STATE OF COLORADO

Ebert - DNR, Jared <jared.ebert@state.co.us>

Kirtright Gravel Pit, DRMS Permit no. M-1986-123

Comaniciu - DNR, Ioana <ioana.comaniciu@state.co.us> Mon, Dec 10, 2018 at 10:19 AM
To: Jared Ebert - DNR <jared.ebert@state.co.us>

Good Morning Jared,
A SWSP for the Kirtright Pit M1986-123 was approved on November 17, 2016 through December 17, 2017 (SWSP approval letter is attached). According to Condition No. 1 of the SWSP approval, the plan was proposed to be extended until December 31, 2018 if the Applicant was able to demonstrate that a water court application for a permanent plan for augmentation was filed with Division 1 Water Court. According to our records an application for a permanent plan for augmentation was not filed with the water court as required by the SWSP approval, therefore the SWSP expired on December 17, 2017. Let me know if you have any further questions.
Regards,

Ioana Comaniciu, P.E.
Water Resources Engineer

COLORADO
Division of Water Resources
Department of Natural Resources

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Kirtright SWSP 16-18.pdf
2051K

COLORADO
Division of Water Resources
Department of Natural Resources

November 17, 2016

Peter Wayland
Weiland, Inc.
P.O. Box 18087
Boulder, CO 80308

Re: **Kirtright Substitute Water Supply Plan (WDID 0402542)**
Kirtright Gravel Pit, DRMS File No. M-1986-123 (WDID 0403017)
Section 15, T5N, R68W of the 6th P.M.
Water Division 1, Water District 4

Approval Period: November 17, 2016 through December 31, 2017 (or December 31, 2018 subject to condition no. 1)
Contact Phone Number for Mr. Peter Wayland: 303-443-9521
Contact Email address for Mr. Peter Wayland: pwayland@weilandinc.com

Dear Mr. Wayland:

This letter is in response to your application received October 18, 2016 requesting approval of a substitute water supply plan ("SWSP") for a sand and gravel pit owned and operated by Coulson Excavating Company, Inc. ("Coulson" or "Applicant") in accordance with Section §37-90-137(11), C.R.S. The Applicant shall be responsible for compliance with this plan. The required fee of $257 for the substitute water supply plan has been submitted (receipt no. 3676884).

Plan Operation

This plan seeks to replace depletions resulting from mining at the Kirtright Gravel Pit ("Kirtright Pit"). Kirtright Pit is located in the SE1/4 of Section 15, Township 5 North, Range 68 West of the 6th P.M. Mining at this site has been completed and the total ground water exposed at this site is approximately 24.48 acres. The Kirtright Pit is currently in the reclamation stage, therefore this SWSP will account for the evaporation losses from the exposed ground water at the site.

According to the information provided, a total of 2.99 acres of pond surface was exposed within the Kirtright Pit reclamation permit boundary prior to January 1, 1981. Based on the Division 1 Water Court decision in case no. 2009CW49, the replacement of evaporative depletions is not required for ground water exposed to the atmosphere prior to January 1, 1981 through open mining of sand and gravel, regardless of whether open mining operations continued or were reactivated on or after that date. The Water Court effectively held that Senate Bill 120 of 1989, as amended in Senate Bill 93-260, exempted all pre-1981 exposed ground water regardless of whether open mining operations continued or were reactivated on or after January 1, 1981. Accordingly, for the 24.48 acres (2.99 acres exposed prior to January 1, 1981 and 21.49 acres exposed after December 31, 1980) of ground water currently exposed at the Kirtright Pit, replacement of evaporative depletions is only required from the 21.49 acres exposed after December 31, 1980. The area exposed prior to

1981 is shown on the attached Figure 2. The credits for the pre-1981 area are tied to the location identified on Figure 2 and may not be re-allocated to other areas of ground water exposure within the gravel pit permit boundary.

In the previous SWSP approval, the applicant was required to file for a permanent plan for augmentation with the Water Court by December 31, 2015, to include the long-term evaporation losses. You have stated that the Kirtright Pit is in the reclamation stage and a permanent augmentation plan application is near completion. Also, not being able to continue operating under a substitute water supply plan until the reclamation is complete will cause undue hardship to the applicant.

Note, that the approval of this substitute water supply plan does not relieve the Applicant and/or landowner of the requirement to obtain a Water Court decree approving a permanent plan for augmentation or mitigation to ensure the permanent replacement of all depletions, including long-term evaporation losses and lagged depletions after gravel mining operations have ceased. To allow additional time for filing, the deadline for submitting an application for a plan for augmentation is hereby extended to December 31, 2017 by way of this letter. Approval of this plan does not imply approval by this office of any related litigation. By that date the Applicant or its successor in ownership must have either filed an application with the Water Court for a court-approved augmentation plan or commenced backfilling or lining of the site or explain why an extension to the above deadline is required.

In accordance with the letter dated April 30, 2010 (copy attached) from the Colorado Division of Reclamation, Mining, and Safety ("DRMS"), all sand and gravel mining operators must comply with the requirements of the Colorado Reclamation Act and the Mineral Rules and Regulations for the protection of water resources. The April 30, 2010 letter from DRMS requires that you provide information to DRMS to demonstrate you can replace long term injurious stream depletions that result from mining related exposure of ground water.

In accordance with approach no. 4, you have provided an affidavit dated January 27, 2012, that dedicates 0.5 shares of Hillsborough Ditch water as replacement water solely for this SWSP for as long as there are depletions at this gravel pit site or until such time as another replacement source is obtained. A copy of the affidavit is attached to this letter. For the purposes of this SWSP, this affidavit will be accepted for the dedication of the shares; however, if the State Engineer determines that a different affidavit or dedication process is necessary to assure proper dedication of the shares, additional information may be required prior to future SWSP approvals.

Depletions

Consumptive use of water at the property consists of 45.90 acre-feet of evaporation from up to 21.49 acres of exposed after December 31, 1980. Depletions from evaporation at the mine site will accrue to Big Thompson River in Section 15, Township 5 North, Range 68 West of the 6th P.M.

Computation of evaporation under this plan was also reduced during the ice covered period. You have assumed the ice covered period to occur during the months of January, February and December, based on the average temperatures of 27.5°F for January, 30.6°F for February and 29.1°F for December; taken from the Fort Collins weather station. However, for the purpose of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed ground water surface area that may occur during the assumed ice covered period (the months of January, February and December) for any time that the pit is not completely covered by ice.

