COLORADO
Division of Water Resources
Department of Natural Resources

April 23, 2024

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National Water Resources Practice Lead
RESPEC Company LLC
720 S. Colorado Blvd., Suite 410S
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Raptor Materials, LLC
8120 Gage St.
Frederick, CO 80516

Re: Varra Combined Substitute Water Supply Plan (WDID 0302535)
Durham Pit, DRMS File No. M-1978-056 (WDID 0303029); SWSP ID: 3016
Western Sugar Pit, DRMS File No. M-2010-049 (WDID 0303038); SWSP ID: 5295
Varra-Coulson Resource Recovery Pit, DRMS File No. M-2013-064 (WDID 0303044); SWSP ID: 5654
Bearson Pit, DRMS File No. M-2015-033 (WDID 0503016); SWSP ID: 6020
Kurtz Pit, DRMS File No. M-1999-006 (WDID 0503002); SWSP ID: 3612
Heintzelman Pit No. 116, DRMS File No. M-2009-018 (0503010); SWSP ID: 4907
Two Rivers P124 Pit, DRMS File No. M-2022-013 (0405784); SWSP ID: 9473
Feit Well Permit No. 78554-F (WDID 0304999); SWSP ID: 5637
Water Division 1, Water Districts 3 and 5, Weld County, Colorado

Approval Period: January 1, 2024 through December 31, 2024
Contact Information for Thomas Kennedy: (720) 775-6406 and alan.leak@respec.com

Dear Alan J. Leaks:

This letter is in response to your letter dated of December 21, 2023 and the additional information received on March 20, 2024 and April 16, 2024 requesting a Combined Substitute Water Supply Plan ("SWSP") for Raptor Materials, LLC ("Raptor" or "Applicant"), to cover mining operations at the Durham Pit, Western Sugar Pit, Varra-Coulson Resource Recovery Pit, Bearson Pit, Kurtz Pit, Heintzelman Pit, Two Rivers P124 Pit, and pumping of the Feit Well. This SWSP was previously operated by Varra Companies, Inc. ("VCI") until the sites that are subject to this SWSP were purchased by Raptor and the replacement sources were leased from VCI to Raptor. The Two Rivers P124 Pit is being added to this combined SWSP as of 2024.

The period of approval for this SWSP is January 1, 2024 through December 31, 2024. The combined plan for the above sites was most recently approved on April 18, 2023 for operations through December 31, 2023. The required renewal fee of $3,392 ($257 x 6 gravel pits + $1,593 new gravel pit + $257 x 1 well) for Durham Pit, Western Sugar Pit, Varra-Coulson Resource Recovery Pit, Bearson Pit, Kurtz Pit, Heintzelman Pit, Two Rivers P124 Pit, and Feit Well has been submitted (receipt nos. 10033448-10033454 and 10033574).

Plan Operation

Raptor is the operator of the Durham Pit, Western Sugar Pit, Varra-Coulson Resource Recovery Pit, Bearson Pit, Kurtz Pit, Heintzelman Pit, Two Rivers P124 Pit, and Feit Well as shown on attached Figure 1. Mining is active at the Western Sugar Pit, Varra-Coulson Resource Recovery Pit, Bearson Pit, Kurtz Pit, and the Heintzelman Pit. The Two Rivers P124 Pit will be mined beginning in March 2024. This plan will provide replacement water for depletions at these sites caused by evaporation of exposed groundwater as well as operational losses including water lost in mined product, dust control, and concrete batching.

The Kurtz Pit, Heintzelman Pit, and Bearson Pit are also included in the augmentation plan approved by the Division 1 Water Court in case no. 03CW306, and this SWSP will cover additional depletions not already covered by the decree in case no. 03CW306. In addition, this plan will cover the mitigation of potential impact on an adjacent property from the

dewatering at the Beason Pit that is not included in the augmentation plan in case no. 03CW306.

Replacement water in this combined plan will come from five sources: 2 cfs Hayseed Ditch water leased from VCI; 4 shares (6.64 cfs) of Rural Ditch Company water decreed in case no. 03CW306 leased from VCI; 7 shares of Greeley Irrigation Company ("GIC") water leased from VCI;[1] Junior storage rights from the 112, Dakolios, and Von Ohlen reservoirs decreed in Division 1 Water Court case no. 01CW274; and 5 shares of Last Chance Ditch water leased from VCI as evidenced by the attached Memorandum of Agreement, Short Form of Aggregates Sublease, and letter dated March 31, 2023 from GIC.

The following tables list the sites, operated by Raptor, that are involved in this combined substitute water supply plan:

Table A - Gravel Pit Summary

Site Name	WDID	DRMS Permit No.	Previous SWSP Date	Well Permit No./Receipt No.	Permitted Withdrawal Amount [ac-ft]	Permitted Exposed Surface [ac]	New Permit Required?
Durham	0303029	M-1978-056	4/18/23	61773-F	198.48	79.2**	Yes***
Western Sugar	0303038	M-2010-049	4/18/23	75865-F	184.80	62.81	Yes***
Varra-Coulson	0303044	M-2013-064	4/18/23	80764-F	305.6	100	No
Bearson*	0503016	M-2015-33	4/18/23	80584-F	302.9	100	Yes***
Kurtz*	0503002	M-1999-006	4/18/23	87180-F	390	142	No
Heintzelman*	0503010	M-2009-018	4/18/23	75616-F	290.19	105.44	No
Two Rivers P124****	0405784	M-2022-013	N/A	10034986	192.2	55	Yes***
Feit Well	0304999	N/A	4/18/23	78554-F	14.52	N/A	No

