



STATE OF
COLORADO

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Approval of SWSP Renewal Request for Lamb Lake (Plan ID 6135)

Vargas-Johnson - DNR, Javier <javier.vargasjohnson@state.co.us>

Thu, Dec 19, 2019 at 12:59 PM

To: rraines@scwtp.org, jennifer.petrzelka@greeleygov.com

Cc: Michael Hein - DNR <michael.hein@state.co.us>, Mark Simpson - DNR <mark.simpson@state.co.us>, Louis Flink - DNR <louis.flink@state.co.us>, Jared Ebert - DNR <jared.ebert@state.co.us>

Dear Mr. Raines and Ms. Petrzelka,

The Colorado Division of Water Resources has reviewed the application for the SWSP Request for Lamb Lake (Plan ID 6135). Please see the attached letter for the conditions of approval.

Please let me know if you have any questions or concerns.

Sincerely,

Javier Vargas-Johnson
Water Resources Engineer



COLORADO
Division of Water Resources
Department of Natural Resources

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Lamb Lakes 2020 Approval.pdf
3243K



December 19, 2019

Richard T. Raines, P.H.
Water Resource Manager
Tri-Districts
4424 LaPorte Avenue
Fort Collins, CO 80521

Ms. Jen Petrzelka
Water Resource Operations Manager
City of Greeley
1100 10th Street, Suite 300
Greeley, CO 80631

**Re: Lamb Lakes Substitute Water Supply Plan (WDID 0302556)
Lamb Lakes, DRMS Permit No. M-2018-039 (WDID 0303005, Plan ID 6135)
Section 3, T7N, R69W, 6th P.M.
Water Division 1, Water District 3, Larimer County**

Approval Period: January 1, 2020 through December 31, 2021

Contact Information for Mr. Raines: 970-218-2738; rraines@scwtp.org

Contact Information for Ms. Petrzelka: 970-350-9859; jennifer.petrzelka@greeleygov.com

Dear Mr. Raines & Ms. Petrzelka:

We have received your letter dated October 31, 2019 requesting renewal of a substitute water supply plan ("SWSP") in accordance with section 37-90-137(11), C.R.S., to cover depletions caused by gravel mining operations at a mine owned by the Tri-Districts and the City of Greeley ("Partners" or "Applicant") along the Cache la Poudre River known as Lamb Lakes (DRMS permit no. M-2018-039). This SWSP was previously known as the Partners Combined Substitute Water Supply Plan. The Treiber Lakes (DRMS permit no. M-2011-049) were previously included in the Partners Combined SWSP along with the Lamb Lakes. Liners for the Treiber Lakes were previously approved by the State Engineer's Office and there are no historical lagged depletions remaining from the site, therefore the site is no longer required to be included in a SWSP. The required fee of \$257 has been submitted (receipt no. 3695713).

SWSP Operations

The two Treiber Lakes and three Lamb Lakes were constructed under Colorado Division of Reclamation, Mining, and Safety ("DRMS") permit no. M-1977-439 (Home Office Pit). The Home Office Pit is operated by Martin Marietta Materials ("MMM") and is included in their Home Office Pit SWSP (WDID 0302517, Plan ID 2998), most recently approved in a letter dated December 6, 2019. The Treiber Lakes and the Lamb Lakes have officially been separated from the Home Office Pit mining permit boundaries and are now covered under DRMS permit nos. M-2011-049 and M-2018-039, respectively.

The Partners completed construction of a slurry wall around Treiber Lake A on August 7, 2013. The liner was approved on January 27, 2014 and re-approved (after intentional breaching) on August 19, 2015 as meeting the design standard. A slurry wall was completed around Treiber Lake



B in May, 2016. The liner for Treiber Lake B was approved on September 16, 2016 as meeting the design standard. Treiber Lakes A and B are therefore classified as lined reservoirs in accordance with the 1999 SEO Guidelines. The remainder of the historical lagged depletions from the Treiber Lakes were replaced during the previous SWSP plan period. Therefore, the Treiber Lakes are no longer included in this SWSP.

The Lamb Lakes are located just northwest of the City of Fort Collins in Section 3, Township 7 North, Range 69 West of the 6th P.M. The only depletions required to be replaced during the SWSP period will be evaporative depletions from Lamb B and Lamb C. Replacement sources under this SWSP include releases of reusable water from mountain reservoirs, direct replacement from transmountain sources, reusable municipal return flows from East Larimer County District pursuant to case no. 2009CW282, water stored in the Overland Trail Reservoirs pursuant to case no. 2000CW251, and water stored during free river conditions in the River Bluffs Reservoir.