You have provided a monthly breakdown of the annual depletions at this site in your attached Table AI.1. The IDS AWAS stream depletion model was used to determine the lagged depletions from evaporation to the Big Thompson River. The aquifer characteristics used in the model are: transmissivity (T) = 44,883 gallons per day per foot and specific yield, (SY) = 0.2, the distance from the centroid of the exposed ground water to the stream = 860 feet, and the location of the parallel impermeable boundary was estimated to be 3,500 feet from the stream.

Replacements

The proposed source of replacement for this pit is the historical consumptive use from 46.75 acres historically irrigated with 0.5 shares of Hillsborough Ditch (WDID 04000523) diverted from the Big Thompson River and previously used for irrigation on a portion of the mined property. Irrigation has ceased on the Kirtright Pit site due to the mining operation and groundwater lakes. The Applicant owns one share of the outstanding 118 shares of the Hillsborough Ditch. The one share of the Hillsborough Ditch was historically used for irrigation on the Kirtright Pit mining site (93.5 acres). The historical consumptive use was estimated using the Modified Blaney-Criddle methodology in the IDS Consumptive Use Model, using the average monthly diversion from 1950 through 1986. The reach of the Hillsborough Ditch is typically gaining between the river headgate and the Kirtright farm headgate. Ditch loss is therefore not considered for the main ditch however 2 percent loss has been assigned to the Kirtright lateral. Temperature and precipitation data was taken from the Fort Collins weather station. Crops were irrigated through wild flood and furrows, therefore the irrigation efficiency was assumed to be 60 percent. Water in excess of the irrigation requirement was added to the soil moisture bank, which was assumed to be three feet deep with a water holding capacity of 1.92 inches/feet. Irrigated crops included silage corn and grass hay. Of the irrigation water historically applied to the farm, a portion ran off the fields (surface return) and a portion seeped into the ground below the root zone of crops (deep percolation). Return flows were assumed to consist of 50 percent surface return flow and 50 percent deep percolation. The timing of surface return flows was assumed to be instantaneous to the stream system. The timing of deep percolation return flows was estimated using the AWAS model alluvial aquifer boundary condition option with the following aquifer parameters: transmissivity (T) = 44,883 gallons per day per foot and specific yield, (SY) = 0.2, the distance from the centroid of the farm = 860 feet, and the location of the parallel impermeable boundary was estimated to be 3,500 feet from the stream.

The consumptive use analysis for the one share averaged 83.10 acre-feet per year. The historical accretions/depletions for the 0.5 shares were prorated from the one share of the Hillsborough Ditch that originally irrigated the property. The dry-year historical consumptive use credit from the 0.5 share of the Hillsborough Ditch is 44.23 acre-feet with a non-irrigation season

return flow obligation of 2.68 acre-feet (Table AI.3). After applying the 0.5 shares of Hillsborough Ditch water, there will be 20.81 acre-feet of uncompensated depletions. The required dry-up, 46.75 acres is shown in the attached Figure 2 as the area within the DRMS permit boundary, with the exception of about 5 acres of currently irrigated cropland.

Additional replacements for depletions during the non-irrigation season and during months with insufficient credits will be made available throughout the year from a lease of fully consumable water from the City of Loveland's Water and Power Department ("Loveland"). A copy of the lease associated with the mining operation was provided to the State Engineer's Office with the SWSP request and is attached to this letter. The duration of the lease is for a term of twenty-five years ending on December 31, 2022. The replacement water will be delivered to the stream at the Loveland's wastewater treatment plant (WDID 0402300). The point of delivery is approximately 7 miles upstream of the Kirtright Pit therefore a total transit loss of 14% (2% per mile) has been added to the replacement water provided by Loveland.

Under the terms of the lease, replacements can be made using a variety of water owned by Loveland including, but not limited to, Windy Gap reusable effluent, Loveland Storage Reservoir water pursuant to the terms and conditions of the decree for change of water rights for the City of Loveland, dated June 18, 1985, case no. 82CW202A, and Colorado Big Thompson ("C-BT") Project water. **In the event that Loveland plans to use C-BT water as a replacement source, Loveland shall comply with the Interim Rule issued by the Northern Colorado Water Conservancy District ("Northern District") in May 2005, regarding the use of C-BT Project water in substitute water supply plans.** Prior to the use of C-BT Project water, Loveland is required to notify this office, the division engineer and the water commissioner of the amount of C-BT Project water dedicated to this plan and provide a copy of the Northern District's approval letter as required by paragraph I(g) of the Northern District's May, 2005 Interim Rule.

The monthly depletions and replacement requirements are found on the attached Table AI.4.

Conditions of Approval

I hereby approve the proposed substitute water supply plan in accordance with §37-90-137(11), C.R.S. subject to the following conditions:

1. This SWSP shall be valid for the period of November 17, 2016 through December 31, 2017, unless otherwise revoked, modified, or superceded by decree. **The plan will be extended until December 31, 2018 if the Applicant can demonstrate that a water court application for a permanent plan for augmentation was filed with the Division 1 water court.** If this plan will not be made absolute by a water court action by the plan's expiration date, a renewal request must be submitted to this office with the statutory fee (currently $257) by **November 15, 2017 or November 15, 2018.**

2. Well permit no. 76931-F was obtained for the current use and exposed pond surface area in accordance with §37-90-137(2) and (11), C.R.S. The Applicant is required to maintain a valid well permit for the current uses at the site.

3. The total surface area of the groundwater exposed at the Kirtright Pit site after December 31, 1980 must not exceed 21.49 acres, which results in a maximum evaporative annual loss of 45.92 acre-feet.

4. Total consumption at the Kirtright Pit site must not exceed these aforementioned amounts unless an amendment is made to this plan.

5. Approval of this plan is for the purposes as stated herein. This office must first approve any additional uses for the water. Any future additional historic consumptive use credit given (e.g., agricultural water transfer) for this site must consider all previous credits given.

6. The replacement water that is the subject of this plan cannot be sold or leased to any other entity. As a condition of subsequent renewals of this substitute water supply plan, the replacement water must be appurtenant to this site until a plan for augmentation is obtained. All replacement water must be concurrent with depletions in quantity, timing, and locations.

7. In the event Loveland plans to use C-BT Project water as a replacement source, Loveland shall comply with the Interim Rule issued by the Northern District in May 2005 regarding the use of C-BT Project water in substitute water supply plans. Prior to the use of the C-BT Project water, Loveland shall notify this office, the division engineer and the water commissioner of the amount of C-BT Project water dedicated to this plan and provide a copy of the Northern District's approval letter as required by paragraph I(g) of the Northern District's May, 2005 Interim Rule.