*Bearson Pit, Kurtz Pit, and Heintzelman Pit are also included in the augmentation plan approved by the Division 1 Water Court in case no. 03CW306. This SWSP will cover additional depletions not already covered under the augmentation plan and will operate in combination with the decree approved in case no. 03CW306.
**44.6 acres of water surface was exposed within the reclamation permit boundary prior to January 1, 1981, therefore replacement of evaporative depletions is only required for the 34.6 acres exposed after December 31, 1980.
***An application for the Durham Pit is pending under application receipt no. 10019631 and was subject to a 600-foot spacing hearing in case no. 22SE01. The hearing in case no. 22SE01 was vacated and the new permit may be issued upon approval of the plan. A new application for the Two Rivers P124 Pit is pending under application receipt no. 10033578. An application to re-permit the Western Sugar Pit is pending under application receipt no. 10034986. An application to re-permit the Bearson Pit is pending under application receipt no. 10034987.

Table B - Gravel Pit Location

Site Name	Location	Stream Reach
Durham	Sec. 3, 9, & 10, T5N, R65W, 6th P.M.	Cache La Poudre
Western Sugar	Sec. 4 & 9, T5N, R65W, 6th P.M.	Cache La Poudre
Varra-Coulson Resource Recovery	Sec. 10, T5N, R65W, 6th P.M.	Cache La Poudre
Feit Well	Sec. 26, T6N, R66W, 6th P.M.	Cache La Poudre
Bearson	Sec. 33, T3N, R67W, 6th P.M.	Saint Vrain
Kurtz	Sec. 28 and 29, T3N, R67W, 6th P.M.	Saint Vrain
Heintzelman	Sec. 32, T3N, R67W, 6th P.M.	Saint Vrain
Two Rivers P124	Sec. 33 & 34, T5N, R66W and Sec. 3 & 4, T4N R66W	South Platte River

Depletions

The annual depletions under this combined SWSP resulting from evaporation, water lost in product, dust control, concrete production, and domestic/irrigation delivery. **Total annual unlagged depletions are approximately 1,437.80 acre-feet**, which accounts for dewatering credit from the Two Rivers P124 Pit. Depletion analyses for the gravel pits and Feit Well were based on the State Engineer's Office ("SEO") guidelines for water lost in washed product of four percent (4%) by weight, evaporation monthly distribution rates, and ice cover with zero evaporation when the average monthly temperature was below 32° F. Specific yields greater than 0.20 were based on the USGS Water Supply Paper 1662D. Mining depletions to the stream system were modeled using the Integrated Decision Support Alluvial Water Accounting

[1] The 7 GIC shares are comprised of 2 shares (certificates 3416 and 3438) leased under the Memorandum of Agreement and 5 shares (certificate 2627) leased under the Short Form of Aggregates Sublease.

System ("AWAS") model based on the Glover technique. The total net depletions were taken from Tables 1 - 7 (attached). Total depletions are shown in Table C below:

Table C - Depletion Summary [af-ft]

Site Name	Evaporative Loss	Product Moisture Loss	Dust Control	Concrete Production	Irrigation Meyer Delivery & Domestic	Total Depletions	Lagged Depletions
Feit Well	0.0	0.0	0.0	7.73	0.1	7.83	7.81
Durham	199.3	0.0	0.0	0.0	0.0	199.3	202.5
Western Sugar	50.3	25.0	16.6	2.9	0.0	94.9	96.7
Varra-Coulson	163.6	14.7	16.6	0.0	0.0	194.8	196.8
Total Cache la Poudre River Net Depletions							503.8
Bearson	243.9	38.3	7.5	0.0	100.0	389.7	361.0
Kurtz	376.5	0.6	7.5	0.0	0.0	384.6	383.7
Heintzelman	0.0	0.0	1.7	0.0	0.0	1.7	14.7
Total Saint Vrain River Net Depletions							759.4
Two Rivers P124	146.8	35.3	7.5	2.6	0.0	192.14	166.97
Two Rivers Dewatering	-	-	-	-	-	-7.62	-7.62
Total Big Thompson River Net Depletions							159.35
Total Net Depletions							**1,422.56**

Evaporation and Ice Cover

Durham, Western Sugar, Varra Coulson, and Two Rivers P124 Pits: Gross evaporation is estimated to be 42.12 inches per year. With an annual effective precipitation amount of 10.1 inches per year, the net annual evaporation is estimated to be approximately 2.66 acre-feet per acre (32 inches). Computation of evaporation at the Durham, Western Sugar, and Varra-Coulson Pits were also reduced during the ice-covered period. The Applicant has assumed the ice-covered period during the months of January and December, based on the average temperatures of 26.0° F for January and 27.4° F for December taken from the Greeley UNC weather station (ID 053533).

Bearson, Kurtz, and Heintzelman Pits: Gross evaporation is estimated to be 43 inches per year, which is consistent with the value identified in the decree in case no. 03CW306. With an annual effective precipitation amount of 9.2 inches per year, the net annual evaporation is estimated to be approximately 2.82 acre-feet per acre (33.8 inches). Computation of evaporation at the Bearson, Kurtz, and Heintzelman Pits was also reduced during the ice-covered period. The Applicant has assumed the ice-covered period to occur during the months of January and December, based on the average temperatures of 26.0° F for January and 27.4° F for December taken from the Longmont 2ESE weather station.

