forced for impose drastic restrictions on outdoor water use on its residential and commercial customers; and

WHEREAS, Fowler desires to lease water from irrigators on the Catlin Canal Company that is made available through a leasing-fallowing pilot project proposed by Super Ditch and the Lower Arkansas Valley Water Conservancy District ("Lower Ark") under HB 13-1248 (the "Catlin Pilot Project") to supplement its water supplies for outdoor water use; and

WHEREAS, certain Catlin Canal Company irrigators desire to lease water to Fowler through the Super Ditch and Lower Ark to be provided through operation of the Catlin Pilot Project to meet temporary municipal needs; and

WHEREAS, if the Catlin Pilot Project is approved and becomes operational, the Super Ditch will have fully consumable water available for lease to Fowler.

AGREEMENT

NOW THERFORE, in consideration of the foregoing recitals, the mutual promises contained herein, and the payments to be made hereunder, the Parties agree as follows:

1. Effective Date. This Lease shall become effective only upon the occurrence of all of the following: (i) execution of this Lease by both Parties; (ii) Super Ditch acceptance of all the CWCB's conditions of approval of the Catlin Pilot Project, which acceptance or rejection of such conditions of approval shall be in the Super Ditch's sole discretion; and (iii) the Super Ditch having entered into all agreements and obtained all approvals necessary for operation of the Catlin Pilot Project on terms acceptable to the Super Ditch, in the Super Ditch's sole discretion (the "Effective Date").

   In the event that the Super Ditch does not obtain approval of the Catlin Pilot Project on terms acceptable to the Super Ditch, or the Super Ditch is unable to secure all approvals necessary for operation of the Catlin Pilot Project on terms acceptable to Super Ditch, this Lease shall not take effect and no party shall have any rights, liabilities, or obligations hereunder.

2. Lease Term. The term of this Lease shall begin upon the Effective Date and ending on March 14, 2016 ("Lease Term"), unless earlier terminated pursuant to this Lease.

3. Amount. Fowler hereby agrees to lease from Super Ditch such amounts of water that are made available for temporary municipal use through the Super Ditch's operation of the Catlin Pilot Project for 2015 up to 250 acre-feet annually (the "Leased Water"). This amount will depend upon whether and which historically irrigated lands irrigated under the Catlin Canal Company are available for fallow for the 2015 year pursuant to the terms and conditions of the Catlin Pilot Project approval and such other agreements entered into to facilitate operation of the Catlin Pilot Project. Fowler acknowledges that the City of Fountain and the Security Water District have also entered into agreements to lease water made available from the Catlin Pilot Project and that available water will generally be apportioned by the Super Ditch as follows:

Fowler:	50%
Fountain:	25%
Security:	25%

   The allocation of water that is made available to these municipal participants at any given time will depend on a variety of operational and hydrological considerations and therefore shall be in the Super Ditch's discretion.

   a. Notice of Availability. The Super Ditch shall provide Fowler with a written notice identifying the maximum historically irrigated lands that Super Ditch has determined can be made available for fallow during the upcoming water year through its operation of the Catlin Pilot Project, along with information regarding the anticipated yield of water that such fallowing may provide (the "Notice of Availability"). The Notice of Availablity shall be delivered within five (5) days of the Effective Date of this Agreement. Fowler shall provide a notice indicating whether Fowler desires to lease all water that will be available through the fallow of the historically irrigated lands identified in the Notice of Availability within ten (10) days from such date that Fowler receives the Notice of Availability.

b. Non-Operation. The Parties acknowledge that there may be insufficient or no historically irrigated lands reasonably available for fallow through operation of the Catlin Pilot Project and Super Ditch shall incur no liability as a result thereof. Moreover, the Parties acknowledge that, in order to optimize the Catlin Pilot Project, certain operational and managerial decisions regarding if, when, and how to operate the Catlin Pilot Project must be made by Super Ditch in its sole discretion and Super Ditch shall not incur any liability stemming from such decisions.

4. Delivery & Use. The Super Ditch shall deliver, and Fowler will take delivery of, the Leased Water at such time and at such point where amounts available from the Catlin Canal Company water rights through operation of the Catlin Pilot Project are returned to the Arkansas River through the Crooked Arroyo and/or Timpas Creek augmentation stations ("Point of Delivery"). Super Ditch shall be responsible for measurement and accounting required under the Catlin Pilot Project approval. Following delivery by Super Ditch at the Point of Delivery, Fowler shall be responsible for any measurement, administration, and accounting associated with use of the Fowler wells and the Leased Water's inclusion in the CWPDA Rule 14 Plan.

a. Transportation and Evaporation Losses. Fowler shall be responsible for any evaporative losses and/or transit losses owed to the River after it takes delivery of the Leased Water at the Point of Delivery.

b. Not a Permanent Supply. The Parties understand and agree that this Lease is not to be interpreted as any commitment on the part of the Super Ditch to furnish water to Fowler on a permanent basis, but rather is to supply water pursuant to the terms of the Agreement for the term of the Lease only.

c. Compliance with Catlin Pilot Project Terms and Conditions. Fowler agrees to comply with any terms and conditions of the Catlin Pilot Project related to Fowler's diversion and use of water made available through operation of the pilot project, which will likely include but are not necessarily limited to:

i. Dedicating the Leased Water to the CWPDA Rule 14 Plan in order to replace proportionate increases in out-of-priority depletions associated with Fowler's increased well pumping; and

ii. Limiting the place of use of all water made available to Fowler through operation of the Catlin Pilot Project to its current and future water service area and wholly within Southeastern Colorado Water Conservancy District's boundaries.

5. Lease Price and Payment. The amount of Leased Water delivered to Fowler for purposes of determining the annual lease payment shall be determined based upon the accounting maintained by Super Ditch for the Catlin Pilot Project and measured at the Point of Delivery. The lease payment shall be $10.00 for the Leased Water, the receipt and sufficiency of which is hereby acknowledged.

6. Breach, Default and Remedies.

   a. Default. The occurrence of any one or more of the following events that is not cured as provided below shall constitute a default and breach of this Lease.

      i. The failure by Fowler to timely pay the lease payment.

      ii. The failure of the Super Ditch to operate the Catlin Pilot Project and deliver available water to the Point of Delivery, to the extent such operation was provided for in a Notice of Acceptance for that water year.

      iii. The failure of either party to comply with applicable terms and conditions of the approval for the Catlin Pilot Project, such that the non-compliance results in the CWCB revoking the Catlin Pilot Project approval.

   b. Right to Cure. In the event that either party believes that the other is in breach of any obligation under this Lease, the non-breaching party shall promptly give written notice of the breach to the other party. If a notice of breach is provided, the party accused of the breach shall either cure it or provide a written statement explaining why it is not in breach. If the alleged breach is not cured or otherwise resolved within thirty (30) days (or, if the breach cannot reasonably be cured within 30 days, within such additional period as may be reasonably required to cure the breach), the non-breaching party may declare a default.

   c. Remedies. In the event that either party declares a default, each party shall have all remedies provided in this Lease, except that in the event of a Super Ditch default, Fowler's only remedy shall be to terminate this Lease and seek damages hereunder.

   d. Damages. To the extent not covered by paragraph12.m, in the event that the Fowler breaches and Super Ditch declares a default, the Super Ditch shall be entitled to damages in an amount equal to the value of the lease payments that would be due for the delivery of the Leased Water made available from lands identified in the Notice of Acceptance for that year, less any costs or expenses avoided by Super Ditch for non-delivery of the Leased Water. Because this Lease is dependent on operation of the Catlin Pilot Project in which Fowler is the only approved user of the water made available thereunder, Super Ditch will not be able, and is under no duty, to mitigate its damages. To the extent not covered by paragraph 12.l, in the event that Super Ditch breaches and Fowler declares a default, Fowler shall be entitled to damages as provided by law.

e. Waiver. Failure of either party to this Lease to exercise any right hereunder shall not be deemed a waiver of such party's right and shall not affect the right of said party to exercise, at some future time, said right or rights or any other right it may have hereunder. No waiver of any of the provisions of this Lease shall be deemed or shall constitute a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

7. Termination. Super Ditch may seek amendments to the approved Catlin Pilot Project, or may otherwise be required to obtain additional approvals for operation of the Catlin Pilot Project following any initial approvals, and the terms and conditions of any such additional approvals and/or amendments may not be acceptable to Super Ditch. Under such circumstances, Super Ditch may seek to have its Catlin Pilot Project approval cancelled, and upon such cancellation, this Lease shall automatically terminate.

Notice of termination, whether pursuant to this paragraph 7 or as a result of a default pursuant to paragraph 6, above, shall be in writing and provided in accordance with Paragraph 12.b, below. The termination of this Lease shall not release any party from any obligations or liabilities already incurred pursuant to the terms of this Lease. Fowler hereby agrees, following the termination of this Lease, to execute any documentation requested by Super Ditch for the purposes of documenting such termination and to consent to the recording of such documentation.

8. Legal and Engineering.

a. The Super Ditch, in cooperation with Lower Ark, shall provide legal counsel, engineering and other consultants necessary to obtain approval of the Catlin Pilot Project to allow for Fowler's use of water made available thereunder within its existing and future municipal service areas. Fowler shall not oppose Super Ditch's Catlin Pilot Project application or any subsequent amendments thereto and agrees to cooperate with Super Ditch, as may be necessary or desirable, to obtain such approval.

b. Fowler shall be responsible for dedication and acceptance of the water available for Fowler's municipal use through operation of the Catlin Pilot Project to CWPDA's Rule 14 Plan in order to replace additional out-of-priority depletions caused by increased pumping of the Town's wells and shall be responsible for all costs associated therewith. The Super Ditch agrees to cooperate with and assist Fowler in providing necessary information or engineering to CWPDA regarding operation of the Catlin Pilot Project, which Fowler requires in order to obtain CWPDA's acceptance of this additional source. Fowler shall be solely responsible for any fees owed to the CWPDA pursuant to its CWPDA membership agreement and the additional dedication of water contemplated herein.

9. Title to Water Rights. Fowler recognizes that its rights to water pursuant to this Lease are solely contractual, and that nothing herein shall be interpreted to give Fowler any legal or equitable title in or to any water rights of Super Ditch or its lessor participants.

10. Pledge, Encumbrance. Fowler shall not pledge or otherwise encumber this Lease or the Leased Water.

11. Assignment, Sublease. Fowler's use of water made available under this Lease is pursuant to the CWCB approval of the Catlin Pilot Project, which approval for use is specific to Fowler. Thus, Fowler shall not assign this Lease or its rights hereunder nor sub-lease any of the water made available to it under this Lease. Super Ditch may assign its rights and obligations under this Agreement to the Lower Arkansas Valley Water Conservancy District (the "District") and/or a legal entity associated with and/or created by either the Super Ditch or the District.

12. Miscellaneous.

    a. Entire Agreement, Modification. This Lease constitutes the entire agreement between the Parties pertaining to the subject matter described in it and supersedes any and all prior or contemporaneous agreements, representations, and understandings. This Lease may be modified, amended, changed or terminated in whole or in any part only by an agreement in writing duly authorized and executed by the parties hereto with the same formality as this Lease.

    b. Notice. All notices to be given with respect to this Lease shall be in writing. Each notice shall be sent by United States mail, first class postage prepaid, to the party to be notified at the address set forth herein or at such other address as either party may from time to time designate in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing herein shall be construed to preclude personal service of any notice in the manner prescribed for personal service of a summons or other legal process. All notices required to be given to the Super Ditch hereunder shall be delivered to:

Lower Arkansas Valley Super Ditch Company
Attn: President
801 Swink Avenue
Rocky Ford, Colorado 81067
Tel: 719-254-5115
Fax: 719-254-5150

With copies to:

Bart Mendenhall, Esq.
Mendenhall & Malouff, R.L.L.P.
P.O. Box 552
Rocky Ford, CO 81067-0552
Tel: 719-254-7060
bmendenhall@centurytel.net

Peter Nichols, Esq.
Leah K. Martinsson, Esq.
1712 Pearl Street
Boulder, CO 80302
Tel: 303-402-1600
pdn@bhgrlaw.com
lkm@bhgrlaw.com

or at such other address as the Super Ditch may direct in accordance with this paragraph.

All notices required to be given to Fowler hereunder shall be delivered to:

Town of Fowler
Town Administrator
317 S. Main Street
Fowler, CO 81039
Tel: 719-263-4461
administrator@fowlercolorado.com

or at such other address as Fowler may direct in accordance with this paragraph.

c. Non-Business Days. If the date for any action under this Lease, other than the beginning or end of the Initial Term, falls on a Saturday, Sunday or a day that is a legal holiday, then the relevant date shall be extended automatically until the next day that is not a Saturday, Sunday or holiday.

d. Governing Law and Venue. This Lease and its application shall be construed in accordance with the laws of the State of Colorado. The parties agree that venue for any litigated disputes regarding this Lease shall be the Water Court or, if the matter in dispute is not a water matter as defined by statute, the Otero County District Court.

e. Joint Draft. The Parties agree they drafted this Lease jointly with each having available the advice of legal counsel and an equal opportunity to contribute to its content.

f. Headings for Convenience Only. Paragraph headings and titles contained herein are intended for convenience and reference only and are not intended to define, limit or describe the scope or intent of any provision of this Lease.

g. Non-Severability. Each Section in this Lease is intertwined with the others and are not severable unless by mutual consent of Super Ditch and Fowler or as provided for under Paragraph 12(a).

h. Governmental Immunity. Nothing herein shall be construed to abrogate or diminish any protections and limitations afforded to Fowler by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101 et seq. as amended, or other law.

i. Attorney Fees and Costs. In the event of any litigation, mediation, arbitration or other dispute resolution proceedings arising out of or related to this Lease, the prevailing party shall be entitled to recover its reasonable attorney's fees and other professional fees, costs and expenses associated with any such proceedings.

j. No Fees and Expenses and Apportionment. Except as otherwise expressly set forth in this Lease, each of the parties hereto will bear its own expenses in connection with the transactions contemplated by this Lease.

k. No Third-Party Beneficiaries. This Lease is intended to describe the rights and responsibilities of and between the Parties hereto and is not intended to, and shall not be deemed to, confer rights upon any persons or entities not signatories hereto, nor to limit, impair, or enlarge in any way the powers, regulatory authority and responsibilities of either party or any other governmental entity not a party hereto.

l. Interruption of Supply Beyond Super Ditch's Control. While it is the intent and purpose of the Super Ditch to provide the Leased Water to meet Fowler's needs, there are many natural and other factors that affect the quantity of water supplies. The Parties to the Lease recognize that the water supply for the Super Ditch and its Fowlers is dependent upon sources from which the supply is variable in quantity and beyond the control of the Super Ditch. No liability in tort or contract shall attach to the Super Ditch under this Water Lease on account of any failure to accurately anticipate the availability of water for the contemplated lease or because of an actual failure of to supply water due to inadequate runoff or inadequate storage arising from an occurrence beyond the reasonable control of the Super Ditch, including, but not limited to, acts of God, acts or failure to act by governmental entities, acts or failure to act by irrigators participating in the Catlin Pilot Project pursuant to agreement with Super Ditch, strike, war, insurrection, or inability to delivery water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control. If Super Ditch anticipates an interruption in supply (for example, in the event of drought or failure of infrastructure), it shall provide notice of such interruption to Fowler at the earliest time practicable.

m. Interruption of Deliveries Beyond Fowler's Control. Fowler shall not have liability in tort or contract to Super Ditch under this Lease on account of an actual failure of Fowler to take delivery of water hereunder due to an occurrence beyond Fowler's reasonable control, including, but not limited to, acts of God, acts or failure to act by governmental entities, strike, war, insurrection, failure of infrastructure, or inability to take delivery of water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control. If Fowler anticipates an inability to take delivery of water (for example, in the event of failure of infrastructure), it shall provide notice of such interruption to Super Ditch at the earliest time practicable.

13. Right to Enter into Lease. Each party hereby warrants and represents that it has the full right and lawful authority to enter into this Lease.

14. Binding Effect. This Lease and the rights and obligations created hereby shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and assigns, if any.

15. Multiple Originals. This Lease may be simultaneously executed in any number of counterparts, each of which shall be deemed original but all of which constitute one and the same Lease.

IN WITNESS WHEREOF, the Super Ditch and Fowler have executed this Lease on their respective behalf and by their proper officers.

LOWER ARKANSAS VALLEY SUPER DITCH, INC

By: John Schweizer
John Schweizer, President

Date: 12-11-14

CITY OF FOWLER, COLORADO

By: [signature]

Its: Mayor

Date: 8 Dec 2014

COLORADO

Colorado Water Conservation Board

Department of Natural Resources

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix G

CWCB Board Memo from September, 2014

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

1313 Sherman Street
Denver, CO 80203

P (303) 866-3441
F (303) 866-4474

John Hickenlooper, Governor

Mike King, DNR Executive Director

James Eklund, CWCB Director

TO: Colorado Water Conservation Board Members

FROM: Tom Browning, P.E.
Deputy Director

DATE: August 28, 2014

AGENDA ITEM #23: Catlin Canal Fallowing-Leasing Pilot Project

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Background:
The Lower Arkansas Valley Water Conservancy District (Lower Ark) and the Lower Arkansas Valley Super Ditch Company, Inc. (Super Ditch) formally submitted a proposal to CWCB staff on July 14, 2014 for a fallowing-leasing pilot project. The proposal falls under the auspices of HB13-1248 and the CWCB's Criteria and Guidelines for the Fallowing-Leasing Pilot Program in Colorado, which was unanimously adopted by the Board at its November 2013 meeting.

The proposal involves transfers from certain shares of agricultural water from farmland irrigated by the Catlin Canal, within Otero County, for temporary municipal uses by the Town of Fowler, City of Fountain, and the Security Water District. The project proponents aim to carry out the pilot operation beginning in the 2015 irrigation season. It would fallow no more than 30% of a single irrigated farm each year over ten consecutive years (e.g. April 1, 2015 through March 31, 2015), which is an allowable scenario in the approved Criteria and Guidelines.

Lower Ark and Super Ditch have been attempting to launch a pilot project to demonstrate and learn from the idea of rotational fallowing. Their overall goal is to meet municipal water needs in a way that reduces permanent agricultural dry-up, or "buy and dry".

Staff will provide a fairly brief presentation for this agenda item to further illuminate details and features of the proposed pilot project, leaving ample time for public comment and board discussion.

Staff recommendation:
Staff recommends that the Board approve the Catlin Pilot Project Proposal for formal selection as an eligible pilot project within the Arkansas River Basin. Staff further recommends that the Board encourage the project proponents to use the attached *fallowing-leasing pilot project checklist* to develop a complete application for future review by the CWCB.

Attachments: Catlin Pilot Project Proposal, Pilot Project Checklist, and Public Comment Letters

COLORADO
Colorado Water
Conservation Board
Department of Natural Resources

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix H

Public Comment Letters for the Comment Period Ending August 15, 2014

Helton & Williamsen, P.C.
Consulting Engineers in Water Resources
384 Inverness Parkway, Suite 144
Englewood, Colorado 80112-5822
Phone (303) 792-2161
e-mail: twilliamsen@helton-williamsen.com

August 11, 2014

Mr. Tom Browning, Deputy Director
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Subject: Comments concerning the proposal of a fallowing-leasing pilot project – Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc.

Dear Mr. Browning:

This letter provides comments on the proposal by the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. (proponents) for a fallowing-leasing pilot project involving certain farms under the Catlin Canal. It is understood that if the proposal is approved by the CWCB, the proponents will submit an application for a 10-year fallowing-leasing pilot project that would operate beginning in April 2015. The application will include the details of the pilot project and the engineering evaluations needed to quantify yield and return flow replacement requirements and to establish terms and conditions for operation.

My clients are the Fort Lyon Canal Company, Holbrook Mutual Irrigating Company, and Water District 67 Irrigation Canals Association. These entities hold numerous direct flow and storage water rights on the Arkansas River downstream of the Catlin Canal. My comments follow:

1. The proponents submitted an application in December 2013 for a pilot project involving shareholders under the Rocky Ford Highline Canal but withdrew the application because they were unable to obtain the agreements needed to operate the pilot project. Meanwhile other interested parties, including my clients, spent significant time and effort to understand the application and to submit comments and concerns about operating the pilot project without injury to other water users. We urge you to thoroughly review the application and to make sure that <u>all</u> needed leases and agreements are in place and are enforceable before the application is circulated to Arkansas River water users for their review and comment.

2. The proposal indicates that the proponents intend to amend their pilot project during the 10-year operating period to include additional farms for fallowing-leasing. The Criteria and Guidelines require the proponents to identify all farms in the application that will be part of the fallowing-leasing project. I do not see a provision that would allow the proponents to switch to other farms that were not identified in the application during the course of the project.

3. The proposal also indicates that the proponents may amend their project during the 10-year operation period to include other exchanges or trades with other water users. The proponents should identify details in the application and include the necessary executed agreements and leases needed to operate the exchanges and trades. I do not see a

provision in the Criteria and Guidelines that allow the proponents to change their operation during the course of the 10-year pilot project.

4. The proposal indicates that other ditches and reservoirs may be used to step the exchanges upstream to Pueblo Reservoir. Those identified structures include the Holbrook Canal, Dye Reservoir, Holbrook Reservoir, Fort Lyon Storage Canal, Adobe Creek Reservoir, and Horse Creek Reservoir. To my knowledge, the proponents have not approached the Holbrook and the Fort Lyon companies about the use of their facilities. Both companies have bylaw provisions that must be followed before either company could grant a use agreement or lease of canal and storage space.

The purpose of the fallowing-leasing pilot project is to demonstrate the effectiveness of such a program for supplying municipal water needs without permanent dry up of irrigated farms and without injury to other water users. My concern about the proposed project is that the effectiveness will be difficult to ascertain if the proponents amend or continually modify their project during the 10-year evaluation period.

Thank you for accepting our comments.

Sincerely yours,

HELTON & WILLIAMSEN, P.C.

Tom Williamsen

Thomas A. Williamsen

TAW/mlc

cc:Fort Lyon Canal Company
Holbrook Mutual Irrigating Company
Water District 67 Irrigation Canals Association

C:\2014-08-11 Ltr to TBrowning re Fallowiing-Leasing Pilot Project.doc

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August 12, 2014

Colorado Water Conservation Board
c/o James Eklund, Director
c/o Tom Browning, Deputy Director
1313 Sherman Street, Room 721
Denver, CO 80203

Via E-mail:
To: tom.browning@state.co.us
Hard Copy to Follow

RE: The City of Aurora's comments to the Colorado Water Conservation Board regarding the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc.'s proposed Catlin Canal Lease-Fallowing Pilot Project

Dear Mr. Eklund, and Mr. Browning,

Pursuant to C.R.S. § 37-60-115(8) and Section II.A. of the Colorado Water Conservation Board ("CWCB") *Criteria and Guidelines for Fallowing-Leasing Pilot Projects* ("Criteria and Guidelines"), this letter is submitted on behalf of the City of Aurora, acting by and through its Utility Enterprise ("Aurora") with the purpose of commenting on Lower Arkansas Valley Water Conservancy District's ("Lower") and Lower Arkansas Valley Super Ditch Company, Inc.'s proposed Catlin Canal Lease-Fallowing Pilot Project.

Aurora supports the commitment to develop and implement programs to advance various agricultural transfer methods that are alternatives to permanent agricultural dry-up, including lease-fallowing projects like Lower's proposed Catlin Canal Lease-Fallowing Project.

The comments included herein are intended to facilitate and improve the project by ensuring that it complies with all legal requirements, that the plan is fully identified and complete, that the proposal accurately reflects the intended operations, and that the proposed project will provide adequate information for the CWCB to meet its statutory requirements of determining whether such lease-fallowing projects are feasible.

City of Aurora and Lower Arkansas Valley Conservancy District Intergovernmental Agreement

On September 28, 2011, the City of Aurora and Lower Arkansas Valley Water Conservancy District entered into an Intergovernmental Agreement ("IGA").

Pursuant to Section V.A. of that agreement, Aurora and Lower "agree to support the development of a Water Leasing Program . . . to facilitate the lease of agricultural water for other uses."

In Section X of the IGA, Aurora and Lower "agree to negotiate in good faith the stipulated resolution of the following pending or future cases based on the sharing of all relevant information concerning the existence or absence of injury to the respective decreed water rights of each party."

Aurora's support of this pilot project, and the above-mentioned supportive agreements between Lower and Aurora notwithstanding, Aurora and Lower agreed in section XI.C. of the IGA, "the Parties do not waive their right to protect their own water rights and other interests by all lawful means."

Proposed Catlin Canal Lease-Fallowing Pilot Project Should Only be Selected as to its Currently Identified Lands and Waters.

In order to avoid confusion, and to insure that the proposed Catlin Canal Lease-Fallowing Pilot Project operates successfully without harming any other water user, Aurora supports the selection of this proposed plan, as to the currently identified lands and waters to be included.

While this proposal identifies the 7 farms listed on Table 1 of the *Catlin Canal Lease-Fallowing Pilot Project Proposal*, it also states that "Applicants anticipate the potential inclusion of additional farms," and that "Applicants anticipate that such additional lands would be included and utilized in the Catlin Pilot Project by amendment to the approved Catlin Pilot Project." *Catlin Canal Lease-Fallowing Pilot Project Proposal.* at p. 4-5.

Neither the controlling statute nor the *Criteria and Guidelines* allow for later amendments to an approved lease-fallowing project. The statute governing such lease-fallowing pilot projects states the CWCB may only approve 10 projects statewide, and 3 projects within the Arkansas River Basin. *See* C.R.S. § 37-60-115(8)(a). A pilot project proposal must identify the "specific lands and parcels that will be analyzed and dried up." *See Criteria and Guidelines,* II.F. Various sections of the statute require specific technical analysis of specifically identified lands. *See e.g.* C.R.S. § 37-60-115(8)(d) – (e). Therefore amendments are not permitted, or contemplated.

Because the proposed Catlin Canal Lease-Fallowing Project cannot be approved in reliance upon future included lands, Aurora requests that the CWCB approve this proposed pilot project only as currently identified in Lower's Catlin Canal Lease-Fallowing Pilot Project Proposal.

Proposed Catlin Canal Lease-Fallowing Pilot Project Needs to Identify All Sources of Supply to be Used as Replacement of Return Flows

All pilot project proposals must identify "the source of water that will be used to meet return flow obligations," and "how and where any necessary replacement water will be delivered to the appropriate stream location(s)." *Criteria and Guidelines*, II.F. If this proposal is selected, Lower must then be able to show that its identified source of replacement water will provide a firm yield sufficient to make necessary replacements. *Criteria and Guidelines*, II.G.5.

Lower proposes to replace irrigation season return flows through several different potential sources of replacement water. Those potential sources include: (1) depletion credits derived from the fallowing of farms included into the pilot project at a future date; (2) exchange of excess stream depletion credits to Pueblo Reservoir, and/or other unidentified locations; (3) CWPDA's Rule 14 Plan "if and when" storage in Pueblo Reservoir; (4) Lower Arkansas Valley Water Conservancy District "if and when" storage in Pueblo Reservoir, including that water supplied by an annual 500 acre-feet lease from PBWW. *See Catlin Canal Lease-Fallowing Pilot Project Proposal.* at p. 5-6.

The proposal, therefore, does not identify the "source" of replacement supply, but rather alternative sources of supply. Similarly, it does not identify "how and where" such replacement sources will be introduced, but rather various alternative plans for how such replacement water will be introduced.

Therefore, Aurora supports the CWCB's selection of this proposal only after Lower identifies and communicates a firm proposal regarding what source of replacement supply will be used, and how and where such replacement supply will be introduced.

The Contracts and Agreements Necessary to Permit the Proposed Operation of the Catlin Canal Lease-Fallowing Pilot Project need to be Produced.

Any lease-fallowing proposal must submit "evidence to demonstrate that all necessary approvals and agreements between ditch companies, ditch members, municipalities, and other parties have been obtained" *Criteria and Guidelines,* Section *II.F.c.*

While the Applicant has submitted several preliminary agreements among necessary parties, the following contracts, agreements, leases, or other such necessary documents should also be supplied to the CWCB:

- Contract or agreements with Colorado Well Protective Development Association

- Contract between Pueblo Board of Water Works and Lower Arkansas Valley Water Conservancy District (including, but not limited to, the 5 year contract described in the proposal)
- The Lower Arkansas Valley Water Conservancy District Rule 10 Plan(s)
- The Colorado Well Protective Development Association Rule 14 plan

In addition, if this proposal is selected and permitted to file an application for approval, the CWCB should require the Applicants to secure – in a final form -- all contracts, agreements, leases, or any other documentation necessary to operate the Catlin Canal Lease-Fallowing Pilot Project as proposed. Any such contract or agreement should identify and clearly define the obligations and responsibilities for each party to the contract, agreement, or lease. All such contracts and agreements should be submitted, in final form, with any application to the CWCB for approval of this proposal.

Statutory Language Limiting the Inclusion of Lease-Fallowing Pilot Project Water in a Substitute Water Supply Plan

Lower states "It is anticipated that [the Town of] Fowler will use its leased water through depletion credits . . . that will be used through an SWSP . . . ." *Catlin Canal Lease-Fallowing Pilot Project Proposal*, p.3. An SWSP, or substitute water supply plan, is a statutory temporary water replacement plan which may be authorized by the State Engineer's Office pursuant to C.R.S. § 37-92-308.

However, C.R.S. 37-60-115(8)(d)(XI) broadly, and specifically, precludes including water from a lease-fallowing pilot project in a substitute water supply plan. *See also Criteria and Guidelines*, Section I.D.2.k.

This is the second lease-fallowing pilot project that has proposed to include lease-fallowing pilot project water into a SWSP. *See also Fowler Lease-Fallowing Pilot Project Proposal and Application*, p.5, December 17, 2013. No resolution on that issue was reached in the first application because it was withdrawn. *See Withdrawal Letter of Fowler Lease-Fallowing Pilot Project Proposal and Application,* March 4, 2014.

While the CWCB does not have the ultimate authority in interpreting statutory language, it would be the appropriate first-step in this case for CWCB to resolve the ongoing issue of whether there are any circumstances in which the plain statutory language of C.R.S. 37-60-115(8)(d)(XI) can be ignored, and instead whether such lease-fallowing pilot project water may be included in an SWSP.

Provide Greater Information Concerning the Proposed Exchanges and Deliveries of Water to be Included in the Operation of the Proposed Catlin Canal Lease-Fallowing Pilot Project

The proposed Catlin Canal Lease-Fallowing Pilot Project proposal discusses proposed exchanges in several locations. *See e.g. Catlin Canal Lease-Fallowing Pilot Project Proposal*, p.5-7. However, the applicants do not identify any of the obstacles to these operations as required, instead merely claiming "that the exchange potential on the Arkansas River does pose a hydrological challenge," and "[t]herefore, this proposal has been thoughtfully designed to include various mechanisms to allow for operation in times of limited exchange potential such as the use of stepped exchanges to intermediate storage locations, use of recharge facilities, and trades of water." *Catlin Canal Lease-Fallowing Pilot Project Proposal*, p.6.

A pilot project proposal is required to identify "any administrative or hydrologic obstacles to exchanges or delivery of the replacement water." *Criteria and Guidelines,* Section II.F. A pilot project proposal is also required to identify "any and all structures necessary for the operation of the pilot project." Therefore, this proposal should be required to specifically identify:

- All senior water rights and senior exchanges operating within these stream reaches, accompanied by a plan for moving water through the described reaches in priority.
- All structures necessary to operate stepped exchanges, intermediate storage, use of recharge facilities, and trades of water.
- Contractual commitments allowing the use of the variously identified structures.
- Contracts and operational plans allowing contract exchange / trade with other entities

Therefore, this proposal should not be accepted until the Applicants identify the obstacles to operating the proposed exchanges, intermediate storage, use of recharge facilities, and trades of water, and additionally identify a plan to the CWCB showing that such operations are feasible.

In Order to Comply with the Intent and Purpose of the Lease-Fallowing Pilot Project, the Applicant Should Establish a Plan for Identifying and Disclosing Information Necessary to Allow a Determination of Whether Lease-Fallowing is a Feasible Alternative to Permanent Dry-Up of Agricultural Land.

The Legislative Declaration of House Bill 13-1248, which is the enabling act for Lease-Fallowing Pilot Projects, declares "The state needs to evaluate whether fallowing-leasing is a practical alternative to permanent agricultural dry-up" and then determined the CWCB "is the appropriate agency to test the efficacy of implementing fallowing-leasing as an alternative to permanent agricultural dry-up." See HB13-1248, ch. 210, sec. I, 2013 Colo. Sess. Laws 879.

Pursuant to C.R.S. § 37-60-115(8)(b), the purpose of the lease fallowing pilot program is to "[e]valuate the feasibility of delivering leased water to the temporary municipal users," and to "[p]rovide sufficient data from which the Board, in consultation with the State Engineer, can evaluate the efficacy of using a streamlined approach," and to "[d]emonstrate how to operate, administer, and account for the practice of fallowing irrigated agricultural land for leasing water for temporary municipal use . . . ." The *Criteria and Guidelines* also requires "evidence" that the proposed pilot project will support these same "eligibility requirements." *See Criteria and Guidelines*, Section II.F.b.

These requirements on pilot project applicants -- to provide sufficient evidence by which the CWCB may judge whether lease-fallowing is a practical alternative to permanent agricultural dry-up – are not merely academic. The *Criteria and Guidelines* specifically mandates that applicants provide ongoing reports concerning the feasibility of the projects. See *Crieteria and*

Guidelines, Section II.N. Similarly, the CWCB is mandated pursuant to C.R.S. 37-60-115(8)(i) to annually report to the Water Resources Review Committee on the reported results of the pilot projects. Accordingly, the CWCB must have sufficient information from these pilot projects for it to "evaluate the feasibility" of lease fallowing, and "evaluate whether fallowing-leasing is a practical alternative to permanent agricultural dry-up."