Depletions

Pursuant to section 37-90-137(11)(b), C.R.S., and 2009CW049, a gravel pit operator or property owner does not need to replace depletions that occur due to evaporation from groundwater exposed prior to January 1, 1981 as a result of open mining of sand and gravel ("pre-81 areas"), regardless of whether mining continued after December 31, 1980. Per the State Engineer's *General Guidelines for Substitute Supply Plans for Sand and Gravel Pits* updated April 1, 2011, pre-81 areas are tied to the physical location at which the groundwater was exposed prior to January 1, 1981 with the exception for areas whose reallocation was approved by the State Engineer prior to January 1, 2011. Previous SWSPs (prior to January 1, 2011) approved the pre-81 area without specific mention of its location. Therefore, the State Engineer's Office allowed the pre-81 area to be reallocated and memorialized under the May 11, 2011 SWSP approval. The applicant provided a map (Figure 1 - Home Office Pit) showing the specific location of the pre-81 area, which includes the 22.1 acres of groundwater exposed in Lamb Lake A. The credits for the pre-81 area are tied to the location identified on Figure 1 - Home Office Pit and may not be reallocated to other areas of groundwater exposure within the gravel pit boundary.

Evaporative depletions for the remaining lakes were calculated using a gross annual evaporation of 38 inches, with a credit of 10.58 inches for effective precipitation (based on an average annual precipitation of 15.12 inches for the Fort Collins weather station). You have estimated the surface area of groundwater exposed in the Lamb Lakes after December 31, 1980 as 61.8 acres which results in a net evaporative depletion of 141.19 acre-feet per year.

The monthly evaporative depletions to the Cache la Poudre River were lagged using the AWAS program developed by the IDS Group at Colorado State University. The parameters used in the model were an average distance from the centroid of each lake to the river (X) of 744 feet, an estimated distance from the site to the no flow aquifer boundary (W, measured perpendicular to the point of impact) of 6,500 feet, an aquifer transmissivity (T) of 160,000 gallons per day per foot, and a specific yield (S) of 0.2.

Lagged depletions due to past and projected operations at the site will total 141.08 acre-feet for 2020 and 141.17 acre-feet for 2021.

Replacements

The first source of replacement water to be utilized under this SWSP is reusable municipal return flows from the East Larimer County Water District (ELCO). ELCO is one of the Tri-Districts. ELCO recently decreed its municipal return flows in case no. 2009CW282 on June 29, 2012. Their accounting was approved by the Division Office on August 23, 2012. The reusable municipal return flows accrue to the Poudre River primarily at either the Fort Collins Waste Water Treatment Plants Nos. 1 & 2 (WDIDs 0302313 and 0302301, respectively) or the Boxelder Sanitation District Waste Water Treatment Plant (WDID 0302322).

All three Waste Water Treatment Plants (“WWTPs”) are located downstream of the point of depletion and thus no transit loss will be applied to any releases made for this SWSP. However, there are water rights between the point of depletion and the WWTPs that have the potential to be injured should they place a call. Therefore, the ELCO municipal return credits are not a valid replacement source when an intervening water right places a call. Depending on which WWTP is supplying the municipal reuse credits, the intervening water rights may include the Fort Collins Irrigation Canal, Larimer and Weld Irrigation Canal, Lake Canal, Coy Ditch, Timnath Reservoir Inlet, Box Elder Ditch, and the Fossil Creek Reservoir Inlet. Because of this limitation, the applicant does not rely on ELCO municipal return credits in their projections, however they reserve the right to use this source when available and at their discretion.

The second source of replacement water consists of various supplies owned by the City of Greeley or the Tri-Districts as follows:

Owner	Decree	Description
City of Greeley	87CW042	Milton Seaman Reservoir Water stored under 87CW042.
City of Greeley		Windy Gap Units - Wholly consumable transbasin water pursuant to 61 units owned by Greeley in the Windy Gap Project.
City of Greeley	06CW258	Water pursuant to Greeley’s 75 shares of stock in the Windsor Reservoir and Canal Company that entitle Greeley to water from the Laramie River System. A decree was entered in this case on January 4, 2012.
Tri-Districts	03CW421	Reusable supplies stored in an account in Chambers Reservoir for water decreed in case no. 03CW421.
Tri-Districts	89CW071	Transmountain water available from the Divide Canal and Reservoir Company in case no. 89CW071.
Bi-Districts	06CW259	Water pursuant to Bi-Districts’s 75 shares of stock in the Windsor Reservoir and Canal Company that entitle Bi-Districts to water from the Laramie River System. A decree was entered in this case on January 22, 2013.
Tri-Districts	03CW422	Transmountain water available from ownership in Water Supply and Storage Company and released from Chambers Reservoir decreed in case no. 03CW422.