However, for the purposes of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed groundwater surface area that may occur during the assumed ice-covered period (the months of January and December) for any time that the water surface is not completely covered by ice. Computation of the net evaporation during any time that the water surface is not completely covered by ice shall be determined as the pro-rata amount of the monthly gross evaporation rate distribution amount identified in the State Engineer's *General Guidelines for Substitute Supply Plans for Sand and Gravel Pits,* subtracting the pro-rata amount of the effective precipitation for that period.

Feit Well

Total depletions during 2024 from Feit Well are 7.83 acre-feet. Depletions from pumping the Feit Well occur from concrete production and domestic irrigation. Feit Well (Permit No. 78554-F, WDID 0304999) is used for the concrete batch plant owned by the Applicant but located on the Feit Gravel Pit site. Well permit no. 78554-F limits the average annual amount of groundwater to 14.52 acre-feet to be used in batch plant operations which include an allowance of 0.01 acre-feet per month for domestic use. The monthly depletions of the Feit Well are included in "Table 1 Feit Well Depletions."

Durham Pit[2]

Total depletions during 2024 at the Durham Pit are 199.3 acre-feet from evaporation. Mining has ceased at this site. The exposed groundwater at this site totals 79.2 acres. The total lagged depletions from evaporation and past mining activities are 202.5 acre-feet

According to previous information submitted to this office, 44.6 acres of water surface was exposed within the 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 groundwater 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 (1989), as amended in Senate Bill 93-260, exempted all pre-1981 exposed groundwater regardless of whether open mining operations continued or were reactivated on or after January 1, 1981. Accordingly, for the 79.2 acres of groundwater currently exposed at the Durham Pit site (44.6 acres exposed prior to January 1, 1981 and 34.6 exposed after December 31, 1980), replacement of evaporative depletions is only required for the 34.6 acres exposed after December 31, 1980. The area exposed prior to 1981 is shown on the attached map (outlined in purple and numbered 1 through 11). The exception to the requirement to replace evaporative depletions for the pre-1981 area is tied to the location identified on the map and may not be applied to other areas of groundwater exposure within the gravel pit permit boundary. Although some of the pre-1981 ponds identified in the map are currently dry because of the dewatering operations at the site, if the dewatering stops the original pre-1981 ponds will fill, once filled the pre-1981 area will be consistent with the attached map. In previous SWSP approvals, phreatophyte credit for pasture grass was credited to the Durham Pit site, which was based on the 6-feet depth to groundwater, pending better site-specific information. Since the Applicant did not provide site-specific information regarding the depth to the groundwater table at this location, no credit for phreatophyte is allowed in this SWSP until the depth to the groundwater can be established.

Therefore, for the purpose of this SWSP the net evaporation from the 79.2 acres was determined based on an effective precipitation credit of 70 percent from the average precipitation and does not use any phreatophyte credit as shown on Table 2 Column (10). The monthly depletions of the Durham Pit are included in "Table 2 Durham Gravel Pit Depletions".

Western Sugar Pit

Total depletions during 2024 at the Western Sugar Pit are 94.9 acre-feet and the total lagged depletions are 96.7 acre-feet. Depletions at the Western Sugar Pit consist of 25.0 acre-feet of water lost with mined product (based on 850,000 tons mined), 16.6 acre-feet of dust control, 50.3 acre-feet of evaporation (based on an exposed groundwater surface area of 20 acres), and 2.9 acre-feet for concrete production. A clay liner was installed around Cell B (WDID 0303369-also known as 120 Reservoir Cell B) located within the Western Sugar Pit Site. The liner of Cell B was approved on November 14, 2017 as meeting the performance standard in the August 1999 *State Engineer's Guidelines for Lining Criteria for Gravel Pits*. The monthly depletions of the Western Sugar Pit are included in "Table 3 Western Sugar Gravel Pit Depletions".

Varra-Coulson Resource Recovery Pit

Total depletions during 2024 at the Varra-Coulson Pit are 194.8 acre-feet and the total lagged depletions are 196.8 acre-feet. Depletions at the Varra-Coulson Resource Recovery Pit consist of 14.7 acre-feet of water lost with mined product (based on 500,000 tons mined), 16.6 acre-feet for dust control, and 163.6 acre-feet of evaporation (based on an exposed groundwater area of 65 acres). The monthly depletions of the Varra-Coulson Resource Recovery Pit are included in "Table 4 Varra-Coulson Gravel Pit Depletions".

Bearson Pit

Total depletions during 2024 at the Bearson Pit are 389.7 acre-feet and the total lagged depletions are 361.0 acre-feet. Depletions at the Bearson Pit consist of 38.3 acre-feet of water lost with mined product (based on 1,300,000 tons mined), 7.5 acre-feet for dust control, 243.9 acre-feet of evaporation (based on an exposed groundwater surface of 92 acres), and 100 acre-feet of dewatering water to be used for irrigation. The Applicant is seeking to provide 100 acre-

[2] The P117 (Durham) land is leased from Doeringsfeld and Aratas to Varra and sublet to Raptor.

feet/year of mitigation water to be used for irrigation on the Mayer Family Farm using water from the Bearson Pit dewatering water which are lagged to the stream. The monthly depletions of the Bearson Pit are included in "Table 5 Bearson Gravel Pit Depletions".