8. All releases of replacement water must be sufficient to cover all out-of-priority depletions in time, place, and amount and must be made under the direction and/or the approval of the water commissioner. The release of replacement water may be aggregated to maximize beneficial use. The water commissioner and/or the division engineer shall determine the rate and timing of an aggregated release.

9. Adequate accounting of depletions and replacements must be provided to the division engineer in Greeley (Div1Accounting@state.co.us) and the water commissioner (Jean Lever at Jean.Lever@state.co.us) on a monthly basis or other interval acceptable to both of them. The accounting form provided with your application is subject to modification and approval by the division engineer. All amounts shall be in acre-feet. Submitted accounting shall conform to the Administration Protocol "*Augmentation Plan Accounting, Division One - South Platte River" (attached).*

   In addition, the applicant shall verify that the City of Loveland ("Loveland") has submitted a report to the Division Engineer that includes an accounting of all replacement water controlled by Loveland, showing the total volume of water under its control and the amount committed to each of the recipients of the water, including the water committed to this plan.

10. The name, mailing address, and phone number of the contact person who will be responsible for operation and accounting of this plan must be provided on the accounting forms to the division engineer and water commissioner.

11. Approval of this substitute water supply plan does not relieve the Applicant and/or landowner of the requirement to obtain a Water Court decree approving a permanent plan for augmentation or mitigation to ensure the permanent replacement of all depletions, including long-term evaporation losses and lagged depletions after gravel mining operations have ceased. An application for a plan for augmentation is required to be filed with the Water Court by December 31, 2017. Approval of this plan does not imply approval by this office of any related litigation. By that date the Applicant or its successor in ownership must have either filed an application with the Water Court for a court-approved augmentation plan or commenced backfilling of the site or explain why an extension to the above deadline is required.

12. In accordance with the letter dated April 30, 2010 (copy attached) from the Colorado Division of Reclamation, Mining, and Safety ("DRMS"), all sand and gravel mining operators must comply with the requirements of the Colorado Reclamation Act and the Mineral Rules and Regulations for the protection of water resources. The April 30, 2010 letter from DRMS requires that you provide information to DRMS to demonstrate you can replace long term injurious stream depletions that result from mining related exposure of ground water. The DRMS letter identifies four approaches to satisfy this requirement. If the information you are providing to DRMS is included under the approaches numbered 1 - 3, a copy of that information needs to also be provided to this office (the Division of Water Resources).

    In accordance with approach no. 4, you have provided an affidavit dated January 27, 2012, that dedicates 0.5 shares of Hillsborough Ditch water as replacement water solely for this SWSP for as long as there are depletions at this gravel pit site or until such time as another replacement source is obtained. A copy of the affidavit is attached to this letter. For the purposes of this SWSP, this affidavit will be accepted for the dedication of the shares; however, if the State Engineer determines that a different affidavit or dedication process is necessary to assure proper dedication of the shares, additional information may be required prior to future SWSP approvals.

13. The Applicant shall perform an inspection and provide verification that the land associated with the changed water right in this SWSP has been removed from irrigation during the term of this SWSP. Verification of dry-up must be in the form of an affidavit signed by an individual with personal knowledge of the dry-up for the entire irrigation season for each parcel of land associated with the change of water right in this SWSP. In accordance with the attached *Administration Protocol - Dry-Up of Irrigated Land*, the Applicant shall provide a written notification to the water commissioner and division engineer by April 1, 2017 identifying the lands to be dried-up for the 2017 irrigation season. By October 31, 2017, the Applicant shall provide an affidavit to the water commissioner and division engineer that confirms dry-up during the 2017 irrigation season. A GIS shapefile outlining the dry-up must accompany each notification and be emailed to Div1Accounting@state.co.us. The shapefile shall include the pending court case number, the WDID of the plan, a delineation of the dried-up land, the acreage of dry-up, and any accompanying metadata. In addition, the

datum must be NAD83 and the UTM projection must be Zone 13. If a shapefile of the acreage was provided previously and the proposed dry-up acreage has remained the same, the notice can reference the previously provided shapefile, rather than providing it again. If the actual dry-up does not match the land proposed for dry-up in the spring, a revised GIS shape file must be submitted with the affidavit in the fall.

The historical consumptive use attributed to the changed surface water right(s) under this SWSP shall not include ground water contributions. As a result, the historical consumptive use ("HCU") credit calculated for the subject water right to be changed by this SWSP shall be reduced by any ongoing sub-irrigation from ground water. In order to ensure the required dry-up conditions exist during the approval period of this SWSP, and to ensure no sub-irrigation from ground water is occurring, the Applicant shall provide records of monthly monitoring of depth to ground water for all land associated with the change of water right in this SWSP. Information regarding depth to ground water may be provided using existing irrigation wells, existing or new monitoring wells, or piezometers located on the dried-up fields. Applicant may utilize wells or piezometers located within ¼ mile of each field provided that the Applicant can demonstrate the depth to ground water information available off-site is representative of the depth to ground water on the dried-up land. The Applicant shall modify its accounting to reduce the amount of the calculated HCU that may be claimed in this SWSP according to the table below. Measurements taken at the start of each month will determine the necessary reduction in credit to be applied during the following month. The Applicant may use another methodology upon review and prior approval by the state engineer and division engineer. (Construction of monitoring holes/wells, or piezometers require that permits or notices be obtained as described in Table 1 of the Water Well Construction Rules.)

Depth to Ground Water (Feet)	Percent Reduction in CU Credit[1]	
	Native 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%

1. Adapted from *EVAPOTRANSPIRATION AND AGRONOMIC RESPONSES IN FORMERLY IRRIGATED MOUNTAIN MEADOWS, South Park, Colorado,* March 1, 1990; Revised September 1, 1991

14. This substitute water supply plan may be revoked or modified at any time should it be determined that injury to other water rights has or will occur as a result of this plan. Should

this substitute water supply plan expire without renewal or be revoked prior to adjudication of a permanent plan for augmentation, all excavation of product from below the water table, and all other use of water at the pit, must cease immediately.

15. In accordance with amendments to Section §25-8-202-(7), C.R.S. and "Senate Bill 89-181 Rules and Regulations" adopted on February 4, 1992, the State Engineer shall determine if this substitute water supply plan is of a quality to meet requirements of use to which the senior appropriation receiving the substitute supply has normally been put. As such, water quality data or analyses may be requested at any time to determine if the requirement of use of the senior appropriator is met.