Applicants have not provided any plan, or information concerning how it will report to the CWCB, or how the CWCB will obtain suitable information such that it is able to make determinations regarding the feasibility of the proposed lease-fallowing pilot projects. Therefore, Aurora suggests that the CWCB select this lease-fallowing pilot project only on the condition that applicants provide, at a minimum, the following information allowing the CWCB to evaluate the feasibility of lease-fallowing:

- Annual Report submitted by Applicants which (A) discloses all information generated during the operation of the pilot project, (B) analyzes whether the pilot project is complying with the statutory requirements of C.R.S. § 37-60-115(8), and the CWCB's *Criteria and Guidelines*, and (C) identifies all obstacles to the operation of a lease-fallowing pilot project, and (if possible) explains how Applicants intend to resolve those issues;
- Accounting of all payments of money, or in-kind transfers related to the proposed pilot project,
- Submission of all contracts or agreements related to pilot project,

<u>Conclusion</u>

Aurora supports the commitment to develop and implement programs to advance various agricultural transfer methods that are alternatives to permanent agricultural dry-up, including lease-fallowing projects similar to the proposed Catlin Canal Lease-Fallowing Project.

The comments included herein are intended to facilitate and improve the project by insuring that it complies with all legal requirements, that the plan is fully identified and complete, and that the proposed project will provide adequate information for the CWCB to meet its statutory requirements of determining whether such lease-fallowing projects are feasible.

Aurora supports the selection of this pilot project upon further action by Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc. to resolve those issues described in this comment letter.

Please direct future correspondence on this matter, including final determinations by the State Engineer and the Colorado Water Conservation Board, by e-mail to the undersigned counsel listed below.

Respectfully Submitted,

DUNCAN OSTRANDER & DINGESS, P.C.

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August 13, 2014

BY EMAIL AND US MAIL

James Eklund, Director
Tom Browning, Deputy Director
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Re: LAWMA's comments on proposed Catlin Pilot Project

Dear Mr. Eklund and Mr. Browning:

In accordance with Section 37-60-115(8)(a), C.R.S., and Section II.A of the Criteria and Guidelines for Fallowing-Leasing Pilot Projects adopted by the Colorado Water Conservation Board on November 19, 2013, Lower Arkansas Water Management Association ("LAWMA") submits the attached comments on the HB 13-1248 Catlin Pilot Project Proposal ("Proposal") submitted by Lower Arkansas Valley Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc., on July 14, 2014.

Thank you for your consideration of LAWMA's comments and concerns, and please contact us with any questions about the attached report from Slattery & Hendrix Engineering LLC.

Sincerely,

MOSES, WITTEMYER, HARRISON AND WOODRUFF, P.C.

Richard J. Mehren

Richard J. Mehren
Jennifer M. DiLalla

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To: Richard Mehren – Moses, Wittemyer, Harrison & Woodruff, P.C.
Jennifer DiLalla – Moses, Wittemyer, Harrison & Woodruff, P.C.

From: Randy L. Hendrix

Date: August 13, 2014

Subject: Comments on HB 13-1248 Catlin Pilot Project Proposal

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On behalf of the Lower Arkansas Water Management Association (LAWMA), this memorandum provides our comments on the HB 13-1248 Catlin Pilot Project Proposal (Proposal) for Colorado Water Conservation Board (CWCB) Selection submitted by Lower Arkansas Valley Water Conservancy District (Lower Ark) and the Lower Arkansas Valley Super Ditch Company (Super Ditch) on July 14, 2014. Lower Ark and Super Ditch (Applicants) are requesting an approval of a pilot project to use consumptive use credits from shares in the Catlin Canal Company to provide water for temporary municipal uses by the Town of Fowler (Fowler), City of Fountain (Fountain), and the Security Water District (Security), which are collectively referred to in the Proposal as “Municipal Participants”. This Memorandum describes issues of concern to LAWMA that the CWCB should consider in its review of the Proposal.

In preparing this memorandum, we reviewed the following documents:

- HB 13-1248 Catlin Pilot Project Proposal for CWCB Selection, dated July 14, 2014 (Proposal);
- HB 13-1248 Criteria and Guidelines for Fallowing-Leasing Pilot Projects, approved by the Colorado Water Conservation Board (CWCB) on November 19, 2013 (CWCB Guidelines);
- Draft – HB 13-1248 Pilot Projects Submittal Checklist developed by Kevin Rein and sent to Ivan Walter for circulation to and feedback from the parties’ experts after the June 5, 2014 informational meeting about the Fowler Pilot Project Proposal submitted and later withdrawn by the Applicants in 2013 (Checklist);
- Diversion records, streamflow records, geographic information system (GIS) data and other technical reports that relate to typical reviews of engineering analyses.

This memorandum provides comments on the Applicants’ Proposal in two sections: background and items to consider during the selection process of this pilot project.

Background

The Applicants are requesting a lease-fallowing pilot project to demonstrate the viability of the lease-fallowing concept on a small scale. Under the Catlin Pilot Project (CPP), Applicants will lease to Fowler 250 acre-feet, Fountain 125 acre-feet, and Security 125 acre-feet of historical consumptive use (HCU) credits annually for a total of 500 acre-feet derived from Catlin Canal Company (Catlin) shares owned by six participating farmers who will rotationally fallow their land on seven farms under the Canal. Fowler would then be able to increase pumping of its wells, with the lagged depletions from that increased pumping being augmented by the leased HCU. Fountain and Security will integrate the leased HCU exchanged into Pueblo Reservoir into their overall municipal supplies. The six participating farmers are Diamond A, Inc. (owner of two separate farms); K2 Farms Inc.; Ken Schweizer; Eric Hanagan; William Behm; and Lee Hancock (collectively referred to in the Proposal as the “Participating Farmers”).

The following table shows, for each subject farm as mapped by the Applicants, the Super Ditch ID number, Ownership, number of shares of Catlin stock (Subject Shares) historically used on the farm, and approximate acreage. The table also shows our comments on the information that Applicants have provided for several of the parcels.

Super Ditch ID No.	Ownership	Number of Catlin Shares	Amount of Mapped Irrigated Acres	Comments
1	Diamond A, Inc.	224	175.2	
2	K2 Farms Inc.	151	151.5	
5	Ken Schweizer	194	192.1	
6	Eric Hanagan	144	107.8	
8	William Behm	88	173.5	Acreage mapped exceeds amount listed in Table 1 of the Proposal
9	Lee Hancock	80	75.7	
10	Diamond A, Inc.	267	296.7	20.3 acres are above the Catlin Canal.

We obtained the mapped irrigated acreage totals from the GIS coverage for 2003 developed for input to the Colorado Decision Support System (CDSS) by the CWCB and the Division of Water Resources (DWR).

Fowler currently has 11 wells identified in Colorado Water Protection and Development Association’s (CWPDA) Rule 14 plan. One well has two separate flow meters, which is why the Applicants have identified 12 Fowler Municipal Wells in Table 3 of the Proposal. The Proposal requests that approximately 250 acre-feet of HCU to be derived from the Subject Shares be approved for use in CWPDA’s 2015 Rule 14 plan to provide additional pumping to the 11 Fowler wells. Applicants indicate in the Proposal that Fowler seeks to lease the HCU credits to allow for relaxation of its watering restrictions. Neither CWPDA nor Fowler is a co-applicant in the Proposal.

Fountain would utilize approximately 125 acre-feet of HCU that would be integrated into its overall water supply. The HCU water would be exchanged up the Arkansas River into Pueblo Reservoir and stored in Fountain's "if and when" account. The water would then be delivered to Fountain via the Fountain Valley Conduit or the Southern Delivery System when the latter becomes operational. Fountain is not a co-applicant in the Proposal.

Security would also utilize approximately 125 acre-feet of HCU that would be integrated into its overall water supply. The HCU water would again be exchanged up the Arkansas River into Pueblo Reservoir and stored in Security's "if and when" account. The water would then be delivered to Security via the Fountain Valley Conduit or the Southern Delivery System when the latter becomes operational. Security is not a co-applicant in the Proposal.

Under the proposed CPP, the Participating Farmers' farms would be temporarily dried-up, or fallowed, on an as-yet undisclosed schedule. When each farm or portion thereof is fallowed, the Subject Shares will be delivered through the augmentation stations on the Catlin Canal, placed into recharge ponds, or stored in unidentified upstream storage locations. The HCU water not required for replacement of both tailwater and lagged groundwater return flow obligations (RFO) would be available for exchange upstream on the Arkansas River to the point of stream depletion for the Fowler additional well pumping, and to Pueblo Reservoir for distribution to Fountain and Security. The Applicants have generally identified the stream reaches on the Arkansas River that would be subject to the exchange of the HCU credits. The Applicants also recognize that the exchange potential on the Arkansas River in the identified stream reaches poses a challenge under certain hydrologic conditions. Their Proposal refers to mechanisms such as a series of stepped exchanges to intermediate storage locations, use of recharge facilities, and trades of water to allow for operation of the CPP during times of limited exchange potential. Table 3 of the Proposal lists structures necessary and desirable for operation of the CPP. The Applicants have not yet provided evidence of their agreements with owners of the "desirable" structures as outlined in the Proposal.

Items of Consideration

The following are issues of concern to LAWMA that the CWCB should consider during its selection process review of Applicants' Proposal for the CPP:

1. **Review of the Proposal Request**

   The Applicants submitted the Proposal to the CWCB for consideration on July 14, 2014. The Proposal asks that the CWCB consider selection of the CPP at its September 11-12, 2014 meeting. However, the CWCB Guidelines provide that the CWCB will consider any proposed pilot project for selection at its next regularly scheduled meeting that is more than sixty days after receiving the proposal. Sixty days after July 14, 2014, is September 12, 2014; accordingly, the CWCB should consider the Proposal at its November 19-20, 2014 meeting, which is the next regularly scheduled meeting after

September 12. This timeframe will allow Applicants sufficient time to submit additional information required by the CWCB Guidelines for the CWCB's consideration of the Proposal; that additional information is summarized below.

2. Applicants' general description of the proposed pilot project

Following the application process for the Applicants' 2013 proposal for the Fowler Pilot Project—including the subsequent withdrawal of the application after the parties had devoted extensive time to reviewing and providing comments on the application, and requesting additional information required by the CWCB Guidelines—the CWCB hosted a "CWCB & DWR Workshop" entitled "Fallowing-Leasing Program – Fowler Pilot Project – Lessons Learned." After that workshop Kevin Rein circulated a draft "Submittal Checklist" to summarize the discussion in the workshop with respect to items required to be included in all future fallowing-leasing proposals and applications.

Based on the draft Checklist and the CWCB Guidelines, LAWMA is concerned that the Applicants have not fully provided the following information required for the Proposal's consideration by the CWCB:

a. Evidence to demonstrate that all necessary approvals and agreements have been obtained or reasonably will be obtained for Applicants' use of the "desirable" structures if the stepped exchanges are needed to deliver the HCU credits to the Municipal Partners.

b. Specification of all lands and parcels that will be dried up and the ownership of them. While the Applicants did identify seven separate farms, and the owners, acreage, and shares for each farm, there are several references in the Proposal to additional farms to be added to the pilot project at a later time through an amendment process. Any proposal to amend the CPP by the later addition of lands and parcels to be fallowed is explicitly contrary to the CWCB Guidelines and the Checklist. Therefore, any selection of the CPP Proposal for an application should be conditioned upon the Applicants' specifically identifying all land and parcels to be dried up and the ownership of them, with no request for the possibility of amendment outside of a new proposal and application for a pilot project.

c. Identification of specific sources of water to be used to meet the RFO. The Proposal indicates that the RFO would be met with depletion credits, additional replacement sources from supplies in Lower Ark's "if and when" account, and water from CWPDA's Rule 14 plan (for Fowler's RFO). Lower Ark leases 2,500 acre-feet of agricultural storage and 500 acre-feet of municipal storage in Pueblo Reservoir in the Lower Ark "if and when" accounts. The Applicants also identified a 5-year annual lease of 500 acre-feet of water from Pueblo Board of Water Works with an effective date of April 1, 2012, which would leave only 2 years remaining during a proposed 10-year pilot project. The Applicants have not indicated that they will seek to extend or renew the lease.

The Applicants also stated that HCU credits will be exchanged to upstream storage for later release to meet RFOs. The Applicants did not identify any of the structures other than the recharge sites which would be used to recharge the HCU credits to meet the RFOs. No structures other than Pueblo Reservoir were identified for release of stored HCU credits to meet RFOs.

The Applicants proposed meeting RFOs with "other sources of water that may come available to Lower Ark either through trades, lease or ownership." LAWMA is not opposed to trades or leases during a plan year, but LAWMA disagrees that Applicants may assume that they will obtain those trades and leases in developing an application for the CPP. If Applicants have a specific plan and intent to purchase or lease other water rights that would be used in the CPP, then a general description of the proposed purchase or lease should have been included in the Proposal.

Two recharge sites were identified for recharge of HCU credits to meet RFOs, but the Applicants stated that additional recharge sites would be added through an amendment process. As with the specific lands and parcels to be dried up, the CWCB Guidelines and the Checklist require that Applicants identify in the Proposal any and all structures necessary for operation of the pilot project and ownership of them. Therefore, any selection of the CPP Proposal for an application should be conditioned upon the Applicants' specifically identifying all recharge sites to be used for delivery of return flows or any other purpose, with no request for the possibility of amendment outside of a new proposal and application for a pilot project.

d. How and where the necessary water will be delivered to the appropriate stream locations. The Applicants generally described the reaches of the contemplated exchanges but did not describe which reaches on the river would receive the HCU water or where any substitute water supplies will be delivered (except for water within Pueblo Reservoir in the exchanges).

e. Evidence to demonstrate that all necessary approvals and agreements between ditch companies, ditch members, municipalities and other parties have been obtained. Applicants provided letters of interest from two of Municipal Participants, Fountain and Security, but did not provide evidence of any agreement with Fowler in the Proposal. There has been ample time to get an agreement in place with Fowler, because the Applicants were working with Fowler in the previous pilot project application (Fowler Pilot Project) that was withdrawn on March 4, 2014. The applicants also did not provide any evidence of agreements with the owners of the “desirable” structures or indicated that they will be getting an agreement with those owners prior to submittal of an application for the CCP.

Applicants should be required to submit all information required by the Guidelines before CWCB considers the Proposal, and the parties should be allowed an additional thirty days to review and provide any comments on that information before the CWCB’s consideration.

Conclusion

The above are our comments on the Proposal for the Catlin Pilot Project. If the Applicants can address the above deficiencies and interested parties are allowed a chance to review and comment on the required information before the November 2014 CWCB meeting, then the Applicants will have met the conditions of the CWCB for consideration of the CPP.

If you have any questions relating to the comments I have identified in this memorandum, please call me.

Slattery & Hendrix Engineering LLC

Randy Hendrix

Randy L. Hendrix

cc: Donald F. Higbee

RECEIVED

AUG 13 2014

Colorado Water
Conservation Board

White & Jankowski *Lawyers*

August 13, 2014

Via hand delivery and email to james.eklund@state.co.us; tom.browning@state.co.us

James Eklund, Director
Tom Browning, Deputy Director
Colorado Water Conservation Board
1313 Sherman Street, Suite 721
Denver, Colorado 80203

Re: Tri-State's Comments re Catlin Pilot Project Proposal

Dear Mr. Eklund and Mr. Browning:

Thank you for the opportunity to provide comments regarding the July 14, 2014 proposal ("Proposal") filed by the Lower Arkansas Water Conservancy District and Lower Arkansas Valley Super Ditch Company, Inc. (collectively, "Applicants") for a fallowing-leasing project involving the Catlin Canal ("Catlin Pilot Project"). I am writing on behalf of Tri-State Generation and Transmission Association, Inc. ("Tri-State") to submit the following comments on the Proposal for consideration by the Colorado Water Conservation Board ("CWCB") pursuant to section II.A of the CWCB's Criteria and Guidelines for Fallowing-Leasing Pilot Projects dated November 19, 2013 ("Criteria").

For the Catlin Pilot Project, Applicants propose to rotationally fallow seven farms owned by six shareholders in the Catlin Canal ("Farms").[1] The consumable amount of water historically used to irrigate the Farms will then be leased by the Town of Fowler (250 acre feet), the City of Fountain (125 acre feet) and Security Water and Sanitation District (125 acre feet). Fowler intends to use its leased water to augment well depletions caused by increased pumping of its municipal wells. Fowler intends to file a substitute water supply plan ("SWSP") to allow for increased pumping, or to dedicate its leased water to a Rule 14 Plan[2] operated by Colorado Well Protective and Development Association ("CWPDA"). For Fountain and Security, Applicants plan to attempt to exchange the consumable Catlin water up to Pueblo Reservoir so that those municipalities can take delivery via the Fountain Valley Conduit or the Southern Delivery System.

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[1] Several of the Farms also appear to be included in the pending water court change Case No. 2012CW94 (Div. 2). Tri-State does not object to inclusion of the same farms in the Catlin Pilot Project.

[2] A plan that Applicants hope will be approved by the Division Engineer under Rule 14 of the Arkansas River Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin.

White & Jankowski, L.L.P.
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Tri-State owns water rights that divert from the Arkansas River downstream or in the vicinity of the proposed Pilot Project, including shares in the Amity Mutual Irrigation Company, Fort Lyon Canal Company, and Buffalo Canal Company; other well and surface diversion water rights; conditional exchange, groundwater, and storage water rights decreed in Case No. 2007CW74; and shares in the Lower Arkansas Water Management Association. Tri-State is participating in the Pilot Project process to ensure that its water rights are protected from injury and to assist the CWCB and Applicants in demonstrating the viability of non-injurious alternative methods to transfer water rights from agricultural to municipal uses.

Tri-State supports selection of the Proposal so long as critical terms and conditions presented in these comments are included as part of the CWCB's selection. As you are aware, Applicants previously proposed a pilot project for the Town of Fowler in a combined selection and approval request to the CWCB, but withdrew the application after the public comment period because leasing farmers decided not to participate. A 2012 SWSP request by Applicants using shares in the Catlin Canal Company never operated because Applicants' proposed recharge sites for return flow replacement proved infeasible.

Tri-State's proposed terms and conditions in this letter will increase the likelihood of success of the Catlin Pilot Project by preventing a recurrence of the issues that plagued Applicants' previous projects. First, Tri-State requests that Applicants present signed agreements that will be required for project operations as part of their forthcoming application to the CWCB. Second, Tri-State requests that Applicants present a firm plan to replace return flows as part of their forthcoming application. Third, Tri-State requests that the Pilot Project be limited to the farms and lessees identified in the Proposal.

Tri-State's requested terms and conditions and the reasons for seeking their inclusion are described in more detail in Part I of this letter. While Tri-State supports the CWCB's selection of the Proposal with proper terms and conditions, it also must reserve its legal rights in the event Tri-State determines that the terms and conditions in this letter are not imposed in the CWCB's selection. Part II of this letter summarizes certain legal and injury issues that Tri-State may pursue if necessary terms and conditions are not imposed on the CWCB's selection of Applicants' Proposal.

I. TRI-STATE'S REQUESTED TERMS AND CONDITIONS FOR CWCB'S CATLIN PILOT PROJECT SELECTION.

Based on the information provided by Applicants, the following terms and conditions should be included as part of the CWCB's selection of the Catlin Pilot Project. The terms and conditions should be included as requirements for the Pilot Project Application to the CWCB.

A. Obtaining necessary agreements for Catlin Pilot Project operation.

The Criteria require that at the selection stage, Applicants must either present necessary agreements and approvals or demonstrate that they can be reasonably obtained. Criteria, § II.F.c. Applicants have attempted to do so in the Proposal and they claim the agreements and approvals that they have identified are obtainable before operation of their project. As a condition of selection, CWCB should require the Applicants to complete the necessary agreements and obtain the necessary approvals and include them with their application.

The Criteria provide that an application must include evidence of a "firm yield of water to replace all return flow obligations." Criteria, § II.G.5 (p. 9). Applicants' return flow sources described in the Proposal all require agreements with third parties (e.g. agreements with Catlin farmers for replacement of irrigation season return flows, agreements related to the use of recharge pits and Pueblo Reservoir). Therefore, Applicants will need to have signed contracts in order to demonstrate a firm yield to replace return flows. In addition, the Criteria provide the CWCB with discretion to require "additional information" from the Applicants in their forthcoming application. *Id.* The Board should exercise this discretion to require applicants to submit all necessary agreements for successful operation of the project, including agreements that may not be related to firm return flow replacement supplies (e.g. leases with municipal users of consumptive use water, and approval by relevant ditch companies).

The existence of binding commitments from third parties at the application stage will increase the likelihood of a successful pilot project by reducing the risk that a third party withdraws its approval and prevents the project from operating. There was a discussion regarding this issue at the CWCB's "post mortem" meeting regarding the Fowler Pilot Project on June 5, 2014. This requirement will also allow Applicants to focus on operation of the project if it is approved and will avoid the need to re-design or withdraw the project based on a third party's lack of approval or agreement.

B. Identification of firm supply for return flow replacement obligations.

Maintenance of historical return flows is a critical element of a successful pilot project. Other water rights owners, including Tri-State, depend on historical return flows to make up a portion of their supply. Therefore, maintaining the historical return flow pattern while rotationally fallowing lands is a critical step in preventing injury to other water rights.

The CWCB Criteria require Applicants to identify, at the selection stage, "the source of water that will be used to meet return flow obligations" and "how and where any necessary replacement water will be delivered to the appropriate stream locations." Criteria, § II.F.a.iii–iv. However, at the application stage, the Applicants must include a "description of the source of water to be used to replace <u>all historical return flow obligations, with evidence that the source will provide a firm yield of water</u>..." *Id.* § II.G.5 (emphasis added). Five of the seven Farms included in the Proposal were also included in the SWSP application filed by Applicants on February 27, 2012. Based on Applicants' previous engineering, the delayed return flow obligations from some of these farms extend out 17 years, which exceeds the ten-year period of the pilot project. However, Applicants have not yet identified any firm sources of water to meet the return flow replacement obligations associated with the Farms. Instead, they claim:

- The use of 500 acre feet of water that Lower Arkansas Water Conservancy District leases from the Pueblo Board of Water Works. Proposal at 6. However, this lease expires in 2017, well short of the 10 years that the Catlin Pilot Project is expected to operate and well short of the 17 year return flow obligation period after the last year of operation.

- The use of 91.34 shares in Twin Lakes Reservoir owned by the Lower Arkansas Water Conservancy District. *Id.* at 6. However, this source is prohibited by C.R.S. § 37-60-115(8)(c)(III), which requires that CWCB "shall not select a pilot project that involves…the transfer or facilitation of the transfer across the continental divide by direct diversion, exchange, or otherwise."

- The use of recharge credits from two recharge sites on the Schweizer and Hanagan farms. Proposal at 6. However, the contracts for use of the two recharge sites expire in 2017, and the Catlin Pilot Project is expected to operate for 10 years. *Id.* at 2, 4. Moreover, as stated above, the return flow obligation period is expected to extend 17 years from the last year of operation.

    - Also, Applicants have previously indicated shallow ground water conditions exist under much of the Catlin Canal, which will prevent the accretion of recharge credits back to the Arkansas River. It is possible that this will prevent the recharge sites from producing enough recharge water to replace return flow obligations, similar to one of the recharge sites Applicants proposed in 2012 that was subsequently discovered to have shallow groundwater that prohibited recharge uses.

    - Recharge credits that accrue above the headgate of the Catlin Canal that are intended to replace return flow obligations that accrue below the Catlin Canal headgate may be intercepted by this structure, thereby shorting the Arkansas River below the Catlin Canal headgate.

    - Applicants also propose the use of other recharge facilities to be added in the future. *Id.* at 6. However, no information has been provided regarding these additional facilities, including contracts for their use. Without this information, it is impossible to determine whether and where the recharge credits will be introduced into the Arkansas River and how they will be used to make return flow obligation replacements.

    Untested and unidentified recharge sites cannot be considered a firm source of supply for replacing return flows.

- The use of consumptive use water from the Farms that will be exchanged upstream to various storage facilities and later released to make return flow obligations. However, "Applicants recognize that the exchange potential on the Arkansas River does pose a hydrological challenge to the operation of the Catlin Pilot Project under certain conditions." Proposal at 6. Applicants' engineering presented in water Case No. 10CW4 (Div. 2), regarding the same exchange reaches, shows zero exchange potential in 75% of the scenarios modeled by Applicants, including zero exchange potential in both average and dry years. Based on Applicants' engineering in Case No. 10CW4, a return flow replacement plan involving exchanges, standing alone, will not provide the firm yield required by the Criteria.

- The use of "paper exchanges" with other entities with upstream water supplies that have downstream replacement obligations. *Id.* at 5. However, Applicants have provided no evidence of contracts or other agreements with any other entities for these "paper exchanges."

- The replacement of return flows by a Rule 14 Plan or SWSP, if water leased by Fowler is dedicated to such Rule 14 Plan or SWSP. *Id.* at 5.

  - First, dedicating water to a SWSP is contrary to C.R.S. 37-60-115(8)(d)(XI), which prohibits that "water included in a pilot project is not also included in a [SWSP]."

  - Second, Rule 14, and the other rules in the State Engineer's Arkansas River Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, do not authorize the use of a Rule 14 plan to replace return flows from fallowing of surface water irrigation as part of a Pilot Project.

  - Finally, based on information provided by Applicants in 2012, several of the Farms already have Catlin shares dedicated to Rule 14 Plans for replacement supplies for pumping of wells included in those Rule 14 Plans. Tri-State is concerned that if the same Catlin shares are used as part of the Catlin Pilot Project, there will be double counting of those shares as Rule 14 replacement supplies and return flow replacement supplies for the Catlin Pilot Project.

CWCB should condition selection of the Catlin Pilot Project on Applicants' demonstration in their application that Applicants have firm replacement supplies available to replace all return flow obligations from the Farms, including those obligations that accrue after the ten-year term of the Catlin Pilot Project. By presenting a firm plan to replace return flows, as opposed to a myriad of options and contingencies, Applicants will be able to focus on executing the Pilot Project and will reduce the risk that the State Engineer would terminate the project because of injury to other water rights.

C. No inclusion of additional farms.

Pursuant to the Proposal, "Applicants anticipate the potential inclusion of additional farms and their associated historically irrigated lands served by shares in the Catlin Canal Company into the Catlin Pilot Project...by amendment to the approved Catlin Pilot

Project...Such an amendment would be requested in compliance with any terms and conditions adopted by the CWCB to govern such additions..." *Id.* at 4-5.

The Proposal should only be selected if a term and condition is included that prohibits the addition of farms because such additions are contrary to both the Criteria and Colorado statute. The Criteria do not provide any mechanism by which additional farms can be added in the future. Rather, the Criteria require the Proposal to identify "the specific water rights to be utilized by the pilot project and ownership of them" and "the specific lands and parcels that will be analyzed and dried up, and the ownership of them." Criteria, § II.F.a.i–ii. Allowing future, unknown farms to be fallowed and added to the Catlin Pilot Project is contradictory to the Criteria because it does not identify all of the land and water rights to be included in the Project prior to selection by the CWCB.

By proposing to add unknown farms in the future, Applicants cannot satisfy a number additional requirements under the Criteria, including providing: the source of water that will be used to meet return flow obligations (Criteria, § II.F.a.iii); how and where necessary replacement water will be delivered to the appropriate stream locations (*Id.*, § II.F.a.iv); any stream reaches that will be used to operate the proposed transfer of water, along with a description of any administrative or hydrologic obstacles to exchanges or delivery of the replacement water (*Id.*, § II.F.a.v); any and all structures necessary for operation of the pilot project and ownership of them (*Id.*, § II.F.a.vi); and evidence to demonstrate that all necessary approvals and agreements between...ditch members...have been or will be reasonably obtained (*Id.*, § II.D.c).

Moreover, the pilot project statute requires the application to specify "[t]he maximum quantity of transferable consumptive use per year for any single pilot project." C.R.S. § 37-60-115(8)(d)(III); *see also* Criteria, § I.D.2.c. If additional farms are added to the pilot project in the future, it will affect the maximum quantity of transferable consumptive use in violation of the statute and Criteria. Tri-State's comments and conditional support for selection of the Catlin Pilot Project Proposal are predicated on the modest size of the project, which reduce the magnitude of injury to Tri-State's water rights that could occur if there were a mishap in operation of the project.

Therefore, CWCB should condition its selection of the Catlin Pilot Project by prohibiting the future addition of farms. Applicants' proposal to add additional unidentified farms in the future is also inconsistent with the first two terms and conditions in this letter. Applicants do not propose to have agreements with the owners of these farms at the application stage, and the return flow obligations for such farms will be unknown until the farms are identified.

II. RESERVATION OF RIGHTS.

Tri-State respectfully requests the selection of the Catlin Pilot Project Proposal include terms and conditions described in Section I of this letter. However, if the Catlin Pilot Project Proposal is selected or approved without the terms and conditions that Tri-State requests in order deems necessary to prevent injury to its water rights, or if the project is injurious in its operation, Tri-State reserves the right to raise all issues with the Catlin Pilot Project and pursue them before the CWCB, State Engineer, and Division 2 Water Court. These include but are not limited to the issues described in this letter and additional comments that Tri-State may provide in the future, including but not limited to comments at the application stage of the Catlin Pilot Project. Nothing in this letter waives Tri-State's rights under Colorado law or establishes a precedent regarding lease-fallowing or pilot projects.

Without waiving its right to comment further during the application stage of the Catlin Pilot Project, Tri-State notes the following additional issues with the Applicants' proposal:

- The Proposal cannot be considered at CWCB's September meeting because that meeting is not more than 60 days after the proposal was received. Criteria at 8.

- The Proposal relies entirely on exchanges to deliver the fully consumable water from the Farms up to the point of depletion for Fowler's wells, or Pueblo Reservoir for pipeline delivery to Security and Fountain. As noted above, Applicants' engineering in Case No. 10CW4 demonstrates that exchange potential is nonexistent during average and dry years.

- Fowler plans to use its leased water for augmentation, as opposed to municipal uses. There is no evidence that Pilot Project water can be incorporated into a Rule 14 plan, or that lagged depletions from increased pumping of Fowler's municipal wells will be replaced after the Pilot Project ends. Tri-State will be injured if lagged depletions are not replaced in time, location and amount.

- Applicants claim the use of Winter Storage Water as a potential replacement source. Proposal at 11. However, the decree in Case No. 84CW179 (Div. 2), at paragraph W on page 22-23, provides that "any future change of purpose or use is subject to proof of historic consumptive use, year round river depletions, and conditions to prevent injury under C.R.S. 37-92-305." Any change of winter stored water requires a water court proceeding before it can be used as augmentation water to replace return flow obligations. The inclusion of Winter Water Storage Program water in the Fowler Pilot Project is prohibited by the decree in Case No. 84CW179.

CONCLUSION

Thank you for the opportunity to comment regarding Applicants' Proposal for the Catlin Pilot Project. Tri-State supports the CWCB's selection of the Proposal with the terms and conditions listed in this letter. If the CWCB has any questions regarding this letter, please let me know. Please consider Tri-State a party to the Catlin Pilot Project and copy me on further communications affecting the Proposal and on the CWCB's decision regarding the Proposal. Tri-State anticipates providing further comments and input on the Catlin Pilot Project once the application has been presented to the CWCB as contemplated by the Criteria.

Very truly yours,

WHITE & JANKOWSKI, LLP

Matthew L. Merrill

Attorneys for Tri-State

Cc: Client
Mike Sayler, P.E.
Daniel Niemela, P.E.
Dick Wolfe, P.E.
Steve Witte, P.E.
Peter D. Nichols, Esq.
Leah K. Martinsson, Esq.

BEFORE THE COLORADO WATER CONSERVATION BOARD
STATE OF COLORADO

HB 13-1248 CATLIN PILOT PROJECT PROPOSAL

COMMENTS BY THE SOUTHEASTERN COLORADO WATER CONSERVANCY DISTRICT

The Southeastern Colorado Water Conservancy District ("Southeastern") submits the following comments consistent with the Criteria and Guidelines for Fallowing-Leasing Pilot Projects adopted by the Colorado Water Conservation Board (CWCB) and Colorado Division of Water Resources (DWR) on November 19, 2013, regarding the HB13-1248 Catlin Pilot Project Proposal (CPP).

1. Southeastern is a statutory water conservancy district (*see* C.R.S. §§ 37-45-101, *et seq.*), which includes within its boundaries most of the municipalities and irrigated land in the Arkansas River Valley in Colorado. Southeastern administers and repays reimbursable costs for the Fryingpan-Arkansas Project, a $550 million multi-purpose reclamation project authorized by Congress and built by the U.S. Bureau of Reclamation, and holds all water rights for the Project, except certain rights in Ruedi Reservoir. The Project diverts water underneath the Continental Divide, from the Fryingpan and Roaring Fork River drainages, which are tributaries to the Colorado River, into the Arkansas River drainage, where Project water is stored in reservoirs. Southeastern provides Project water and return flows to supplement the decreed water rights of water users throughout the District, which extends across parts of nine counties. Southeastern repays a large part of the Project's construction costs (estimated at $127 million over a minimum 40 year period), as well as annual operation and maintenance costs, in accordance with its repayment contract with the United States. Payments are made primarily from property tax revenues available to Southeastern, supplemented by revenue from Project water sales.

2. Southeastern is interested in this matter as an owner of water rights within the Arkansas and Colorado River Basins and as the repayment entity for the Fryingpan-Arkansas Project. In addition, as administrator of the Fryingpan-Arkansas Project water rights, Southeastern is party to numerous agreements with the Bureau of Reclamation, the Colorado Department of Natural Resources, local governments, quasi-municipal entities and private entities. These agreements relate to operation and use of the Fryingpan-Arkansas Project facilities, distribution and sale of Project water and voluntary maintenance of Arkansas River stream flows for recreational purposes. While generally supportive of the CPP, Southeastern is concerned about the potential impact of the CPP on its operations and existing agreements.

3. Southeastern requests that any Fallowing-Leasing Pilot Project approval allows use of Fryingpan-Arkansas Project facilities in the Fallowing-Leasing Pilot Project, the approval include the following standard terms and conditions regarding such use:

A. Pueblo Reservoir, Twin Lakes Reservoir and Fountain Valley Pipeline (or Conduit) are owned and operated as part of the Fryingpan-Arkansas Project by the United States Department of Interior, Bureau of Reclamation. [*Applicant incorrectly identifies the owner of the Fountain Valley Conduit as the Fountain Valley Authority.*] Any Fallowing-Leasing Pilot Project approval will not give the Lower Arkansas Valley Water Conservancy District (Lower Ark) or Lower Arkansas Valley Super Ditch Company, Inc. (Super Ditch) any rights to use of Fryingpan-Arkansas Project structures, including Pueblo Reservoir, but will not alter any existing rights Lower Ark or Super Ditch may have. Any use of the Fryingpan-Arkansas Project facilities by Lower Ark or the Super Ditch, for storage, exchange, release or otherwise, will occur only with the written permission of the owner of said reservoir, and will be made consistent with such policies, procedures, contracts, charges and terms as may be lawfully determined by the U.S. Bureau of Reclamation or its successors in interest, in their good faith discretion.