Water will primarily be released from Greeley's mountain reservoirs although the Tri-Districts may supplement the Greeley releases. The applicant has included a 5% transit loss through the Poudre Canyon and a 0.25% per mile transit loss from the mouth of the Poudre Canyon to the Home Office Pit for a total transit loss of 7.8%. This loss will be applied to Greeley's and the Tri-Districts' replacement supplies unless the Partners receive prior approval from the District 3 Water Commissioner to make replacements downstream of the Home Office Pit. Appropriate transit losses are subject to the Water Commissioner's approval for any replacements made upstream of the Lamb Lakes.

The third source of replacement water is water stored pursuant to the Overland Trail Reservoirs conditional water storage right decreed in case no. 2000CW251. The Overland Trail Reservoir system (WDID 0303312) consists of a series of existing off-channel lined gravel pits, located in portions of Sections 32 & 33, T8N, and Section 3, T7N, R69W, 6th P.M. (see *Figure 1: Overland Trail Reservoir Project*). The liners for Overland Ponds 1-5 and Treiber Lakes A and B have been approved by this office. The Overland Trail Reservoirs are filled with water diverted from the Cache la Poudre River via the New Mercer Ditch, Larimer County Canal No. 2, the Overland Trail Diversion Structure, Munroe Gravity Canal (a/k/a North Poudre Supply Canal), and/or the Pleasant Valley Pipeline. The total decreed capacity of the Overland Trail Reservoirs is 10,962 acre-feet, conditional. Replacement water from the Overland Trail Reservoirs is proposed to be pumped into the Cache la Poudre River at approximately the same location as the Lamb Lakes.

The fourth source of replacement water is water stored in priority in the River Bluffs Lake (WDID 0303324) located at the Three Bells Veldman Property. The River Bluffs Lake is primarily located in the W1/2 of the NE1/4 and the E1/2 of the NW1/4 of Section 13, Township 6 North, Range 68 West of the 6th P.M., and was mined under the Three Bells gravel pit (DRMS M-1979-191). The reservoir was lined with a compacted clay liner and the liner was approved by the State Engineer's Office on March 6, 2015 as meeting the design standard referenced in the August 1999 State Engineer Guidelines for Lining Criteria for Gravel Pits (1999 SEO Guidelines). The reservoir capacity is approximately 1,038 acre-feet.

On March 23, 2018, ELCO and the North Weld County Water District ("North Weld") purchased River Bluffs Lake. ELCO and North Weld are two entities of the Tri-Districts. As part of the purchase ELCO and North Weld obtained the right to use up to 500 acre-feet of the water stored in the Lake. The Partners are proposing to use this replacement water for evaporative depletions at the site if the calling right is located downstream of the River Bluffs Lake. Releases of replacement water will be made at or above the point of the downstream calling right. Releases from the Lake will be delivered into the Cache la Poudre River in the SW1/4 of the SW1/4 of Section 13, Township 8 North, Range 68 West, of the 6th P.M. No transit losses associated with the releases from the Lake will be assessed under this SWSP amendment since the releases will be upstream of the calling right.

Water has been stored in River Bluffs Lake during free river periods since 2015 through the present. Water stored in the reservoir is also being used for replacements of depletions at the Three Bells site. The temporary pump must be equipped with a totalizing flow meter to record daily discharge volumes to the river. The applicant shall obtain prior permission from the District 3 Water Commissioner when making releases from the River Bluffs Lake. Credit will not be given to any releases not measured and recorded to the satisfaction of the District 3 Water Commissioner or Division Engineer.

The total amount of replacement water to be released is 152.08 acre-feet for 2020 and 152.18 acre-feet for 2021, as shown on the attached Table 4.

Long Term Augmentation

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. To prevent long term injurious stream depletions that result from mining related exposure of groundwater, future operations will include constructing slurry walls around each of the three ponds to construct water storage reservoirs. The Partners obtained a conditional water right for these future reservoirs (collectively known as the Overland Trail Reservoirs) in water court case no. 2000CW251. The owners and operators of the mining site are municipal entities and thus a bond to cover the cost of lining or backfilling the pits is not required.