16. The decision of the state engineer shall have no precedential or evidentiary force, shall not create any presumptions, shift the burden of proof, or serve as a defense in any water court case or any other legal action that may be initiated concerning the substitute water supply plan. This decision shall not bind the State Engineer to act in a similar manner in any other applications involving other plans or in any proposed renewal of this plan, and shall not imply concurrence with any findings of fact or conclusions of law contained herein, or with the engineering methodologies used by the Applicant.

Should you have any questions, please contact Ioana Comaniciu of this office or Michael Hein of our Division office in Greeley at (970) 352-0742.

Sincerely,

tracy L Kreeft

for Jeff Deatherage, P.E.
Chief of Water Supply

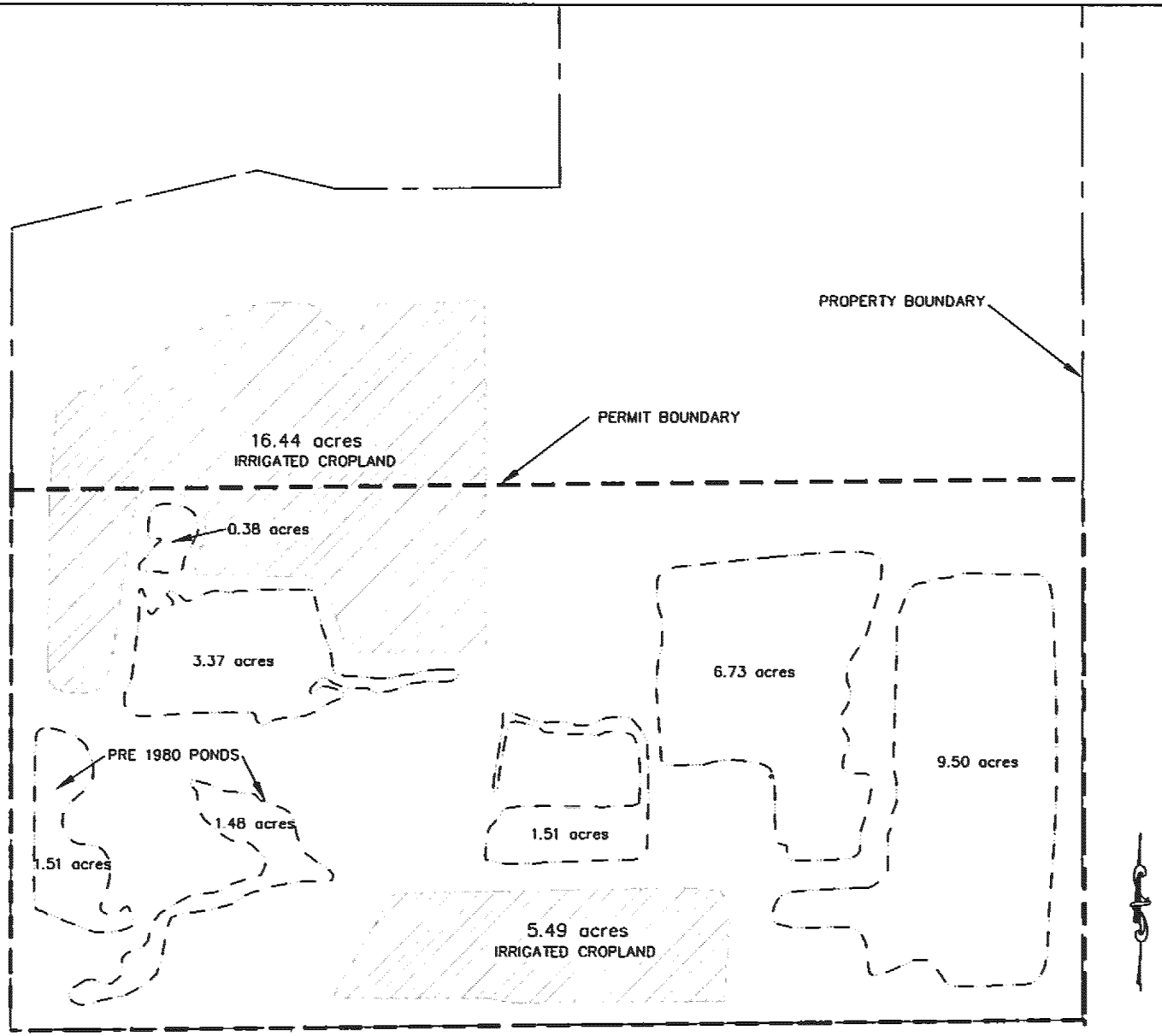
Attachments: Figure 2, Tables AI.1, AI.3 and AI.4
Affidavit for dedication of water rights
City of Loveland Lease
Administration Protocol *Augmentation Plan Accounting, Division One - South Platte River*
Dry-up Protocol

cc: Michael Hein, Water Resource Engineer (810 9th Street, Ste. 200, Greeley, CO 80631, (970) 352-8712)

Jean Lever, Water Commissioner, District 4 (810 9th Street, Ste. 200, Greeley, CO 80631 (970) 290-7397)

Division of Reclamation Mining and Safety

JD/TLK/IDC



REVISIONS		

Weiland, Inc.
Environmental & Engineering
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ph 303-443-8621
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TEMPORARY SUBSTITUTE WATER SUPPY PLAN

KIRTRIGHT PIT

LARIMER COUNTY

COULSON EXCAVATING CO., INC

FIGURE 2 - EXISTIN LAND/EXPOSED

1"=300'	FI
CTW	PFW

AI.1. Evaporative Loss Calculation Worksheet - Existing Ponds

Area of Exposed Groundwater: *21.49 acres*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Month	Monthly Fraction of Evaporation	Gross Free Surface Evaporation [ft]	Monthly Evaporation [ft]	Free Water Surface Area [acre]	Gross Evaporation [acre-ft]	Mean Rainfall [in]	Effective Precipitation [in]	Effective Precipitation [acre-ft]	Total Net Evaporation [acre-ft]	Total Net Lagged Evaporation [acre-ft]
Jan	0.03	3.25	0.10	21.49	0.00	0.37	0.26	0.46	0.00	1.70
Feb	0.04	3.25	0.11	21.49	0.00	0.49	0.34	0.61	0.00	1.36
Mar	0.06	3.25	0.18	21.49	3.84	1.16	0.81	1.45	2.39	1.89
Apr	0.09	3.25	0.29	21.49	6.29	2.00	1.40	2.51	3.78	2.81
May	0.12	3.25	0.39	21.49	8.38	2.80	1.96	3.51	4.87	3.61
June	0.15	3.25	0.47	21.49	10.13	1.83	1.28	2.29	7.83	4.99
Jul	0.15	3.25	0.49	21.49	10.48	1.60	1.12	2.01	8.47	6.19
Aug	0.14	3.25	0.44	21.49	9.43	1.40	0.98	1.76	7.67	6.50
Sep	0.10	3.25	0.33	21.49	6.98	1.31	0.92	1.64	5.34	5.84
Oct	0.07	3.25	0.23	21.49	4.89	1.11	0.78	1.39	3.50	4.77
Nov	0.04	3.25	0.13	21.49	2.79	0.60	0.42	0.75	2.04	3.73
Dec	0.03	3.25	0.10	21.49	0.00	0.47	0.33	0.59	0.00	2.50
totals			3.25		63.21	15.14	10.60		**45.90**	**45.90**