Kurtz Pit

Total depletions during 2024 at the Kurtz Pit are 384.6 acre-feet and the total lagged depletions are 383.7 acre-feet. Depletions at the Kurtz Pit consist of 0.6 acre-feet of water lost with mined product (based on 19,723 tons mined), 7.5 acre-feet for dust control, and 376.5 acre-feet of evaporation (based on an exposed groundwater are of 142 acres). The monthly depletions of the Kurtz Pit are included in "Table 6 Kurtz Gravel Pit Depletions".

Heintzelman Pit

Total depletions during 2023 at the Heintzelman Pit are 1.7 acre-feet and the total lagged depletions from past mining activities are 14.7 acre-feet. Depletions at the Heintzelman Pit consist of 1.7 acre-feet for dust control and lagged depletions from past mining activities. The pit has been lined and Cell B has been backfilled, therefore the only depletions at this site are water used for dust control. The monthly depletions of the Heintzelman Pit are included in "Table 7 Heintzelman Gravel Pit Depletions".

Two Rivers P124 Pit

Total depletions during 2024 at the Two Rivers P124 Pit are 192.14 acre-feet. Depletions at the Two Rivers P124 Pit consist of 35.3 acre-feet of water lost with mined product (based on 1,200,000 tons mined), 7.5 acre-feet for dust control, 146.8 acre-feet of evaporation (based on an exposed groundwater surface of 55 acres), and 2.6 acre-feet for concrete production. The monthly depletions of the Two Rivers P124 Pit are included in "Table 14 Two Rivers Well Depletions".

Note that a dewatering lagged depletion analysis was modeled assuming a maximum initial dewatering for two months at a rate of 4,400 gallons per minute. Dewatering water from January and February are returned immediately to the stream system as a credit of 1,182.87 acre-feet. Depletions from dewatering are owed in January and February as shown in attached Table 19. **Total dewatering lagged depletions at the Two Rivers Pit are 1,175.25 acre-feet**. The total river depletions from dewatering will equal -7.62 acre-feet as shown on attached Table 19.

Lagged Depletions

The monthly depletions to the river were lagged from the pit sites using the AWAS program developed by the Integrated Decision Support Group at Colorado State University. The parameters used in the model and lagged depletions are shown in Table D. In total, under this SWSP and the decree in case no. 03CW306, the Applicant is required to replace approximately **1,422.56 acre-feet**.

Table D - Aquifer Parameters

Pit Name	Distance to river (X) [ft]	Aquifer Boundary (W) [ft]	Transmissivity (T) [gpd/ft]	Specific Yield	Lagged Depletions [ac-ft]
Feit Well	1,100	2,600	100,000	0.20	7.81
Durham Pit	1,350	2,600	100,000	0.28*	202.5
Western Sugar Pit	1,350	2,600	100,000	0.28*	96.7
Varra-Coulson Pit	900	2,600	180,000	0.28*	196.8
Bearson Pit	2,500	3,000	100,000	0.28*	361.0
Kurtz Pit	80	4,000	100,000	0.28*	383.7
Heintzelman Pit	500	4,000	100,000	0.28*	14.7
Two Rivers Operational	1,500	2,800	100,000	0.28*	166.97
Two Rivers Dewatering					1,182.57
Two Rivers Credit					1,175.25
Total Unreplaced Lagged Depletions					**1,422.56**

*Based on the USGS Water Supply Paper 1662D.

Dewatering

Dewatering is ongoing at all sites included in this SWSP. The dewatering was modeled using the same AWAS values shown above for each site. The pumping capacity is 0.72 MGD for each site. The analysis shows that steady-state was reached within seven months for the Western Sugar site, five months for the Durham site, four months for the Varra-Coulson site, five months for the Beason site, three months for the Kurtz site, and seven months for the Heintzelman site of the initial dewatering. Dewatering at these sites will produce delayed depletions to the stream system. As long as the pits are continuously dewatered at a relatively constant rate, the water returned to the stream system should be adequate to offset the depletions attributable to the dewatering operation. Dewatering operations must be measured by totalizing flow meters that can accurately show the monthly volume of dewatered water that is pumped and returned to the stream. However, in lieu of the totalizing flow meter requirement to be installed to accurately measure the monthly amount of dewatering, the Applicant proposes to rely on dewatering pump curve data assuming a maximum head to the discharge of 35 feet. Updated pump curve data was provided to this office on March 2, 2023.

For the purpose of this SWSP, this procedure to determine the amount of dewatering will be accepted; however, if the Division Engineer determines that this procedure does not provide accurate data on the monthly amount of dewatering, the Applicant will be required to install totalizing flow meter(s) to accurately measure the monthly amount of dewatering. The Applicant shall continue to provide pump curve data along with the accounting required for this SWSP to demonstrate if this procedure provides accurate data. **If dewatering at the Two Rivers P124 Pit will continue for the next SWSP period, pump curve data must be submitted for that pit to ensure dewatering occurs at a relatively constant rate.**

Replacement

Replacement water in this combined plan will come from five sources: 2 cfs Hayseed Ditch water leased from VCI; 4 shares (6.64 cfs) of Rural Ditch Company water decreed in case no. 03CW306 leased from VCI; 7 shares of Greeley Irrigation Company ("GIC") water leased from VCI; Junior storage rights from the 112, Dakolios, and Von Ohlen reservoirs decreed in Division 1 Water Court case no. 01CW274; and 5 shares of Last Chance Ditch water leased from VCI (attached).