Conditions of Approval

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

1. This plan shall be valid for the period of January 1, 2020 through December 31, 2021, unless otherwise revoked or modified. If either lagged or projected depletions will extend beyond the plan's expiration date, a renewal request must be submitted to this office with the statutory fee (currently \$257) **no later than November 1, 2021**. If a renewal request is received after the expiration date of this plan, it may be considered a request for a new SWSP, in which case a \$1,593 filing fee will apply.
2. Well permit no. 75423-F was obtained for the Home Office Pit by Lafarge to cover their use and exposed pond surface area of the gravel pit in accordance with sections 37-90-137(2) and (11), C.R.S. This permit is now held by Martin Marietta Materials and currently covers evaporation from the three Lamb Lakes that are the subject of this SWSP.
3. The total surface area of the groundwater exposed in the Lamb Lakes after December 31, 1980 must not exceed 61.8 acres, which results in an evaporative loss of 141.19 acre-feet per year. Should the total surface area exposed after December 31, 1980 exceed this amount, an amendment will need to be filed with this office.
4. Approval of this SWSP is for the purposes as stated herein. Any additional uses of this water must first be approved by this office.
5. 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. Notice must be provided and approval made by the water commissioner at least 48 hours prior to the release of replacement water, or as required by 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.
6. The replacement water that is the subject of this SWSP cannot be sold or leased to any other entity. As a condition of subsequent renewals of this SWSP, 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. The name, address, and phone number of the contact person who will be responsible for the operation and accounting of this plan must be provided on the accounting forms submitted to the division engineer and the water commissioner.
8. Conveyance loss for delivery of augmentation water is subject to assessment and modification as determined by the water commissioner or division engineer.
9. Adequate accounting of depletions and replacements must be provided to the division engineer in Greeley (DNR_Div1Accounting@state.co.us) and the water commissioner (Mark Simpson at Mark.Simpson@state.co.us) on a monthly basis, unless otherwise approved in writing by the water commissioner. Submitted accounting shall conform to the attached Division One Administration Protocol "*Augmentation Plan Accounting, Division One - South Platte Basin*".

In addition, the Applicant shall verify that the entities providing replacement water for this plan have included and shown this use in their monthly accounting submitted to this office. For this plan those entities are the City of Greeley (WDID 0303330) and the East Larimer County Water District (WDID 0302563).

10. The State Engineer may revoke this SWSP or add additional restrictions to its operation if at any time the State Engineer determines that injury to other vested water rights has occurred or will occur as a result of the operation of this SWSP. Should this SWSP expire without renewal or be revoked prior to adjudication of a permanent plan for augmentation, all use of water under this SWSP must cease immediately.
11. The approval of this SWSP does not relieve the Applicant and/or the 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 has ceased. If a lined pond results after reclamation, replacement of lagged depletions shall continue until there is no longer an effect on stream flow. Granting of this SWSP does not imply approval by this office of any such court application(s).
12. 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 whether the substitute supply is of a quality to meet requirements of use to senior appropriators. As such, water quality data or analysis may be requested at any time to determine if the water quality is appropriate for downstream water users.
13. 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 pending water court case or any other legal action that may be initiated concerning this SWSP. This decision shall not bind the state engineer to act in a similar manner in any other applications involving other SWSPs, or in any proposed renewal of this SWSP, 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.

If you have any questions concerning this approval, please contact Javier Vargas-Johnson in Denver at (303) 866-3581 or Michael Hein in Greeley at (970) 352-8712.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jeff Deatherage".