Notes:

(1) = Monthly fraction of evaporation for elevations below 6500 ft from Guidelines for Substitute Water Supply Plans.
(2) = Gross free water surface evaporation from NOAA Technical Report NWS 33
(3) = Columns (1) x (2)
(4) = Total free water surface area - 18.1ac pond
(5) = Columns (3) x (4) Values Set to Zero For Ice Cover Months (Dec-Feb)
(6) = Mean Rainfall (1948-2000) at Longmont
(7) = Effective Rainfall = Column (6)* 0.7
(8) = Column (7) * (1/12)* Column (4)
(9) = Column (5) - Coulmn (8)
(10) = Lagged Evaporative Loss (see AI.5)

AI.3 - 38 Year Consumptive Use Model Output Averages

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Farm Surf. Water Supply	Total DP & Runoff of Water Supplies	On Farm Dep. of Surf. Water	Average Deep Perc	Average Runoff	Average Lagged Deep Perc	Net Consumptive Use Crop Credit	Net Consumptive Use Crop Credit for 43.75 acres of Dryup
Jan	0.00	0.00	0.00	0.00	0.00	0.9713	-0.97	-0.49
Feb	0.00	0.00	0.00	0.00	0.00	0.8014	-0.80	-0.40
Mar	0.04	0.02	0.02	0.01	0.01	0.668	-0.64	-0.32
Apr	2.32	0.93	1.39	0.46	0.46	0.705	1.15	0.57
May	15.98	6.39	9.59	3.20	3.20	1.6187	11.16	5.58
Jun	29.01	11.61	17.28	5.80	5.80	3.1791	20.03	10.02
Jul	36.66	14.66	21.33	7.33	7.33	4.6034	24.72	12.36
Aug	30.75	12.30	18.04	6.15	6.15	5.004	19.59	9.80
Sep	19.36	7.74	11.37	3.87	3.87	4.3206	11.17	5.58
Oct	4.38	1.75	2.59	0.88	0.88	2.8905	0.61	0.31
Nov	0.01	0.00	0.00	0.00	0.00	1.7251	-1.72	-0.86
Dec	0.00	0.00	0.00	0.00	0.00	1.211	-1.21	-0.61
Totals	138.50	55.40	81.61	27.70	27.70	27.70	83.10	41.55

Notes:

(1) = 38 Year Average farm Surface Water Supply

(2) = 38 Year Average of the Total (Deep Percolation) DP & Runoff of Water Supplies

(3) = 38 Year Average of the Total On Farm Depletions of Surface Water

(4) = 50% of Column (3)

(5) = 50% of Column (3)

(6) = Steady State Lagged Depletions from AWAS Model Based on Column (4) Model Input

(7) = Column (1) minus (Column (5)+Column (6))

(8) = Column (7) * (46.75ac/93.5ac). 93.5 acres is the weighted average of irrigated acres over 38 years. Equivalent to 0.5 shares of Hillsborough

AI.4. Net Water Loss \ Replacement

Month	(1) Net Evaporative Loss - Pond [acre-ft]	(2) Historic Net Stream Depletion Credit [acre-ft]	(3) Net Water Loss [acre-ft]	(4) Total Replacement [acre-ft]
JAN	1.70	-0.49	2.19	2.49
FEB	1.36	-0.40	1.76	2.01
MAR	1.89	-0.32	2.21	2.52
APR	2.81	0.57	2.23	2.55
MAY	3.61	5.58	0.00	0.00
JUN	4.99	10.02	0.00	0.00
JUL	6.19	12.36	0.00	0.00
AUG	6.50	9.80	0.00	0.00
SEP	5.84	5.58	0.26	0.30
OCT	4.77	0.31	4.47	5.09
NOV	3.73	-0.86	4.59	5.23
DEC	2.50	-0.61	3.10	3.54
totals	45.90	41.55	20.81	**23.73**

Notes:

(1) = Column (10), Table AI.1
(2) = Column (8), Table AI.3
(3) = Column (1) - Column (2)
(4) = Column (3) + 14% Transit Loss

LEASE OF FULLY CONSUMABLE WATER

THIS LEASE is made and entered into this 13th day of Jan, 1998, by and between the City of Loveland, Colorado, a Colorado home rule municipality ("City"), whose address is 500 East Third Street, Loveland, Colorado 80537, and Coulson Excavating Company, a Colorado corporation ("Lessee"), whose address is 3609 North County Road 13, Loveland, Colorado 80538.

WHEREAS, the City owns certain water which, pursuant to the water laws of the state of Colorado, may be used, re-used and successively used to extinction (the "Fully Consumable Water"); and

WHEREAS, the Lessee wishes to lease from the City the right to use a portion of the City's Fully Consumable Water; and

WHEREAS, the City is willing to lease to Lessee a portion of its Fully Consumable Water pursuant to certain terms and conditions as set forth in this Lease,

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and other good and valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows:

1. The City hereby leases to the Lessee the right to receive one hundred acre feet of the City's Fully Consumable Water, as defined in paragraph 4 of this Lease, on an annual basis. This Lease shall be for a term of twenty-five (25) years, ending on December 31, 2022. However, Lessee shall have the option to renew this Lease for successive terms of twenty-five years, which option shall terminate only if Lessee is in default of its payment obligations under paragraphs 6 or 7 of this Lease or if Lessee elects not to exercise its option to renew by giving notice to the City pursuant to paragraph 12 of this Lease not later than three (3) months prior to the end of any twenty-five (25) year term. In the event Lessee is not in default of its payment obligations and elects to renew the Lease for any successive twenty-five year period, Lessee shall not be required to pay any additional amounts under this Lease for the right to receive its allotted amount of the City's Fully Consumable Water as set forth above.