The Rural Ditch Company Shares, junior storage rights, and Last Chance Ditch Shares can be stored directly in the reservoirs. Hayseed is used for in-stream augmentation and to cover depletions at Bearson Pit, Kurtz Pit, and Heintzelman Pit as decreed in case no. 03CW306. Use of stored Rural Ditch and Last Chance water rights for mitigation of potential impact on property adjacent to the Bearson site is requested under this SWSP.

2 cfs of Hayseed Ditch Water (case no. 90CW174 and 03CW306): Replacement water to St. Vrain for Bearson, Kurtz, and Heintzelman Pits

Raptor has leased 2 cfs interest from VCI in the Hayseed Ditch which were changed in case no. 90CW174. The water is leased to the Applicant in the attached Memorandum of Agreement. The water available under the Hayseed Ditch will be used as an in-stream credit to replace the non-irrigation season return flows of the Rural Ditch water changed in case no. 03CW306. Use of the Hayseed Ditch under this SWSP is shown in Table 15 "Raptor Materials Operations Study". The replacement water from Hayseed Ditch is left in the stream. Such credits are restricted to the average 20-year limit plus the return flow obligations for November through March as specified in Paragraph 9.c of the 90CW174 decree. This water constitutes the Applicant's base supply and is used as needed in accordance with the decrees and this SWSP.

4 shares of Rural Ditch Water (case no. 03CW306): Replacement water to St. Vrain for Bearson, Kurtz, and Heintzelman Pits

Applicant controls 4 shares (or 6.64 cfs) of the Rural Ditch Company owned by VCI, which were changed in case no. 03CW306. The water is leased to the Applicant in the attached Memorandum of Agreement. The 4 shares of the Rural Ditch were historically used to irrigate on average 212 acres on three farms. Based on a farm irrigation efficiency of 65% and a ditch loss of 10%, the court found that the average annual consumption associated with the historical use of the four shares was 248 acre-feet. The decree in case no. 03CW306 limits the diversion season from April 1 through October 31. In addition, the decree in case no. 03CW306 limits the maximum monthly and annual volumetric delivery to the amounts shown in the table below. Lastly, during any consecutive twenty-year period, total deliveries were limited to 7,752 acre-feet.

Table E - Maximum Monthly and Annual Delivery Limits [ac-ft]

Apr	May	Jun	Jul	Aug	Sep	Oct	Total	20-Year
35	133	174	199	166	89	59	615	7,752

To the extent that the subject Rural Ditch water rights from the 4 shares are not needed for immediate use, pursuant to paragraph 13 of the decree in case no. 03CW306, the water may be stored in Dakolios Reservoir (WDID 0504003), 112 Reservoir (WDID 0504001), and Von Ohlen Reservoir (WDID 0504002). Replacements for depletions under this plan will be made by releasing a portion of four shares of Rural Ditch Company water previously stored in the 112, Dakolios, and Von Ohlen Reservoirs under the decree in case no. 03CW306. Paragraph 14.f.iii of the decree in case no. 03CW306 requires that the releases be provided to Saint Vrain Creek at a location at or above the point where the creek intersects the North line of Section 21, Township 3 North, Range 67 West of the 6th P.M. Inflow to the 112 Reservoir is measured by a weir that is equipped with a recorder approved by the Water Commissioner.

The replacement water from the 112 Reservoir can be delivered to either the Rural Ditch or to a lined Weld County/ Varra lateral that runs to Saint Vrain Creek along the center line of Section 2, Township 2 North, Range 68 West and Section 35, Township 3 North, Range 67 West of the 6th P.M. Currently only the lateral has been used. Any releases from the reservoirs into the Rural Ditch must be measured at the new augmentation station located at the end of the ditch (WDID 0502305). Replacement water from the Von Ohlen-Dakolios Complex is delivered to the river using submerged pumps at each of the reservoirs. The water is delivered to a drainage channel located between Dakolios East and Von Ohlen Reservoirs. This channel is about six feet deep and gains water before intercepting Saint Vrain Creek approximately in the middle of Section 31, Township 3 North, Range 67 West of the 6th P.M. Excess consumptive use credits from the four shares of Rural Ditch stored in the 112, Dakolios, and the Von Ohlen Reservoirs will also be released to replace depletions for the Applicant's Kurtz Pit, Heintzelman Pit and Bearson Pit.

7 Shares of Greeley Irrigation Company ("GIC") Water (case no. 96CW658): Replacement water to Cache la Poudre for Feit Well, Durham, Western Sugar, and Varra-Coulson Pit

The Applicant will lease 7 shares of Greeley Irrigation Company ("GIC") water from VCI. GIC owns a 5/8th interest in the water rights decreed to the Greeley Canal No. 3 (WDID 0300934) and 60 preferred rights in Fossil Creek Reservoir (WDID 0303774). The GIC shares are expected to yield 58.19 acre-feet of replacement water for purposes of this SWSP (Table 18).