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

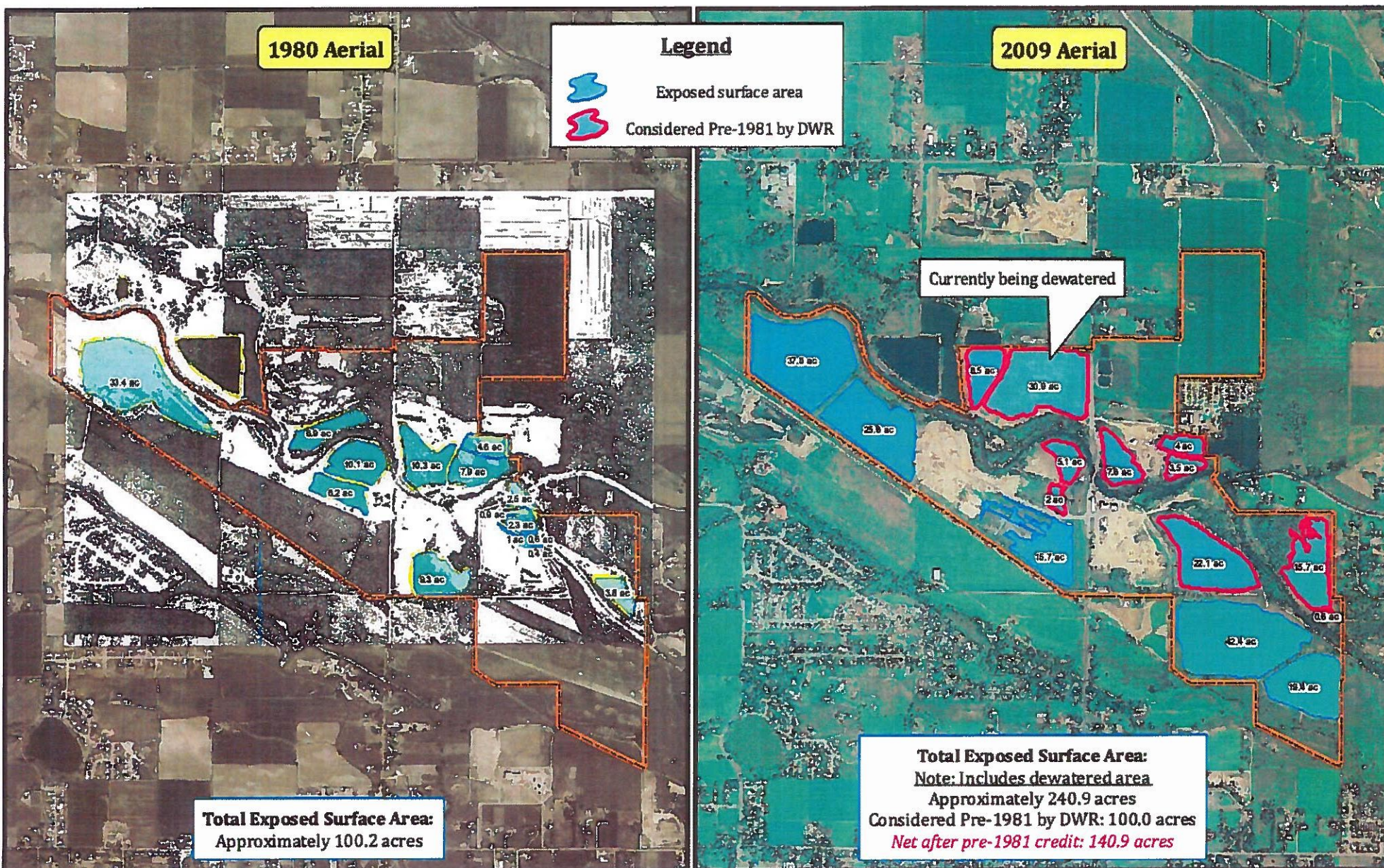
Attachments: Figure 1 - Home Office Pit
Figure 1 - Overland Trail Reservoir Project
Tables 1 - 4
Division One Administration Protocol "*Augmentation Plan Accounting, Division One - South Platte Basin*"

Cc: Michael Hein, Lead Assistant Division Engineer; Michael.Hein@state.co.us
810 9th Street, Ste. 200, Greeley, CO 80631, (970) 352-8712

Mark Simpson, Water Commissioner, Water District 3; Mark.Simpson@state.co.us

Louis Flink, Tabulation/Diversion Records Coordinator, Louis.Flink@state.co.us

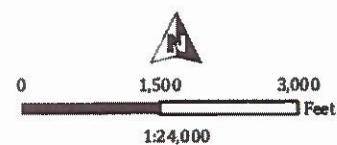
Jared Ebert, Division of Reclamation Mining and Safety, Jared.Ebert@state.co.us



**Applegate
Group, Inc.**

Water Resource Advisors for the West
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HOME OFFICE PIT Pre-1981 Exposed Surface Area for 2011 Upper Poudre SWSP



Date: 13 Apr 2011

Job #: 05-105

Drawn By: JMD

Figure:

1

Of:

1

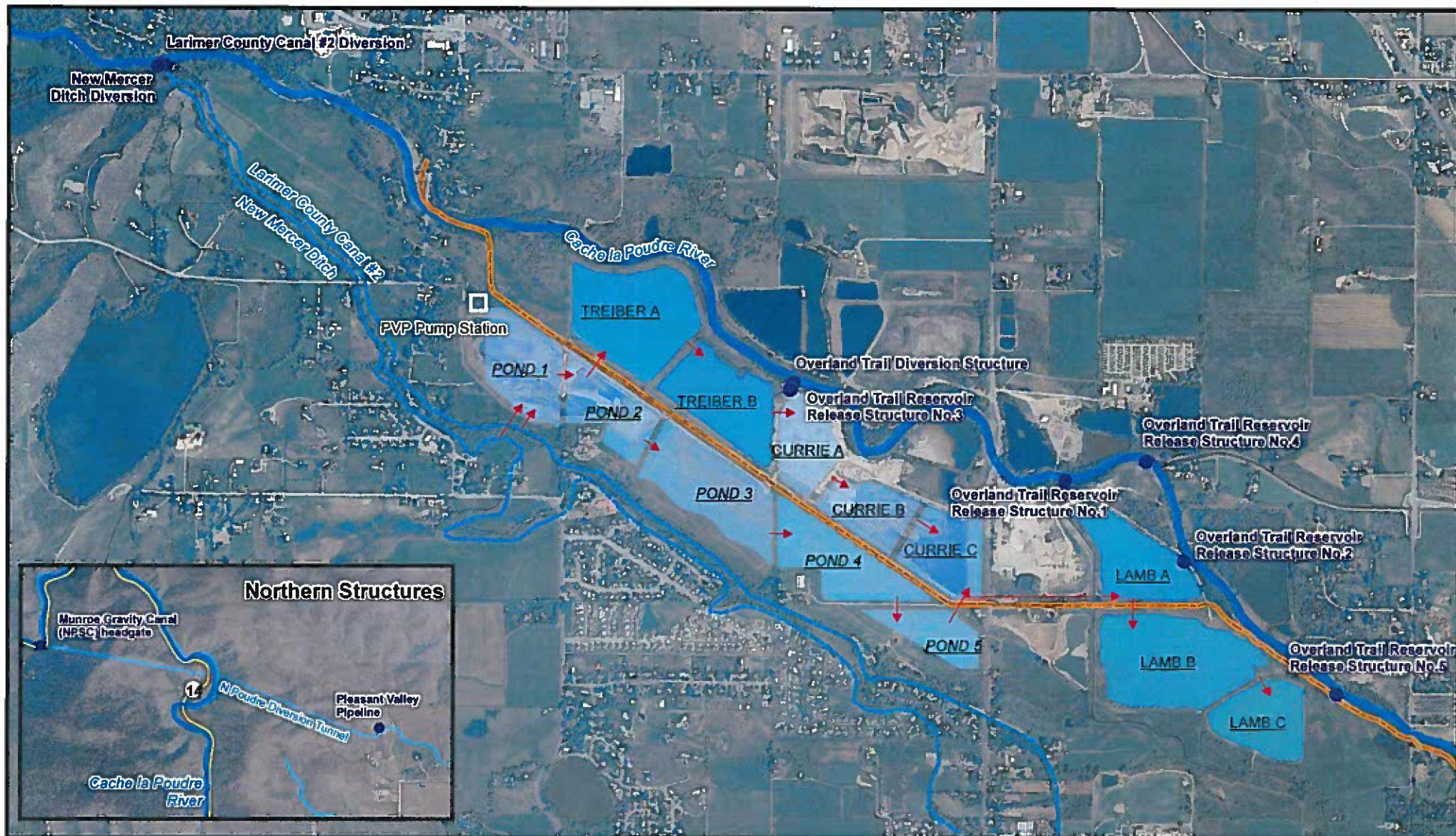
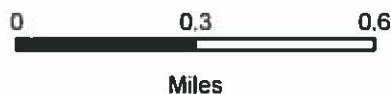


Figure 1: Overland Trail Reservoir Project

Legend

-  Cache la Poudre River
-  Poudre River Trail
-  Proposed Overland Trail Reservoirs / Gravel Pits
-  Fill Sequence
-  Approximate Location of Structures of Interest in Case No. 00CW251



By: Greeley GIS.jmt
Date: 7/14/2011
File: OverlandPonds2011
2009 NAIP Aerial Imagery