2. The one hundred acre feet of Fully Consumable Water which the Lessee shall be entitled to receive annually is hereinafter referred to as the "Leased Water." The parties

recognize that, simultaneously with the execution of this Lease, the City has leased the right to receive two hundred acre feet of its Fully Consumable Water to Loveland Ready Mix and that the City may, in the future, lease additional portions of its Fully Consumable Water to persons other than Lessee. The Lessee's right to receive one hundred acre feet of the City's Fully Consumable Water pursuant to this Lease shall be equal to the right of Loveland Ready Mix to receive its two hundred acre feet of Fully Consumable Water such that in the event less than three hundred acre feet of Fully Consumable Water is available in any year, Lessee and Loveland Ready Mix shall each be entitled to receive a proportionate share of the available Fully Consumable Water. The right of Lessee to receive one hundred acre feet of the City's Fully Consumable Water under this Lease shall be deemed to be a first right relative to all others, such that in the event the available Fully Consumable Water in any year is in excess of three hundred acre feet but is not sufficient to meet the needs of all persons holding leases of Fully Consumable Water, Lessee shall receive up to its entire one hundred acre feet allotment from the first three hundred acre feet of Fully Consumable Water available.

3. In consideration of the right to receive the Leased Water, Lessee shall, upon execution of this Lease, pay City the sum of Two Hundred Twenty Thousand and 00/100 ($ 220,000.00) Dollars in certified funds. By entering into this Lease with the Lessee, the City is and shall be under no obligation to file an application for a change of water rights or for a plan of augmentation concerning the use of the Leased Water by the Lessee.

The City shall not be responsible for the implementation of any temporary substitute supply plan or augmentation plan concerning the use of the Leased Water. The cost and expense of any such proceeding shall be that of the Lessee. The City agrees to furnish sufficient Leased Water so that, subject to the provisions of this Agreement, the net usable first use or subsequent use water obtained by the Lessee shall be 100 acre feet. The City shall not be obligated to deliver Leased Water to Lessee unless Lessee shall have first provided written notice to the City that Leased Water will be required in a given year by April 1 of the preceding year.

The City shall deliver the Leased Water under this Lease in a total annual quantity as specified by the Lessee and at specific monthly delivery times and in specific monthly quantities according to the evaporation table, attached hereto as

Exhibit A, or as otherwise agreed by the City and the Lessee in writing. In no event shall the monthly deliveries exceed the monthly amounts shown on Exhibit A unless hereafter agreed in writing by the City and the Lessee.

The Lessee shall not have the right to carryover from month to month or from year to year any Leased Water which was deliverable, but not requested for delivery, in a prior time period. If the maximum allowable delivery under this Lease is not requested by Lessee in any month, the right of Lessee to call for the delivery of such water shall lapse and all such water shall remain the sole property of the City.

4. In supplying the Leased Water pursuant to this Lease, the City may use any water, including, but not limited to the following sources of water which may be used to extinction (the "Fully Consumable Water"):

a. Native water from the Big Thompson River basin which, when stored within the City's reservoir system, may be totally consumed pursuant to the terms and conditions of the Decree for Change of Water Rights for the City of Loveland, dated June 18, 1985, Case No. 82-CW-202A, Water Court Division One, State of Colorado or subsequent actions; and

b. Water under an Allotment Contract with the Municipal Sub-District of the Northern Colorado Water Conservancy District (the "Northern District"), commonly known as Windy Gap Water; and

c. Any water subsequently acquired by the City and determined by Water Court Decree to be totally consumable.

5. The City shall have the right to deliver the Leased Water to Lessee from any of the sources of Fully Consumable Water, at the City's sole discretion, and shall have the right to determine if any or all of the Leased Water shall be first use water or subsequent use water. The City shall never be required to deliver first use water, even if it is the only Fully Consumable Water available to meet the terms of this Lease. In the event the only water available to the City to meet the terms of this Lease is first use Windy Gap Water and the City is willing to deliver such first use water, the City shall notify the Lessee prior to delivering such water and the Lessee shall

have the option to accept the first use Windy Gap Water and pay the costs of delivering such water pursuant to the terms of paragraph 6 of this Lease. In the event the Lessee refuses to accept the delivery of the first use Windy Gap Water, the City shall be deemed to have met its obligations under this Lease, until such time as a source of Fully Consumable Water, other than first use Windy Gap Water, becomes available. In the event the City is reasonably able to but fails to exercise its rights under Case No. 82CW202A sufficient to meet the demands under this Agreement, (unless the exercise of such rights would impair the City's ability to meet the normal domestic needs of the City), and the only water available to the City to meet the terms of this Lease is first use Windy Gap Water, the Lessee shall not be required to pay the delivery charges provided in paragraphs 5 or 6 for the delivery of such first use Windy Gap Water.

6. In the event the Lessee agrees to accept the delivery of first use water from the City's allotment of Windy Gap Water, Lessee shall pay to the City, the total costs of all pumping and conveyance charges, plus any assessments and fees for administrative, operating, maintenance and any other fees or costs charged by the Sub-District for delivery of the water to the City. The Lessee shall pay the City the total estimated costs in advance, and the City shall not be obligated to deliver any such water until it has received the full estimated payment. In the event the estimated costs paid by the Lessee are less than the actual costs incurred by the City in delivery of Windy Gap Water to the Lessee, Lessee shall pay the City any additional amounts owed within thirty days of receipt of an invoice from the City setting forth the amount owed. In the event the Lessee shall fail to pay such additional amounts upon receipt of an invoice from the City, the City shall have the right, in addition to any other legal or equitable remedies it may have, to refuse to deliver any Leased Water until such time as all additional amounts owed pursuant to this paragraph have been paid in full. In the event the estimated costs paid by the Lessee are greater than the actual costs incurred by the City in delivery of Windy Gap Water to the Lessee, the City shall refund any excess within thirty days of the City's receipt of an invoice from the Northern District.

7. Lessee shall pay the City's reasonable costs incurred in administering the terms of this Lease. For the first five years of this Lease, the administrative costs shall be One Thousand and 00/100 Dollars($1,000.00) per year, payable in advance. The City shall recalculate the reasonable administrative costs every five years and inform the Lessee in writing of the

change at least thirty days prior to the start of the new five year period. In the event the Lessee does not require the delivery of any of the Leased Water in a given year, there shall be no administrative costs charged. The City shall invoice the Lessee for the annual administrative costs in January of each year and Lessee shall pay said costs within thirty days of the invoice date. In the event the Lessee shall fail to pay its accrued administrative costs in any year, the City shall have the right, in addition to any other legal or equitable remedies it may have, to refuse to deliver the Leased Water until such time as all accrued administrative fees have been paid in full.