B. Any Fallowing-Leasing Pilot Project approval in this matter has no effect on the authority of the United States to regulate and/or deny use of federal facilities. Lower Ark and Super Ditch recognizes that the consideration of and action on requests for any necessary federal contracts and authorizations shall be carried out pursuant to all pertinent statutes, regulations and policies applicable to the occupancy and use of Bureau of Reclamation facilities, including, but not limited to Fryingpan-Arkansas Project authorization legislation, the National Environmental Policy Act, and the Endangered Species Act.

C. Applicants shall store or transport water in Fryingpan-Arkansas Project structures only so long as they have a contract with the owners of that structure(s), and such storage and use is within the effective time period of such contract. This Fallowing-Leasing Pilot Project approval does not give Applicants any rights to ownership or use of any Fryingpan-Arkansas Project structure, or any rights of ownership or rights to purchase or receive allocation of Fryingpan-Arkansas Project water or return flows from Fryingpan-Arkansas Project water, and does not alter any existing rights (including any right to renew existing contracts) Applicants may otherwise have.

D. Applicants shall not operate the CPP in a manner that would interfere with the lawful operation of the Fryingpan-Arkansas Project.

4. Southeastern notes that the CPP intends to use Winter Water from Catlin Canal Company shares for its changed uses. This change of Winter Water poses three potential problems.

   A. The Winter Water storage account in Pueblo Reservoir may only store water to be used for irrigation purposes. Because the CPP seeks to use Catlin Canal ditch shares and associated winter water from irrigation uses to other uses, the decree must acknowledge that any Winter Water used for non-irrigation purposes must be stored in an excess capacity account, and not in the Winter Water storage account.

   B. When Winter Water that is historically associated with agricultural ditch shares is changed to non-irrigation uses, these shares remain subject to the same operating and accounting procedures as the irrigation water stored in that ditch's Winter Water storage account.

   C. When changing water rights on the Arkansas River, there is a risk that the WWSP can be injured if return flows are not appropriately replaced. To help alleviate this risk, and to make these return flow obligations, entities may book over non-Project water stored in Pueblo Reservoir to the WWSP account in Pueblo Reservoir, as long as that methodology is specified in the decree.

5. Several WWSP participants have changed Winter Water from irrigation uses to non-irrigation uses. To ensure that the WWSP is protected, and all participants are treated equally, Southeastern has developed standard language designed to protect the WWSP from such changes. To that end, Southeastern requests the approval include the following standard terms and conditions regarding such use:

   A. **Winter Storage Water:** The portion of the water associated with shares used for municipal purposes derived from water stored pursuant to the decree dated November 10, 1990 in Case No. 84CW179 ("Winter Storage Water") shall be stored in an excess capacity storage account in Pueblo Reservoir. Applicants shall obtain space in an excess capacity storage account to allow storage of its Winter Storage Water, and such water shall be available for municipal use or for the replacement of return flows. If no excess capacity account is available in a given year, Applicant will not take delivery of its Winter Storage Water associated with the municipal shares during that year. All of Applicant's Winter Storage Water shall be delivered through the Catlin Canal during the period of March 16 through November 14 at the same time as deliveries of Winter Storage Water are made to other Catlin Canal shareholders. If the Winter Storage Program described in the decree in Case No. 84CW179 terminates, the return flows owed on the CPP lease shall continue to be calculated as set forth herein.

   B. **Delivery of Winter Stored Water:** Applicant's lease of shares from the Catlin Canal entitle it to a pro rata share of the water made available to the Catlin Canal that shall be accounted for as released to Lower Ark's or Super

Ditch's account in Pueblo Reservoir. This Winter Water will be available for release at any time during the year subject to the operating rules of the Winter Water Storage Program and may be carried over until May 1 of the water year (November 1 through October 31) following the water year in which the Winter Water is stored. Any Winter Water unused by that date will be released from Pueblo Reservoir to the system as decreed in Case No. 84CW179. Delivery of that Winter Water is also subject to the rules and regulations of the Catlin Canal regarding orders and assessments for such deliveries.

C. **Winter Water Return Flows:** To the extent the CPP stores the net depletion amount of the Subject Water Rights in Pueblo Reservoir, such water may be booked over to replace winter return flow on a monthly or weekly basis, or as otherwise required by the Division Engineer, to participants in the Winter Water Storage Program decreed in Case No. 84CW179, Water Division No. 2 as necessary to prevent injury to the water rights included in that Program.

6. It is unclear whether Lower Ark's existing annual excess capacity contract (sometimes referred to as an "if-and-when") permits the use contemplated in the CPP. In any event, the existing contract will expire before the CPP begins and will require a new annual excess capcity contract, which should address the CPP uses. It is also unclear to what extent other participants' excess capacity contracts may be used (the application incorrectly states that Catlin Canal Co. has entered into an excess capacity contract). In addition to Lower Ark's annual excess capacity contract from Reclamation, CPP will likely need a conveyance contract for use of the Fountain Valley Pipeline. The new use of the Fountain Valley Pipeline and new uses of the excess capacity may require supplemental National Environmental Policy Act (NEPA) analysis.

7. Southeastern entered into an Intergovernmental Agreement (IGA) among the City of Pueblo, the City of Aurora, the Southeastern Colorado Water Conservancy District, the City of Fountain, the City of Colorado Springs, and the Board of Water Works of Pueblo, Colorado ("IGA") executed by the parties on various dates in May 2004. Exhibit 1 to the IGA outlines the "Arkansas River Flow Management Program" that contemplates certain river operations by the parties. Lower Ark has a 2011 MOA with Southeastern that obligates Lower Ark to comply with the requirements of the Arkansas River Flow Management Program to the same extent that Southeastern is obligated to comply in the event that a long-term excess capacity contract is entered into with Reclamation and Lower Ark enters into a sub-contract with Southeastern for use of the excess capacity space. Approval of the CPP should recognize that this may be a limitation on the CPP's ability to exchange water to Pueblo Reservoir.

8. Southeastern reserves the right to raise considerations raised by other parties in their comments but not repeated here.

9. Additional grounds for consideration may be identified as Southeastern learns more about the CPP proposal.

Respectfully submitted this 14th day of August, 2014.

Southeastern Colorado Water
Conservancy District

By:_____/s/___________________

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August 15, 2014

VIA E-MAIL AND U.S. MAIL

Colorado Water Conservation Board
Attn.: Tom Browning, Deputy Director
1313 Sherman Street, Room 721
Denver, CO 80203

Re: HB 13-1248 Catlin Pilot Project Proposal

Dear Mr. Browning:

On behalf of JBS Five Rivers Cattle Feeding LLC d/b/a Colorado Beef ("Colorado Beef"), and pursuant to the Colorado Water Conservation Board's Criteria and Guidelines for Fallowing Leasing Pilot Projects, this letter provides Colorado Beef's initial comments regarding the Catlin Canal fallowing-leasing pilot project proposal (the "proposal") that was submitted on July 14, 2014 by the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company (collectively, "Applicants").

Colorado Beef operates a cattle feedlot in Prowers County, Colorado, with a present capacity of approximately 60,000 head of cattle. Colorado Beef's water supply relies heavily on water delivered pursuant to Colorado Beef's ownership of 492 shares of the Fort Lyon Canal Company, which were changed to allow use for feedlot purposes in Case No. 08CW83, Water Division 2. In addition to its Fort Lyon Canal water supply, Colorado Beef is a significant shareholder in the Lamar Canal & Irrigation Company, and a member of the Lower Arkansas Water Management Association ("LAWMA"). Additionally, Colorado Beef is one of the largest employers in Prowers County, and a significant contributor to the agricultural economy in the Lower Arkansas Valley.

Due to the general nature of the information contained in Applicants' proposal, Colorado Beef does not have specific comments at this time and does not oppose the Board's selection of Applicants' proposal for further consideration pursuant to a subsequent, well-developed pilot project application. Any such pilot project application should contain, however, detailed information regarding how the proposed pilot project can operate without injury to vested water rights, including without limitation proposed terms and conditions to ensure proper measurement, accounting and reporting, verification of fallowing, and maintenance of historical return flow patterns. Colorado Beef reserves all rights to comment upon, and oppose if necessary, the Applicants' pilot project application if and when it is submitted.

Colorado Beef respectfully requests that it be included on any list of interested parties developed by Applicants or the Board, and copied on any future correspondence regarding Applicants' proposal. Thank you for your consideration of these initial comments, and please do not hesitate to contact me should you have any questions whatsoever.

Sincerely,

Bill Caile

William H. Caile
Of Counsel

WHC:whc

cc: Nicholas White, Esq.
Doug Morris
Mary Presecan, P.E.

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COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix I

Initial Cover Letter and Project Proposal

BERG HILL GREENLEAF & RUSCITTI LLP

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July 14, 2014

To: All Parties on the Substitute Water Supply List for Water Division 2 (list attached) and for CWCB distribution to the CWCB Notification List.

Re: Proposal for Fallowing Leasing Pilot Project

The Lower Arkansas Valley Water Conservancy District ("Lower Ark") and the Lower Arkansas Valley Super Ditch Company, Inc. ("Super Ditch") are requesting that the Colorado Water Conservation Board ("CWCB") select a proposed fallowing-leasing pilot project that seeks to begin operations in 2015 pursuant to C.R.S. 37-60-115(8) (2013) and the Criteria and Guidelines for Fallowing Leasing Pilot Projects, adopted by the CWCB on November 19, 2013. The proposed pilot project will facilitate temporary municipal use of water available to certain shareholders in the Catlin Canal Company by the Town of Fowler, the City of Fountain, and the Security Water District (the "Catlin Pilot Project"). Pursuant to C.R.S. § 30-60-115(8) (e)(II), Super Ditch is providing this written notice and a copy of the Catlin Pilot Project Proposal and all accompanying materials by either first class mail or electronic mail to all parties that have subscribed to the substitute water supply plan notification list for Water Division 2.

All parties may submit comments on the Catlin Pilot Project Proposal to the CWCB within 30 days of the date of this notice. Send comments to: Colorado Water Conservation Board, 1313 Sherman Street, Room 721, Denver, CO 80203. Comments may also be sent via email to tom.browning@state.co.us or by fax to (303) 866-4474. The CWCB will not consider comments received after the 30th day.

Applicants have requested the CWCB consider selection of this Catlin Pilot Project Proposal at the CWCB's September 2015 meeting. Pursuant to the Criteria and Guidelines, Applicants may submit a full application within 90 days of the CWCB's selection. This application will include all technical and other information required by the Criteria and Guidelines for CWCB approval.

Please contact us if you have any questions or would like to discuss this matter.

Sincerely,

Peter D. Nichols
Leah K. Martinsson

CERTIFICATE OF MAILING

I certify that on July 14, 2014, a true and correct copy of the **HB 13-1248 Catlin Pilot Project Proposal**, together with all accompanying materials**,** was served via email transmission to all parties that have subscribed to the substitute water supply plan notification list for Water Division 2, as set forth below. I further certify that a request has been made to the CWCB to serve this proposal and accompanying materials on the appropriate CWCB e-mail notification list, as such list is not currently publicly available.

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July 14, 2014

Colorado Water Conservation Board
James Eklund, Director
Tom Browning, Deputy Director
1313 Sherman Street, Room 721
Denver, CO 80203

Re: HB 13-1248 Catlin Canal Pilot Project Proposal for CWCB Selection

Dear Mr. Eklund and Mr. Browning:

This fallowing-leasing pilot project proposal is submitted pursuant to HB 13-1248, C.R.S. § 37-60-115(8) (2013), on behalf of the Lower Arkansas Valley Water Conservancy District ("Lower Ark") and the Lower Arkansas Valley Super Ditch Company, Inc. (the "Super Ditch") (collectively, "Applicants") for the selection of a pilot project aiming to begin operation in 2015. Applicants seek selection of this proposal pursuant to Section II.A of the Criteria and Guidelines for Fallowing Leasing Pilot Projects, approved by the Colorado Water Conservation Board on November 19, 2013 (the "Criteria and Guidelines"). The proposed Catlin Pilot Project will use water available from certain shares in the Catlin Canal Company for temporary municipal uses by the Town of Fowler; the City of Fountain; and the Security Water District (collectively referred to as the "Municipal Participants"). The proposal is for a pilot project that would operate each year over the ten-year period (currently anticipated to be April 1, 2015 through March 31, 2025).

Applicants have been working for some time to establish a pilot project to demonstrate the Super Ditch concept of rotational agricultural fallowing to meet municipal water demands in a manner that avoids permanent agricultural dry-up. This concept has received support from the CWCB, the IBCC, the Basin Roundtables, and most recently the Colorado Legislature and Governor Hickenlooper with the passage of HB 13-1248. HB 13-1248, codified at C.R.S. § 37-60-115(8), authorizes the CWCB to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up. Applicants are pleased to have the opportunity to submit this proposal for a pilot project under HB 13-1248.

I. Notice Requirements (Criteria and Guidelines §§ II.B, & F)

Applicants request that the CWCB post this Catlin Pilot Project Proposal on its website upon receipt pursuant to Section II.A of the Criteria and Guidelines. Additionally, pursuant to C.R.S. § 37-60-115(8)(e)(II) and Section II.F of the Criteria and Guidelines, Applicants have provided written notice and a copy of this Catlin Pilot Project Proposal and all accompanying materials by first class mail or electronic mail to all parties that have subscribed to the substitute water supply plan notification list for Water Division 2. Proof of such notice is attached hereto.

II. Description of the Pilot Project (Criteria and Guidelines §§ II.F.a.i-vi)

A. Generally

The Catlin Pilot Project will fallow parcels of land in rotation and provide the transferable consumptive use water without permanent dry-up for municipal use, thereby encouraging farmers to continue farming and remain active members of their communities. The Catlin Pilot Project was developed by the Applicants to demonstrate the viability of the fallowing-leasing concept on a relatively small scale, while incorporating exchange, storage, and recharge components that will test the ability of fallowing-leasing to provide a workable alternative to the "buy-and-dry" of irrigated agriculture.

Lower Ark is a water conservancy district formed by voters in November 2002 whose mission is to acquire, retain and conserve water resources within the Lower Arkansas River; to encourage the use of water for the socio-economic benefit of the District's citizens; and to participate in water-related projects that embody thoughtful conservation, responsible growth, and beneficial water usage within the Lower Arkansas Valley. Super Ditch is a Colorado corporation formed in 2008 for the benefit of the farmers in the Lower Arkansas Valley below Pueblo Reservoir and above the Kansas state line. The Super Ditch in partnership with Lower Ark was created as a farmer-owned company to manage the operations of the water enterprise, including this Pilot Project.

This Catlin Pilot Project seeks to use water available to shareholders of the Catlin Canal Company as the source of up to approximately 500 acre-feet annually of transferable consumptive use water[1] that will be made available to Fowler, Fountain, and Security for temporary use in their respective municipal water systems through the rotational fallowing of sufficient acreage to generate such water. Generally, the Municipal Participants will take delivery of water made available through the Catlin Pilot Project through operation of physical or contract exchanges/trades.

The Catlin Pilot Project seeks to operate each year during the ten-year approval period, but will not fallow the same land for more than three of the ten years of operation. In order to allow for such continuous operation, Applicants may seek to add additional farms to the Catlin Pilot Project through amendment or other appropriate mechanism approved by the CWCB and in compliance with the Statute and Criteria and Guidelines.

[1] This amount is not intended to operate as a ceiling for the amount of water available for use in the Catlin Pilot Project in any given year, but to reflect the amount likely available from the fallowing of approximately 30% of the included acreage in an average water year. The amount available would be higher in wet water years, but would not in any event exceed the 1,000 acre-foot per year quantity established in Section II.D of the Criteria.

B. Proposed Municipal Use

Fowler's Municipal Water Use. Fowler is a small community of approximately 1,200 residents located in Otero County, Colorado within the Lower Arkansas River Valley. Fowler's municipal water supply is derived from the operation of 12 wells. Fowler is enrolled in a Rule 14 Plan operated by the Colorado Water Protection and Development Association ("CWPDA"). This Rule 14 Plan is approved pursuant to the Arkansas River Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado (Case No. 02-95CW211) and provides for the replacement of out-of-priority stream depletions to senior water rights in Colorado resulting from junior well pumping. Fowler's wells provide the only source of water supply available to meet all municipal water demands arising within Fowler's water service area. Fowler's allocation of Fry-Ark Project municipal water has been severely reduced in recent years, resulting in the need to drastically curtail outdoor water use by all of its customers. Fowler has expressed an interest in leasing up to approximately 250 acre-feet of water annually through operation of the Catlin Pilot Project for use in its system in an effort to allow for some relaxation of its watering restrictions.

Fountain's Municipal Water Use. The City of Fountain is a community of approximately 27,000 residents that is located along Fountain Creek approximately 30 miles north of Pueblo. Fountain receives the majority of its water from the Fry-Ark Project, which is delivered to Fountain from Pueblo Reservoir via the Fountain Valley Conduit. Fountain may also deliver water to its system through the Southern Delivery System ("SDS"), once it is operational. Fountain also obtains a portion of its water supply from four groundwater wells that pump water from the Fountain Creek Alluvium. Fountain has expressed an interest in leasing up to 125 acre-feet of water annually through operation of the Catlin Pilot Project for use in its water system to supplement its existing water supplies.

Security's Municipal Water Use. The Security Water District ("Security") is located in unincorporated El Paso County, encompassing an area of approximately 5 square miles east of Fountain Creek. Security provides a water supply to a population of approximately 18,000. Its water supply is obtained from numerous groundwater wells and supplemented by Fry-Ark Project water delivered through the Fountain Valley Conduit. Security may also deliver water to its system through the SDS, once it is operational. Security has expressed an interest in leasing up to 125 acre-feet of water annually through operation of the Catlin Pilot Project for use in its water system to supplement its existing water supplies.

Delivery to Municipal Participants. It is anticipated that Fowler will use its leased water through depletion credits (made up of transferable consumptive use water and/or stream depletion credits resulting from lagging of deep percolation[2]) that will be used through an SWSP or be dedicated by Fowler to the CWPDA Rule 14 Plan to replace increased out-of-priority depletions associated with

[2] That portion of the farm headgate delivery that deep percolates into the soil, after application to an irrigated field, typically results in an immediate stream depletion when delivered, with an equivalent amount later being returned to the stream as lagged groundwater return flows.

increased well pumping and to meet associated historical return flow obligations.[3] Fountain and Security's leased water would also be depletion credits available at Pueblo Reservoir in their respective "if and when" storage accounts with the Bureau of Reclamation. Fountain and Security would subsequently deliver leased water to their water systems via the Fountain Valley Conduit and/or the SDS. Both Fountain and Security are participants in the Fountain Valley Authority.

Leased water as depletion credits will be made available to the Municipal Participants through a variety of mechanisms. As to Fowler, there may be times when only a limited upstream exchange to the point of their well depletions is needed to make use of the depletion credits. When adequate exchange potential exists, depletions credits may be exchanged into Pueblo Reservoir for later release (Fowler) or for delivery via the Fountain Valley Conduit and/or the SDS (Fountain and Security). During times of limited exchange potential, stepped exchanges to intermediate storage locations may be utilized to move depletion credits further upstream. Depletion credits may also be traded with entities with water available at upstream locations to meet such entities' downstream replacement obligations. It is currently anticipated that these trades could involve entities such as Lower Ark, CWPDA, AGUA, and/or other entities with water stored in Pueblo Reservoir to meet downstream replacement obligations owed under augmentation plans, SWSPs, Rule 10 Plans, and/or Rule 14 Plans. When feasible, depletion credits may also be exchanged back up to the Catlin Canal Company headgate and delivered into recharge locations and re-timed either for later use and/or exchange to upstream locations. The Catlin Pilot Project will, when possible, use these and potentially other operational mechanisms in order to ensure maximum utilization of available depletion credits and to test and demonstrate alternative delivery mechanisms.

C. The Participating Farmers & Lands to be Fallowed

The participating farmers with historically irrigated lands available for fallow for the initial 2015 operations of the Catlin Pilot Project consist of six shareholders of the Catlin Canal Company identified in **Table 1**, attached (the "Participating Farmers"), representing seven farms. These farmers have expressed an interest in rotationally fallowing all or portions of their farms during ten-year term of this pilot project.

Information regarding the historically irrigated lands and associated Catlin Canal Company shares used in the irrigation of the Participating Farmers' historically irrigated lands is provided in the attached **Table 1**. A site map for the Catlin Pilot Project is attached as **Exhibit A**. Maps showing each Participating Farmers' historically irrigated lands are attached as **Exhibits B through H**.

Applicants anticipate the potential inclusion of additional farms and their associated historically irrigated lands served by shares in the Catlin Canal Company into the Catlin Pilot Project to permit continuous generation of approximately 500 acre-feet of water annually during the project's ten-year term. Applicants anticipate that such additional lands would be included and utilized in the Catlin Pilot Project by amendment to the approved Catlin Pilot Project. Such an amendment would be requested in

[3] CWPDA has indicated that it has the ability to incorporate such additional water and to meet return flow obligations and replace Fowler's additional out-of-priority depletions pursuant to operation of its current and future Rule 14 Plans.

compliance with any terms and conditions adopted by the CWCB to govern such additions, subject to applicable statutory requirements and the Criteria and Guidelines.

D. The Water Rights to be Used

The specific water rights to be utilized in the Catlin Pilot Project are those owned by the Catlin Canal Company and delivered to the Participating Farmers. The Catlin Canal Company owns the following water rights decreed for irrigation, all located in Water District 17:[4]

Table 2: Catlin Canal Company Water Rights

Water Right	Priority No.	Appropriation Date	Adjudication Date	Amount (c.f.s.)
Catlin Canal	2	04/10/1875	04/08/1905	22.0
Catlin Canal	5	12/03/1884	04/08/1905	226.0
Catlin Canal	7	11/14/1887	04/08/1905	97.0

The Catlin Canal Company also has rights to Winter Storage Water pursuant to the Decree entered in Case No. 84CW179 (Water Division 2) that are included in the Catlin Pilot Project. These same Catlin Canal water rights would be used in connection with any additional historically irrigated lands and associated shares in the Catlin Canal Company added to the Catlin Pilot Project in future years.

E. Source of Water for Return Flow Obligations and Delivery of Replacement Water

Tailwater (irrigation season) and deep percolation (lagged) return flows associated with the historically irrigated lands will be replaced in time, location, and amount through utilizing a number of operational mechanisms and a variety of sources. When possible, return flows will be met with depletion credits (either transferable consumptive use derived from the fallowed acreage and/or stream depletion credits resulting from lagging groundwater return flows) through diversion at the Catlin Canal headgate and subsequent release to the stream through the Catlin augmentation stations. Alternatively, return flows may be maintained by exchanging depletion credits into, and later releasing those credits from, upstream storage locations. If water is dedicated to the CWPDA Rule 14 Plan for Fowler's wells or as part of an SWSP, return flows from portions of the fallowed acreage would be met through operation of that Rule 14 Plan or SWSP. Return flows may also be maintained from upstream water supplies made available through effectuating trades with entities who have downstream replacement obligations. This could include, for example, managing operations in conjunction with Rule 10 and/or Rule 14 Plans with return flow obligations owed at downstream locations that could be met with depletion credits, thereby avoiding potential transit losses resulting from delivery from upstream locations. Additionally, return flows may be maintained through the delivery of depletion credits, either directly or by exchange, to existing or future recharge facilities and retiming of the resulting stream accretions via these same mechanisms.

[4] The Catlin Canal Company also receives allocations of Fry-Ark Project water and stores water in an "if and when" account in Pueblo Reservoir, but these sources are not a part of the Catlin Pilot Project.

Two recharge ponds have been constructed on the Catlin Canal and are located on the Schweizer and Hanagan farms. These recharge ponds are scheduled to be tested this irrigation season. Other existing or subsequently constructed recharge facilities may also be used (such as the Excelsior Ditch recharge facilities), if determined feasible. Applicants may also construct additional recharge ponds on or near other participating farms, and/or in other locations as determined appropriate to deliver water to the appropriate stream locations.

At times when return flow obligations cannot be met with depletion credits, additional replacement sources may be derived from supplies in Lower Ark's "if and when" storage account in Pueblo Reservoir. If the Fowler portion of the project is included in the CWPDA Rule 14 Plan, Fowler's return flow obligations could also be met through other sources available to that plan. Lower Ark leases 2,500 acre-feet of agricultural storage and 500 acre-feet of municipal storage in Pueblo Reservoir via "if and when" accounts. Water supplies that may be stored in Lower Ark's "if and when" account may include: (1) up to 500 acre-feet annually leased by Lower Ark from the Pueblo Board of Water Works pursuant to a five-year agreement with an effective date of April 1, 2012; (2) water available pursuant to Lower Ark's ownership of 91.34 shares in Twin Lakes Reservoir; and/or (3) other sources of water that may come available to Lower Ark either through trades, lease, or ownership.

F. Stream Reaches Used to Operate the Proposed Transfer & Administrative or Hydrological Obstacles

Generally, stream reaches that will be used to operate the proposed transfers of water under the Catlin Pilot Project will include the Arkansas River: (1) from its confluence with Crooked Arroyo upstream to Pueblo Reservoir; and (2) from the confluences of Patterson Hollow, Timpas Creek, and Crooked Arroyo with the Arkansas River to the point of historical return flow delivery to and/or the delivery of recharge on Patterson Hollow, Timpas Creek, and Crooked Arroyo.

Applicants recognize that the exchange potential on the Arkansas River does pose a hydrological challenge to operation of the Catlin Pilot Project under certain conditions. Therefore, this proposal has been thoughtfully designed to include various mechanisms to allow for operation in times of limited exchange potential such as the use of stepped exchanges to intermediate storage locations, use of recharge facilities, and trades of water. Also, because the Catlin Canal augmentation stations (located on Timpas Creek and Crooked Arroyo) and the point of delivery of recharge to the Arkansas River from the Schweizer and Hanagan recharge ponds are located downstream of several of the locations of historical return flows, this proposal includes possible additional recharge locations, retiming of recharge, and use of upstream storage in order to ensure the ability of the pilot project to maintain return flows in time, location and amount to prevent injury to other water rights.

G. Necessary Structures & Ownership

Structures that may be necessary and/or desirable in the operation of the Fowler Pilot Project and their ownership are as follows:

Table 3: Structures Necessary/Desirable for Operation of Pilot Project

Structure	**Owner**
Fowler Municipal Well ID Nos.1705166A, 1705167A, 1705168A, 1705169A, 1705171A, 1705172B, 1705172A, 1705174A, 1705175A, 1705502A, 1706458A, 1706459A & Associated Water Distribution System	Town of Fowler
Fountain Valley Conduit	Fountain Valley Authority
Fountain Water System	City of Fountain
Security Water System	Security Water District
Hanagan Recharge Pond	Roger and Mary Jane Maddux
Schweizer Recharge Pond	Kenneth and Arlene Schweizer
Catlin Canal Company canal, laterals, headgate and the Crooked Arroyo and Timpas Creek augmentation stations	Catlin Canal Company
Suburban Lateral (off Catlin Canal, delivers to Hanagan Recharge Pond)	Eric Hanagan, Jaren Gardner, Diamond A Inc., Bill Seamans
Pueblo Reservoir	U.S. Department of Interior, Bureau of Reclamation
Twin Lakes Reservoir	U.S. Department of Interior, Bureau of Reclamation
Colorado Canal, Lake Meredith, Lake Henry, Lake Canal	Colorado Canal Company
Fort Lyon Storage Canal, Horse Creek Reservoir, Adobe Creek Reservoir	Fort Lyon Canal Company
Dye Reservoir, Holbrook Reservoir, Holbrook Canal	Holbrook Mutual Irrigating Company
Excelsior Ditch	Excelsior Irrigating Company
Excelsior Ditch Recharge Ponds	AGUA

As discussed above, water made available through the Pilot Project's fallowing of the historically irrigated lands will be run through and measured at the Catlin Canal Company augmentation stations. The portion of the shares historically lost to ditch seepage will be diverted at the Catlin Canal Company headgate and left in the ditch. Water will be delivered via Catlin Canal Company laterals to the Schweizer and Hanagan recharge ponds. Water will also be exchanged into and/or traded for water stored in Pueblo Reservoir. Additional structures may be used in operation of the Catlin Pilot Project to provide for intermediate storage locations along the Arkansas River and additional recharge facilities. Fountain and Security will take delivery of leased water at Pueblo Reservoir and will be responsible for transporting that water to their water systems for example, via the Fountain Valley Conduit and/or the SDS (once operational).

It is not currently anticipated that any other structures or facilities are necessary for operation of the Catlin Pilot Project. However, it is possible that additional structures either currently existing or that may be constructed during the term of the Catlin Pilot Project may be used to maximize the operational flexibility of the project.

III. Eligibility Requirements (Criteria and Guidelines § II.C)

The proposed Catlin Pilot Project meets the eligibility requirements of C.R.S. § 37-60-115(8) (a) through (c) and Section II.C of the Criteria and Guidelines. As the first fallowing-leasing pilot project to be considered for selection, the Catlin Pilot Project has been thoughtfully designed to provide an early demonstration of the feasibility of fallowing irrigated land for leasing water for temporary municipal use, while incorporating operational components that will provide useful information on the viability of leasing-fallowing. *See* Resolution of the Board of Directors of the Lower Arkansas Valley Water Conservancy District dated July 11, 2014, attached as **Exhibit I** ("Lower Ark Resolution"); Resolution of the Board of Directors of the Lower Arkansas Valley Super Ditch Company, Inc., dated July 14, 2014, attached as **Exhibit J** ("Super Ditch Resolution").

The Catlin Pilot Project will demonstrate the practice of rotationally fallowing sufficient agricultural lands (currently estimated at up to 500 acres annually) that have been historically irrigated to allow for the leasing of the historical consumptive use water for temporary municipal use by Fowler, Fountain, and/or Security in their respective municipal water systems. *See* Lower Ark Resolution; Super Ditch Resolution. The Catlin Pilot Project will demonstrate cooperation among different types of water users, including the Municipal Participants, the participating farmers, the Super Ditch, Lower Ark, and the Catlin Canal Company, CWPDA and possibly other entities operating Rule 14 plans. *See* Lower Ark Resolution; Super Ditch Resolution; Resolution of the Board of Directors of the Catlin Canal Company, dated July 8, 2014, attached as **Exhibit K** ("Catlin Resolution"). The cooperation amongst these groups will be facilitated through Lower Ark's management of operations. *Id.* The State, the participants, and other interested parties will have the opportunity to evaluate the feasibility of delivering leased water to temporary municipal users through operation of the Catlin Pilot Project. *Id.*

The Catlin Pilot Project will provide data from which the CWCB and State Engineer can evaluate the efficacy of using a streamlined approach for determining historical consumptive use, return flows, the potential for material injury to other water rights, and conditions to prevent injury. Applicants' consultants will conduct an historical use analysis using the streamlined Leasing Fallowing Tool that has been developed for the CWCB. It will also utilize the assumptions, presumptive factors and methodologies set forth in Section G of the Criteria and Guidelines, which were conservatively developed to streamline and standardize the historical use analysis so as to prevent injury to vested water rights, conditional water rights, or contract rights to water. *Id.* Through this, along with the imposition of protective terms and conditions, the Catlin Pilot Project will demonstrate how to operate, administer and account for the practice of fallowing irrigated agricultural land for leasing water for temporary municipal use without causing material injury to other vested water rights, decreed conditional water rights, or contract rights to water. *Id.*

The Catlin Pilot Project would not involve the fallowing of the same land for more than three years in a ten-year period. Additionally, because the historically irrigated lands are located in Otero County, no more than two of the three years of fallowing during the pilot project term would be consecutive pursuant to Otero County's 1041 regulations. The Catlin Pilot Project will involve only the fallowing of lands irrigated under the Catlin Canal and will not involve the fallowing of lands from more than one ditch.

The Pilot Project would not involve any transfer or facilitation of transfer of water across the continental divide by direct diversion, exchange, or otherwise, nor does it involve the transfer or facilitation of transfer of water out of the Rio Grande Basis by direct diversion, exchange or otherwise. *See* Map (**Exhibit A**). The source of water is water native to the Arkansas River; all historical irrigation with this water has occurred in the Lower Arkansas River Valley in Otero County under the Catlin Canal; and the proposed temporary municipal use will occur within each of the Municipal Participants' water service areas located wholly within Otero County as to Fowler, and El Paso County as to Fountain and Security.

It is anticipated that the Catlin Pilot Project can be implemented using existing infrastructure. However, Applicants may investigate the construction of additional recharge facilities in order to maximize the operational flexibility of the Catlin Pilot Project. Moreover, it is possible that during the 10-year term of the Catlin Pilot Project, additional facilities would be constructed that may be useful in project operations.

IV. Necessary Approvals and Agreements (Criteria and Guidelines § II.F.c)

If approved by the CWCB for operation, the Catlin Pilot Project will require certain other approvals and agreements. Representatives of Lower Ark and Super Ditch have met with and discussed the proposed Catlin Pilot Project with representatives for the Municipal Participants, the participating farmers, the Catlin Canal Company Board of Directors, and CWPDA. Based on these discussions, Lower Ark and Super Ditch believe that all of the agreements and approvals that may be necessary to operate the Catlin Pilot Project can be reasonably obtained. *See* Lower Ark Resolution; Super Ditch Resolution. Applicants currently anticipate the following agreements would be necessary for operation of the Catlin Pilot Project, some of which are already in place:

1. Lease Agreement or other appropriate agreement between Lower Ark/Super Ditch and the Municipal Participants. Lower Ark/Super Ditch have been in discussions with each of the Municipal Participants regarding the Catlin Pilot Project and letters of interest have been executed by the Municipal Participants, attached as **Exhibit L**. Additionally, both Fountain and Security previously executed long-term water lease agreements with Super Ditch which remain in place. *See* Water Lease between City of Fountain and Super Ditch dated March 13, 2012 (**Exhibit M**) and Water Lease between Security Water District and Super Ditch dated May 7, 2013 (**Exhibit N**).