The 7 GIC shares were previously used as a replacement water source in the combined plan. Two of the shares were historically used to irrigate 14 acres at the Varra-Coulson Resource Recovery Pit and the remaining 5 shares[3] were used to irrigate 33.7 acres at the Durham Pit site. The irrigated lands will be dried up as the sites are mined. The values for the historical use credits of the 7 shares of GIC were prorated from the historical ditch-wide analysis values decreed for the Greeley Irrigation Company in case no. 96CW658. The 7 GIC shares were determined to yield 68.3 acre-feet per year (130.5 acre-feet of headgate deliveries and 62.2 acre-feet of return flow obligations) of historical consumptive use credit in the Greeley Canal No. 3 and 4.1 acre-feet per year (6.9 acre-feet of deliveries and 2.8 acre-feet of return flow obligations) in VCI's interest in the Fossil Creek Reservoir from the dry-up of 47.7 acres of land (33.7 acres at the Durham Pit site and 14 acres at the Varra-Coulson Resource Recovery Pit) historically irrigated with the 7 GIC shares. After applying the 7 shares of Greeley Canal No. 3 and the Fossil Creek Reservoir water, there will be 409.9 acre-feet of uncompensated depletions at Feit Well, Durham Pit, Western Sugar Pit and Varra-Coulson Resource Recovery Pit (Table 15).

Junior Storage (case no. 01CW274)

Additional replacements for depletions during the non-irrigation season and during months with insufficient credits will be made by releasing VCI's water stored in the 112, Dakolios, and Von Ohlen Reservoirs. The water is leased to the Applicant in the attached Memorandum of Agreement. The water in storage is primarily junior water rights that were decreed in case no. 01CW274 as shown on Table F. A portion of the decreed amounts were decreed absolute in case no. 14CW3026 and 17CW3144.

[3] Use 5 of the 7 GIC shares is derived by leases from Doeringsfeld and Aratas (successor to United Minerals, the share certificate has not been changed to date) to Varra Companies which is then subleased to Raptor Materials.

Table F - Junior Storage Rights Summary

WDID	Source	Location	Appropriation Date	Decreed Amount
0600532	VCI Godding Ditch Diversion from Idaho Creek	NW ¼ SW ¼ of Sec. 21, T2N, R68W (2,400' S, 900' W)	08/10/2001	11 cfs
0600551	VCI Rural Ditch Diversion from Boulder Creek	SW ¼ NE ¼ of Sec. 20, T2N, R68W (2,275' N, 1,400' E)	08/10/2001	11 cfs
0600756	VCI Rural Ditch Diversion from Idaho Creek	SE ¼ SE ¼ of Sec. 16, T2N, R68W (1,300'S, 420' E)	08/10/2001	11 cfs
0500642	VCI Godding Hollow Diversion from Godding Hollow	SW ¼ NW ¼ of Sec. 1, T2N, R68W (2,500' N, 500' W)	09/08/2000	11 cfs
0500589	VCI Last Chance Ditch Diversion from Saint Vrain Creek	SE ¼ NW ¼ of Sec. 3, T2N, R68W (1,900' N, 2000' W)	08/10/2001	11 cfs
0504001	112 Reservoir	S ½ of Sec. 2, T2N, R68W (1,300' S, 2,600' E)	08/10/2001	1,552 ac-ft
0504003	Dakolios Reservoir	SW ¼ of Sec. 31, T3N, R67W (1,400' S, 1,230' W)	08/10/2001	1,104 ac-ft
0504002	Von Ohlen Reservoir	SE ¼ of Sec. 31, T3N, R67W (1,400' S, 1,800' E)	08/10/2001	1,300 ac-ft
0504000	Kurtz Reservoir	W ½ of Sec. 28, T3N, R67W (2,000' N, 1,300' W)	08/10/2001	4,000 ac-ft

Note: Total direct diversion from all sources not to exceed 11 cfs. Storage rates are 90 cfs for Rural Ditch and Godding Ditch, 10 cfs for Godding Hollow, and 100 cfs for Last Chance Ditch.

Water was diverted through the Rural Ditch for storage in the 112 Reservoir and the Dakolios Reservoir over free river periods at various times from June of 2010 through 2023. According to the decree in case no. 01CW274, water stored in the reservoirs, or used directly at the point of diversion, may be used for replacement of depletions at the mining sites owned or leased by VCI. The Durham Pit site, Western Sugar Pit, Varra-Coulson Resource Recovery Pit site and the sites from the decree in case no. 03CW306 have been identified as mining sites where the junior water rights decreed in case no. 01CW274 may be used as a source of replacement water. The Applicant has indicated that as of 2023, **the water stored in the reservoirs totaled 2,168.45** consisting of a combination of Rural Ditch water, the junior water decreed in case no. 01CW274, and free river. The Applicant will use the junior water and the Rural Ditch water that had previously been stored in the 112 Reservoir, Dakolios, and Von Ohlen Reservoirs. Delivery of augmentation water to the Cache La Poudre River is subject to transit losses as determined by the Water Commissioner and the Division Engineer.

The water rights decreed in case no. 01CW274 can be used directly at the points of diversion or retained in reservoirs for storage when the water rights are in priority or used by exchange for releases from any or all of the reservoirs or any or all of the direct flow sources.

5 Shares of Last Chance Ditch Water: Replacement water to St. Vrain for Bearson, Kurtz, and Heintzelman

There are 20 outstanding shares in the Last Chance Ditch Company, a mutual ditch company. The Last Chance Ditch (WDID 0500589) headgate is located on Saint Vrain Creek. The water right was adjudicated on June 2, 1882 in Civil Action case no. CA6009 with appropriation dates from March 15, 1872, with a decreed diversion rate of 94.94 cfs. The Applicant will lease VCI's 5 shares (24.235 cfs) of the outstanding 20 shares of the Last Chance Ditch which are included in the SWSP. The water is leased to the Applicant in the attached Memorandum of Agreement. These shares historically irrigated the Kurtz, Van Ohlen, and Heintzelman Farms as shown on attached Figures 2 and 3.