8. At the option of the City, delivery of the Leased Water shall be made at the City's Waste Water Treatment Plant, 700 South Boise Avenue, Loveland, CO, or at such other downstream location or locations above the Lessee's original point of need as agreed by and between the Lessee and City in writing. Lessee shall not unreasonably withhold its approval of any request by the City to move the point of delivery.

9. Subject to the provisions of paragraph 5, the City shall only be obligated to deliver the Leased Water to the Lessee if water meeting the requirements of this Lease is reasonably available to the City. In the event of a drought or other conditions, restrictions or emergency situations beyond the control of the City which limit the City's ability to receive or deliver all or a portion of the Leased Water to the Lessee, the City shall be relieved of its obligations to deliver such water under the terms of this Lease until such time as conditions permit the City's receipt and delivery of the Leased Water.

10. The Lessee shall take the Leased Water AS IS and the City makes no express or implied warranties of any kind or nature, including the warranties of merchantability or fitness for a particular purpose, concerning the water quality of the Leased Water.

11. In the event the Lessee wishes to assign, encumber or exchange its rights to receive all or any portion of the Leased Water not already used to satisfy a temporary substitute supply plan or permanent augmentation decree to a third party, the City shall have the first right of refusal to reacquire said rights. In such event, Lessee shall notify the City in writing and shall provide the City with a copy of the signed agreement between the Lessee and the third party. The City shall have the right to reacquire the water rights within ninety days from receipt of the notice, by informing Lessee of its intent to exercise its first

right of refusal and by paying Lessee the contract price as set forth in the agreement between the Lessee and the third party. If the City does not exercise its right of first refusal, the Lessee may assign or transfer its rights to a third party, and the third party shall be bound by all terms and conditions of this Lease, including the obligation to allow the City the first right of refusal on any transfer or assignment of the Leased Water, it being the intent of this Lease that the City's right of first refusal shall apply to each and every transfer of the Leased Water which may arise at any time during the existence of this or any subsequent Lease. The right of first refusal set forth in this paragraph shall not apply in the event the Lessee wishes to assign, encumber or exchange its rights to receive all or any portion of the Leased Water to a third party pursuant to an exchange which is a transfer, sale or assignment of all or substantially all of Lessee's assets to said third party.

12. After the City has increased the storage capacity of Green Ridge Glade Reservoir to at least five thousand (5,000) acre feet, and upon sufficient advance written notice so as to permit the City to place appropriate orders for replacement water, the Lessee may temporarily sub-lease the Leased Water or portions thereof to third parties without activating the City's right of first refusal as set forth in paragraph 11, so long as the length of the sub-lease term and the amounts and times of discharge required by the Sub-lessee are acceptable to the City. Any such lease arrangement shall first be provided to the City for its review and approval, which approval shall not be unreasonably withheld.

13. All notices shall be in writing and shall be deemed given if personally delivered or mailed, certified mail, return receipt requested, to the following addresses:

If to City, to:

City of Loveland Water & Power Department
Attn: Ralph Mullinix, Director
200 North Wilson Avenue
Loveland, Colorado 80537

with a copy to:
City of Loveland
Attn: City Attorney
500 East Third Street
Loveland, Colorado 80537

If to Lessee, to:
Coulson Excavating Company
3609 North County Road 13
Loveland, Colorado 80538

14. No alteration or other modification of this Lease shall be effective unless such modification shall be in writing and signed by the parties.

15. In the event any portion of this Lease should become invalid, the remainder of the Lease shall remain in full force and effect.

16. This Lease shall be governed by and construed in accordance with the laws of the State of Colorado. This Lease shall inure to the benefit of, and be binding upon, the successors in interest of the respective parties.

IN WITNESS WHEREOF, the parties have executed this Lease on the day and year first above written.

CITY OF LOVELAND

Kathleen G. Gilliland
Mayor

CITY OF LOVELAND SEAL COLORADO

ATTEST:

City Clerk

APPROVED AS TO FORM:

Jane S. Brautigam
City Attorney

LESSEE
COULSON EXCAVATING COMPANY

Coulson Excavating Company Inc.
By: Richard Cole Coulson
Its: President

ATTEST:

Secretary

EXHIBIT A TO LEASE OF FULLY CONSUMABLE WATER
BETWEEN
THE CITY OF LOVELAND AND COULSON EXCAVATING COMPANY

EVAPORATION BY MONTHS

MONTH	PERCENT EVAPORATION
January	3.0%
February	3.5
March	5.5
April	9.0
May	12.0
June	14.5
July	15.0
August	13.5
September	10.0
October	7.0
November	4.0
December	3.0

AFFADAVIT

My family owns the land and 1 share of Hillsborough Ditch water rights for the property located at 260 SE Frontage Rd Johnstown, CO 80534. Coulson Excavating Company, Inc. (CEC) has been operating a sand and gravel mine (M-1986-123) on our property since approximately 1986. I hereby give permission for CEC to use 0.5 shares of our Hillsborough Ditch shares for the purpose of applying historic crop credit to the Temporary Substitute Water Supply Plan associated with the Kirtright Pit.

Signed Darlene Kirtright
Darlene Kirtright

Date 1-27-12

TEMPORARY DRY-UP AGREEMENT

This agreement shall temporarily remove 46.75 acres of land from irrigation by 0.5 shares of Hillsborough Ditch water rights for the property owned by the Kirtright Family known as the Kirtright Pit (DRMS Permit # M-1986-123, east half of the southeast quarter of Section 15, Township 5 North, Range 68 West.). The purpose of this dry up is to make the above mentioned historical consumptive use portion of Hillsborough water rights available to offset depletions associated with the Kirtright Pit Temporary Substitute Water Supply Plan. The term of this agreement shall be for the duration of the Temporary Substitute Water Supply Plan.

Signature of Landowner

Darlene Kirtright Date 3-26-12

ADMINISTRATION PROTOCOL
Augmentation Plan Accounting
Division One – South Platte River

This protocol establishes the accounting and reporting process required to enable the division engineer's office to confirm that depletions from all out-of-priority diversions are being replaced so as to prevent injury to vested water rights. The accounting must comport with established "cradle to grave" accounting standards, which allow an audit of the information to track exactly how the data is manipulated as it is translated from raw input data to the resultant impact on the river. While this protocol is subordinate to any decreed language addressing specific accounting requirements, it generally addresses the minimum requirements of such accounting.