2. Lease Agreements or other appropriate agreements between Lower Ark/Super Ditch and each participating farmer. Lower Ark/Super Ditch has met with potential participating farmers to discuss the terms of such agreement. Letters of interest have been obtained from the participating farmers and are attached as **Exhibit O**.

3. Catlin Canal Company approval of a plan to rotationally fallow lands historically irrigated by the canal pursuant to Article IV, Section 2 of the Catlin Canal Company Bylaws. This approval was obtained for the Super Ditch Pilot Project SWSP in 2012, indicating that such approval may be reasonably obtained for this Catlin Pilot Project. Additionally, the Catlin Resolution demonstrates their general support for the Catlin Pilot Project. **Exhibit K**.

4. Catlin Canal Company Board approval of use of Catlin Canal facilities (ditch, laterals, and augmentation station) and carriage of non-Catlin water to recharge facilities. Additionally,

the Catlin Resolution demonstrates their general support for the Catlin Pilot Project, suggesting that these approvals should reasonably be able to be obtained. **Exhibit K**. Additionally, Lower Ark has already entered into a carriage agreement with the Catlin Canal Company to allow for delivery of non-Catlin water to the recharge ponds, attached as **Exhibit P**.

5. Agreements for lease of recharge sites. Applicants currently have Recharge Site Leases in place with the owners of the land upon which the Schweizer and Hanagan recharge facilities are located, which Applicants anticipate can and will be renewed at such time that those agreements expire. *See* **Exhibits Q and R.** Additional agreements for any future locations will be obtained, as needed.

6. BOR annual renewal of Lower Ark's "if and when" storage contract. BOR routinely approves such contracts for Lower Ark and others.

In the event that Fowler depletions are to be managed as a part of CWPDA, this could involve their acceptance of water made available through operation of the Fowler Pilot Project under shares in Catlin Canal Company used on historically irrigated lands for replacement of additional out-of-priority depletions, historical return flows, and lagged return flow obligations from operation of Fowler's municipal wells through CWPDA's Rule 14 Plan and approvals/agreements associated therewith. In the event that CWPDA does not accept the dedication of the water made available through operation of the Pilot Project to provide for lagged return flows and/or approvals of the CWPDA Rule 14 Plan are not timely, the Fowler portion of the Catlin Pilot Project may nevertheless operate so long as lagged return flows are properly replaced in time, location, and amount as a part of an SWSP or other appropriate approval.

To facilitate more efficient operations, Applicants may seek to obtain permission to utilize intermediate storage locations along the Arkansas River to facilitate operation of a stepped exchanged into Pueblo Reservoir from the Colorado Canal Company, the City of Aurora, the City of Colorado Springs, and/or the Fort Lyon Canal Company. Applicants may also work with other entities to effectuate trades that could be subject of separate agreements. Applicants may also seek permission to utilize the Excelsior Recharge Ponds from the Excelsior Ditch Company and/or AGUA, or to utilize other recharge facilities that may be constructed in the future. However, these permissions and/or agreements are not necessary for operation of the Catlin Pilot Project.

V. Water Conservancy District Limitations/Requirements (Criteria and Guidelines § II.F.d)

Both the place of temporary municipal use and the historically irrigated lands are located in El Paso and Otero Counties within the boundaries of the Southeastern Colorado Water Conservancy District ("Southeastern"). It is anticipated that replacement of return flow obligations could be met through use of Lower's Ark's "if and when" account and, as to Fowler, operation of the CWPDA Rule 14 Plan. Trades with entities who store water in Pueblo Reservoir could also be effectuated to facilitate project operations and reduce transit losses. The CWPDA Rule 14 Plan involves use of Pueblo Reservoir, which is owned and operated as part of the Fry-Ark Project by the United State Department of Interior, Bureau of Reclamation. Additionally, both Fountain and Security will take delivery of their leased water into their respective "if and when" accounts in Pueblo Reservoir. Any use of the Fry-Ark Project facilities used in operation of the Catlin Pilot Project, for storage, exchange, release or otherwise, will occur only pursuant to the terms and conditions of those applicable contracts, any Rule 14 Plan approval or other approval, and all applicable rules and policies of Southeastern.

Use of Winter Water to meet return flow obligations from the fallowing of historically irrigated lands will be consistent with the terms and conditions contained in the Winter Water Storage Program ("WWSP") decreed in Case No. 84CW179 (Water Div. 2), Southeastern's contract for Winter Water storage in Pueblo Reservoir and any "if and when" contracts with the Bureau of Reclamation, and other applicable terms and conditions contained in the Rule 14 Plan. Beneficial use of such water will occur within Southeastern's district boundaries.

VI. Conclusion

Applicants appreciate the opportunity to apply for participation in the HB 13-1248 pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up. We believe that the Catlin Pilot Project requested herein meets all of the requirements for, and fulfills the objectives of, the contemplated pilot projects. Applicants therefore request the CWCB consider selection of this Catlin Pilot Project Proposal pursuant to C.R.S. § 37-60-115(8) and the Criteria and Guidelines at the CWCB's September 11-12, 2014 meeting. Applicants would welcome the opportunity to make a presentation on the Catlin Pilot Project at that time. Selection at the September meeting would allow Applicants to submit their application in time for the CWCB's consideration at the January meeting, which would accommodate the successful implementation of the Catlin Pilot Project in 2015. Please let us know if you have any questions or would like additional information.

Sincerely,

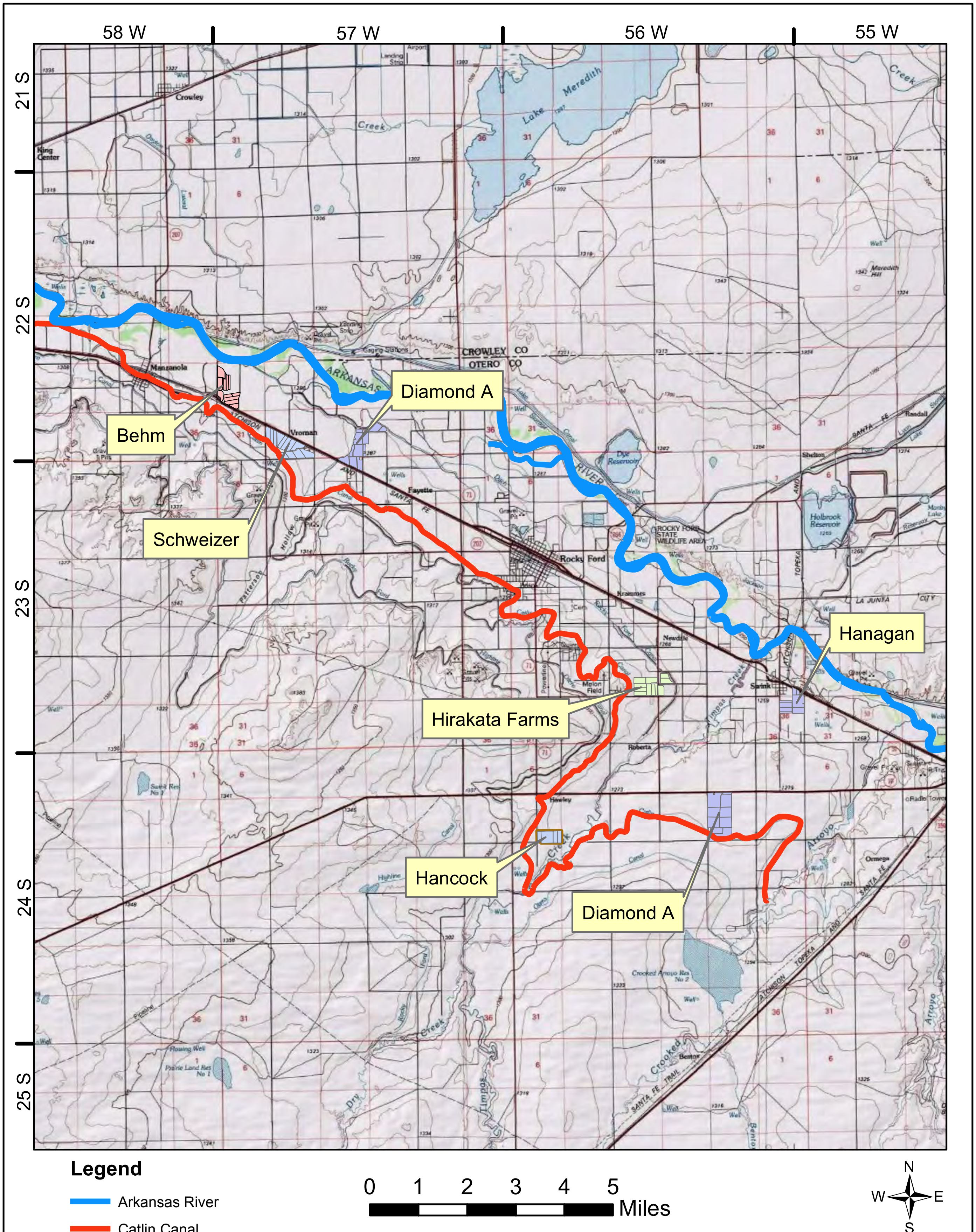
Peter D. Nichols
Leah K. Martinsson

cc: Lynden Gill, Chairman, Lower Ark
John Schweizer, President, Super Ditch
Jay Winner, General Manager, Lower Ark

Table 1
Participating Farms: Specific Lands and Parcels that will be Analyzed and Dried Up

Ownership	Lands and Parcels	Approximate Acreage based on 2003 Division 2 Data	Share Cert. Nos.[5]	# Shares Associated with Lands and Parcels
Diamond A, Inc	Portions of the W½ of Section 11, T24S, R56W of the 6th P.M., Otero County, Colorado	297	3604, 3603, 3314, 3329, 3395, 3543, 3542, 3541, 3540, 3539, 3538, 3537, 3411	267
Diamond A, Inc	Portions of the E½ of Section 33 and the W½ of Section 34, T22S, R57W, and the NE¼ of Section 4, T23S, R57W, all of the 6th P.M., Otero County, Colorado	176	Same as above	224
K2 Farms Inc. (Hirakata Farms)	Portions of the SW¼ of Section 27 and the S½ of Section 28, all in T23S, R56W of the 6th P.M., Otero County, Colorado	152	3550	151
Ken Schweizer	Portions of the S½ of the NW¼ and the S½ of Section 32, T22S, R57W of the 6th P.M., Otero County, Colorado	193	2754	194
Eric Hanagan	NE¼ of Section 36, T23S, R56W of the 6th P.M., Otero County, Colorado	108	3606, 3607, 3317	144
Willard Behm	W½ of Section 30, T22S, R57W of the 6th P.M., Otero County, Colorado	126	3196	88
Lee Hancock	S½ SE¼ of Section 7, T24S, R56W of the 6th P.M., Otero County, Colorado	76	3116	80
		1128		1148

[5] Share certificate numbers listed may represent shares in excess of those being proposed for inclusion in the Catlin Pilot Project. The shares that have been used on the lands to be fallowed in the Catlin Pilot Project will be more specifically determined as a part of Applicants' engineering analysis to support its future pilot project application.



Job No.:	816.2
Date:	14-Jul-2014
Drawn:	CML
Checked:	CRR

Catlin Canal
Pilot Project Proposal

Participating Farms

Exhibit A

M&W MARTIN AND WOOD WATER CONSULTANTS, INC.

538 Commons Drive
Golden, CO 80401
(303) 526-2600
www.martinandwood.com

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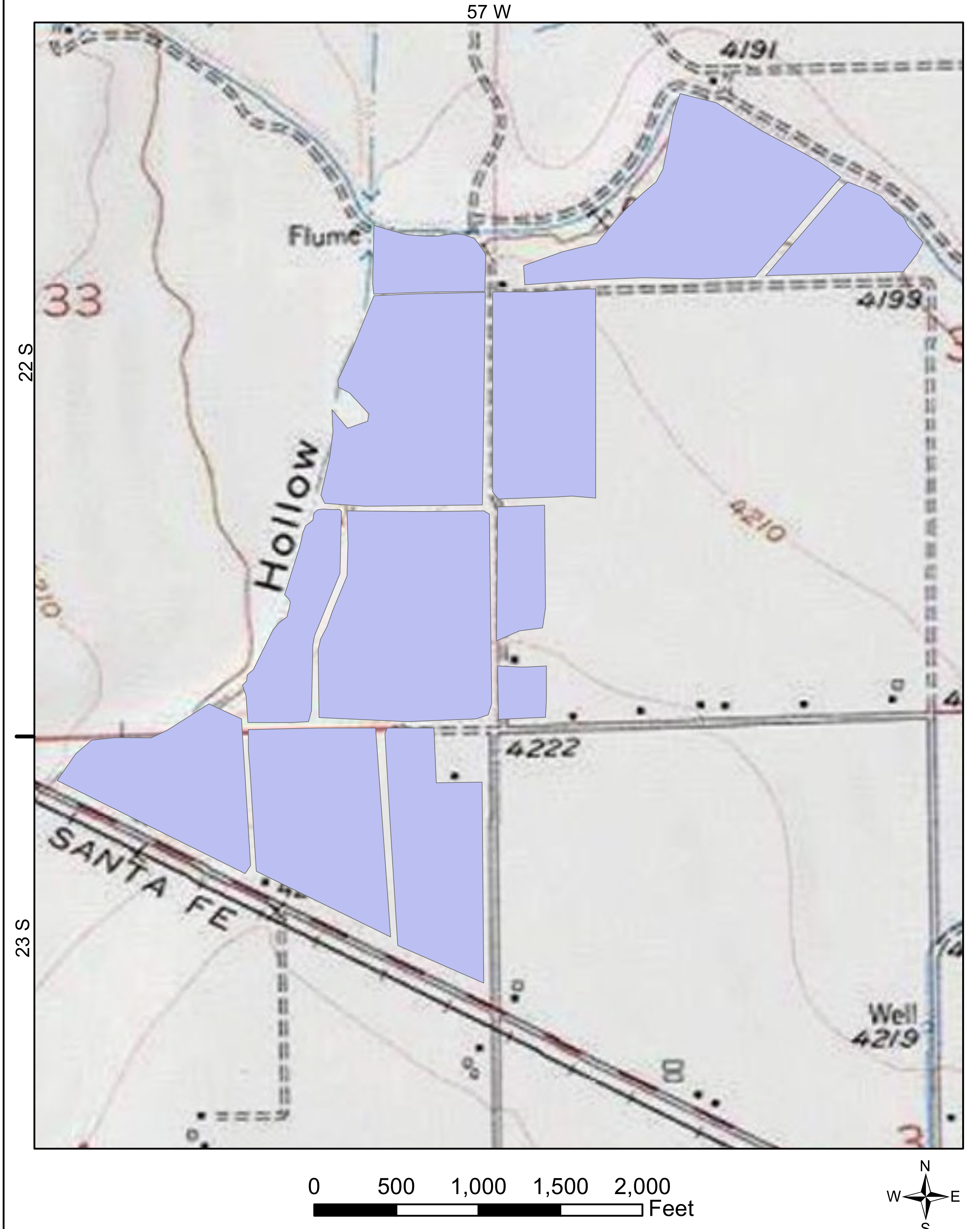

Job No.:	816.2
Date:	10-Jul-2014
Drawn:	CML
Checked:	CRR

Catlin Canal
Pilot Project Proposal

Diamond A
Super Ditch ID 1
Exhibit B

MARTIN AND WOOD WATER CONSULTANTS, INC.

538 Commons Drive
Golden, CO 80401
(303) 526-2600
www.martinandwood.com

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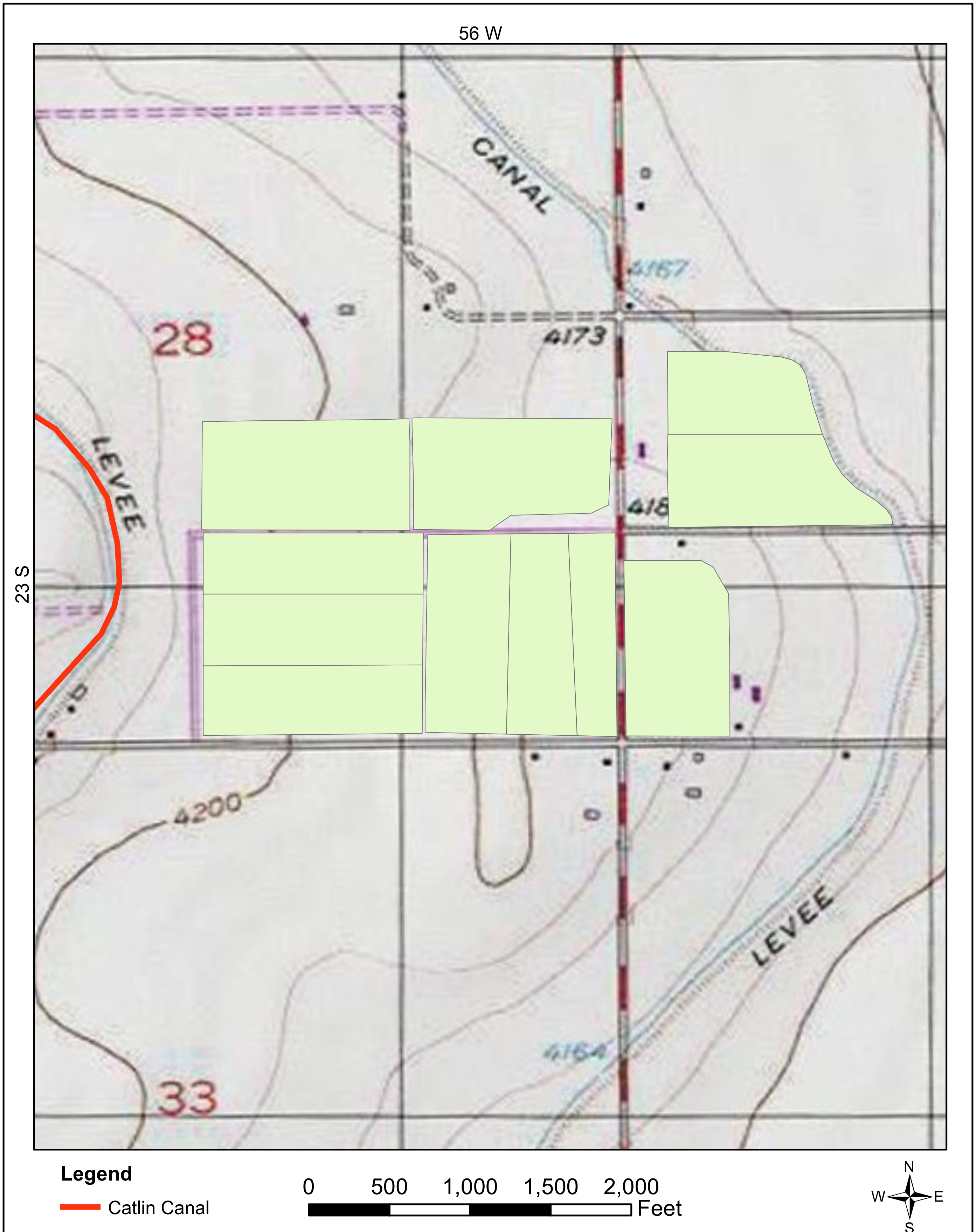

Job No.: 816.2 **Date:** 10-Jul-2014 **Drawn:** CML **Checked:** CRR	Catlin Canal Pilot Project Proposal	Hirakata Farms Super Ditch ID 2 Exhibit C	M&W MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com

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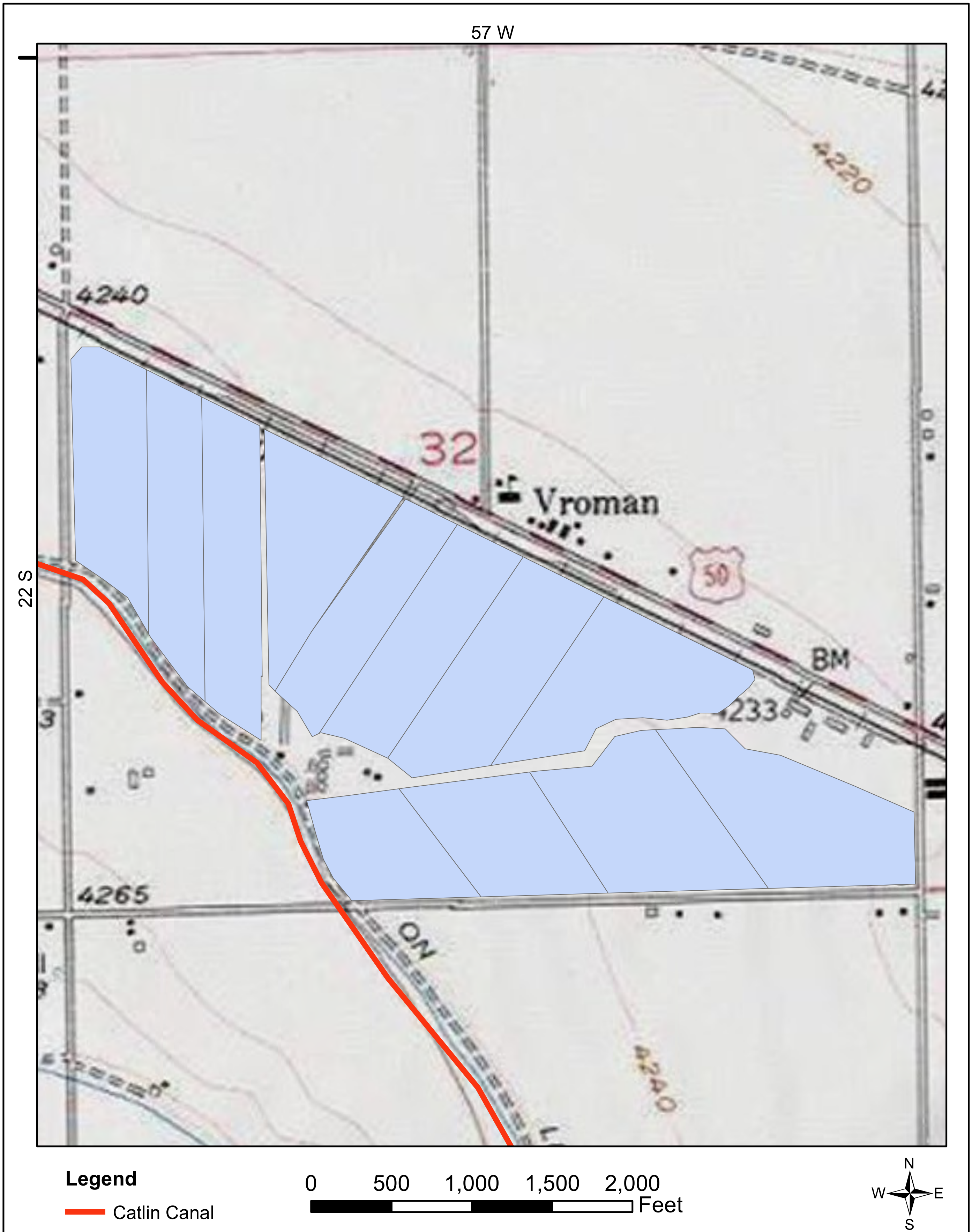

Job No.: 816.2	Catlin Canal Pilot Project Proposal	Schweizer Super Ditch ID 5 Exhibit D	M&W MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 10-Jul-2014				
Drawn: CML				
Checked: CRR				

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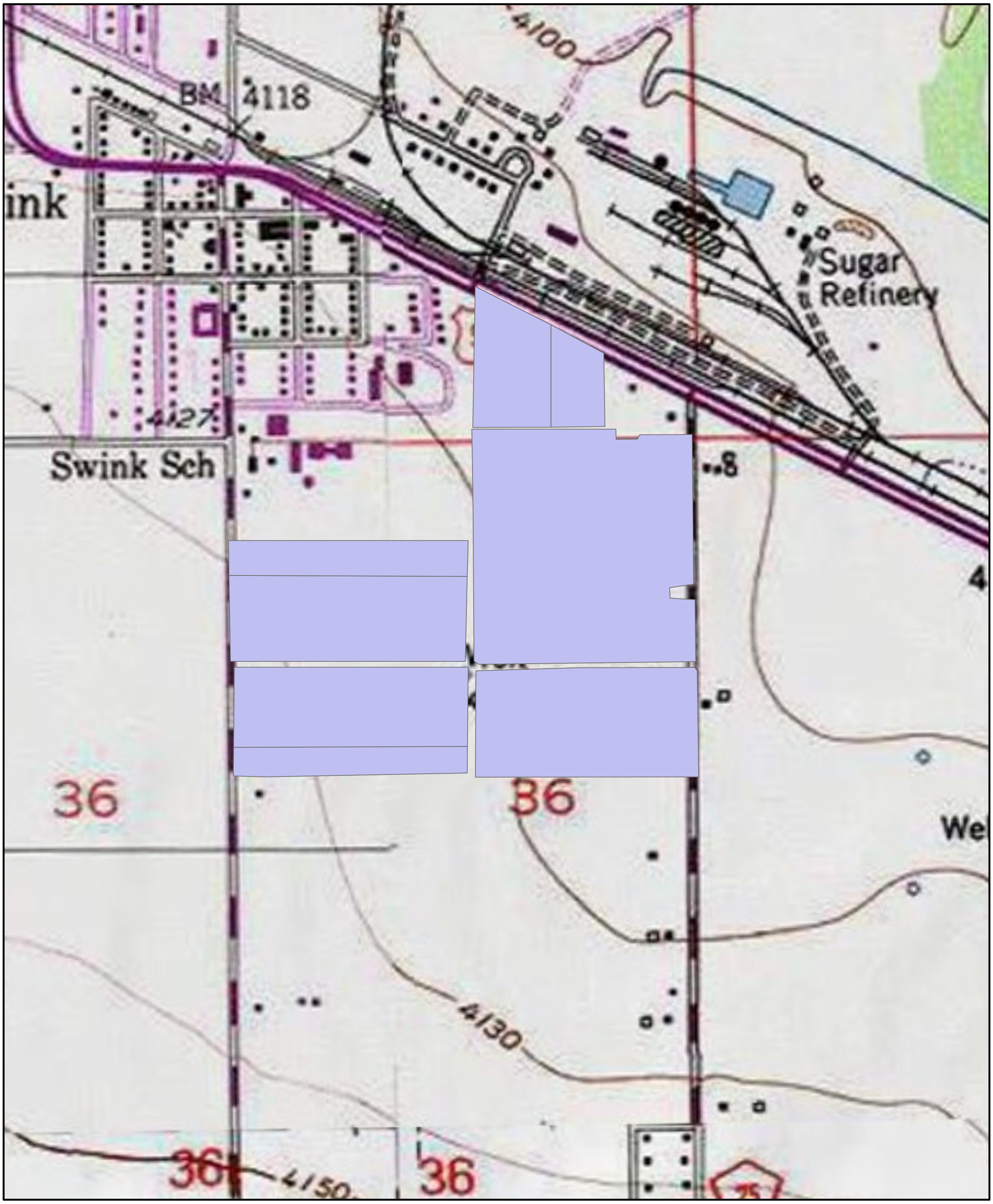
56 W

23 S



0 500 1,000 1,500 2,000
Feet

N
W E
S

Job No.: 816.2	Catlin Canal Pilot Project Proposal	Hanagan Super Ditch ID 6 Exhibit E	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 10-Jul-2014				
Drawn: CML				
Checked: CRR				

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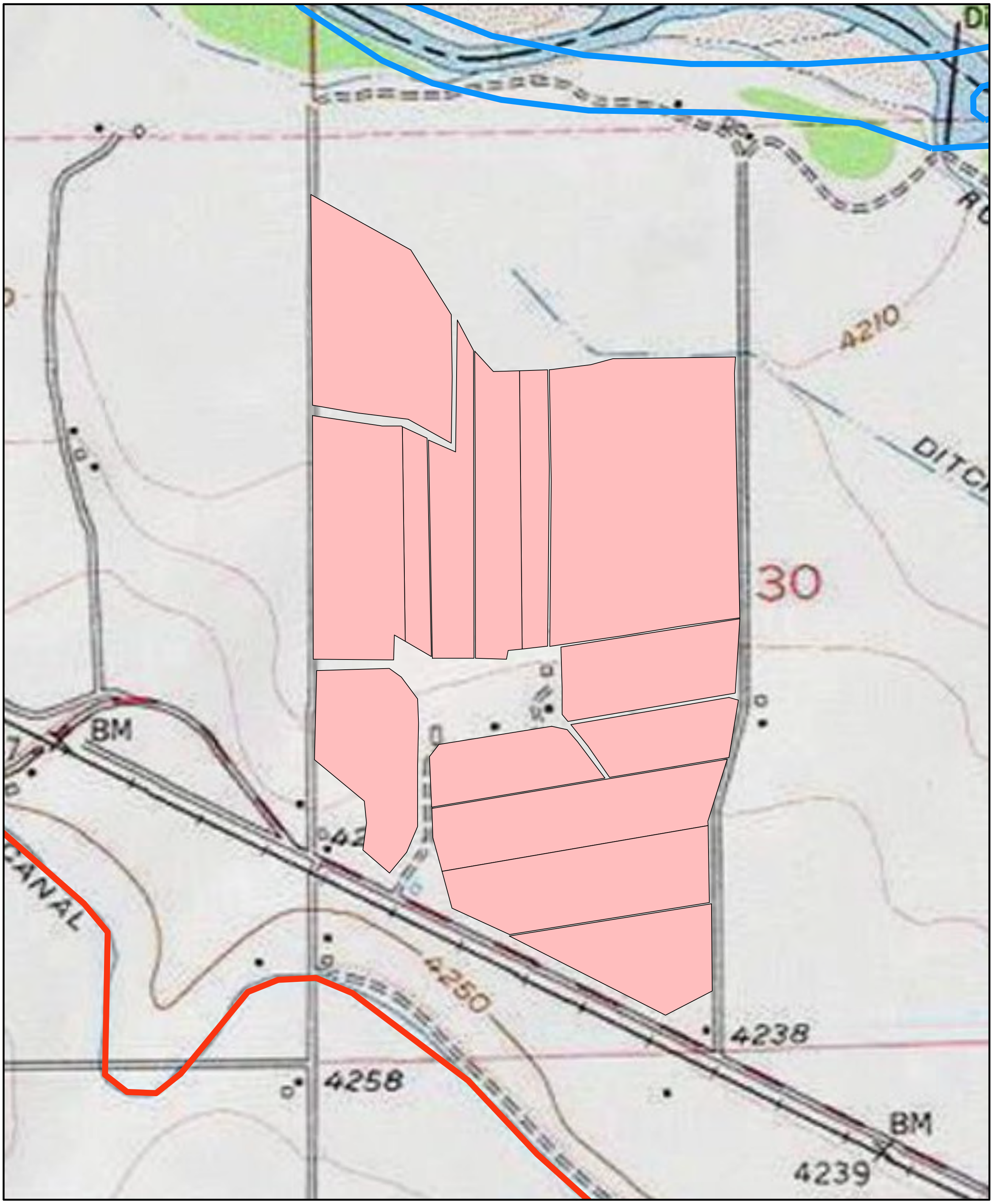
57 W

22 S



Legend

Catlin Canal

Arkansas River

0 500 1,000 1,500 2,000 Feet

N W E S

Job No.: 816.2	Catlin Canal Pilot Project Proposal	Behm Super Ditch ID 8 Exhibit F	M&W MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 14-Jul-2014				
Drawn: CML				
Checked: CRR				

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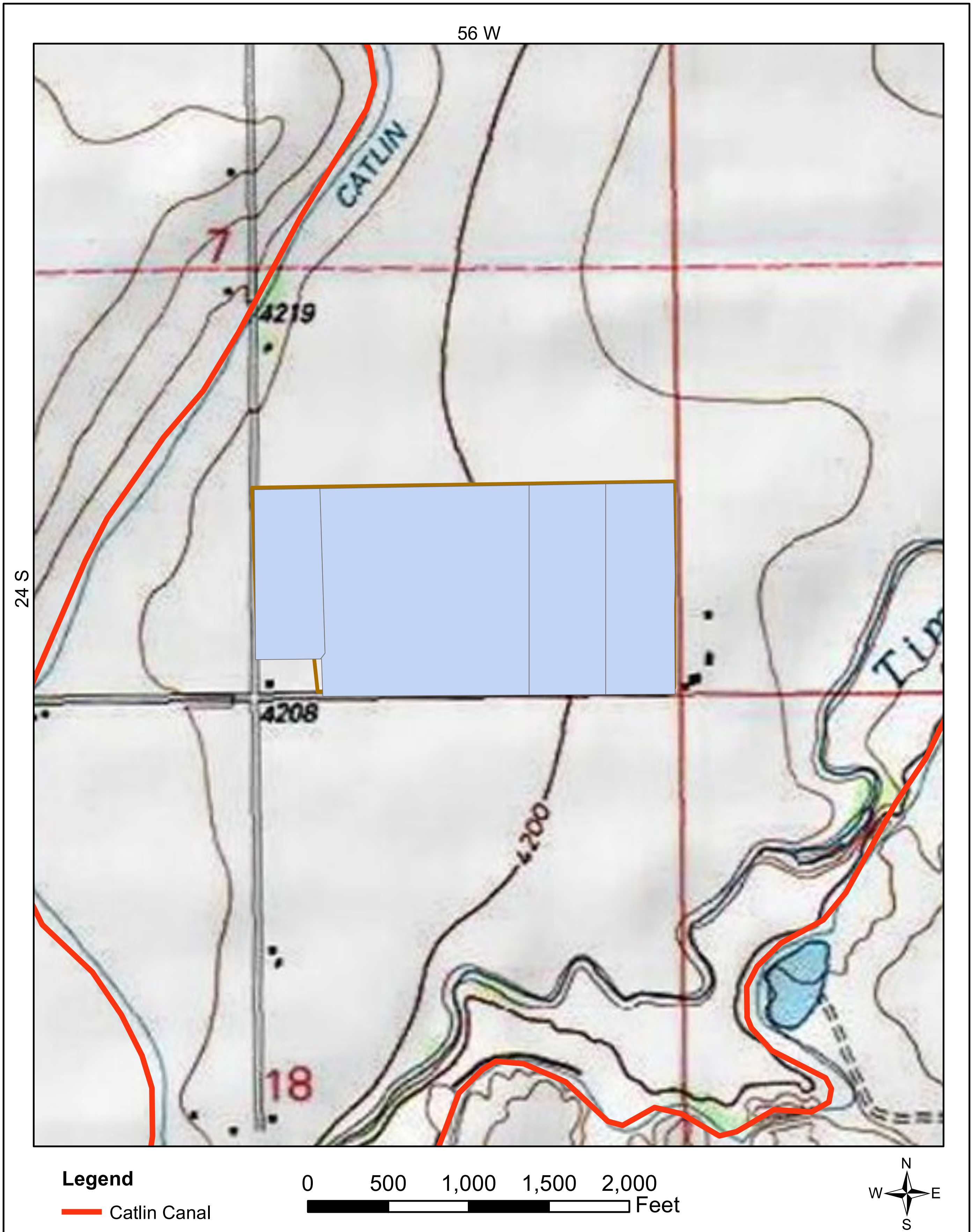