Table 1

Tri-Districts and City of Greeley

Lamb Lakes, M-2018-039

(previously Home Office Pit SWSP, M-77-439 - Part A)

Calculated Evaporative Losses at Lamb A, B, and C

Total Exposed Water Surface = 83.9 acres
 Pre-1981 Exposed Surface Area = 22.1 acres
 Augmented Water Surface = **61.8** acres
 Annual Precipitation = 15.12 inches - Taken from Fort Collins Weather Station
 Gross Annual Evaporation = 38 inches - Taken from NOAA Technical Report NWS 33

	(1)	(2)	(3)	(4)	(5)	(6)
Month	Percent of Annual Evaporation	Gross Lake Evaporation (ft)	Annual Precipitation (in)	Effective Precipitation (ft)	Net Lake Evaporation (ft)	Total Lake Evaporation (AF)
Nov	4.0%	0.13	0.59	0.03	0.09	5.70
Dec	3.0%	0.10	0.49	0.03	0.07	4.10
Jan	3.0%	0.10	0.36	0.02	0.07	4.57
Feb	3.5%	0.11	0.48	0.03	0.08	5.12
Mar	5.5%	0.17	1.20	0.07	0.10	6.44
Apr	9.0%	0.29	1.98	0.12	0.17	10.48
May	12.0%	0.38	2.72	0.16	0.22	13.68
Jun	14.5%	0.46	1.83	0.11	0.35	21.78
Jul	15.0%	0.48	1.60	0.09	0.38	23.59
Aug	13.5%	0.43	1.44	0.08	0.34	21.23
Sep	10.0%	0.32	1.30	0.08	0.24	14.88
Oct	7.0%	0.22	1.13	0.07	0.16	9.63
Totals	100.0%	3.17	15.12	0.88	2.28	141.19

Notes:

- (1) Based on SEO SB120 guidelines for evaporation rates at elevations below 6500 feet.
- (2) Based on NOAA Technical Report NWS 33 and distributed according to SEO SB120 guidelines, Column 1 * (Gross evaporation/12)
- (3) Based on Climate data from the Fort Collins Weather Station from CDSS
- (4) Assumes 70% effective precipitation, (Column 3 * 0.70)/12
- (5) Net lake evaporation from water surface areas, Column 2 - Column 4
- (6) Total lake evaporation = Column 5 net lake evap. * total exposed water surface

Table 2

Tri-Districts and City of Greeley

Lamb Lakes, M-2018-039

(previously Home Office Pit SWSP, M-77-439 - Part A)

Total Calculated and Lagged Depletions

	(1)	(2)
Month	Calculated Evaporative Depletions at Lamb Lakes	Updated Lagged Evaporative Depletions
	AF	AF
Jan-20	4.57	5.9
Feb-20	5.12	5.9
Mar-20	6.44	6.9
Apr-20	10.48	9.3
May-20	13.68	12.2
Jun-20	21.78	17.6
Jul-20	23.59	20.8
Aug-20	21.23	20.1
Sep-20	14.88	15.9
Oct-20	9.63	12.0
Nov-20	5.70	8.2
Dec-20	4.10	6.3
Total	141.19	141.08
Jan-21	4.57	5.9
Feb-21	5.12	5.8
Mar-21	6.44	6.9
Apr-21	10.48	9.3
May-21	13.68	12.2
Jun-21	21.78	17.7
Jul-21	23.59	20.9
Aug-21	21.23	20.1
Sep-21	14.88	16.0
Oct-21	9.63	12.0
Nov-21	5.70	8.2
Dec-21	4.10	6.3
Total	141.19	141.17

NOTES:

1 Calculated evaporative depletions from Table 1

2 Lagged evaporative depletions from AWAS Model

Table 3
Tri-Districts and City of Greeley
Lamb Lakes, M-2018-039
(previously Home Office Pit SWSP, M-77-439 - Part A)

Depletion Summary from AWAS Model (ac-ft)