A total of 3 of the 5 shares of the Last Chance Ditch were historically used for irrigation on the Kurtz Ranch and the other 2 shares of the Last Chance Ditch were historically used on a portion of the Van Ohlen Farm (1 share) and Heintzelman Farm (1 share). The study period of analysis chosen is 1947 through 1974. According to information from the previous SWSP approval, the study period chosen for the 3 parcels are representative of longer-term diversion records and climate conditions, which are two principal factors affecting historical water supplies and consumptive use. Annual diversion for the Last Chance Ditch over the study period chosen averaged approximately 6,480 acre-feet and includes wet, dry, and average years compared to the annual diversions between 1947 through 1989 which averaged approximately 8,154 acre-feet. This is an increase of approximately 26 percent. The increased diversions after 1974 occurred because Last Chance Ditch Company's measurement flume was leaning towards the stilling well causing the measurements to be greater than the actual diversions. The Last Chance Ditch Company replaced its flume based on the order of the Division Engineer.

Aerial photos after 1974 on the 3 parcels show signs of irrigation of the farms until the mining began on these parcels. **Further investigation regarding the use of the subject shares on the Kurtz, Von Ohlen, and Heintzelman parcels after 1974 may be required for any future SWSP renewal requests.** The diversions in the dry years of 1954 and 1963 were greater than the average diversion and the dry year consumptive use exceeded the average use. Therefore, the average result was used in the Historical Consumptive Use ("HCU") analysis. Separate HCU analyses were conducted for each farm, with the following common methods and assumptions as identified in the current previous SWSP requests:

- The Modified Blaney-Criddle method as described in National Resource Conservation Service's ("NRCS") Technical Release 21 ("TR21") was used to quantify the crop demand. Soil Conservation Service methodology was used for calculation of effective precipitation.
- Temperature and precipitation data were taken from the Longmont weather station as published by NOAA.
- The analysis was modified to account for the reduction in crop transpiration that results from water stress.
- A ditch loss of ten percent (10%) was assumed based on the ditch's location, length, and uphill ditches.
- Water in excess of the irrigation requirement was added to the soil moisture bank, which was assumed to be 3 feet deep with an available water holding capacity of 0.2 inches of water per inch of soil.
- Cropping information was obtained from the USDA Farm Service Agency on Kurtz Ranch and aerial photos for the Von Ohlen Farm and the Heintzelman Farm (Table 9).
- As identified in previous SWSPs, the farms were 46% flood irrigated and 54% furrow irrigated. The fields were leveled. Flood irrigation was accomplished using gravity by controlled release from ditch sections. Furrow irrigation was done using siphon tubes. The soil properties and field slopes were obtained from the NRCS Soil survey for South Weld County. However, the Applicant has indicated that the parcels have been developed to reservoirs, gravel mines, and housing development; therefore, historically irrigated conditions were not available.
- As specified in previous SWSPs, the Applicant used a site-specific design irrigation efficiency of 65% for furrow and flood irrigation based on the SEO determination of site-specific design efficiency for the Kurtz, Von Ohlen, and Heintzelman Farms. The portion of the 65% delivery that could not be used by the immediate monthly crop demand was stored in the soil bank. This soil bank moisture was available to meet future crop demand. Use of the site-specific irrigation efficiency of 65% resulted in a calculated average seasonal irrigation efficiency for the 3 irrigated farms of 43% for the Kurtz Farm, 44% for the Von Ohlen Farm, and 51% for Heintzelman Farm.
- Return flows were analyzed using AWAS software and the Glover methodology according to the parameters summarized in Table G below:

Table G - Summary of Glover Parameters

Farm	Distance from Farm to River (X) [ft]	Distance from boundary to River (W) [ft]	Transmissivity [gpd/ft]	Specific Yield
Kurtz	520	3,950	100,000	0.28
Von Ohlen	715	4,000	100,000	0.28
Heintzelman	450	1,100	100,000	0.28

The analysis for each farm is further described below with information provided from previous SWSPs.

Kurtz Farm (3 shares)

The 3 shares on the Kurtz Farm were used to irrigate approximately 264.7 acres located in Sections 28 and 29, Township 3 North, Range 67 West of the 6th P.M. The Applicant's HCU analysis was based on a crop mix of corn, beets, alfalfa, grain, beans and pasture grass. The HCU results are summarized in the table below.

Table H - Kurtz Farm HCU Results [ac-ft]

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Farm Headgate Delivery	0	0	0	12.9	92.6	165.5	229.8	210.7	145.1	18.3	0	0	874.8
On Farm Depletion of Surface Water	0	0	0	4.7	29.8	75.8	121	98.2	41.1	6.9	0	0	377.5
Surface Return Flows	0	0	0	1.6	11.9	17.0	20.7	21.4	19.8	2.2	0	0	94.5
Ground Water Return flows	0	0	0	6.6	50.9	72.6	88.2	91.1	84.2	9.2	0	0	402.9
Lagged Ground Water Return Flows	7.3	5.3	4.6	7.5	34.9	56.1	72.7	79.5	77.5	34.1	13.8	9.5	402.9
Average Net Depletion	-7.3	-5.3	-4.6	3.8	45.7	92.4	136.5	109.8	47.8	-18	-13.8	-9.5	377.5
Return Flow Factor [%]	0.8	0.6	0.5	58	38	34	32	38	53	4.1	1.6	1.1	N/A

Von Ohlen Farm (1 share)

The 1 share on the Von Ohlen Farm was used to irrigate approximately 90 acres located in Section 31, Township 3 North, Range 67 West of the 6th P.M. The Applicant's HCU analysis was based on 90 acres of crop mix of corn, beets, alfalfa, grain, beans, and pasture grass. The HCU results are summarized in Table I.