Job No.: 816.2	Catlin Canal Pilot Project Proposal	Hancock Super Ditch ID 9 Exhibit G	MARTIN AND WOOD WATER CONSULTANTS, INC.	538 Commons Drive Golden, CO 80401 (303) 526-2600 www.martinandwood.com
Date: 10-Jul-2014				
Drawn: CML				
Checked: CRR				

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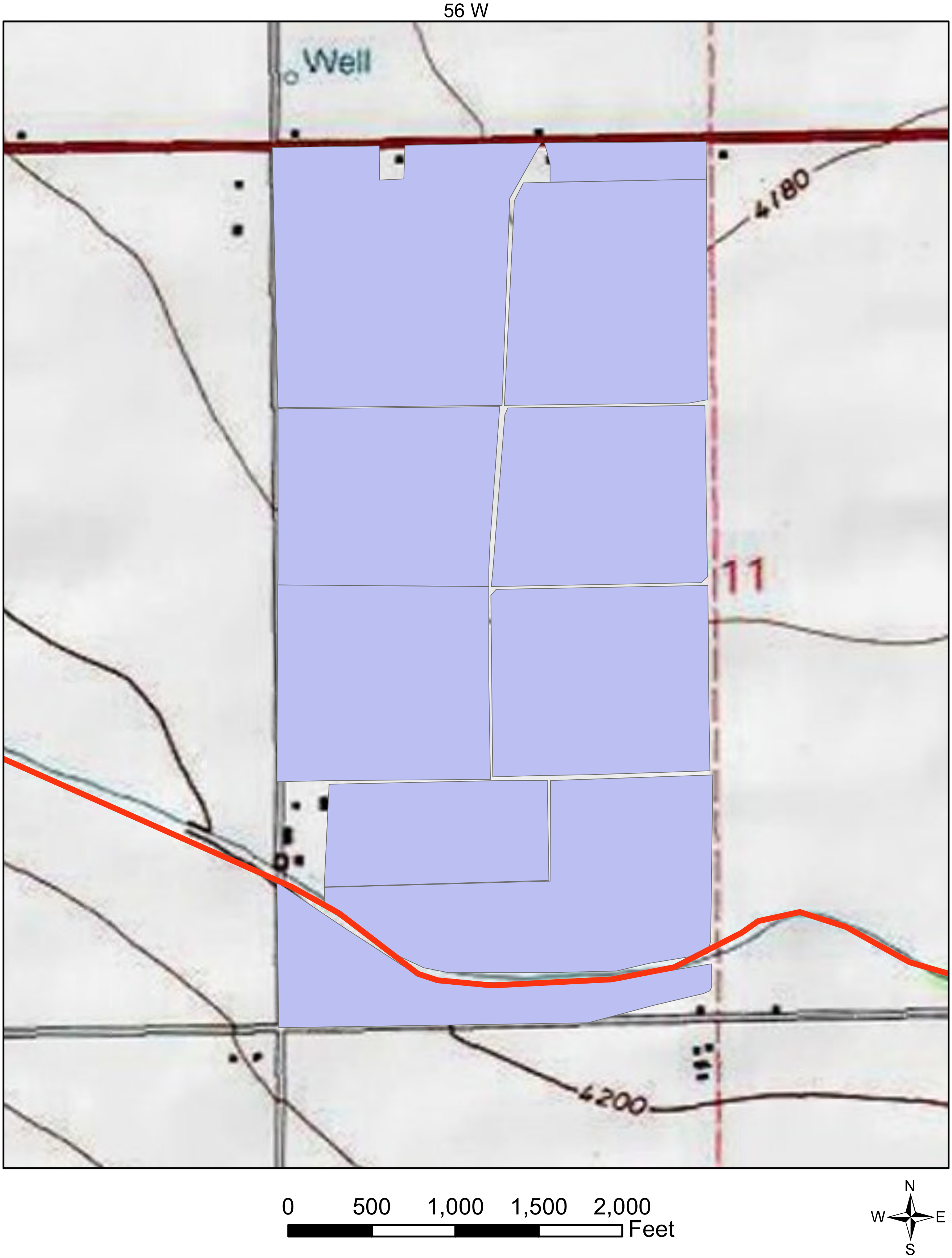

Job No.:	816.2
Date:	10-Jul-2014
Drawn:	CML
Checked:	CRR

Catlin Canal
Pilot Project Proposal

Diamond A
Super Ditch ID 10
Exhibit H

MARTIN AND WOOD WATER CONSULTANTS, INC.
538 Commons Drive
Golden, CO 80401
(303) 526-2600
www.martinandwood.com

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RESOLUTION OF THE BOARD OF DIRECTORS OF THE LOWER ARKANSAS VALLEY WATER CONSERVANCY DISTRICT CONCERNING THE CATLIN PILOT PROJECT

Whereas, the mission of the Lower Arkansas Valley Water Conservancy District ("Lower Ark") is to acquire, retain and conserve water resources within the Lower Arkansas River; to encourage the use of water for the socio-economic benefit of the District's citizens; and to participate in water-related projects that embody thoughtful conservation, responsible growth, and beneficial water usage within the Lower Arkansas Valley;

Whereas, the Lower Arkansas Valley Super Ditch Company, Inc. (the "Super Ditch Company") was incorporated to serve as a vehicle to assist shareholders in certain Lower Arkansas Valley ditch companies to lease irrigation water rights for temporary municipal use and to fallow the historically irrigated agricultural land associated with such irrigation water rights on a rotational basis;

Whereas, Lower Ark supported the passage of HB 13-1248, which authorizes the Colorado Water Conservation Board ("CWCB") to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up;

Whereas, Lower Ark, in cooperation with the Super Ditch Company, has investigated the feasibility of implementing a rotational fallowing-leasing pilot project beginning in 2015 to be located wholly within the Arkansas River Valley;

Whereas, the pilot project contemplated by Lower Ark and the Super Ditch Company will, during its anticipated ten-year term, demonstrate the practice of rotationally fallowing up to sufficient agricultural lands that have historically been irrigated under the Catlin Canal Company to allow for the leasing of up to approximately 500 acre-feet of historical consumptive use water annually for temporary municipal use by the Town of Fowler, the City of Fountain, and the Security Water District (the "Catlin Pilot Project");

Whereas, the Catlin Pilot Project will further the goals of HB 13-1248 and the Fallowing Leasing Pilot Program through:

1. Demonstrating cooperation among different types of water users, including the Town of Fowler, the City of Fountain, the Security Water District, the participating farmers, the Catlin Canal Company, the CWPDA, the Super Ditch Company, and Lower Ark;
2. Providing the State, the participants, and other interested parties with an opportunity to evaluate the feasibility of delivering leased water to temporary municipal uses;
3. Evaluating the efficacy of using a streamlined approach for determining historical consumptive use, return flows, the potential for material injury to other water rights, and conditions to prevent injury;

EXHIBIT I

4. Demonstrating how to operate, administer, and account for the practice of fallowing irrigated agricultural land for leasing water for temporary municipal use without causing material injury to other vested water rights, decreed conditional water rights, or contract rights to water;

Whereas, Lower Ark believes, based on discussions with interested parties, that all of the approvals and agreements necessary for operation of the Catlin Pilot Project can be reasonably obtained;

NOW THEREFORE, BE IT RESOLVED that the Board of Directors of Lower Ark strongly supports the CWCB Fallowing Leasing Pilot Program and to that end, authorizes the submittal of a proposal with the Super Ditch Company seeking CWCB selection of the Catlin Pilot Project proposal.

DATED: 7/11/2014

Lynden Gill

Lynden Gill
Chairman

RESOLUTION OF THE BOARD OF DIRECTORS OF THE LOWER ARKANSAS VALLEY SUPER DITCH COMPANY, INC. CONCERNING THE CATLIN PILOT PROJECT

Whereas, the stated purpose of the Lower Arkansas Valley Super Ditch Company, Inc. (the "Super Ditch Company") is "to provide an alternative to the transfer through historical 'buy and dry' to other uses of agricultural water rights in the Valley decreed for irrigation, stock, and incidental domestic use, by providing water to other users by such means as water leasing, interruptible water supply agreements, and water banking";

Whereas, the Super Ditch Company was incorporated to serve as a vehicle to assist shareholders in certain Lower Arkansas Valley ditch companies to lease irrigation water rights for temporary municipal use and to fallow the historically irrigated agricultural land associated with such irrigation water rights on a rotational basis;

Whereas, the Super Ditch Company supported the passage of HB 13-1248, which authorizes the Colorado Water Conservation Board ("CWCB") to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up;

Whereas, the Super Ditch Company, in cooperation with the Lower Arkansas Valley Water Conservancy District ("Lower Ark"), has investigated the feasibility of implementing a rotational fallowing-leasing pilot project beginning in 2015 to be located wholly within the Arkansas River Valley;

Whereas, the pilot project contemplated by Super Ditch and Lower Ark will, during its anticipated ten-year term, demonstrate the practice of rotationally fallowing of sufficient agricultural lands that have historically been irrigated under the Catlin Canal Company to allow for the leasing of up to approximately 500 acre-feet of historical consumptive use water annually for temporary municipal use by the Town of Fowler, the City of Fountain, and the Security Water District (the "Catlin Pilot Project");

Whereas, the Catlin Pilot Project will further the goals of HB 13-1248 and the Fallowing Leasing Pilot Program through:

1. Demonstrating cooperation among different types of water users, including the Town of Fowler, the City of Fountain, the Security Water District, the participating farmers, the Catlin Canal Company, the CWPDA, the Super Ditch Company, Lower Ark, and possibly other Arkansas Valley water users via exchanges and/or trades;
2. Providing the State, the participants, and other interested parties with an opportunity to evaluate the feasibility of delivering leased water to temporary municipal uses;
3. Evaluating the efficacy of using a streamlined approach for determining historical consumptive use, return flows, the potential for material injury to other water rights, and conditions to prevent injury;

4. Demonstrating how to operate, administer, and account for the practice of fallowing irrigated agricultural land for leasing water for temporary municipal use without causing material injury to other vested water rights, decreed conditional water rights, or contract rights to water;

Whereas, Super Ditch Company believes, based on discussions with interested parties, that all of the approvals and agreements necessary for operation of the Catlin Pilot Project can be reasonably obtained;

NOW THEREFORE, BE IT RESOLVED that the Board of Directors of the Super Ditch Company strongly supports the CWCB Fallowing Leasing Pilot Program and to that end, authorizes the submittal of a proposal for the Catlin Pilot Project to the CWCB.

IT IS FURTHERMORE RESOLVED that Lower Ark is authorized, on behalf of Super Ditch Company, to enter into such negotiations and to take such actions as are reasonably necessary or desirable to obtain approval for the Catlin Pilot Project.

DATED: 7-11-14

John Schweizer

John Schweizer
President

RESOLUTION OF THE BOARD OF DIRECTORS OF THE CATLIN CANAL COMPANY CONCERNING THE CATLIN PILOT PROJECT

Whereas, the Board is aware of the Colorado Water Conservation Board's ("CWCB") to pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up, authorized under HB 13-1248;

Whereas, the Board understands that the Lower Arkansas Valley Super Ditch Company, Inc. (the "Super Ditch Company") and the Lower Arkansas Valley Water Conservancy District (the "Lower Ark District") are pursuing ~~a~~ such a rotational fallowing-leasing pilot project involving lands irrigated under the Catlin Canal Company to provide water to certain municipal water users;

Whereas, the Board is aware that there may be certain approvals and/or agreements that may be required between the Catlin Canal Company and the Super Ditch Company, the Lower Ark District, the participating farmers, and/or the municipal users;

Whereas, the Board believes that the proposed Catlin Pilot Project will further the goals of HB 13-1248 and the Fallowing Leasing Pilot Program through demonstrating cooperation among different types of water users, including cooperation between the Catlin Canal Company and pilot project participants;

NOW THEREFORE, BE IT RESOLVED that the Board of Directors of the Catlin Canal Company is generally supportive of the goals of the CWCB Fallowing Leasing Pilot Program and the proposed Catlin Pilot Project.

IT IS FURTHERMORE RESOLVED that the Board of Directors of the Catlin Canal Company looks forward to cooperating with the Super Ditch Company and the Lower Ark District in their effort to obtain approval for and implement the proposed Catlin Pilot Project in a manner that does not result in injury to the Catlin Canal.

DATED: 7-8-14

John Schweizer

John Schweizer
President

EXHIBIT K

City of Fountain
Pure Colorado

Jay Winner, General Manager
Lower Arkansas Valley Water Conservancy District
801 Swink Ave.
Rocky Ford, CO 81067

John Schweizer, President
Lower Arkansas Valley Super Ditch Company, Inc.
801 Swink Ave.
Rocky Ford, CO 81067

Re: Water Leasing/Land Fallowing Pilot Program

Dear Messrs. Winner and Schweizer:

We are writing to express the City of Fountain's willingness to participate as a municipal lessee of water that may be made available pursuant to a proposed HB 13-1248 pilot project, for rotational land fallowing-water leasing. We understand that the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. are pursuing such a pilot project with farmers on the Catlin Canal Company.

Fountain is supportive of water leasing to meet some municipal needs as an alternative to permanent buy-and-dry of agricultural lands. Fountain also supports the Lower Ark District's and Super Ditch's efforts to investigate and demonstrate the feasibility of water leasing through the Catlin Pilot Project. As you know, Fountain spent considerable time and effort in its participation in the unsuccessful 2012 pilot project that preceded HB 13-1248, and Fountain hopes for the success of this pilot program. As in the past, the City of Fountain would be interested in leasing up to 125 acre-feet annually as a part of the Catlin Pilot Project, in order to supplement its municipal water supplies.

We understand that the Lower Ark District and the Super Ditch are currently preparing a proposal for the Catlin Pilot Project, which is the first step in a two-step approval process with the Colorado Water Conservation Board ("CWCB"). Fountain is prepared to engage in negotiations regarding specific lease terms for Fountain's lease of water made available through the Catlin Pilot Project, upon the CWCB's acceptance of the proposal. We look forward to working with the Lower Ark District and the Super Ditch to reach such a mutually-acceptable agreement.

Sincerely,

Curtis A. Mitchell, P.E.
Utilities Director
City of Fountain

Security Water and Sanitation Districts / Enterprises
231 SECURITY BLVD. • COLORADO SPRINGS, COLORADO 80911
TELEPHONE 719-392-3475 • FAX 719-390-7252
www.securitywsd.com

July 8, 2014

Jay Winner, General Manager
Lower Arkansas Valley Water Conservancy District
801 Swink Ave.
Rocky Ford, CO 81067

John Schweizer, President
Lower Arkansas Valley Super Ditch Company, Inc.
801 Swink Ave.
Rocky Ford, CO 81067

Dear Messrs. Winner and Schweizer:

We are writing to express our interest in participating as a municipal lessee of water that may be made available pursuant to a proposed HB 13-1248 pilot project for rotational land fallowing-water leasing. We understand that the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. are pursuing such a pilot project with farmers on the Catlin Canal Company ("Catlin Pilot Project").

The Security Water District in meeting a portion of its total water rights needs is supportive of leasing water to meet municipal needs as an alternative to the more typical buy-and-dry of agricultural water rights to meet municipal needs. Security also supports the Lower Ark District's and Super Ditch's efforts to investigate the feasibility of water leasing through the Catlin Pilot Project, as previously demonstrated by its participation in the unsuccessful 2012 pilot project that preceded HB 13-1248. Subject to the negotiation of an acceptable lease agreement, and as part of the Catlin Pilot Project, Security would be interested in leasing up to 125 annual acre-feet of water delivered to Pueblo Reservoir to supplement Security's existing water supplies.

We understand that the Lower Ark District and the Super Ditch are currently preparing a proposal for the Catlin Pilot Project, which is the first step in a two-step approval process with the Colorado Water Conservation Board ("CWCB"). Security is prepared to pursue negotiations regarding the specific lease terms for Security's lease of water made available through the Catlin Pilot Project upon the CWCB's acceptance of the proposal. We look forward to working with the Lower Ark District and the Super Ditch to reach such a mutually-acceptable agreement.

Sincerely,
Security Water District

Roy E. Heald

Roy E. Heald, General Manager

EXHIBIT L

"A Great Place to Grow"
317 Main Street Fowler, Co 81039
Phone: 719-263-4461 Fax: 719-263-5845

Jay Winner, General Manager
Lower Arkansas Valley Water Conservancy District
801 Swink Ave.
Rocky Ford, CO 81067

John Schweizer, President
Lower Arkansas Valley Super Ditch Company, Inc.
801 Swink Ave.
Rocky Ford, CO 81067

Dear Mr. Winner and Mr. Schweizer:

We are writing to express our interest in participating as a municipal lessee of water that may be made available pursuant to a proposed HB 13-1248 pilot project for rotational land fallowing-water leasing. We understand that the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. are pursuing such a pilot project with farmers on the Catlin Canal Company.

The Town of Fowler is supportive of water leasing to meet municipal needs as an alternative to buy-and-dry of agricultural water rights to meet municipal needs. Fowler also supports the Lower Ark District's and Super Ditch's efforts to investigate and demonstrate the feasibility of water leasing through the Catlin Pilot Project, as demonstrated by its participation in the previous 2014 pilot project application under HB 13-1248 that was ultimately withdrawn. Fowler would be interested in leasing up to 250 acre-feet annually to supplement Fowler's water supplies as a part of the Catlin Pilot Project.

We understand that the Lower Ark District and the Super Ditch are currently preparing a proposal for the Catlin Pilot Project, which is the first step in a two-step approval process with the Colorado Water Conservation Board ("CWCB"). Fowler is prepared to pursue negotiations regarding specific lease terms to facilitate Fowler's lease of water made available through the Catlin Pilot Project upon the CWCB's acceptance of the proposal. We look forward to working with the Lower Ark District and the Super Ditch to reach such a mutually-acceptable agreement.

Sincerely,

Ralph Rogers

EXHIBIT L(2)

BERG HILL GREENLEAF & RUSCITTI LLP

ATTORNEYS & COUNSELORS AT LAW

1712 Pearl Street • Boulder, Colorado 80302

Tel: 303.402.1600 • Fax: 303.402.1601

bhgrlaw.com

Peter D. Nichols
Leah K. Martinsson

Email: pdn@bhgrlaw.com
lkm@bhgrlaw.com

July 23, 2014

Via E-mail Transmission
Colorado Water Conservation Board
James Eklund, Director
Tom Browning, Deputy Director
1313 Sherman Street, Room 721
Denver, CO 80203

Re: *HB 13-1248 Catlin Canal Pilot Project Proposal for CWCB Selection*

Dear Mr. Eklund and Mr. Browning:

On July 14, 2014, we submitted a fallowing-leasing pilot project proposal for the Catlin Pilot Project on behalf of the Lower Arkansas Valley Water Conservancy District and the Lower Arkansas Valley Super Ditch Company, Inc. Since the date of that submittal, the Town of Fowler has provided a letter expressing their interest in participating as a municipal lessee in the Catlin Pilot Project. A copy of that letter is enclosed and is labeled as Exhibit L(2). We ask that you post this additional exhibit to the CWCB website.

If you have any questions or need additional information, please let me know. We appreciate your assistance and look forward to working with the CWCB as the Catlin Pilot Project proposal moves forward.

Sincerely,

Leah K. Martinsson

/tmg
enc.: Exhibit L(2), Letter of Interest – Fowler
cc: Jay Winner, General Manager, Lower Ark

841466

WATER LEASE

This Water Lease (the "Lease") is made and entered into this 13th day of March, 2012, by and between The Lower Arkansas Valley Super Ditch Company, a Colorado corporation (hereinafter called the "Super Ditch") and the City of Fountain, Colorado, a Colorado municipal corporation, and home rule city by and through the City of Fountain Electric, Water, and Wastewater, Utility Enterprise (hereinafter called "Fountain" or "Lessee"), and collectively referred to as the "Parties."

RECITALS

WHEREAS, irrigators in the Lower Arkansas Valley incorporated the Super Ditch to meet municipal water supply needs through leasing their water rather than selling their water; and

WHEREAS, Fountain supports water leasing in appropriate circumstances to meet municipal needs as an alternative to buy-and-dry of agricultural water rights to meet municipal needs; and

WHEREAS, the Super Ditch is in the business of leasing water supplies on behalf of irrigators in the Lower Arkansas Valley; and

WHEREAS, the Super Ditch can deliver leased water to Pueblo Reservoir; and

WHEREAS, Fountain can currently deliver leased water through its interest in the Fountain Valley Conduit, and may in the future deliver such water through its interest in the Southern Delivery System from Pueblo Reservoir to Fountain's water service area; and

WHEREAS, Fountain desires to lease water from irrigators through the Super Ditch to supplement its water supplies; and

WHEREAS, irrigators desire to lease water to Fountain through the Super Ditch to meet municipal needs; and

WHEREAS, the Super Ditch has or will have fully consumable water available for lease to Fountain under the terms of this Lease.

AGREEMENT

NOW THERFORE, in consideration of the foregoing recitals, the mutual promises contained herein, and the payments to be made hereunder, the Parties agree as follows:

1. <u>Amount</u>. The Super Ditch hereby leases up to 2,000 acre-feet per water year of fully consumable water ("Leased Water") to Fountain. For purposes of this Water Lease, a

EXHIBIT M

"water year" is the period from November 1 - October 31. A water year includes the "initial partial water year" as set forth in paragraph 4 of the Lease.

a. Volume.

   i. The amount of the Leased Water shall be 125 acre-feet for the first water year of this Lease.

   ii. After the first water year of this Lease, Lessee may, in whole or in part, increase the amount of Leased Water to be delivered in a water year up to a total of 2000 acre-feet per water year by providing Super Ditch with written notice by October 31st of the preceding water year.

   iii. Lessee may, in whole or in part, convert this annual lease to a term lease, after the first water year and before the end of the fifth water year of this Lease (October 31, 2016), and increase the total amount of Leased Water up to 2,000 acre-feet per water year.

b. Use of Water. The Parties recognize that Lessee may use the Leased Water to be delivered for any lawful purpose.

c. Substitute Water Supply Plans, Augmentation Plans, and Replacement Plans. In addition to direct use, the Parties recognize that Lessee may use the Leased Water to be delivered under this Lease in one or more substitute water supply plans, augmentation plans, and/or replacement plans.

d. Reuse Rights. Lessee shall have all rights to fully consume the Leased Water following delivery and the Super Ditch shall have no further rights to the water once delivered.

e. Choice of Source. The Super Ditch may make the actual delivery of the Leased Water from any source available to it, with the source(s) to be at the option of the Super Ditch. The Super Ditch may, at its option, change the sources of the Leased Water from time to time to suit the water supplies available to it and for its operational convenience.

f. Not a Permanent Supply. The Parties understand and agree that this Lease is not to be interpreted as any commitment on the part of the Super Ditch to furnish water to Lessee on a permanent basis, but rather is to supply water for the term of the Lease.

2. Delivery. The Super Ditch will deliver, and Lessee will take delivery of, the Leased Water at Pueblo Reservoir, at one or more outlets from Pueblo Reservoir, or into Lessee's own or another storage account in the Reservoir ("Point of Delivery").

   a. Delivery Schedule. Lessee shall provide Super Ditch with a delivery schedule by March 1 setting forth monthly delivery volumes for the delivery of all of the Leased Water by the end of the water year (October 31), except that the Lessee may modify the delivery schedule in response to a significant unanticipated problem in taking delivery. The Super

Ditch will use its best efforts to deliver the Leased Water in accordance with the delivery schedule provided, however, that until Lessee has a storage account in Pueblo Reservoir for Leased Water, both parties will use their best efforts, including the use of storage accounts in Pueblo Reservoir, to deliver and take delivery of the Leased Water at rates that facilitate Lessee's direct delivery of the Leased Water to Lessee's pipelines from Pueblo Reservoir. If the Super Ditch cannot deliver the Leased Water in accordance with the delivery schedule using its best efforts, the Super Ditch may modify the delivery schedule and thereafter shall provide Lessee with thirty (30) days advance notice of the delivery so that Lessee can be prepared to take delivery of the Leased Water. The Leased Water shall be deemed delivered in accordance with the proposed delivery schedule when physically made available to the Lessee at the Point of Delivery.

b. Final Delivery Date. The Super Ditch agrees to make the Leased Water available for delivery no later than October 31st for each year this Lease is in effect.

c. Diversion Measurement and Administration. Lessee shall provide appropriate and lawful means of taking delivery of the Leased Water from Pueblo Reservoir, including such measuring devices and accounting as the Colorado administrative authorities and the United States Bureau of Reclamation may require.

d. Transportation and Evaporation Losses. The Lessee shall be responsible for all evaporative losses after it takes delivery in accordance with its original delivery schedule, provided, however, that a party that alters such delivery schedule shall be responsible for all evaporative losses resulting from such change. In the event the Lessee takes delivery of the Leased Water into storage rather by direct flow, or the Super Ditch arranges to store any Leased Water in Pueblo Reservoir after delivery at the Lessee's request, Lessee shall bear all evaporative losses on and after the date of delivery. In the event the Lessee takes delivery of the Leased Water and releases it from Pueblo Reservoir rather than delivering it into the Fountain Valley Conduit or Southern Delivery System to meet its needs, Lessee shall bear all transportation losses from the Point of Delivery.

3. Lease Price and Payment.

a. Lease Price. Lessee agrees to pay to the Super Ditch an annual lease payment of $500 per acre-foot of Leased Water ("Lease Price"). The Lease Price shall be adjusted every five years by the percent change in the Colorado Municipal League Index of Colorado Utility Costs or another mutually agreeable index or, if that index is no longer prepared, another comparable index.

b. Invoices and Payment. The Parties agree that the water leased hereunder is on a "take or pay" basis provided that Super Ditch makes the Leased Water available at the Point of Delivery. Lessee shall accordingly make payment for the Leased Water, whether or not the quantities leased are actually taken by the Lessee or are required for use by the Lessee. The Super Ditch shall invoice Lessee by January 31st, except for the initial partial year for which Super Ditch shall invoice Lessee within thirty (30) days commencing on the date of execution of the Lease by both Parties. Payment is due within 30 days of the invoice date.

4. Term of Lease. This Lease is for an initial term of one partial water year (the "initial partial water year") commencing on the date of execution of this instrument by both Parties and terminating on October 31, 2012, provided, however, that the Lease shall automatically renew for thirty-nine successive one-year terms except as provided below.

   a. Lessee may at its option, at any time after October 31, 2012 and prior to November 1, 2016, convert this annual lease, in whole or in part, into a term lease for a term ending October 31, 2051 ("Term Lease").

      i. If before November 1, 2016, the Lessee converts this Lease to a Term Lease, such Lessee will earn a "Priority Right" over all future lessees to the delivery of water leased through the Super Ditch in accordance with the date of this Lease. Such Priority Right shall become effective with respect to the total amount of Leased Water to be delivered and paid for pursuant to the Term Lease.

      ii. If the Lessee exercises its option under this paragraph 4.a., the Super Ditch will make its best efforts to carry over sufficient water in storage to ensure the reliable and firm yield delivery of the Leased Water in a drought-year.

      iii. If the Lessee exercises its option under this paragraph 4.a., Lessee shall have the right to renew this Lease for an additional term of up to 40 years at the fair market rental value per acre-foot at the time of renewal, but not less than the then-current Lease Price. The parties will negotiate the fair market rental in good faith and will use arbitration, if necessary, to arrive at the fair market rental.

      iv. Lessee may exercise this option with a "ramp up" schedule whereby the amount of Leased Water to be delivered and paid for each year under the Term Lease will increase in five-year steps (in years 5, 10, 15, 20, 25, 30, and/or 35 and all subsequent years),up to a total of 2,000 acre-feet per year, provided however, that the Lessee shall have the right to defer or accelerate up to fifteen percent (15%) of such increased deliveries for up to five (5) years upon two (2) years advance notice.

   b. Lessee may terminate this Lease upon notice to the Super Ditch at any time between September 15 and October 31, provided the Lessee has not converted this Lease to a Term Lease.

   c. This lease is subject to annual appropriation of funds for payment of the lease obligations for the following water year by the City Council of Fountain.

   d. Either Party may terminate this Lease in the event any one or more of the following contingencies is not satisfied:

i. Subscription by the Super Ditch for the lease of sufficient water supplies by December 31st to provide the annual Leased Water in the coming year;

ii. Subscription by the Super Ditch for the lease of sufficient water supplies by December 31st of the year following conversion of this Lease into a Term Lease to meet the initial delivery requirements of the Term Lease.

iii. Subscription by the Super Ditch for the lease of sufficient water supplies by December 31st preceding a "ramp up" in the amount of Leased Water to be delivered in the following years to meet the "ramped-up" delivery requirements of the Term Lease;

iv. Acceptable terms and conditions allowing the use of the Leased Water for all municipal uses, reuse, replacement and augmentation from the Point of Delivery in one or more water court decreed changes of water rights for Leased Water and/or substitute water supply plans or other administrative approval.

e. Notice of termination shall be in writing and provided in accordance with Paragraph 10.b, below. The termination of this Lease shall not release any party from any obligations or liabilities already incurred pursuant to the terms of this Lease. Lessee hereby agrees, following the termination of this Lease, to execute any documentation requested by Super Ditch for the purposes of documenting such termination and to consent to the recording of such documentation.

5. Legal and Engineering.

a. The Super Ditch, in cooperation with Lower Arkansas Valley Water Conservancy District, shall provide legal counsel, engineering and other consultants necessary to permit the Leased Water to be fully consumable for Lessee's direct use within its existing and future municipal service areas. Lessee shall not oppose and may participate as a co-applicant or file a non-adverse statement of opposition in any administrative or water court proceeding for such purpose at its own expense.

b. Lessee shall be responsible for any other administrative or water court proceeding necessary to use the Leased Water for municipal purposes after delivery. The Super Ditch will cooperate with the Lessee to provide information regarding the sources of Leased Water, which Lessee may need to obtain legal approval for substitute water supply plans, augmentation plans, reuse and successive use, replacement plans, or storage space in Pueblo Reservoir. Lessee shall reimburse the Super Ditch for any legal, engineering or consulting expenses incurred in response to any request by Lessee to provide more than existing information regarding sources of Leased Water, such as additional hydrological modeling, expert reports, or testimony.

6. Permits and Other Approvals. The Super Ditch shall obtain all permits and other governmental approvals necessary to deliver Leased Water to Pueblo Reservoir and to conduct its rotating fallowing program, for example, NEPA compliance for long term excess

capacity storage in Pueblo Reservoir and land use approvals, if any. Lessee shall obtain all permits and other governmental approvals to store water in Pueblo Reservoir in its own storage accounts and/or to deliver water from the Reservoir to Lessee's place of use, as necessary for Lessee to take delivery of the Leased Water.

7. Breach, Default and Remedies.

   a. Default. The occurrence of any one or more of the following events that is not cured as provided below shall constitute a default and breach of this Lease.

      i. The failure by Lessee to timely pay the lease payment.

      ii. The failure by the Super Ditch to deliver at least eight-five percent (85%) of the Leased Water for three or more years during a period of ten consecutive years.

   b. Late Payment. In the event that the Lessee has not paid the lease payment within 30 days of the date of the invoice, interest shall accrue at the rate of five (5) percent per annum.

   c. Right to Cure. In the event that either party believes that the other is in breach of any obligation under this Lease, the non-breaching party shall promptly give written notice of the breach to the other party. If a notice of breach is provided, the party accused of the breach shall either cure it or provide a written statement explaining why it is not in breach. If the alleged breach is not cured or otherwise resolved within thirty (30) days (or, if the breach cannot reasonably be cured within 30 days, within such additional period as may be reasonably required to cure the breach), the non-breaching party may declare a default.

   d. Remedies. In the event that either party declares a default, each party shall have all remedies provided in this Lease or by law or equity.

   e. Damages. To the extent not included in paragraph 10.o., in the event that the Lessee breaches and Super Ditch declares a default, the Super Ditch shall be entitled to damages in an amount equal to the value of the lease payments that would be due for the delivery of the Leased Water for the balance of a one-year term of this Lease so long as this is a year to year lease, less any costs or expenses avoided by Super Ditch for non-delivery of the Leased Water and less the net revenue the Super Ditch receives from reasonable efforts to mitigate its damages including, without limitation, lease of the Leased Water to others. Super Ditch shall have a duty to undertake reasonable efforts to mitigate its damages. To the extent not included in paragraph 10.n., in the event that Lessor breaches and Lessee declares a default, Lessee shall be entitled to damages as provided by law. Damages for breach of the Term Lease by either Lessee or Lessor shall be determined as set forth in an addendum to or restatement of this Water Lease.

   f. Waiver. Failure of either party to this Lease to exercise any right hereunder shall not be deemed a waiver of such party's right and shall not affect the right of said party to exercise, at some future time, said right or rights or any other right it may have hereunder. No waiver of any of the provisions of this Lease shall be deemed or shall constitute a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

8. Title to Water Rights. Lessee recognizes that its rights to water pursuant to this Lease are solely contractual, and that nothing herein shall be interpreted to give Lessee any legal or equitable title in or to any water rights of Super Ditch or its lessor participants.