Evaporative Depletions

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002	5.69	8.19	10.47	16.32	22.26	34.23	40.43	39.48	31.68	23.17	16.11	12.15
2003	11.52	11.87	13.40	18.73	24.25	35.87	41.79	40.60	32.60	23.94	16.75	12.67
2004	11.96	12.23	13.70	18.97	24.45	36.04	41.93	40.71	32.70	24.02	16.81	12.73
2005	12.00	12.27	13.73	19.00	24.47	36.06	41.94	40.73	32.71	24.02	16.82	12.73
2006	12.01	12.27	13.73	19.00	24.47	36.06	41.94	40.73	32.71	24.03	16.82	12.73
2007	12.01	12.27	13.73	19.00	24.47	36.06	41.94	40.73	32.71	24.03	16.82	12.73
2008	12.01	12.27	13.73	19.00	24.47	36.06	41.94	40.73	32.71	24.03	16.82	12.73
2009	12.01	12.27	13.73	19.00	24.47	36.06	41.94	40.73	32.71	24.03	16.82	12.73
2010	12.01	12.27	13.73	19.00	24.47	36.06	41.94	40.73	32.71	24.03	16.82	12.73
2011	12.01	12.27	13.73	19.00	24.47	36.06	41.94	40.73	32.71	24.03	16.82	12.73
2012	11.99	12.24	13.7	18.95	24.4	35.95	41.81	40.61	32.61	22.16	14.95	11.48
2013	9.97	9.75	10.59	14.2	17.99	29.23	37.39	33.07	24.36	17.55	12.33	9.36
2014	8.77	8.89	9.84	13.47	17.24	25.29	29.36	28.49	22.89	16.82	11.78	8.92
2015	8.41	8.59	9.6	13.26	17.07	25.15	29.25	28.4	22.81	16.75	11.73	8.88
2016	8.37	8.56	9.57	13.24	17.05	19.6	21.48	20.67	16.6	12.24	8.62	6.54
2017	6.14	6.23	6.92	9.49	12.16	17.86	20.74	20.13	16.17	11.88	8.32	6.30
2018	5.92	5.76	6.89	9.3	12.16	17.65	20.84	20.13	15.95	11.96	8.19	6.34
2019	5.94	5.78	6.9	9.31	12.17	17.66	20.85	20.13	15.95	11.96	8.19	6.34
2020	5.92	5.86	6.85	9.28	12.15	17.64	20.84	20.12	15.94	11.96	8.18	6.34
2021	5.94	5.78	6.90	9.31	12.17	17.65	20.85	20.13	15.95	11.96	8.19	6.34

Table 4**Tri-Districts and City of Greeley****Lamb Lakes, M-2018-039****(previously Home Office Pit SWSP, M-77-439 - Part A)****Water Balance and Replacements**

	(1)	(2)	(3)	(4)	(5)
Month	Updated Total Lagged Depletions	ELCO Municipal Return Flows	Remaining Depletions	Transit Losses from Reservoir Releases to Home Office Site	Replacements from the City of Greeley and Tri-Districts
	AF	AF	AF	AF	AF
Jan-20	5.92		5.92	0.46	6.38
Feb-20	5.86		5.86	0.46	6.32
Mar-20	6.85		6.85	0.53	7.38
Apr-20	9.28		9.28	0.72	10.00
May-20	12.15		12.15	0.95	13.10
Jun-20	17.64		17.64	1.38	19.02
Jul-20	20.84		20.84	1.63	22.47
Aug-20	20.12		20.12	1.57	21.69
Sep-20	15.94		15.94	1.24	17.18
Oct-20	11.96		11.96	0.93	12.89
Nov-20	8.18		8.18	0.64	8.82
Dec-20	6.34		6.34	0.49	6.83
Total	141.08	0.00	141.08	11.00	152.08
Jan-21	5.94		5.94	0.46	6.40
Feb-21	5.78		5.78	0.45	6.23
Mar-21	6.90		6.90	0.54	7.44
Apr-21	9.31		9.31	0.73	10.04
May-21	12.17		12.17	0.95	13.12
Jun-21	17.65		17.65	1.38	19.03
Jul-21	20.85		20.85	1.63	22.48
Aug-21	20.13		20.13	1.57	21.70
Sep-21	15.95		15.95	1.24	17.19
Oct-21	11.96		11.96	0.93	12.89
Nov-21	8.19		8.19	0.64	8.83
Dec-21	6.34		6.34	0.49	6.83
Total	141.17	0.00	141.17	11.01	152.18

NOTES:

1 Lagged depletions from Table 4

2 ELCO reusable municipal return flows from 09CW282

3 Remaining depletions, Column 1 - 2

4 Transit losses of 7.8 percent for releases from Greeley's mountain reservoirs

5 Total replacements from Greeley's mountain reservoirs to augment depletions

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](tel:970-352-8712)) 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. All wells must be decreed by the water court, permitted by the state engineer or included in a decreed plan for augmentation. 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)