The accounting must use the standard convention where a depletion is "negative" and an accretion or other replacement source is "positive". The sum of the impacts will then result in either a "negative" or "positive" impact on the stream.

Wells in plans that have a negative stream impact must provide additional replacement water, curtail pumping or both until the impact is no longer negative. Plans with a negative stream impact that fail to curtail pumping will be ordered to stop pumping until such time as the projected impact of the wells is no longer negative.

1. Accounting must be submitted electronically to the water commissioner (call 970-352-8712 to obtain email address) and division engineer at Div1Accounting@state.co.us within 30 days of the end of the month for which the accounting is being submitted.
2. The accounting must provide the **contact information** including name and address for:
    a. the owner(s) of each well
    b. the person responsible for submitting the accounting
    c. the plan administrator and/or the plan attorney.
3. All **input data** must be in one location, such as an "Input" worksheet, etc. The accounting must show all pumping. Input data includes the information listed below.
    a. The required input data for each **well** is:
        i. the monthly meter reading for wells that use a **presumptive depletion factor** (PDF) to determine the associated consumptive use (CU); or
        ii. the monthly CU in acre-feet (AF) for wells that have a decree or approved SWSP that allows the wells to use a **water balance methodology** to determine the CU of the well. The analysis used to determine the CU must be included with the accounting.
        iii. Wells that are decreed as an **alternate point of diversion** (APOD) to a surface water right must report pumping on a daily basis if any of the diversion during the month is claimed as being "in priority". (See *Administration Protocol – APOD Wells* for more details.)

iv. The well meter serial readings for each meter shall be included if there is more than one meter on a well.

b. Each **recharge site** must comply with the *Administration Protocol - Recharge* and must report the:

i. daily volume in AF diverted into the site;

ii. monthly volume in AF released from the site;

iii. monthly net evaporative loss in AF;

iv. volume of water in AF remaining at the end of the month.

c. The accounting must identify each source of **fully consumable replacement water** actually delivered to the location impacted by the depletions. To demonstrate the water was actually delivered to the required location will require the following information:

i. the originating source of the water, date released and volume of water released;

ii. transportation losses to point of diversion or use, if any, using stream loss factors approved by the water commissioner;

iii. the volume of water actually delivered on a daily basis past any surface water diversion that was sweeping the river as corroborated by the water commissioner.

(See *Administration Protocol – Delivery of Water* for more details on delivering water.)

d. For each source of **replacement water that has been "changed"** for use as a source of augmentation, such as changed reservoir shares, ditch bypass credits or credits from dry-up, etc., the following input information must be reported:

i. the basis and volume of the return flow obligation;

ii. the location the changed water was historically used; this will be the location used to determine the timing of the return flow impact on the river.

4. The accounting must include a monthly **projection** of the plan's operation at least through March 31 of the next calendar year.

5. The accounting must include all input and output files associated with **modeling the delayed impact** of diversions. The output from the modeling must report to a summary table that shows, by month, the ongoing depletions associated with pumping, return flow obligations, etc. and accretions from recharge operations.

6. A **net impact** summary must show the out-of-priority depletions, accretions from each recharge site, volume of replacement water actually delivered to the location of the depletions and the resultant net impact on **a daily basis**. If necessary, the net impact must be done by river reach.

While **modeling** may use a **monthly step function** to determine the depletions from pumping and accretions from recharge, the monthly result must then be **divided by the number of days in the month** in order to **simulate a daily impact**, as water rights are administered on a daily and not monthly basis.

Replacement water must be provided such that the **daily net impact** (using the simulated daily numbers from the modeling) **is not negative.** If a well is out-of-priority for 15 days during a month, replacement must be made only for the 15 days the well is out-of-priority. The replacement must be made, however, on a daily basis as opposed to, for instance, making an aggregated release equal to the volume of the out-of-priority depletions. Likewise, the simulated daily accretion will only count toward replacing the depletion on the days the well is out-of-priority. The accretions that report to the river when the well is in priority cannot be used to replace the out-of-priority depletions.

The **accretions that impact the river when the well is in priority** are not considered "excess" unless the cumulative net impact of the well is not negative for the entire irrigation year to date. (The irrigation year for this purpose is April 1 thru the following March 31.) Until such time as the cumulative net impact is not negative, the accretions must simply be released to the river and cannot be leased to other plans or recaptured. Plans that show a positive cumulative net impact are still required to make replacements on a daily basis; the cumulative analysis only effects whether or not accretions reporting to the river when the well is in priority are considered "excess" and are, therefore, able to be recaptured.

7. The basis for determining that the depletions are **out-of-priority** must be clearly established and all steps in the calculation included in the accounting. The analysis may be done, unless otherwise limited by decree, for each well or groups of wells, provided the most junior water right associated with the group of wells is used as the reference water right for the group's out-of-priority status.
8. Accounting must include **actual information** for the irrigation year through the month for which the accounting is being submitted **AND projections** of the plan operation through March 31 of the next calendar year.
9. The following **naming convention** must be used for all files submitted pursuant to item 1:

   "Plan**WDID**_YYMMDD"

   where: PlanWDID is the WDID assigned by the division engineer's office
   YYMMDD corresponds to the date the accounting is submitted.

   As an example, the assigned WDID for the former GASP plan was 0103333. If accounting using Excel® was submitted for that plan on May 15, 2004, the file name would be:

   "0103333_040515.xls"

   The name of the file must be in the subject line of the email.
10. All accounting must be reported using the **WDID** for the structure, at a minimum. Other information such as well name, permit number, etc. may also be included as desired. <u>All wells must be decreed by the water court, permitted by the state engineer or included in a decreed plan for augmentation</u>. Unregistered and undecreed wells cannot, in the opinion of the division engineer, be effectively administered because of the need to know the location, allowable diversion rate and use of the well - information that is only available from the decree or permitting process.

11. If a well is covered in multiple SWSP's or augmentation plans, the monthly meter readings must be the same in the accounting for each plan covering the subject well. The accounting for every plan covering the well shall state the proportionate pumping amount covered by each plan to assure all out-of-priority depletions are replaced.

12. The following additional accounting is required for sources of replacement water used for more than one plan. The water right owner of the replacement water is responsible for accounting for the total replacement amount and how much each plan is using of that total amount. The accounting for portions of the replacement water by other users must match the accounting of the water right owner. The amount of replacement water used by the water right owner and other users together shall not exceed the total replacement amount available.

    (See *Administration Protocol – Use Of Unnamed Sources For Replacement* for additional requirements concerning required notice and approval of sources of replacement not specifically described in a SWSP or augmentation plan)