9. Pledge or Encumbrance. Lessee shall not pledge or otherwise encumber this Lease or the Leased Water, provided, however, that the Leased Water may be included in a plan for augmentation or replacement plan, including augmentation or replacement of past, present or future well depletions, subject to the terms and conditions of this Lease. Provided further that Lessee may encumber its contractual rights to the Leased Water in order to satisfy a requirement of a lending agency concerning the availability of water to sell to consumers to obtain revenue to repay a water system related debt, such as, without limitation, a loan from the Colorado Water Conservation Board, Colorado Water and Power Development Authority, bond holders, or a financial institution.

10. Miscellaneous.

a. Entire Agreement, Modification. This Lease constitutes the entire agreement between the Parties pertaining to the subject matter described in it and supersedes any and all prior or contemporaneous agreements, representations, and understandings. This Lease may be modified, amended, changed or terminated in whole or in any part only by an agreement in writing duly authorized and executed by the parties hereto with the same formality as this Lease.

b. Notice. All notices to be given with respect to this Lease shall be in writing. Each notice shall be sent by United States mail, first class postage prepaid, to the party to be notified at the address set forth herein or at such other address as either party may from time to time designate in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing herein shall be construed to preclude personal service of any notice in the manner prescribed for personal service of a summons or other legal process. All notices required to be given to the Super Ditch hereunder shall be delivered to:

Lower Arkansas Valley Super Ditch Company
Attn: President
801 Swink Avenue
Rocky Ford, Colorado 81067
Tel: 719-254-5115
Fax: 719-254-5150
[e-mail]

or at such other address as the Super Ditch may direct in accordance with this paragraph.

All notices required to be given to Lessee hereunder shall be delivered to:

City of Fountain
Attn: Utilities Director/Manager
116 S. Main St.
Fountain, Colorado 80817
Tel: 719-322-2020
Fax: 719-322-2002
[e-mail] lpatterson@fountaincolorado.org

or at such other address as Lessee may direct in accordance with this paragraph.

c. Non-Business Days. If the date for any action under this Lease, other than the beginning or end of the Initial Term, falls on a Saturday, Sunday or a day that is a legal holiday, then the relevant date shall be extended automatically until the next day that is not a Saturday, Sunday or holiday.

d. Assignment. This Lease may be assigned by Lessee subject to prior written approval by the Super Ditch, which approval shall not be unreasonably withheld. Lessee may sublease Leased Water under this Lease, provided: (1) Lessee shall only lease the water available from the Leased Water for decreed uses and places of use; and (2) Lessee shall not lease water to third parties at a price higher than it pays to the Super Ditch for water pursuant to this Lease, provided that Lessee may lease water to a third party(s) at a higher price it if remits 75 percent of the difference between the Lease Price and such higher price to the Super Ditch.

e. Governing Law and Venue. This Lease and its application shall be construed in accordance with the laws of the State of Colorado. The parties agree that venue for any litigated disputes regarding this Lease shall be the Water Court or, if the matter in dispute is not a water matter as defined by statute, the Otero County District.

f. Joint Draft. The Parties agree they drafted this Lease jointly with each having available the advice of legal counsel and an equal opportunity to contribute to its content.

g. Headings for Convenience Only. Paragraph headings and titles contained herein are intended for convenience and reference only and are not intended to define, limit or describe the scope or intent of any provision of this Lease.

h. Non-Severability. Each Section in this Lease is intertwined with the others and are not severable unless by mutual consent of Super Ditch and Lessee or as provided for under Paragraph 10 (i) below.

i. Effect of Invalidity. If any provision or portion of this Lease or the application thereof to any person or circumstance shall, at any time or to any extent, be invalid or unenforceable for any reason by a Court of competent jurisdiction, and the basis of the bargain between the parties hereto is not destroyed or rendered ineffective thereby, the remainder of this Lease, or the application of such provisions to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby.

j. Governmental Immunity. Nothing herein shall be construed to abrogate or diminish any protections and limitations afforded to Fountain by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101 *et seq.* as amended, or other law.

k. Attorney Fees and Costs. In the event of any litigation, mediation, arbitration or other dispute resolution proceedings arising out of or related to this Lease, the prevailing party shall be entitled to recover its reasonable attorney's fees and other professional fees, costs and expenses associated with any such proceedings but only to the extent allowed by law.

l. No Fees and Expenses and Apportionment. Except as otherwise expressly set forth in this Lease, each of the parties hereto will bear its own expenses in connection with the transactions contemplated by this Lease.

m. No Third-Party Beneficiaries. This Lease is intended to describe the rights and responsibilities of and between the Parties hereto and is not intended to, and shall not be deemed to, confer rights upon any persons or entities not signatories hereto, nor to limit, impair, or enlarge in any way the powers, regulatory authority and responsibilities of either party or any other governmental entity not a party hereto.

n. Interruption of Supply Beyond Super Ditch's Control. While it is the intent and purpose of the Super Ditch to provide the Leased Water to meet Lessee's needs, there are some factors which make it uncertain whether the water supply can always be adequate. The parties to the Water Lease recognize that the water supply for the Super Ditch and its lessees is dependent upon sources from which the supply is variable in quantity and beyond the control of the Super Ditch. Subject to performing Super Ditch's obligations under this Lease, including, without limitation, Paragraph 4.a.ii., no liability in tort or contract shall attach to the Super Ditch under this Water Lease on account of an actual failure of the Super Ditch to supply water due to inadequate runoff or inadequate storage arising from an occurrence beyond the reasonable control of the Super Ditch, including, but not limited to, acts of God, acts or failure to act by governmental entities, strike, war, insurrection, or inability to delivery water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control. If Super Ditch anticipates an interruption in supply (for example, in the event of drought or failure of infrastructure), it shall provide notice of such interruption to Lessee at the earliest time practicable.

o. Interruption of Deliveries Beyond Lessee's Control. Lessee shall not have liability in tort or contract to Super Ditch under this Water Lease on account of an actual failure of Lessee to take delivery of water hereunder due to an occurrence beyond Lessee's reasonable control, including, but not limited to, acts of God, acts or failure to act by governmental entities, strike, war, insurrection, failure of infrastructure, or inability to take delivery of water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control. If Lessee anticipates an inability to take delivery of water (for example, in the event of failure of infrastructure), it shall provide notice of such interruption to Super Ditch at the earliest time practicable.

p. Source of Funds. Payments by Lessee to Super Ditch shall only be from funds of the City of Fountain Water, Wastewater, and Electric Utility Enterprise. Payments shall not be an obligation of other funds that are not revenue of the City of Fountain Electric, Water, and Wastewater Utility Enterprise.

11. No Exclusive Right or Privilege. Nothing in this Lease is to be construed as a grant by the Super Ditch of any exclusive right or privilege to the Lessee other than a priority interest in the delivery of water available to the Super Ditch pursuant to paragraph 4.a.i.

12. Purchase of Water Rights. The Parties recognize Fountain's need to plan for and secure a perpetual water supply, and that this Lease may or may not be extended beyond its initial term. Nothing herein shall preclude Lessee from acquiring, changing or appropriating water rights, including shares in ditch companies participating in Super Ditch leasing, during the term of this agreement or any extension. During the term of this Lease or any extension, any irrigation water or water rights acquired in any manner by the Lessee evidenced by shares in any then participating ditch company shall be used for purposes other than irrigation only through participation in the fallowing-leasing program of the Super Ditch as a participating lessor on the same terms as other participating lessors in the same ditch, if any.

Should Lessee be unable, for a period of three or more years after acquisition, to enter into a lease through the Super Ditch to a third party for the agricultural water rights associated with fallowing a farm or ranch it owns, Lessee may fallow land, up to 33 percent of such farm or ranch, and deliver the associated water rights to Lessee for Lessee's use through the Super Ditch upon payment of a reasonable administrative fee to such Company.

The Lessee may, in its discretion choose during the term of this Lease to file an application in the District Court, Water Division No. 2, to change the water rights it acquires to permit uses other than irrigation through Super Ditch, as provided herein, and/or to permit such uses commencing after the expiration or termination of this Lease or any extension. The Super Ditch's participation in any such case shall be limited to insuring any decree is in compliance with this Lease.

13. Right to Enter into Lease. Each party hereby warrants and represents that it has the full right and lawful authority to enter into this Lease.

14. Binding Effect. This Lease and the rights and obligations created hereby shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and assigns, if any.

15. Multiple Originals. This Lease may be simultaneously executed in any number of counterparts, each of which shall be deemed original but all of which constitute one and the same Lease.

IN WITNESS WHEREOF, the Super Ditch and Fountain have executed this Lease on their respective behalf and by their proper officers.

CITY OF FOUNTAIN
by and through the City of Fountain Electric, Water, and Wastewater Utility Enterprise

Date: May 22, 2012

By: ____________________
Mayor Pro Tem

ATTEST

City Clerk: ____________________

CITY OF FOUNTAIN EL PASO COUNTY COLORADO

LOWER ARKANSAS VALLEY SUPER DITCH, INC

Date: ____________________

By: ____________________
John Schweizer, President

STATE OF COLORADO)
) ss.
COUNTY OF EL PASO)

The foregoing instrument was acknowledged before me this _____ day of ____________, 2012, by John Schweizer, as President of Lower Arkansas Valley Super Ditch, Inc, a Colorado corporation on behalf of the corporation.

WITNESS my hand and official seal.

My commission expires: ____________________

(SEAL)

____
Notary Public

WATER LEASE

This Water Lease (the "Lease") is made and entered into this 7th day of May, 2012, by and between The Lower Arkansas Valley Super Ditch Company, a Colorado corporation (hereinafter called the "Super Ditch") and Security Water District, a Colorado special district, by and through its Water Activity Enterprise (hereinafter called "Security" or "Lessee"), and collectively referred to as the "Parties."

RECITALS

WHEREAS, irrigators in the Lower Arkansas Valley incorporated the Super Ditch to meet municipal water supply needs through leasing their water rather than selling their water; and

WHEREAS, Security supports water leasing in appropriate circumstances to meet municipal needs as an alternative to buy-and-dry of agricultural water rights to meet municipal needs; and

WHEREAS, the Super Ditch is in the business of leasing water supplies on behalf of irrigators in the Lower Arkansas Valley; and

WHEREAS, the Super Ditch can deliver leased water to Pueblo Reservoir; and

WHEREAS, Security can currently deliver leased water through its interest in the Fountain Valley Conduit, and may in the future deliver such water through its interest in the Southern Delivery System from Pueblo Reservoir to Security's water service area; and

WHEREAS, Security desires to lease water from irrigators through the Super Ditch to supplement its water supplies; and

WHEREAS, irrigators desire to lease water to Security through the Super Ditch to meet municipal needs; and

WHEREAS, the Super Ditch has or will have fully consumable water available for lease to Security under the terms of this Lease.

AGREEMENT

NOW THERFORE, in consideration of the foregoing recitals, the mutual promises contained herein, and the payments to be made hereunder, the Parties agree as follows:

1. Amount. The Super Ditch hereby leases up to 500 acre-feet per water year of fully consumable water ("Leased Water") to Security. For purposes of this Water Lease, a "water year" is the period from November 1 - October 31. A water year includes the "initial partial water year" as set forth in paragraph 4 of the Lease.

EXHIBIT N

a. Volume.

i. The amount of the Leased Water shall be 125 acre-feet for the first water year of this Lease.

ii. After the first water year of this Lease, Lessee may, in whole or in part, increase the amount of Leased Water to be delivered in a water year up to a total of 500 acre-feet per water year by providing Super Ditch with written notice by October 31st of the preceding water year.

iii. Lessee may, in whole or in part, convert this annual lease to a term lease, after the first water year and before the end of the fifth water year of this Lease (October 31, 2016), and increase the total amount of Leased Water up to 500 acre-feet per water year.

b. Use of Water. The Parties recognize that Lessee may use the Leased Water to be delivered for any lawful purpose.

c. Substitute Water Supply Plans, Augmentation Plans, and Replacement Plans. In addition to direct use, the Parties recognize that Lessee may use the Leased Water to be delivered under this Lease in one or more substitute water supply plans, augmentation plans, and/or replacement plans.

d. Reuse Rights. Lessee shall have all rights to fully consume the Leased Water following delivery and the Super Ditch shall have no further rights to the water once delivered.

e. Choice of Source. The Super Ditch may make the actual delivery of the Leased Water from any source available to it, with the source(s) to be at the option of the Super Ditch. The Super Ditch may, at its option, change the sources of the Leased Water from time to time to suit the water supplies available to it and for its operational convenience.

f. Not a Permanent Supply. The Parties understand and agree that this Lease is not to be interpreted as any commitment on the part of the Super Ditch to furnish water to Lessee on a permanent basis, but rather is to supply water for the term of the Lease.

2. Delivery. The Super Ditch will deliver, and Lessee will take delivery of, the Leased Water at Pueblo Reservoir, at one or more outlets from Pueblo Reservoir, or into Lessee's own or another storage account in the Reservoir ("Point of Delivery").

a. Delivery Schedule. Lessee shall provide Super Ditch with a delivery schedule by March 1 setting forth monthly delivery volumes for the delivery of all of the Leased Water by the end of the water year (October 31), except that the Lessee may modify the delivery schedule in response to a significant unanticipated problem in taking delivery. The Super Ditch will use its best efforts to deliver the Leased Water in accordance with the delivery schedule provided, however, that until Lessee has a storage account in Pueblo Reservoir for Leased Water, both parties will use their best efforts, including the use of storage accounts in Pueblo Reservoir, to deliver and take delivery of the Leased Water at rates that facilitate Lessee's direct delivery of the Leased Water to Lessee's pipelines from Pueblo Reservoir. If the Super Ditch cannot deliver the Leased Water in accordance with the delivery schedule using its best efforts, the Super Ditch may modify the delivery schedule and thereafter shall provide Lessee with thirty (30) days advance notice of the delivery so that Lessee can be prepared to take delivery of the Leased Water. The Leased Water shall be deemed delivered in accordance with the proposed delivery schedule when physically made available to the Lessee at the Point of Delivery.

b. Final Delivery Date. The Super Ditch agrees to make the Leased Water available for delivery no later than October 31st for each year this Lease is in effect.

c. Diversion Measurement and Administration. Lessee shall provide appropriate and lawful means of taking delivery of the Leased Water from Pueblo Reservoir, including such measuring devices and accounting as the Colorado administrative authorities and the United States Bureau of Reclamation may require.

d. Transportation and Evaporation Losses. The Lessee shall be responsible for all evaporative losses after it takes delivery in accordance with its original delivery schedule, provided, however, that a party that alters such delivery schedule shall be responsible for all evaporative losses resulting from such change. In the event the Lessee takes delivery of the Leased Water into storage rather by direct flow, or the Super Ditch arranges to store any Leased Water in Pueblo Reservoir after delivery at the Lessee's request, Lessee shall bear all evaporative losses on and after the date of delivery. In the event the Lessee takes delivery of the Leased Water and releases it from Pueblo Reservoir rather than delivering it into the Fountain Valley Conduit or Southern Delivery System to meet its needs, Lessee shall bear all transportation losses from the Point of Delivery.

3. Lease Price and Payment.

a. Lease Price. Lessee agrees to pay to the Super Ditch an annual lease payment of $500 per acre-foot of Leased Water ("Lease Price"). The Lease Price shall be adjusted every five years by the percent change in the Colorado Municipal League Index of Colorado Utility Costs or another mutually agreeable index or, if that index is no longer prepared, another comparable index.

b. Invoices and Payment. The Parties agree that the water leased hereunder is on a "take or pay" basis provided that Super Ditch makes the Leased Water available at the Point of Delivery. Lessee shall accordingly make payment for the Leased Water, whether or not the quantities leased are actually taken by the Lessee or are required for use by the Lessee. The Super Ditch shall invoice Lessee by January 31st, except for the initial partial year for which Super Ditch shall invoice Lessee within thirty (30) days commencing on the date of execution of the Lease by both Parties. Invoices shall be due and payable within 30 days.

4. Term of Lease. This Lease is for an initial term of one partial water year (the "initial partial water year") commencing on the date of execution of this instrument by both Parties and terminating on October 31, 2012, provided, however, that the Lease shall automatically renew for thirty-nine successive one-year terms except as provided below.

   a. Lessee may at its option, at any time after October 31, 2012 and prior to November 1, 2016, convert this annual lease, in whole or in part, into a term lease for a term ending October 31, 2051 ("Term Lease").

      i. If before November 1, 2016, the Lessee converts this Lease to a Term Lease, such Lessee will earn a "Priority Right" over all future lessees to the delivery of water leased through the Super Ditch in accordance with the date of this Lease. Such Priority Right shall become effective with respect to the total amount of Leased Water to be delivered and paid for pursuant to the Term Lease.

      ii. If the Lessee exercises its option under this paragraph 4.a., the Super Ditch will make its best efforts to carry over sufficient water in storage to ensure the reliable and firm yield delivery of the Leased Water in a drought-year.

      iii. If the Lessee exercises its option under this paragraph 4.a., Lessee shall have the right to renew this Lease for an additional term of up to 40 years at the fair market rental value per acre-foot at the time of renewal, but not less than the then-current Lease Price. The parties will negotiate the fair market rental in good faith and will use arbitration, if necessary, to arrive at the fair market rental.

      iv. Lessee may exercise this option with a "ramp up" schedule whereby the amount of Leased Water to be delivered and paid for each year under the Term Lease will increase in five-year steps (in years 5, 10, 15, 20, 25, 30, and/or 35 and all subsequent years),up to a total of 500 acre-feet per year, provided however, that the Lessee shall have the right to defer or accelerate up to fifteen percent (15%) of such increased deliveries for up to five (5) years upon two (2) years advance notice.

   b. Lessee may terminate this Lease upon notice to the Super Ditch at any time between September 15 and October 31, provided the Lessee has not converted this Lease to a Term Lease.

   c. This lease is subject to annual appropriation of funds for payment of the lease obligations for the following water year by the Board of Directors of Security.

   d. Either Party may terminate this Lease in the event any one or more of the following contingencies is not satisfied:

      i. Subscription by the Super Ditch for the lease of sufficient water supplies by December 31st to provide the annual Leased Water in the coming year;

ii. Subscription by the Super Ditch for the lease of sufficient water supplies by December 31st of the year following conversion of this Lease into a Term Lease to meet the initial delivery requirements of the Term Lease.

iii. Subscription by the Super Ditch for the lease of sufficient water supplies by December 31st preceding a "ramp up" in the amount of Leased Water to be delivered in the following years to meet the "ramped-up" delivery requirements of the Term Lease;

iv. Acceptable terms and conditions allowing the use of the Leased Water for all municipal uses, reuse, replacement and augmentation from the Point of Delivery in one or more water court decreed changes of water rights for Leased Water and/or substitute water supply plans or other administrative approval.

e. Notice of termination shall be in writing and provided in accordance with Paragraph 10.b, below. The termination of this Lease shall not release any party from any obligations or liabilities already incurred pursuant to the terms of this Lease. Lessee hereby agrees, following the termination of this Lease, to execute any documentation requested by Super Ditch for the purposes of documenting such termination and to consent to the recording of such documentation.

5. Legal and Engineering.

a. The Super Ditch, in cooperation with Lower Arkansas Valley Water Conservancy District, shall provide legal counsel, engineering and other consultants necessary to permit the Leased Water to be fully consumable for Lessee's direct use within its existing and future municipal service areas. Lessee shall not oppose and may participate as a co-applicant or file a non-adverse statement of opposition in any administrative or water court proceeding for such purpose at its own expense.

b. Lessee shall be responsible for any other administrative or water court proceeding necessary to use the Leased Water for municipal purposes after delivery. The Super Ditch will cooperate with the Lessee to provide information regarding the sources of Leased Water, which Lessee may need to obtain legal approval for substitute water supply plans, augmentation plans, reuse and successive use, replacement plans, or storage space in Pueblo Reservoir. Lessee shall reimburse the Super Ditch for any legal, engineering or consulting expenses incurred in response to any request by Lessee to provide more than existing information regarding sources of Leased Water, such as additional hydrological modeling, expert reports, or testimony.

6. Permits and Other Approvals. The Super Ditch shall obtain all permits and other governmental approvals necessary to deliver Leased Water to Pueblo Reservoir and to conduct its rotating fallowing program, for example, NEPA compliance for long term excess capacity storage in Pueblo Reservoir and land use approvals, if any. Lessee shall obtain all permits and other governmental approvals to store water in Pueblo Reservoir in its own

storage accounts and/or to deliver water from the Reservoir to Lessee's place of use, as necessary for Lessee to take delivery of the Leased Water.

7. Breach, Default and Remedies.

   a. Default. The occurrence of any one or more of the following events that is not cured as provided below shall constitute a default and breach of this Lease.

      i. The failure by Lessee to timely pay the lease payment.

      ii. The failure by the Super Ditch to deliver at least eight-five percent (85%) of the Leased Water for three or more years during a period of ten consecutive years.

   b. Late Payment. In the event that the Lessee has not paid the lease payment within 30 days of the date of the invoice, interest shall accrue at the rate of five (5) percent per annum.

   c. Right to Cure. In the event that either party believes that the other is in breach of any obligation under this Lease, the non-breaching party shall promptly give written notice of the breach to the other party. If a notice of breach is provided, the party accused of the breach shall either cure it or provide a written statement explaining why it is not in breach. If the alleged breach is not cured or otherwise resolved within thirty (30) days (or, if the breach cannot reasonably be cured within 30 days, within such additional period as may be reasonably required to cure the breach), the non-breaching party may declare a default.

   d. Remedies. In the event that either party declares a default, each party shall have all remedies provided in this Lease or by law or equity.

   e. Damages. To the extent not included in paragraph 10.o., in the event that the Lessee breaches and Super Ditch declares a default, the Super Ditch shall be entitled to damages in an amount equal to the value of the lease payments that would be due for the delivery of the Leased Water for the balance of a one-year term of this Lease so long as this is a year to year lease, less any costs or expenses avoided by Super Ditch for non-delivery of the Leased Water and less the net revenue the Super Ditch receives from reasonable efforts to mitigate its damages including, without limitation, lease of the Leased Water to others. Super Ditch shall have a duty to undertake reasonable efforts to mitigate its damages. To the extent not included in paragraph 10.n., in the event that Lessor breaches and Lessee declares a default, Lessee shall be entitled to damages as provided by law Damages for breach of the Term Lease by either Lessee or Lessor shall be determined as set forth in an addendum to or restatement of this Water Lease.

   f. Waiver. Failure of either party to this Lease to exercise any right hereunder shall not be deemed a waiver of such party's right and shall not affect the right of said party to exercise, at some future time, said right or rights or any other right it may have hereunder. No waiver of any of the provisions of this Lease shall be deemed or shall constitute a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

8. Title to Water Rights. Lessee recognizes that its rights to water pursuant to this Lease are solely contractual, and that nothing herein shall be interpreted to give Lessee any legal or equitable title in or to any water rights of Super Ditch or its lessor participants.

9. Pledge or Encumbrance. Lessee shall not pledge or otherwise encumber this Lease or the Leased Water, provided, however, that the Leased Water may be included in a plan for augmentation or replacement plan, including augmentation or replacement of past, present or future well depletions, subject to the terms and conditions of this Lease. Provided further that Lessee may encumber its contractual rights to the Leased Water in order to satisfy a requirement of a lending agency concerning the availability of water to sell to consumers to obtain revenue to repay a water system related debt, such as, without limitation, a loan from the Colorado Water Conservation Board, Colorado Water and Power Development Authority, bond holders, or a financial institution.

10. Miscellaneous.

a. Entire Agreement, Modification. This Lease constitutes the entire agreement between the Parties pertaining to the subject matter described in it and supersedes any and all prior or contemporaneous agreements, representations, and understandings. This Lease may be modified, amended, changed or terminated in whole or in any part only by an agreement in writing duly authorized and executed by the parties hereto with the same formality as this Lease.

b. Notice. All notices to be given with respect to this Lease shall be in writing. Each notice shall be sent by United States mail, first class postage prepaid, to the party to be notified at the address set forth herein or at such other address as either party may from time to time designate in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing herein shall be construed to preclude personal service of any notice in the manner prescribed for personal service of a summons or other legal process. All notices required to be given to the Super Ditch hereunder shall be delivered to:

Lower Arkansas Valley Super Ditch Company
Attn: President
801 Swink Avenue
Rocky Ford, Colorado 81067
Tel: 719-254-5115
Fax: 719-254-5150
[e-mail]

or at such other address as the Super Ditch may direct in accordance with this paragraph.

All notices required to be given to Lessee hereunder shall be delivered to:

Security Water District
Attn: District Manager
231 Security Blvd.
Colorado Springs, Colorado 80911
Tel: 719-392-3475
Fax: 719-390-7252
[e-mail] r.heald@securitywsd.com

or at such other address as Lessee may direct in accordance with this paragraph.

c. Non-Business Days. If the date for any action under this Lease, other than the beginning or end of the Initial Term, falls on a Saturday, Sunday or a day that is a legal holiday, then the relevant date shall be extended automatically until the next day that is not a Saturday, Sunday or holiday.

d. Assignment. This Lease may be assigned by Lessee subject to prior written approval by the Super Ditch, which approval shall not be unreasonably withheld. Lessee may sublease Leased Water under this Lease, provided: (1) Lessee shall only lease the water available from the Leased Water for decreed uses and places of use; and (2) Lessee shall not lease water to third parties at a price higher than it pays to the Super Ditch for water pursuant to this Lease, provided that Lessee may lease water to a third party(s) at a higher price it if remits 75 percent of the difference between the Lease Price and such higher price to the Super Ditch.

e. Governing Law and Venue. This Lease and its application shall be construed in accordance with the laws of the State of Colorado. The parties agree that venue for any litigated disputes regarding this Lease shall be the Water Court or, if the matter in dispute is not a water matter as defined by statute, the Otero County District.

f. Joint Draft. The Parties agree they drafted this Lease jointly with each having available the advice of legal counsel and an equal opportunity to contribute to its content.

g. Headings for Convenience Only. Paragraph headings and titles contained herein are intended for convenience and reference only and are not intended to define, limit or describe the scope or intent of any provision of this Lease.

h. Non-Severability. Each Section in this Lease is intertwined with the others and are not severable unless by mutual consent of Super Ditch and Lessee or as provided for under Paragraph 10 (i) below.

i. Effect of Invalidity. If any provision or portion of this Lease or the application thereof to any person or circumstance shall, at any time or to any extent, be invalid or unenforceable for any reason by a Court of competent jurisdiction, and the basis of the bargain between the parties hereto is not destroyed or rendered ineffective thereby, the remainder of this Lease, or the application of such provisions to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby.

j. Governmental Immunity. Nothing herein shall be construed to abrogate or diminish any protections and limitations afforded to Security by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101 *et seq.* as amended, or other law.

k. Attorney Fees and Costs. In the event of any litigation, mediation, arbitration or other dispute resolution proceedings arising out of or related to this Lease, the prevailing party shall be entitled to recover its reasonable attorney's fees and other professional fees, costs and expenses associated with any such proceedings but only to the extent allowed by law.

l. No Fees and Expenses and Apportionment. Except as otherwise expressly set forth in this Lease, each of the parties hereto will bear its own expenses in connection with the transactions contemplated by this Lease.

m. No Third-Party Beneficiaries. This Lease is intended to describe the rights and responsibilities of and between the Parties hereto and is not intended to, and shall not be deemed to, confer rights upon any persons or entities not signatories hereto, nor to limit, impair, or enlarge in any way the powers, regulatory authority and responsibilities of either party or any other governmental entity not a party hereto.

n. Interruption of Supply Beyond Super Ditch's Control. While it is the intent and purpose of the Super Ditch to provide the Leased Water to meet Lessee's needs, there are some factors which make it uncertain whether the water supply can always be adequate. The parties to the Water Lease recognize that the water supply for the Super Ditch and its lessees is dependent upon sources from which the supply is variable in quantity and beyond the control of the Super Ditch. Subject to performing Super Ditch's obligations under this Lease, including, without limitation, Paragraph 4.a.ii., no liability in tort or contract shall attach to the Super Ditch under this Water Lease on account of an actual failure of the Super Ditch to supply water due to inadequate runoff or inadequate storage arising from an occurrence beyond the reasonable control of the Super Ditch, including, but not limited to, acts of God, acts or failure to act by governmental entities, strike, war, insurrection, or inability to delivery water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control. If Super Ditch anticipates an interruption in supply (for example, in the event of drought or failure of infrastructure), it shall provide notice of such interruption to Lessee at the earliest time practicable.

o. Interruption of Deliveries Beyond Lessee's Control. Lessee shall not have liability in tort or contract to Super Ditch under this Water Lease on account of an actual failure of Lessee to take delivery of water hereunder due to an occurrence beyond Lessee's reasonable control, including, but not limited to, acts of God, acts or failure to act by governmental entities, strike, war, insurrection, failure of infrastructure, or inability to take delivery of water arising from the order of any court or a lawful order of any governmental administrative body or agency clothed with authority to regulate matters pertaining to water use, public health, or water quality control. If Lessee anticipates an inability to take delivery of water (for example, in the event of failure of infrastructure), it shall provide notice of such interruption to Super Ditch at the earliest time practicable.

p. Source of Funds. Payments by Lessee to Super Ditch shall only be from funds of Security's Water Activity Enterprise. Payments shall not be an obligation of other funds that are not revenue of Security's Water Activity Enterprise.

11. No Exclusive Right or Privilege. Nothing in this Lease is to be construed as a grant by the Super Ditch of any exclusive right or privilege to the Lessee other than a priority interest in the delivery of water available to the Super Ditch pursuant to paragraph 4.a.i.

12. Purchase of Water Rights. The Parties recognize Security's need to plan for and secure a perpetual water supply, and that this Lease may or may not be extended beyond its initial term. Nothing herein shall preclude Lessee from acquiring, changing or appropriating water rights, including shares in ditch companies participating in Super Ditch leasing, during the term of this agreement or any extension. During the term of this Lease or any extension, any irrigation water or water rights acquired in any manner by the Lessee evidenced by shares in any then participating ditch company shall be used for purposes other than irrigation only through participation in the fallowing-leasing program of the Super Ditch as a participating lessor on the same terms as other participating lessors in the same ditch, if any.

Should Lessee be unable, for a period of three or more years after acquisition, to enter into a lease through the Super Ditch to a third party for the agricultural water rights associated with fallowing a farm or ranch it owns, Lessee may fallow land, up to 33 percent of such farm or ranch, and deliver the associated water rights to Lessee for Lessee's use through the Super Ditch upon payment of a reasonable administrative fee to such Company.

The Lessee may, in its discretion choose during the term of this Lease to file an application in the District Court, Water Division No. 2, to change the water rights it acquires to permit uses other than irrigation through Super Ditch, as provided herein, and/or to permit such uses commencing after the expiration or termination of this Lease or any extension. The Super Ditch's participation in any such case shall be limited to insuring any decree is in compliance with this Lease.

13. Right to Enter into Lease. Each party hereby warrants and represents that it has the full right and lawful authority to enter into this Lease.

14. Binding Effect. This Lease and the rights and obligations created hereby shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and assigns, if any.

15. Multiple Originals. This Lease may be simultaneously executed in any number of counterparts, each of which shall be deemed original but all of which constitute one and the same Lease.

IN WITNESS WHEREOF, the Super Ditch and Security have executed this Lease on their respective behalf and by their proper officers.

SECURITY WATER DISTRICT
A Colorado special district, by and through its Water Activity Enterprise

Date: May 1, 2012

By: Roy E. Heald
Roy E. Heald, District Manager

LOWER ARKANSAS VALLEY SUPER DITCH, INC

Date: May 7, 2012

By: John Schweizer
John Schweizer, President

EXHIBIT N

STATE OF COLORADO)
) ss.
COUNTY OF ~~EL PASO~~ Otero)

The foregoing instrument was acknowledged before me this 7th day of May, 2012, by John Schweizer, as President of Lower Arkansas Valley Super Ditch, Inc, a Colorado corporation on behalf of the corporation.

WITNESS my hand and official seal.

My commission expires: 6/19/2013

(SEAL) CARLA ARAGON-QUEZADA NOTARY PUBLIC STATE OF COLORADO

Carla Aragon-Quezada
Notary Public

STATE OF COLORADO)
) ss.
COUNTY OF EL PASO)

The foregoing instrument was acknowledged before me this 1st day of May, 2012, by Roy E. Heald, as District Manager of Security Water District, a Colorado special District, by and through its Water Activity Enterprise.

WITNESS my hand and official seal.

My commission expires: MY COMMISSION EXPIRES 06/07/2014

(SEAL) APRIL VAN CURA NOTARY PUBLIC STATE OF COLORADO

April Van Cura
Notary Public

F:\client\security water\super ditch\water lease 4-30-12 (clean-final).doc

July ~~10~~ 9, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner of approximately 4200 acres of lands irrigated under the Catlin Canal with 3410.583 shares represented by Share Certificate Nos. See below. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

Catlin Cert #	
3604	33.290
3603	3.300
3314	140.000
3329	80.000
3395	180.000
3543	550.940
3542	30.000
3541	72.000
3540	143.240
3539	287.000
3538	180.000
3537	100.500
3411	1610.313

Sincerely,

Diamond A

[print name]

EXHIBIT O

July 10, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner of approximately 600 acres of lands irrigated under the Catlin Canal with 575 shares represented by Share Certificate Nos. see below. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

for Pilot Project

Cert. #	
3550	151.000
3549	30.000
3481	79.000
3479	86.100
3480	130.000
2484	68.900
3525	30.000

Sincerely,

Hirakata / K2 Farms

[print name]

EXHIBIT O

July 10th, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner of approximately 214 acres of lands irrigated under the Catlin Canal with 94 shares represented by Share Certificate Nos. 2754. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

Sincerely,

Kenneth Schweizer

Ken Schweizer
[print name]

EXHIBIT O

July 10, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner Operator of approximately 1200 acres of lands irrigated under the Catlin Canal with 1300 shares represented by Share Certificate Nos. see below. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

Catlin Cert. #	Shares
3606	61.81
3607	121.26
3317	171.00

Sincerely,

Eric Hanagan
[print name]

July 14, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner of approximately 178 acres of lands irrigated under the Catlin Canal with 123 shares represented by Share Certificate Nos. 3195, 3196, 3496. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

3195	32.000
3196	88.000
3496	3.000

7

Sincerely,

Willard Behm

Willard Behm

[print name]

254-6219

EXHIBIT O

July 10th, 2014

RE: Letter of Interest/Catlin Pilot Project for Rotational Leasing-Fallowing

To Whom It May Concern:

I am writing to express interest in participating in the proposed Catlin Pilot Project for the rotational fallowing of agricultural lands irrigated under the Catlin Canal to make water available to municipal users. I am the owner of approximately 80 acres of lands irrigated under the Catlin Canal with 80 shares represented by Share Certificate Nos. 3116. Projects such as the Catlin Pilot Project are crucial to finding ways to preserve agriculture in the Lower Arkansas River Valley and avoiding the buy-and-dry of agricultural lands to meet municipal demands. For this reason, I support the Lower Arkansas Valley Water Conservancy District's and Lower Arkansas Valley Super Ditch Company's efforts to investigate the feasibility of rotational municipal leasing-agricultural land fallowing.

I understand that approval of a leasing-fallowing pilot project is a two-step process: first a pilot project must be selected by the Colorado Water Conservation Board (CWCB) in order for it to be eligible to apply for approval, and then an application is submitted for CWCB consideration and possible approval. If the Catlin Pilot Project is selected by the CWCB, I am ready to pursue discussions with the Lower Ark District and the Super Ditch Company regarding a contract for participation in the Catlin Pilot Project. Based on my discussions with representatives of the Lower Ark District, I believe we should be able to reach a mutually-acceptable agreement for my participation in the Catlin Pilot Project.

Sincerely,

Lee Hancock

Lee Hancock
[print name]

CARRIAGE AGREEMENT

This Agreement is made and entered into this 30 day of June, 2014, by and between the Catlin Canal Company (the "Company") and the Lower Arkansas Valley Water Conservancy District ("Lower Ark").

RECITALS

Whereas, the Company owns and operates the Catlin Canal in Otero County, Colorado (the "Canal");

Whereas, Lower Ark has entered into agreements with two Catlin Canal Company shareholders, Roger and Mary Jane Maddux and John Schweizer, for the construction and use of recharge ponds located on lands irrigated under the Canal (collectively referred to as the "Recharge Ponds"); and

Whereas, Lower Ark desires to divert waters owned or leased by Lower Ark ("Lower Ark Water") into and through the Canal for delivery to the Recharge Ponds.

AGREEMENT

Now therefore, for the mutual promises and covenants contained herein and for good and valuable consideration, the Parties agree as follows:

1. Term. The term of this Agreement shall be effective upon execution by the Parties and shall continue through the 2014-2016 irrigation seasons. Unless extended by the Parties in writing, this Agreement shall automatically expire on November 15, 2016.

2. Carriage of Lower Ark Water. The Company agrees that it will, on behalf of Lower Ark, use the Catlin Canal headgate to divert Lower Ark Water into the Recharge Ponds. It is agreed that Lower Ark shall have first right to use excess capacity in the Canal as necessary to deliver water in to the Recharge Ponds, subject to the rights of the Company and the Company's shareholders to carry and deliver water under the Company's decrees in the Catlin Canal and any other rights for use of the Canal existing as of the date of this Agreement,. Lower Ark's use of the excess capacity shall be limited to such amount as may be available for the delivery of water into the Recharge Ponds.

3. Carriage Charge. Lower Ark shall pay to the Company a carriage charge of $10.00 for each acre-foot of Lower Ark Water carried through the Canal during the term of this Agreement. This carriage charge shall be paid by Lower Ark on the 10th day of each month for the volume of Lower Ark Water carried during the preceding month. Payment shall be made to the Company at the address set forth in paragraph 13, below.

4. Deliveries, Canal Operation. The Company shall be responsible for the day-to-day operation of the Canal, headgates, and structures. Lower Ark shall be responsible for coordinating with and notifying the Company of the amount and timing of releases of Lower Ark Water from storage, taking into account any transit losses charged, to be diverted into the Canal and the amounts of such diversions to be delivered to each of the Maddux and Schweizer farm headgates.

5. Canal Losses. The Lower Ark Water diverted into the Canal for delivery to the Recharge Ponds shall be assessed a 10.4% canal loss or such other appropriate canal loss as may be determined by the Canal superintendent based upon actual conditions prior to delivery to the Schweizer and Maddux farm headgates.

6. Accounting. By the 10th day of each month, Lower Ark shall provide to the Company copies of any records which Lower Ark keeps in connection with Lower Ark's carriage of water in the Canal during the preceding month.

7. Inability to Convey Water. Lower Ark recognizes that there may be times when, due to circumstances beyond the Company's control, the Canal cannot divert water. At such times, Lower Ark shall not pursue any legal remedy, nor require any compensation from the Company for any damages as might be incurred because of the inability to convey Lower Ark Water, provided that the Company exercises reasonable diligence in making all needed maintenance and repairs to the Company structures necessary to convey water in the Canal.

8. Access. Lower Ark shall have access necessary along the right-of way of the Canal for purposes of ingress and egress to accomplish the terms of this Agreement and ensure proper delivery of Lower Ark Water to the Maddux and Schweizer farm headgates.

9. Approvals. Lower Ark shall be responsible for obtaining and maintaining any necessary approvals to allow for the use of the Recharge Ponds as a part of a Rule 10 Compact Compliance Plan, a substitute water supply plan, or other administrative or judicial approval. Lower Ark shall comply with all terms and conditions associated with the use of the Recharge Ponds in any such approval(s).

10. Binding Effect, Assignment. This Agreement is binding upon the Parties and their successors. The rights granted to Lower Ark in this Agreement may not be transferred or assigned with the prior written consent of the Company.

11. Default. In the event that Lower Ark defaults upon any of the terms of this Agreement, upon fifteen (15) days written notice to Lower Ark, the Company may suspend the carriage of water in the Canal until such default is cured to the Company's reasonable satisfaction.

12. Complete Agreement, Modification. This Agreement represents the complete agreement of the Parties and no oral modification shall be recognized. Any amendments or additions shall be made in writing signed by the Parties.

13. Notice. Notices under this Agreement shall be in writing and shall be provided to the following addresses:

To the Company:

John Schweizer, President
Catlin Canal Company
917 Elm Street
Rocky Ford, CO 81067

To Lower Ark:

Jay Winner, General Manager
Lower Arkansas Valley Water Conservancy District
801 Swink Avenue
Rocky Ford, CO 81067

14. Choice of Law. This Agreement shall be governed by the laws of the State of Colorado.

[signature page follows]

CATLIN CANAL COMPANY

John Schweizer Jr.

By: John Schweizer, Jr.

Its: President

Date: 6-30-14

LOWER ARKANSAS VALLEY WATER CONSERVANCY DISTRICT

By: R. Jay Winner

Its: General Manager

Date: 6-30-14

EXHIBIT P

RECHARGE SITE LEASE

THIS LEASE, made this 18 day of June, 2012, by and between Kenneth J. Schweizer and Arlene J. Schweizer, 30102 Road 15, Rocky Ford, Colorado 81067, of the County of Otero, and State of Colorado, Lessor(s), and the Lower Arkansas Valley Super Ditch Pilot Program, Inc., of the County of Otero, and State of Colorado, Lessee,

WITNESSETH:

In consideration of the covenants and agreements herein to be kept by both parties, Lessor(s) have leased certain property to Lessee under the terms and conditions herein set forth:

I. PROPERTY:

I.1 The real property leased is described as follows:

See attached exhibit.

I.2 Lessor(s) further grant(s) to Lessee, access over any other property owned by Lessor(s) for access to the leased property, and for such rights of way to transport water as deemed necessary by Lessee.

II. TERM:

II.1 The term of the lease commences June 18, 2012, and continues until March 31, 2015.

II.2 The term may be extended for a period of 2 years, upon written notice three months prior to the termination of the term set forth above.

III. PRICE AND PAYMENT OF RENT:

III.1 The rent shall be at the price of $200.00 per acre per year. Payable on April 1 of each, the first payment of which is hereby acknowledged.

IV. DUTIES OF LESSOR:

IV.1 Lessor(s) warrant(s) peaceable possession of the premises in Lessee.

V. DUTIES OF LESSEE:

V.1 To pay the rent as due.

V.2 It is understood that Lessee shall use this property as a location for a recharge pond to be used with the Lower Arkansas Valley Super Ditch. Lessee, at the termination of this lease, shall return the site in as good condition as when leased.

V.3 Shall not use, or permit the use of the premises for any unlawful purpose.

V.4 Shall not permit liens to attach to the premises, and shall not enter into any improvement or repair which could cause the same without prior notice to and written consent of Lessor(s), so that (he/she/they) may guard against the attachment of liens.

V.5 May assign this lease to the Lower Arkansas Valley Super Ditch Company, Inc.

V.6 Shall permit Lessor(s) or (his/her/their) representatives, to inspect the premises at all reasonable hours.

V.7 Lessee shall not allow any hazardous or harmful materials to be discharged or stored upon the property.

VI. TERMINATION:

VI..1 This lease shall terminate at the end of its term or upon either party's violation of any of its terms or conditions.

VI.2 Upon termination of this lease, for any reason, Lessee agrees to peaceably surrender the premises to the Lessor(s) and should Lessee fail to do so, Lessor(s) may reenter the premises peaceably, or bring action at law or equity to regain possession of the premises, and should the Lessor(s) incur any expenses, including attorney's fees, in the recovery of said premises the Lessee shall pay the same.

VII. GENERAL:

VII.1. It is understood that Lessee will use the demised premises for purposes of a recharge pond for use by the Lower Arkansas Valley Super Ditch. This use will likely require excavation and the routing of transmission ditches or lines to the demised property.

VII.2 The Lessee has examined the premises, and is aware of them and their condition and accepts the same as they now are.

VII.3 Unless otherwise required by the context hereof, words in the singular shall include the plural and in the plural shall include the singular.

VII. 4 No waiver of any breach hereof shall constitute a waiver of any other breach of that or any other condition or term of this lease.

VII.5 This agreement shall extend the heirs, personal representatives, assigns and survivors of the parties.

IN WITNESS WHEREOF, the parties have signed this lease on the above date.

LESSOR(S):

Kenneth J. Schweizer

Kenneth J. Schweizer

Arlene J. Schweizer

Arlene J. Schweizer

LESSEE: LOWER ARKANSAS VALLEY
SUPER DITCH PILOT PROGRAM, INC.

By: John Schweizer
President

Adaptive Resources, Inc.

Map Created 06/08/2012
Coordinate System
NAD 1983 UTM Zone 13N
Projection: Transverse Mercator

This map is for reference purposes only, accuracy is not guaranteed. This product should not be construed as a legal document or survey instrument.

Schweizer Recharge Pond

Map 1

EXHIBIT Q

RECHARGE SITE LEASE

THIS LEASE, made this 19 day of June, 2012, by and between Roger L. Maddux and Mary Jane Maddux, 24850 County Road 24.5, La Junta, Colorado 81050, of the County of Otero, and State of Colorado, Lessor(s), and the Lower Arkansas Valley Super Ditch Pilot Program, Inc., of the County of Otero, and State of Colorado, Lessee,

WITNESSETH:

In consideration of the covenants and agreements herein to be kept by both parties, Lessor(s) have leased certain property to Lessee under the terms and conditions herein set forth:

I. PROPERTY:

I.1 The real property leased is described as follows:

See attached exhibit.

I.2 Lessor(s) further grant(s) to Lessee, access over any other property owned by Lessor(s) for access to the leased property, and for such rights of way to transport water as deemed necessary by Lessee.

II. TERM:

II.1 The term of the lease commences June 18, 2012, and continues until March 31, 2015

II.2 The term may be extended for a period of 2 years, upon written notice three months prior to the termination of the term set forth above.

III. PRICE AND PAYMENT OF RENT:

III.1 The rent shall be at the price of $200.00 per acre per year. Payable on April 1 of each year, the first payment of which is hereby acknowledged.

IV. DUTIES OF LESSOR:

IV.1 Lessor(s) warrant(s) peaceable possession of the premises in Lessee.

V. DUTIES OF LESSEE:

V.1 To pay the rent as due.

V.2 It is understood that Lessee shall use this property as a location for a recharge pond to be used with the Lower Arkansas Valley Super Ditch. Lessee, at the termination of this lease, shall return the site in as good condition as when leased.

V.3 Shall not use, or permit the use of the premises for any unlawful purpose.

V.4 Shall not permit liens to attach to the premises, and shall not enter into any improvement or repair which could cause the same without prior notice to and written consent of Lessor(s), so that (he/she/they) may guard against the attachment of liens.

V.5 May assign this lease to the Lower Arkansas Valley Super Ditch Company, Inc.

V.6 Shall permit Lessor(s) or (his/her/their) representatives, to inspect the premises at all reasonable hours.

V.7 Lessee shall not allow any hazardous or harmful materials to be discharged or stored upon the property.

VI. TERMINATION:

VI..1 This lease shall terminate at the end of its term or upon either party's violation of any of its terms or conditions.

VI.2 Upon termination of this lease, for any reason, Lessee agrees to peaceably surrender the premises to the Lessor(s) and should Lessee fail to do so, Lessor(s) may reenter the premises peaceably, or bring action at law or equity to regain possession of the premises, and should the Lessor(s) incur any expenses, including attorney's fees, in the recovery of said premises the Lessee shall pay the same.

VII. GENERAL:

VII.1. It is understood that Lessee will use the demised premises for purposes of a recharge pond for use by the Lower Arkansas Valley Super Ditch. This use will likely require excavation and the routing of transmission ditches or lines to the demised property.

VII.2 The Lessee has examined the premises, and is aware of them and their condition and accepts the same as they now are.

VII.3 Unless otherwise required by the context hereof, words in the singular shall include the plural and in the plural shall include the singular.

VII. 4 No waiver of any breach hereof shall constitute a waiver of any other breach of that or any other condition or term of this lease.

VII.5 This agreement shall extend the heirs, personal representatives, assigns and survivors of the parties.

IN WITNESS WHEREOF, the parties have signed this lease on the above date.

LESSOR(S):

Roger L Maddux
Roger L. Maddux

Mary Jane Maddux
Mary Jane Maddux

LESSEE: LOWER ARKANSAS VALLEY
SUPER DITCH PILOT PROGRAM, INC.

By: John Schweizer
President

Adaptive Resources, Inc.

Map Created 06/08/2012
Coordinate System
NAD 1983 UTM Zone 13N
Projection: Transverse Mercator

This map is for reference purposes only, accuracy is not guaranteed. This product should not be construed as a legal document or survey instrument.

Hanagan Recharge Pond

Map 1

EXHIBIT R

COLORADO

Colorado Water Conservation Board

Department of Natural Resources

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix J

CWCB Criteria and Guidelines for Fallowing-Leasing Pilot Projects

COLORADO

Colorado Water Conservation Board

Department of Natural Resources

CRITERIA AND GUIDELINES
FOR FALLOWING-LEASING PILOT PROJECTS

Colorado Water Conservation Board and Colorado Division of Water Resources

Approved by CWCB: November 19, 2013

I. INTRODUCTION

A. Purpose of the Criteria and Guidelines Document

House Bill (HB) 13-1248, signed into law by the Governor on May 13, 2013, authorizes the Colorado Water Conservation Board (the "CWCB" or the "Board") to administer a pilot program to test the efficacy of fallowing-leasing as an alternative to permanent agricultural dry-up.[1] The pilot program may consist of the selection of up to ten separate pilot projects, each lasting up to ten years in duration, to test the practice of fallowing irrigated agricultural land and leasing the associated water rights for temporary municipal use.

HB13-1248 charges the Board, in consultation with the State Engineer, to establish criteria and guidelines for the application, selection, and approval process for pilot projects. This document, hereinafter referred to as the "Criteria and Guidelines," was developed through the cooperation and collaboration of the CWCB, the State Engineer's Office, and the public in accordance with that legislative directive.

These Criteria and Guidelines will become effective upon Board approval.

B. Background

The Statewide Water Supply Initiative estimates that by 2050, Colorado may lose 500,000 to 700,000 acres of currently irrigated farmland to meet municipal growth demands. The CWCB, IBCC, and Basin Roundtables have determined that the status quo path of continued "buy and dry" of agricultural lands is contrary to the vision for our state as being a great place to live and work. There is a widespread desire to minimize permanent agricultural dry up while finding ways to provide water for current and future municipal needs. If significant progress can be made through alternative water transfers such as rotational fallowing and interruptible supply agreements, then the projected losses of irrigated acres could be noticeably reduced.

There is a recognized need to look for ways to increase flexibility within Colorado's system of water law, while respecting individual property rights. While there is much work to be done, alternative water transfers may very well provide a viable option for municipal water providers in the not-so-distant future. Through HB13-1248, fallowing-leasing pilot projects can be tested to overcome challenges and develop opportunities for temporary agriculture-to-municipal water transfers.

[1] HB13-1248 was codified as Section 37-60-115(8), C.R.S. (2013).

C. Rotational Fallowing Pilot Project Goals and Purposes

In HB13-1248, the Colorado General Assembly declared its commitment to develop and implement programs to advance various agricultural transfer methods as alternatives to permanent agricultural dry-up. It further stated that Colorado needs to evaluate whether fallowing-leasing is a practical alternative to traditional "buy and dry" methods, and determined that the CWCB is the appropriate state agency to test the efficacy of implementing fallowing-leasing.

The purpose of this document is to meet the spirit and intent of HB13-1248 and to enact Criteria and Guidelines in collaboration with the office of the State Engineer. Pilot project sponsors are strongly encouraged to review existing reference material specific to agricultural water transfers prior to submitting pilot project proposals or applications to the CWCB. This recommendation will help to further guide preparation of proposal or application materials. Suggested reference documents include, but are not limited to, the *FLEX Market Model Project Completion Report* (CWCB, *et. al.*, June 30, 2013) and *Considerations for Agriculture to Urban Water Transfers* (Arkansas Basin Roundtable, September 10, 2008).

D. Content of this Criteria and Guidelines Document

1. Purpose of the Criteria and Guidelines

This Criteria and Guidelines document provides guidance for the pilot project selection, application, and approval process. As described in Section 37-60-115(8)(b), C.R.S. (2013), the general purpose of the pilot program is to:

a. demonstrate cooperation among different types of water users, including cooperation among shareholders, ditch companies, water user associations, irrigation districts, water conservancy districts, water conservation districts, and municipalities;

b. evaluate the feasibility of delivering leased water to temporary municipal users;

c. provide sufficient data from which the CWCB, in consultation with the State Engineer, can evaluate the efficacy of using streamlined approaches for determining critical components of a fallowing-leasing plan, including historical consumptive use, return flow characteristics, the potential for material injury to other water rights, and conditions to prevent material injury to other water rights; and

d. demonstrate how to operate, administer, and account for the practice of fallowing irrigated agricultural land for leasing water for temporary municipal use without causing material injury to other vested water rights, decreed conditional water rights, or contract rights to water.

2. Components of the Criteria and Guidelines, according to statute

Pursuant to Section 37-60-115(8)(d), this Criteria and Guidelines document includes:

a. the determination of an application fee and for selected pilot projects, an annual review fee;

b. a listing of the information to be included in a pilot project application for approval, including a description of the proposed pilot project;

c. the maximum quantity of transferable consumptive water use per year for any single pilot project;

d. the identification of any geographic areas that are not eligible for pilot projects;

e. provision for a time period of at least seventy five days during which the CWCB shall accept comments after the applicant has provided notice of the application for approval of a pilot project;

f. the requirement and criteria for a conference between the applicant for a pilot project, the State Engineer, and owners of water rights or contract rights to water that file comments on the application;

g. guidelines for the operation and administration of the pilot projects to assure that a pilot project will effect only a temporary change in the historical consumptive use of the water right in a manner that will not cause injury to other water rights, decreed conditional water rights, or contract rights to water, and will not impair compliance with any interstate compact;

h. criteria for selecting pilot projects that range in size and complexity;

i. criteria for selecting pilot projects over a five-year period, ending December 31, 2018, to provide a window for potential pilot project sponsors to apply;

j. provision for a requirement that a proposed pilot project meet applicable local government land use requirements, prevent erosion and blowing soils, and comply with local county noxious weed regulations;

k. the requirement that, during the term of a pilot project, land and water included in a pilot project are not also included in a substitute water supply plan pursuant to Sections 37-92-308(5) or (7), C.R.S. (2013), an interruptible water supply agreement pursuant to Sections 37-92-309, C.R.S. (2013), or another pilot project;

l. a requirement for periodic reports to the Board on the operation of a pilot project; and

m. a requirement that priority is given to pilot projects that can be implemented using existing infrastructure.

3. Additional components of the Criteria and Guidelines

This Criteria and Guidelines document also includes:

a. a description of the submittal, selection, review, and approval process;

b. pilot project selection criteria;

c. guidance on accepted methodologies, modeling, and accounting practices; and

d. ongoing requirements of an approved pilot project.

II. CRITERIA AND GUIDELINES

A. Summary of the Submittal, Selection, Approval, and Review Process

The submittal and approval process for proposed pilot projects and pilot project applications entails four discrete steps:

1. submittal of a proposed pilot project to the Board for consideration and selection;
2. submittal of a pilot project application to the Board for consideration;
3. written determination by the State Engineer; and
4. approval of the pilot project by the Board.

**Note: For any pilot projects intended to operate during 2014, the sponsor of a proposed pilot project may pursue step 1 and step 2 at the same time, effectively completing those steps in parallel and allowing for only one notice, one notice period, and a combined selection and approval process. However, the sponsor will do this at the sponsor's own risk since the final approval by the Board would then be based not only on the State Engineer's evaluation of the comprehensive engineering and resulting written determination, but also on threshold selection criteria such as the limit on the number of pilot projects, the number of pilot projects per basin, or whether the other standards provided in Sections 37-60-115(8)(a) and (b), are met.*

The following is a general summary of the process for completing the four discrete steps outlined above. Specific requirements for each step are described in greater detail later in this Criteria and Guidelines.

Step 1: submittal of a proposed pilot project to the Board for consideration and selection (*see* Section 37-60-115(8)(a) through(c)).

In order to be considered for selection, pilot project sponsors must submit a pilot project proposal to the Board containing, at a minimum, a general description of the proposed pilot project, the land to be fallowed, and the proposed municipal use, along with the items listed in Section II.F., below. If the sponsor of a proposed pilot project is pursuing selection through step 1 prior to pursuing approval through step 2, the submittal for selection should not include technical analyses regarding historic use, historic consumptive use, or return flows. That detailed information should instead be submitted as part of the application in step 2.

Following the submission of a pilot project proposal by a sponsor, the CWCB will post the proposal on its website and the sponsor shall provide written notice. Parties may submit comments on the proposed pilot project to the CWCB within thirty days of the notice, and the Board will consider the proposed pilot project for selection at its next regularly scheduled meeting that is more than sixty days after receiving the proposal.

Upon the Board's review and consideration, the Board may either select the proposed pilot project to participate in the program, request that a sponsor provide more information regarding the proposed pilot project for reconsideration by the Board at its next regularly scheduled meeting, or deny a proposal. If a proposed pilot project is selected, the sponsor shall then be required to submit a pilot project application to the Board.

Step 2: submittal of a pilot project application to the Board for consideration (*see* Section 37-60-115(8)(e)).

After selection by the Board, pilot project sponsors must submit a pilot project application to the Board for consideration. All pilot project applications must include, at a minimum, the information detailed in section II.G., below. In addition, pilot project applicants must provide notice of the application as provided in in Section 37-60-115(8)(e) and II.H., below. If the sponsor of a proposed pilot project is pursuing selection and approval through step 1 and step 2 simultaneously, the notice requirements of both steps apply but may be satisfied concurrently.

The Board will receive comments on pilot project applications for a period of seventy-five days after notice of the application has been provided. Within thirty days of the end of comment period, the applicant for a pilot project, the State Engineer, and owners of water rights or contract rights to water that file comments on the pilot project application must hold a conference to confer about the pilot project application. Following the conference, the pilot project applicant and the owners of water rights or contract rights to water must file a joint report outlining agreed-upon terms and conditions for the proposed pilot project and explaining the reasons for failing to agree on any terms and conditions for the pilot project, if any.

Step 3: written determination by the State Engineer (*see* Section 37-60-115(8)(f)).

Following the application submittal process described above, the State Engineer will consider the pilot project application, comments received, and the joint report, if any. The State Engineer will then make a written determination as to whether the pilot project can operate without causing injury and without impairing compliance with any interstate compact, as further described in Section II.J., below. The State Engineer's written determination will also provide terms and conditions necessary for pilot project operation and administration.

Step 4: approval of the pilot project by the Board (*see* Section 37-60-115(8)(f)).

If the State Engineer makes a favorable determination as to a pilot project as described above, the Board may in its discretion approve the pilot project application, adopting all terms and conditions recommended by the State Engineer, in addition to terms and conditions adopted by the Board at its discretion.

B. Application Fee

The application fee for pilot project applications is five hundred dollars ($500), to be submitted to the CWCB at the time a pilot project application is submitted for consideration. There is no annual review fee for approved pilot projects.

C. Pilot Project Selection Criteria

Pursuant to Section 37-60-115(8)(a), a proposed pilot project submitted to the Board to be considered for selection must demonstrate the practice of:

1. fallowing agricultural irrigation land; and
2. leasing the associated water rights for temporary municipal use.

In addition, consistent with the purpose of the pilot program as stated in Section 37-60-115(8)(b), proposed pilot projects must have the potential to:

1. in fallowing irrigated agricultural land for leasing water for temporary municipal use, demonstrate cooperation among different types of water users, including cooperation among shareholders, ditch companies, water user associations, irrigation districts, water conservancy districts, water conservation districts, and municipalities;
2. evaluate the feasibility of delivering leased water to the temporary municipal users;
3. provide sufficient data from which the Board, in consultation with the State Engineer, can evaluate the efficacy of using a streamlined approach, such as an accounting and administrative tool, for determining:
    a. historical consumptive use,
    b. return flows,
    c. the potential for material injury to other water rights, and
    d. conditions to prevent material injury; and
4. demonstrate how to operate, administer, and account for the practice of fallowing irrigated agricultural land for leasing water for temporary municipal use without causing material injury to other vested water rights, decreed conditional rights, or contract rights to water.

The Board will not select a pilot project that involves:

1. the fallowing of the same land for more than three years in a ten-year period or the fallowing of more than thirty percent of a single irrigated farm[2] for more than ten consecutive years;[3]
2. the transfer or facilitation of the transfer of water across the continental divide by direct diversion, exchange, or otherwise; or
3. the transfer or facilitation of the transfer of water out of the Rio Grande basin by direct diversion, exchange, or otherwise; or
4. fallowing-leasing from lands on more than one ditch.

The Board will give priority to pilot projects that can be implemented using existing infrastructure.

The sponsors of potential pilot projects should submit pilot project proposals to the CWCB in report form with narrative and necessary attachments to demonstrate each of the above selection criteria are met. The Board will not consider and does not require the submittal of detailed engineering reports for selecting a pilot project proposal at the selection stage.

---

[2] For the purposes of this Criteria and Guidelines document, a "single irrigated farm" shall be defined as land owned and operated by one entity. All parts of the single irrigated farm should be contiguous or in close proximity.

[3] Taken together, these conditions mean that a pilot project can be designed to operate by fallowing any portion of the lands included in a pilot project for up to ten years in a consecutive ten-year period so long as the statutory limitations are met: that no piece of land is fallowed for more than three years in a consecutive ten-year period and no more than thirty percent of a single irrigated farm is fallowed for more than ten consecutive years. (*See* Section 37-60-115(8)(c) (I) and (II)).

D. Maximum Quantity of Transferable Consumptive Use Water Per Year

Pursuant to Section 37-60-115(8)(a), no more than three pilot projects may be located in any one of the major river basins, namely: the South Platte River Basin; the Arkansas River Basin; the Rio Grande River Basin; and the Colorado River Basin. For the purpose of determining the number of pilot projects in "any one of the major river basins," the South Platte River Basin is defined herein as Division 1, further defined in Section 37-92-201(1)(a), C.R.S. (2013); the Arkansas River Basin as Division 2, further defined in Section 37-92-201(1)(b); the Rio Grande River Basin as Division 3, further defined in Section 37-92-201(1)(c); and the Colorado River Basin as Divisions 4, 5, 6, and 7, as defined in Section 37-92-201(1)(d)-(g).

For pilot projects located in any one of the major river basins, the Board may select and approve pilot projects with transferrable consumptive use ranging in quantities from 100 acre-feet to 1,000 acre-feet per year. The Board recognizes that Colorado law defines a "significant water development activity" as "any removal of water that results in the transfer of more than one thousand acre-feet of consumptive use of water per year by a single applicant or an applicant's agents." § 37-92-103(10.7), C.R.S (2013). Notwithstanding that definition, the Board may select and approve pilot projects with transferrable consumptive use larger than 1,000 acre-feet per year at its discretion. However, under no circumstances will the Board consider a pilot project with transferrable consumptive use of more than 10,000 acre-feet in any one year or 30,000 acre-feet over a ten-year period. For any proposed pilot projects with transferrable consumptive use in excess of 1,000 acre-feet per year, the Board shall give special consideration to comments received, if any, and to protecting the interests of other water users and the state's water resources before granting approval.

E. Geographic Areas not Eligible for a Pilot Project

Subject to the limitation provided in Section 37-60-115(8)(a), which limits the number of pilot projects to no more than three in "any one of the major river basins," no geographic areas are ineligible for a pilot project.

F. Information to be Included in a Pilot Project Proposal; Pilot Project Selection Process

In order to be considered for selection, pilot project sponsors must submit a pilot project proposal to the Board containing, at a minimum, the following:

a. a general description of the proposed pilot project, including the land to be fallowed and the proposed municipal use, identifying the following:
    i. the specific water rights to be utilized by the pilot project and ownership of them;
    ii. the specific lands and parcels that will be analyzed and dried up, and the ownership them;
    iii. the source of water that will be used to meet return flow obligations;
    iv. how and where any necessary replacement water will be delivered to the appropriate stream location(s);

v. any stream reaches that will be used to operate the proposed transfer of water, along with a description of any administrative or hydrologic obstacles to exchanges or delivery of the replacement water; and

vi. any and all structures necessary for operation of the pilot project and ownership of them.

b. evidence to demonstrate that the proposed pilot project meets the eligibility requirements identified in Sections 37-60-115(8)(a) through (c), also listed in section II.C.;

c. evidence to demonstrate that all necessary approvals and agreements between ditch companies, ditch members, municipalities, and other parties have been obtained or will be reasonably obtained; and

d. evidence to demonstrate that all applicable limitations or requirements of any water conservancy districts have been considered.

All pilot project proposals should be limited to ten pages. If the sponsor of the proposed pilot project is pursuing selection through step 1 prior to pursuing approval through step 2, the submittal for selection should not include technical analyses regarding historic use, historic consumptive use, or return flows. That detailed information should instead be submitted as part of the application for approval in step 2.

Following the submission of a pilot project proposal by a sponsor, the CWCB will post the proposal on its website. In addition, consistent with the notice process described in Section 37-60-115(8)(e)(II), the sponsor of a proposed pilot project shall provide written notice and a copy of the proposal by first-class mail or electronic mail to all parties that have subscribed to the substitute water supply plan notification list, as described in Section 37-92-308(6), for the division or divisions in which the subject water rights are located and in which the proposed pilot project will be operated, and file proof of the written notice with the Board. Parties may submit comments on the proposed pilot project to the CWCB within 30 days of the notice, and the notice shall so provide.

The CWCB will consider the proposed pilot project for selection at its next regularly scheduled meeting that is more than sixty days after receiving the proposal. The CWCB will consult with the State Engineer and consider any comments submitted prior to acting on the proposal. The CWCB may, at any time, request a sponsor to provide more information regarding a proposed pilot project.

Upon the Board's review and consideration of a proposed pilot project, and whether it meets the requirements of Sections 37-60-115(8)(a) through (c) and the requirements set out in this Criteria and Guidelines document, the Board may select the proposed pilot project to participate in the program, request that the sponsor provide more information regarding the proposed pilot project for reconsideration by the CWCB at its next regularly scheduled meeting, or deny the proposal.

If a proposed pilot project is selected, the sponsor shall be required to submit a pilot project application to the Board within ninety days of the Board's selection, The Board may, in its discretion, extend this deadline for good cause shown by the sponsor.

G. Information to be Included in a Pilot Project Application

As described in Section 37-60-115(8)(e)(I), pilot project applications submitted to the Board for consideration must include, at a minimum, the following:

1. a description of the proposed pilot project;
2. an analysis of the historical use, the historical consumptive use, and the historical return flows of the water rights or contract rights to water proposed to be used for temporary municipal use using a water budget model;
3. a map showing all parcels that will be fallowed as part of the pilot project;
4. evidence that the applicant has satisfied the requirements in II.K. below;
5. a description of the source of water to be used to replace all historical return flow obligations, with evidence that the source will provide a firm yield of water to replace all return flow obligations, during the pilot project and after completion of the pilot project; and
6. any additional information requested by the Board.

All parcels that will be fallowed and dried up must be verified as having been historically irrigated (*e.g.*, land historically dry-land farmed may not be considered fallowed for the purposes of a pilot project), and no partial year dry-up shall be permitted. An aerial photo from each decade of the relevant study period will be acceptable evidence. In the absence of aerial photography, the applicant may submit other evidence that will be subject to verification by the Board and other parties.

All pilot project application analyses of the historical use, the historical consumptive use, and the historical return flows of the water rights or contract rights to water proposed to be used for temporary municipal use using a water budget model, as required above, shall comply with the following:

1. Any pilot project proposed to operate prior to 2015 shall be evaluated with the Excel or Matlab version of the ISAM, currently available from the Division of Water Resources;starting in 2015, or as soon as it is available, proposed pilot projects shall be evaluated with the Lease Fallowing Tool, which is being developed for the CWCB and should be operational in January 2015. The individual components of analyses submitted shall include the following tables and other information. All tables should show monthly values, and a separate table should be used for each individual farm that is included in a pilot project. A list of the tables, along with one sample table, is included in Appendix A. Pilot project sponsors and applicants should contact the Division of Water Resources for electronic versions of all tables in Excel format:
    a. A table identifying all assumptions, presumptive factors, and methodologies used in the analyses;
    b. Tables of historical use and historical consumptive use, *based on at least 30 years of diversion records*, including:
        i. historical total river headgate diversions to the relevant ditch and the proportionate share of those diversions attributable to the relevant individual farm(s);

ii. ditch losses and off-farm losses (use cited information from a previous change case or information from the relevant ditch company);

iii. farm headgate delivery (use diversion records);

iv. farm efficiency (use 55 percent); and

v. potential consumable amount of the farm headgate delivery (use farm headgate delivery multiplied by farm efficiency).

c. Tables of historical use and historical consumptive use, *based on crop demand*, including:

i. description of crop mix (use county-wide statistics);

ii. crop potential evapotranspiration (PET) (use Modified Blaney Criddle with TR-21 coefficients);

iii. total precipitation (use weather station closest to the relevant ditch headgate);

iv. effective precipitation (use factors from United States Bureau of Reclamation method); and

v. crop irrigation requirement (CIR).

d. Actual demand met by subject water right(s) (use the minimum of potential consumable amount of farm headgate delivery and crop irrigation requirement plus soil moisture deficit, with stored soil moisture limited to six inches or 0.5 acre-feet per acre) including:

i. volumetric limit for monthly consumptive use amount, based on the average of the three greatest years of the study period; and

ii. volumetric limit for annual consumptive use amount, based on the average of the three greatest years of the study period.

e. Historical return flows.

i. The portion of the monthly farm headgate delivery not used to meet the irrigation demand will be the return flow fraction, or 45 percent of the farm headgate delivery, being the remaining fraction of the farm efficiency:

1. twenty percent of the return flow fraction will be designated as surface runoff, and

2. eighty percent of the return flow fraction will be designated as deep percolation to the alluvial aquifer.

ii. Unit Response Functions (URFs) shall be used for determination of timing of groundwater return flows <u>from each farm</u> to the stream or natural drains, using the following approaches, assumptions, and factors:

1. use the Glover-Balmer analytical solution (Glover equation) to calculate the lag effect of deep percolation return flows;

2. specific yield = 0.20;
3. transmissivity according to cited reference or through the applicant's detailed analysis;
4. the relevant ditch represents the location of the no-flow boundary;
5. the distance to the river is equal to the length of a line extending perpendicular from the river or drain to the centroid of the irrigated land; return flows accrue to the river or drain at this location on the river; and
6. the number of month time steps (URF period) for the URF will be limited to the number of months required for at least ninety percent of the impact to occur to the stream; the URFs will then be normalized by apportioning the remaining return flows across the URF period.

iii. If return flow obligations are to be met by recharge, no URFs are required if:

1. all return flows for a farm are met by recharge from a recharge facility within one quarter mile of the dried up land;
2. the recharge water is delivered in the same time and amount, with an additional amount to account for recharge pond evaporation, as the deep percolation portion of the farm delivery for the dried up land; and
3. the application includes a plan for monitoring and accounting to ensure that recharged water infiltrates and percolates to the water table without consumption.

iv. A comparison of historic values determined above and projected operations.

H. Notice of Pilot Project Applications

Pursuant to Section 37-60-115(8)(e)(II), after having been selected as a pilot project, or concurrent with the selection process if the applicant combines the selection and the approval process, pilot project applicants must provide notice of applications submitted to the Board.

Applicants shall provide written notice that a pilot project application has been submitted to the Board along with a copy of the pilot project application and all accompanying materials submitted (or information on how to obtain them) by first-class mail or electronic mail to all parties that have subscribed to the substitute water supply plan notification list and the CWCB notification list, as described in Section 37-92-308(6), for the division or divisions in which the water right is located and in which it will be used, and file proof of the written notice with the Board. Such notice shall provide that parties may submit comments on the pilot project application to the CWCB within seventy-five days of the notice.

I. Comment and Conference Criteria

The CWCB will receive comments on pilot project applications for a period of seventy-five days after notice of the application was provided. These comments may include: any claim of injury; any terms and conditions that the person filing a comment believes should be imposed on the pilot project in order to prevent injury to other water rights, decreed conditional water rights, or contract rights to water; and other information that the person filing the comment believes the Board should consider in reviewing the application. All comments claiming injury must identify with specificity the water right(s) that the person filing the comment either owns or has a contract right.

Within thirty days of the end of the comment period, the applicant for a pilot project, the State Engineer, and owners of water rights or contract rights to water that file comments on the pilot project application shall hold a conference, convened and facilitated by CWCB staff, to confer about the pilot project application. Conference participants shall discuss how the pilot project could be structured to prevent material injury to other water rights and contract rights to water. In order to facilitate a meaningful conference, the parties shall make every effort to (1) provide analyses of the nature and extent of the claimed injury to the identified water right(s) based upon the methodologies and approaches, assumptions, and presumptive factors set forth in section II.G., herein; and (2) propose specific terms and conditions that would protect the identified water right(s) from the claimed injury.

Within fifteen days of the conference, the pilot project applicant and the owners of water rights or contract rights to water shall file a joint report with the CWCB and the State Engineer outlining any agreed-upon terms and conditions for the proposed pilot project, and explaining the reasons for failing to agree on any terms and conditions for the pilot project if the applicant and the owners fail to reach a full agreement at the conference.

J. Determination of the State Engineer; Guidelines for Operation and Administration of a Pilot Project

Taking into consideration the pilot project application, comments, and the joint report, if any, and utilizing the methodologies and approaches, assumptions, and presumptive factors set forth in section II.G, herein, the State Engineer will make a written determination regarding a pilot project application within thirty days of receipt of the joint report. The written determination of the State Engineer will describe the operation and administration of the pilot project and will include, but is not limited to, the following:

1. the State Engineer’s opinion as to whether the pilot project can operate without causing injury to other water rights, decreed conditional water rights, or contact rights to water, and without impairing compliance with any interstate compact;
2. terms and conditions necessary to ensure the pilot project will operate and can be administered without causing injury to other water rights, decreed conditional water rights, or contract rights to water and without impairing compliance with any

interstate compact;[4] these terms and conditions may also include, where applicable:

a. a requirement that all parcels included in a pilot project are accounted for, dried up, and administered according to the protocol described in Appendix B of this document;
b. a requirement that the accounting use the tables listed in Appendix A of this document as the tool for comparing historical use analyses with projected operations as a pilot project;
c. a requirement that the water rights subject of a pilot project be run through the applicable ditch; and
d. a condition that reservoir water that is subject of a pilot project can be used for municipal use only as the remaining irrigation portion is used for irrigation; and

3. any other information the State Engineer deems pertinent to the operation of a pilot project.

Upon receipt of the State Engineer's written determination, the Board shall take action on the pilot project application at its next scheduled meeting. If such meeting is scheduled to commence in less than twenty-one days from the date the CWCB receives the State Engineer's written determination, the Board shall take action on the pilot project application at its following meeting unless CWCB staff determines that less time is adequate.

K. Consideration of Additional Requirements

Pursuant to Section 37-60-115(8)(d)(X), pilot project applicants must provide evidence that through the operation of a pilot project, the applicant will:

1. meet applicable local government land use requirements;
2. prevent erosion and blowing soils; and
3. comply with local county noxious weed requirements.

Neither the Board nor the State Engineer will perform a technical evaluation to validate whether an applicant has met these requirements. Rather, the State Engineer, in the written determination, will validate whether an applicant has provided sufficient evidence that it will continue to satisfy these requirements throughout the pilot project's duration.

L. Limitations on Participation in Other Statutory Mechanisms

Pursuant to Section 37-80-115(8)(d)(XI), during the term of a pilot project, land and water included in a pilot project shall not also be included in a substitute water supply plan pursuant to Section 37-92-308(5) or (7), an interruptible water supply agreement pursuant to Section 37-92-309, or another pilot project.

[4] Pursuant to Section 37-60-115(8)(d)(VI)(C), and as described in II.I.of this document, the joint report may include terms and conditions for the proposed pilot project. Those terms and conditions may be adopted by the State Engineer.

M. Accepted Methodologies, Modeling, and Accounting Practices

As stated in section I.D., the purpose of the pilot program is to provide sufficient data from which the CWCB, in consultation with the State Engineer, can evaluate the efficacy of using streamlined approaches for determining critical components of a fallowing-leasing plan, including historical consumptive use, return flow characteristics, the potential for material injury to other water rights, and conditions to prevent material injury to other water rights. Section II.G. includes methodologies and approaches, assumptions, and presumptive factors that provide for a streamlined application, review, and approval of the pilot projects.

The Board has adopted these methodologies, approaches, and assumptions in this Criteria and Guidelines document, with public participation, to streamline the process for pilot project application development, review, and approval. The Board's intent is that the good faith adherence to these Criteria and Guidelines by applicants, any parties filing comments on pilot project applications, the State Engineer, and the Board will assist the Board's approval process and will reduce or eliminate the need for appeal on the technical bases outlined in this document.

These Criteria and Guidelines were developed for the purposes of fallowing-leasing pilot projects and are applicable only for the purposes of pilot projects authorized under Section 37-60-115(8).

N. Ongoing Requirements of an Approved Pilot Project

According to Section 37-60-115(8)(i), the CWCB, in consultation with the State Engineer, shall annually report to the Water Resources Review Committee, created in Section 37-98-102, C.R.S. (2013), or its successor committee, on the reported results of the pilot projects, including any recommendations for legislation to implement fallowing-leasing. The CWCB, in consultation with the State Engineer, shall provide a final report to the Water Resources Review Committee, or its successor committee, by July 1, 2029, or the year in which the final pilot project is completed, if before 2029, as required by Section 37-60-115(8)(h)(II)(i).

As a part of its approval of a pilot project, the CWCB will also set forth requirements for the applicant to report on the operation and outcome of the pilot project and solicit input from parties involved in the conference described in paragraph II.I. of this document, including information regarding the success of streamlined approaches and the effectiveness of the pilot projects in accomplishing the purposes identified in Section 37-60-115(8)(b).

APPENDIX A

Tables for Information to be Included in a Pilot Project Application (*see* section II.G.)

A. Required Tables

The tables in the following list will generally be required in a pilot project application:

1. River Headgate Diversions for All Sources Considered in Pilot Project
2. River Headgate Diversions Pro-Rata by Share or Percent of Water Right for Pilot Project Farm(s)
3. Farm Headgate Deliveries
4. Farm Crop Acreages and Crop Distributions
5. Farm Crop Potential Evapotranspiration
6. Farm Precipitation
7. Farm Effective Precipitation
8. Farm Irrigation Water Requirement
9. Farm Headgate Delivery Available to Meet Crop Irrigation Requirement
10. Farm Crop Irrigation Requirement Met by Irrigation Water Applied or in Soil Moisture
11. Total Return Flows at Farm(s)
12. Tailwater/Surface Runoff Return Flows at Farm(s)
13. Deep Percolation/Ground Water Return Flows at Farm(s) (unlagged)
14. Historic Depletions at Farm(s) including Depletion and Return Flow Factors

B. Tables to be Included as Applicable

The tables in the following list may be required in a pilot project application, depending on the specifics of the pilot project:

1. Pond Evaporation Data
2. Unit Response Function Normalized by 90%
3. Simulated Recharge Operations
4. Simulated Lagged Stream Return Flow Summary
5. Monthly Accounting Example
6. Daily Accounting Example

C. Sample Table

The following is a sample table for River Headgate Diversions for All Sources Considered in Pilot Project. Pilot project sponsors and applicants should contact the Division of Water Resources for electronic versions of all tables in Excel format.

Table 1 - River Headgate Diversions for All Sources Considered in Pilot Project Plan
Farm Name or Designation: Farm 1
Source of Data:
Notes:

Year (Cal)	Jan (AF)	Feb (AF)	Mar (AF)	Apr (AF)	May (AF)	Jun (AF)	Jul (AF)	Aug (AF)	Sep (AF)	Oct (AF)	Nov (AF)	Dec (AF)	Total (AF)
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
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2009													
2010													
2011													
2012													
Maximum													
Minimum													
Average													

APPENDIX B

Administration of Parcels

A. Identification of Parcels for Pilot Projects

To the greatest extent possible, mapping of parcels to be fallowed should be developed from irrigated acreage mapping done under the various Decision Support System projects and maintained by the Colorado Water Conservation Board (CWCB) on Colorado's Decision Support System (CDSS) website. If other mapping is used (*e.g.*, Farm Service Agency), the source of the mapped data should be provided as part of the application citing the year(s) used for parcel evaluation and selection.

Mapped parcels shall be provided in GIS format compatible with the ArcView software unless provisions are made to coordinate mapping with the State Engineer's Office. Mapping for identified parcels must be provided with pilot project applications.

Pilot project sponsors and applicants seeking to identify any lands they believe were historically irrigated that do not lie within the mapped irrigated lands developed for CDSS, must provide backup documentation to demonstrate continuous irrigation for the parcel over the majority of the study period.

B. Minimum Standards for Parcel Selection

Fallowed parcels must be at least ten acres in size unless they comprise all of an existing CDSS parcel that is already less than ten acres. Parcels that represent a portion of an existing field can only be split in the same direction of historic irrigation unless a means of physical separation is approved by the CWCB based on the written determination of the State Engineer. A physical separation must exist between any irrigated portion of a parcel and the dry-up portion. For dry-up fields left fallow or with a dry-land cover crop without permanent root system (that is, not alfalfa or pasture grass for example), the separation can be a ditch or tilled strip at least ten feet in width that prevents irrigation application from reaching the dry-up parcel. For partial fields containing deep-rooted crops such as alfalfa or pasture grass, a deep tilled separation of at least 25 feet must be maintained along with any ditches necessary to ensure no irrigation application to the dry-up portion. For any dry-up parcel that is planted with a dry-land crop (haygrazer, milo, millet, etc.), the crop should either be drilled at an angle to normal irrigation direction or a tilled strip maintained at the top of the field that clearly separates the crop from any possible irrigation source (preferably both).

All parcels containing alfalfa or pasture grass shall be subject to a reduction in the approved amount of transferrable consumptive use if the field is subirrigated. The reduction will be calculated according to Table 1 on the following page. Necessary monitoring well configuration, if any, will be determined through the application of terms and conditions as required by each individual pilot project.

Table 1

Depth to Ground Water (Feet)	Percent Reduction in CU Credit	
	Pasture Grass	Alfalfa
1	85%	100%
2	50%	90%
3	30%	75%
4	20%	50%
5	15%	35%
6	10%	20%
7	5%	15%
8	0%	10%
9	0%	0%

COLORADO

Colorado Water Conservation Board

Department of Natural Resources

Agenda Item 15

Catlin Canal Pilot Project Materials

Appendix K

HB13-1248

NOTE: The governor signed this measure on 5/13/2013.

An Act

HOUSE BILL 13-1248

BY REPRESENTATIVE(S) Fischer, Conti, Coram, Fields, Gerou, Ginal, Hamner, Hullinghorst, Lebsock, Levy, Mitsch Bush, Rankin, Rosenthal, Salazar, Schafer, Vigil, Young, Duran, Labuda, Pabon, Pettersen;
also SENATOR(S) Schwartz, Todd.

CONCERNING AN AUTHORIZATION OF PILOT PROJECTS FOR THE LEASING OF WATER FOR MUNICIPAL USE.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. Legislative declaration. (1) The general assembly hereby:

(a) Affirms its commitment to develop and implement programs to advance various agricultural transfer methods as alternatives to permanent agricultural dry-up, which it has funded through the "alternative agricultural water transfer sustainability grant program", enacted in the 2007, 2009, and 2012 Colorado water conservation board (board) projects bills;

(b) Recognizes that:

(I) If the status quo development trend continues, Colorado may lose over five hundred thousand irrigated acres statewide and some basins may

---

Capital letters indicate new material added to existing statutes; dashes through words indicate deletions from existing statutes and such material not part of act.

lose as much as thirty-five percent of their irrigated acreage by 2050, as found by the board's 2010 statewide water supply initiative;

(II) The board believes that it is urgent to implement alternatives, like fallowing irrigated agricultural land for leasing water for temporary municipal use, referred to in this section as "fallowing-leasing", to traditional transfers resulting in permanent agricultural dry-up, and the board is fostering the development of these alternatives through its alternative agricultural water transfer methods competitive grant program;

(III) Both the interbasin compact committee and the basin roundtables, created in section 37-75-104, Colorado Revised Statutes, have expressed a desire to minimize permanent agricultural dry-up;

(IV) Fallowing-leasing poses hydrological issues in addition to those posed by traditional changes of water rights, and an evaluation of the hydrological issues posed may require further analysis to address questions of injury to other water rights; and

(V) The state needs to evaluate whether fallowing-leasing is a practical alternative to permanent agricultural dry-up; and

(c) Determines that:

(I) The board, which was created in section 37-60-102, Colorado Revised Statutes, "[f]or the purpose of aiding in the protection and development of the waters of the state, for the benefit of the present and future inhabitants of the state", is the appropriate agency to test the efficacy of implementing fallowing-leasing as an alternative to permanent agricultural dry-up; and

(II) It is appropriate to authorize the board, after the state engineer determines the issue of injury, to approve up to ten pilot projects to test fallowing-leasing, with each project lasting up to ten years and no more than three pilot projects to be located in any one of the major river basins, namely: The South Platte river basin; the Arkansas river basin; the Rio Grande river basin; and the Colorado river basin, except as further limited by board.

SECTION 2. In Colorado Revised Statutes, 37-60-115, **add** (8) as follows:

37-60-115. Water studies - rules - repeal. (8) **Fallowing and leasing pilot projects.** (a) AFTER A PERIOD OF NOTICE AND COMMENT, THE BOARD MAY, IN CONSULTATION WITH THE STATE ENGINEER AND UPON CONSIDERATION OF ANY COMMENTS SUBMITTED, SELECT THE SPONSORS OF UP TO TEN PILOT PROJECTS PURSUANT TO THE APPROVAL PROCESS SET FORTH IN PARAGRAPH (f) OF THIS SUBSECTION (8). THE BOARD SHALL NOT ITSELF SPONSOR A PILOT PROJECT, BUT THE BOARD MAY PROVIDE FINANCIAL, TECHNICAL, OR OTHER ASSISTANCE TO A PILOT PROJECT PURSUANT TO THE BOARD'S OTHER ACTIVITIES AND PROGRAMS. NO MORE THAN THREE PILOT PROJECTS MAY BE LOCATED IN ANY ONE OF THE MAJOR RIVER BASINS, NAMELY: THE SOUTH PLATTE RIVER BASIN; THE ARKANSAS RIVER BASIN; THE RIO GRANDE RIVER BASIN; AND THE COLORADO RIVER BASIN. EACH PROJECT MAY LAST UP TO TEN YEARS IN DURATION AND MUST DEMONSTRATE THE PRACTICE OF:

(I) FALLOWING AGRICULTURAL IRRIGATION LAND; AND

(II) LEASING THE ASSOCIATED WATER RIGHTS FOR TEMPORARY MUNICIPAL USE.

(b) THE PURPOSE OF THE PILOT PROGRAM IS TO:

(I) IN FALLOWING IRRIGATED AGRICULTURAL LAND FOR LEASING WATER FOR TEMPORARY MUNICIPAL USE, DEMONSTRATE COOPERATION AMONG DIFFERENT TYPES OF WATER USERS, INCLUDING COOPERATION AMONG SHAREHOLDERS, DITCH COMPANIES, WATER USER ASSOCIATIONS, IRRIGATION DISTRICTS, WATER CONSERVANCY DISTRICTS, WATER CONSERVATION DISTRICTS, AND MUNICIPALITIES;

(II) EVALUATE THE FEASIBILITY OF DELIVERING LEASED WATER TO THE TEMPORARY MUNICIPAL USERS;

(III) PROVIDE SUFFICIENT DATA FROM WHICH THE BOARD, IN CONSULTATION WITH THE STATE ENGINEER, CAN EVALUATE THE EFFICACY OF USING A STREAMLINED APPROACH, SUCH AS AN ACCOUNTING AND ADMINISTRATIVE TOOL, FOR DETERMINING:

(A) HISTORICAL CONSUMPTIVE USE;

(B) RETURN FLOWS;

(C) THE POTENTIAL FOR MATERIAL INJURY TO OTHER WATER RIGHTS; AND

(D) CONDITIONS TO PREVENT MATERIAL INJURY; AND

(IV) DEMONSTRATE HOW TO OPERATE, ADMINISTER, AND ACCOUNT FOR THE PRACTICE OF FALLOWING IRRIGATED AGRICULTURAL LAND FOR LEASING WATER FOR TEMPORARY MUNICIPAL USE WITHOUT CAUSING MATERIAL INJURY TO OTHER VESTED WATER RIGHTS, DECREED CONDITIONAL WATER RIGHTS, OR CONTRACT RIGHTS TO WATER.

(c) THE BOARD SHALL NOT SELECT A PILOT PROJECT THAT INVOLVES:

(I) THE FALLOWING OF THE SAME LAND FOR MORE THAN THREE YEARS IN A TEN-YEAR PERIOD;

(II) THE FALLOWING OF MORE THAN THIRTY PERCENT OF A SINGLE IRRIGATED FARM FOR MORE THAN TEN CONSECUTIVE YEARS;

(III) THE TRANSFER OR FACILITATION OF THE TRANSFER OF WATER ACROSS THE CONTINENTAL DIVIDE BY DIRECT DIVERSION, EXCHANGE, OR OTHERWISE; OR

(IV) THE TRANSFER OR FACILITATION OF THE TRANSFER OF WATER OUT OF THE RIO GRANDE BASIN BY DIRECT DIVERSION, EXCHANGE, OR OTHERWISE.

(d) AFTER PROVIDING A REASONABLE OPPORTUNITY FOR PUBLIC COMMENT AND CONSIDERATION OF ANY COMMENTS RECEIVED, THE BOARD, IN CONSULTATION WITH THE STATE ENGINEER, SHALL ESTABLISH CRITERIA AND GUIDELINES INCLUDING AT LEAST THE FOLLOWING:

(I) AN APPLICATION FEE AND, FOR SELECTED PILOT PROJECTS, AN ANNUAL REVIEW FEE;

(II) THE INFORMATION TO BE INCLUDED IN THE APPLICATION, INCLUDING A DESCRIPTION OF THE PROPOSED PILOT PROJECT;

(III) THE MAXIMUM QUANTITY OF TRANSFERABLE CONSUMPTIVE WATER USE PER YEAR FOR ANY SINGLE PILOT PROJECT;

(IV) NOTWITHSTANDING PARAGRAPH (a) OF THIS SUBSECTION (8), ANY GEOGRAPHIC AREAS THAT ARE NOT ELIGIBLE FOR PILOT PROJECTS;

(V) A TIME PERIOD OF AT LEAST SEVENTY-FIVE DAYS WITHIN WHICH THE BOARD SHALL RECEIVE COMMENTS ON THE APPLICATION AFTER PROVIDING NOTICE PURSUANT TO THE PROCESS SET FORTH IN PARAGRAPHS (e) AND (f) OF THIS SUBSECTION (8). THE COMMENTS MAY INCLUDE:

(A) ANY CLAIM OF INJURY;

(B) ANY TERMS AND CONDITIONS THAT THE PERSON FILING A COMMENT BELIEVES SHOULD BE IMPOSED ON THE PILOT PROJECT IN ORDER TO PREVENT INJURY TO OTHER WATER RIGHTS, DECREED CONDITIONAL WATER RIGHTS, OR CONTRACT RIGHTS TO WATER; AND

(C) OTHER INFORMATION THAT THE PERSON FILING THE COMMENT BELIEVES THE BOARD SHOULD CONSIDER IN REVIEWING THE APPLICATION;

(VI) CRITERIA FOR A CONFERENCE BETWEEN A PILOT PROJECT APPLICANT, THE STATE ENGINEER, AND OWNERS OF WATER RIGHTS OR A CONTRACT RIGHTS TO WATER THAT FILE COMMENTS ON THE APPLICATION, INCLUDING THE FOLLOWING REQUIREMENTS:

(A) THE CONFERENCE PARTICIPANTS MUST MEET WITHIN THIRTY DAYS AFTER FINAL COMMENTS ON THE APPLICATION HAVE BEEN SUBMITTED;

(B) AT THE CONFERENCE, THE CONFERENCE PARTICIPANTS MUST DISCUSS HOW THE PILOT PROJECT COULD BE STRUCTURED TO PREVENT MATERIAL INJURY TO OTHER WATER RIGHTS AND CONTRACT RIGHTS TO WATER; AND

(C) WITHIN FIFTEEN DAYS AFTER THE CONFERENCE, THE PILOT PROJECT APPLICANT AND THE OWNERS OF WATER RIGHTS OR CONTRACT RIGHTS TO WATER MUST FILE A JOINT REPORT WITH THE BOARD AND WITH THE STATE ENGINEER OUTLINING ANY AGREED-UPON TERMS AND CONDITIONS FOR THE PROPOSED PILOT PROJECT AND EXPLAINING THE REASONS FOR FAILING TO AGREE ON ANY TERMS AND CONDITIONS FOR THE

PROPOSED PILOT PROJECT IF THE APPLICANT AND THE OWNERS FAIL TO REACH A FULL AGREEMENT AT THE CONFERENCE;

(VII) GUIDELINES FOR THE OPERATION AND ADMINISTRATION OF THE PILOT PROJECTS TO ASSURE THAT A PILOT PROJECT:

(A) WILL EFFECT ONLY A TEMPORARY CHANGE IN THE HISTORICAL CONSUMPTIVE USE OF THE WATER RIGHT IN A MANNER THAT WILL NOT CAUSE INJURY TO OTHER WATER RIGHTS, DECREED CONDITIONAL WATER RIGHTS, OR CONTRACT RIGHTS TO WATER; AND

(B) WILL NOT IMPAIR COMPLIANCE WITH ANY INTERSTATE COMPACT;

(VIII) CRITERIA FOR SELECTING PILOT PROJECTS THAT RANGE IN SIZE AND COMPLEXITY;

(IX) CRITERIA FOR SELECTING PILOT PROJECTS OVER A FIVE-YEAR PERIOD ENDING ON DECEMBER 31, 2018, TO PROVIDE A WINDOW FOR POTENTIAL PILOT PROJECT SPONSORS TO APPLY;

(X) A REQUIREMENT THAT A PROPOSED PILOT PROJECT:

(A) MEET APPLICABLE LOCAL GOVERNMENT LAND USE REQUIREMENTS;

(B) PREVENT EROSION AND BLOWING SOILS; AND

(C) COMPLY WITH LOCAL COUNTY NOXIOUS WEED REGULATIONS;

(XI) A REQUIREMENT THAT, DURING THE TERM OF THE PILOT PROJECT, LAND AND WATER INCLUDED IN A PILOT PROJECT IS NOT ALSO INCLUDED IN A SUBSTITUTE WATER SUPPLY PLAN PURSUANT TO SECTION 37-92-308 (5) OR (7), AN INTERRUPTIBLE WATER SUPPLY AGREEMENT PURSUANT TO SECTION 37-92-309, OR ANOTHER PILOT PROJECT;

(XII) A REQUIREMENT FOR PERIODIC REPORTS TO THE BOARD ON THE OPERATION OF THE PILOT PROJECT; AND

(XIII) A REQUIREMENT THAT PRIORITY IS GIVEN TO PILOT PROJECTS THAT CAN BE IMPLEMENTED USING EXISTING INFRASTRUCTURE.

(e) (I) FOR APPROVAL OF A PILOT PROJECT, THE APPLICANT MUST PROVIDE WRITTEN NOTICE OF THE APPLICATION, INCLUDING, AT A MINIMUM:

(A) A DESCRIPTION OF THE PROPOSED PILOT PROJECT;

(B) AN ANALYSIS OF THE HISTORICAL USE, THE HISTORICAL CONSUMPTIVE USE, AND THE HISTORICAL RETURN FLOWS OF THE WATER RIGHTS OR CONTRACT RIGHTS TO WATER PROPOSED TO BE USED FOR TEMPORARY MUNICIPAL USE; AND

(C) A DESCRIPTION OF THE SOURCE OF WATER TO BE USED TO REPLACE HISTORICAL RETURN FLOWS DURING THE PILOT PROJECT AND AFTER COMPLETION OF THE PILOT PROJECT; AND

(II) THE APPLICANT MUST PROVIDE THE WRITTEN NOTICE BY FIRST-CLASS MAIL OR ELECTRONIC MAIL TO ALL PARTIES THAT HAVE SUBSCRIBED TO THE SUBSTITUTE WATER SUPPLY PLAN NOTIFICATION LIST, AS DESCRIBED IN SECTION 37-92-308 (6) FOR THE DIVISION OR DIVISIONS IN WHICH THE WATER RIGHT IS LOCATED AND IN WHICH IT WILL BE USED. THE APPLICANT MUST FILE PROOF OF THE WRITTEN NOTICE WITH THE BOARD.

(f) AFTER CONSIDERATION OF THE COMMENTS AND ANY CONFERENCE REPORTS SUBMITTED PURSUANT TO SUBPARAGRAPH (IV) OF PARAGRAPH (d) OF THIS SUBSECTION (8), THE BOARD MAY APPROVE THE PILOT PROJECT APPLICATION IF THE STATE ENGINEER HAS MADE A WRITTEN DETERMINATION THAT THE OPERATION AND ADMINISTRATION OF THE PILOT PROJECT:

(I) WILL EFFECT ONLY A TEMPORARY CHANGE IN THE HISTORICAL CONSUMPTIVE USE OF THE WATER RIGHT IN A MANNER THAT WILL NOT CAUSE INJURY TO OTHER WATER RIGHTS, DECREED CONDITIONAL WATER RIGHTS, OR CONTRACT RIGHTS TO WATER;

(II) WILL NOT IMPAIR COMPLIANCE WITH ANY INTERSTATE COMPACT; AND

(III) THE BOARD ADOPTS ALL TERMS AND CONDITIONS RECOMMENDED BY THE STATE ENGINEER.

(g) WHEN THE BOARD APPROVES OR DENIES A PILOT PROJECT APPLICATION, IT SHALL SERVE A COPY OF THE DECISION, ALONG WITH A COPY

OF THE STATE ENGINEER'S WRITTEN DETERMINATION AND ANY CONFERENCE REPORTS SUBMITTED PURSUANT TO SUBPARAGRAPH (IV) OF PARAGRAPH (d) OF THIS SUBSECTION (8), UPON ALL PARTIES TO THE APPLICATION BY FIRST-CLASS MAIL OR, IF ELECTED BY THE PARTIES, BY ELECTRONIC MAIL. THE BOARD SHALL MAIL A COPY OF THE DECISION, THE STATE ENGINEER'S WRITTEN DETERMINATION, AND ANY CONFERENCE REPORTS TO THE APPROPRIATE WATER CLERK.

(h) (I) NEITHER THE BOARD'S APPROVAL NOR THE DENIAL OF A PILOT PROJECT CREATES ANY PRESUMPTIONS, SHIFTS THE BURDEN OF PROOF, OR SERVES AS A DEFENSE IN ANY LEGAL ACTION THAT MAY ARISE CONCERNING THE PILOT PROJECT. THE BOARD'S APPROVAL OR DENIAL OF A PILOT PROJECT APPLICATION AND THE STATE ENGINEER'S WRITTEN DETERMINATION ON THE APPLICATION ARE FINAL AGENCY ACTIONS THAT MAY BE APPEALED. AN APPEAL PURSUANT TO THIS SUBSECTION (8) MUST BE FILED WITH THE APPROPRIATE WATER JUDGE AND BE MADE WITHIN THIRTY-FIVE DAYS AFTER THE BOARD'S DECISION HAS BEEN MAILED TO THE APPROPRIATE WATER CLERK.

(II) THE WATER JUDGE SHALL EXPEDITE THE APPEAL, WHICH SHALL BE DE NOVO AND USE THE PROCEDURES AND STANDARDS SET FORTH IN SECTIONS 37-92-304 AND 37-92-305 FOR DETERMINATION OF MATTERS REREFERRED TO THE WATER JUDGE BY THE REFEREE; EXCEPT THAT THE WATER JUDGE SHALL NOT DEEM A PARTY'S FAILURE EITHER TO APPEAL ALL OR ANY PART OF THE BOARD'S DECISION OR THE STATE ENGINEER'S WRITTEN DETERMINATION OR TO STATE ANY GROUNDS FOR THE APPEAL TO PRECLUDE THE PARTY FROM RAISING A CLAIM OF INJURY IN A FUTURE PROCEEDING BEFORE THE WATER JUDGE. THE PILOT PROJECT APPLICANT IS DEEMED TO BE THE APPLICANT FOR PURPOSES OF THE PROCEDURES AND STANDARDS THAT THE WATER JUDGE APPLIES TO THE APPEAL.

(i) THE BOARD, IN CONSULTATION WITH THE STATE ENGINEER, SHALL ANNUALLY REPORT TO THE WATER RESOURCES REVIEW COMMITTEE, CREATED IN SECTION 37-98-102, OR ITS SUCCESSOR COMMITTEE, ON THE REPORTED RESULTS OF THE PILOT PROJECTS. THE BOARD, IN CONSULTATION WITH THE STATE ENGINEER, SHALL PROVIDE A FINAL REPORT TO THE WATER RESOURCES REVIEW COMMITTEE, OR ITS SUCCESSOR COMMITTEE, BY JULY 1, 2029, OR THE YEAR IN WHICH THE FINAL PILOT PROJECT IS COMPLETED, IF BEFORE 2029.

(j) THIS SUBSECTION (8) IS REPEALED, EFFECTIVE JULY 1, 2030.

SECTION 3. Safety clause. The general assembly hereby finds, determines, and declares that this act is necessary for the immediate preservation of the public peace, health, and safety.

Mark Ferrandino SPEAKER OF THE HOUSE OF REPRESENTATIVES	John P. Morse PRESIDENT OF THE SENATE
Marilyn Eddins CHIEF CLERK OF THE HOUSE OF REPRESENTATIVES	Cindi L. Markwell SECRETARY OF THE SENATE

APPROVED____

John W. Hickenlooper
GOVERNOR OF THE STATE OF COLORADO