Table I - Von Ohlen Farm HCU Results [ac-ft]

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Farm Headgate Delivery	0	0	0	4.3	30.9	55.2	76.6	70.2	48.4	6.1	0	0	291.6
On Farm Depletion of Surface Water	0	0	0	1.6	10.1	25.8	41.1	33.4	14	2.3	0	0	128.4
Surface Return Flow	0	0	0	0.5	3.9	5.6	6.7	7.0	6.5	0.7	0	0	31.0
Groundwater Return Flows	0	0	0	2.2	16.8	23.8	28.7	29.8	27.9	3	0	0	132.2
Lagged Ground Water Return Flows	3.3	2.4	2.1	2.7	10.1	16.8	22.1	24.7	24.6	13.3	6.1	4.3	132.2
Average Net Depletion	-3.3	-2.4	-2.1	1.1	16.9	32.8	47.8	38.6	17.3	-7.9	-6.1	-4.3	128.4
Return Flow Factor [%]	1.1	0.8	0.7	63	33	30	29	35	51	4.8	2.1	1.5	N/A

Heintzelman Farm (1 share)

The 1 share on the Heintzelman Farm was used to irrigate approximately 108.7 acres located in Section 32, Township 3 North, Range 67 West of the 6th P.M. The Applicant's HCU analysis was based on 108.7 acres of crop mix of corn, beets, alfalfa, grain, beans and pasture grass. The HCU results are summarized in Table J.

Table J - Heintzelman Farm HCU Results [ac-ft]

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Farm Headgate Delivery	0	0	0	4.3	30.9	55.2	76.6	70.2	48.4	6.1	0	0	291.6
On Farm Depletion of Surface Water	0	0	0	1.9	12.2	31.1	49.7	40.3	16.9	2.8	0	0	155.0
Surface Return Flow	0	0	0	0.5	4.3	5.5	6.2	6.9	7.2	0.8	0	0	31.4
Ground Water Return Flows	0	0	0	1.8	14.3	18.5	20.7	23.0	24.2	2.5	0	0	105.2
Lagged Ground Water Return Flows	0	0	0	1.8	14.3	18.5	20.7	23.0	24.2	2.5	0	0	105.2
Average Net Depletion	0	0	0	1.9	12.4	30.3	47.9	40.9	18.7	2.8	0	0	155.0
Return Flow Factor [%]	0.0	0.0	0.0	42	46	34	27	33	50	1.1	0.0	0.0	N/A

The HCU results for the three farms are summarized in Table K.

Table K - The Three Farm Total HCU Results

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Farm Headgate Delivery	0	0	0	21.5	154.4	275.9	383	351.1	241.9	30.5	0	0	1,458.3
On Farm Depletion of Surface Water	0	0	0	8.2	52.1	132.7	211.8	171.9	72	12	0	0	660.7
Surface Return Flow	0	0	0	2.6	20.1	28.1	33.6	35.3	33.5	3.7	0	0	156.9
Ground Water Return Flows	0	0	0	10.6	82	114.9	137.6	143.9	136.3	14.7	0	0	640.0
Lagged Ground Water Return Flows	10.6	7.7	6.7	12	59.3	91.4	115.5	127.2	126.3	49.9	19.9	13.8	640.3
Average Net Depletion	-10.6	-7.7	-6.7	6.8	75.0	155.5	232.2	189.3	83.8	-23.1	-19.9	-13.8	660.9
Return Flow Factor [%]*	0.7	0.5	0.5	56	38	33	30	36	52	3.7	1.4	0.9	N/A

*Return flow factors for the months of October through March are the percentage of the prior farm headgate delivery; those from April through September are the percentage of the month's farm headgate delivery.

For the months of April through October the return flow requirements shall be calculated by multiplying the daily total delivery of the Ditch Rights for all uses by the applicable monthly return flows factor in Table K above. For the months of November through March, the total delivery of the Ditch Rights for all uses for the prior 12-month period will be multiplied by the applicable monthly return flow factor, then divided by the number of days in the month, to determine the daily return flow requirement to Idaho Creek.

Based on the historical study periods of 1947 through 1974, Table K above provides a monthly summary of the estimated yield associated with the subject 5 shares of the Last Chance Ditch. The replacement water from the Last Chance Ditch

is left in the stream or delivered to Von Ohlen-Dakolios Complex. Inflow to the Von Ohlen-Dakolios Complex is measured using a recently installed Sutron Gage.

The maximum monthly volumetric farm headgate diversion limits for the shares are shown in Table L below. **For the period of this SWSP, the Applicant's delivery of Last Chance Ditch water shall be limited to the historical monthly average and annual average farm headgate deliveries, as shown in Table K.** These amounts represent the historical average farm headgate diversions.

Table L - Monthly and Annual Volumetric Limits

Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Monthly Volumetric Farm Headgate Diversion limits [ac-ft]	21.5	154.4	275.9	383	351.1	241.9	30.5	1,458.3

If the Applicant reaches any of the volumetric limits, any water that would otherwise be available to the Applicant under the five (5) shares of the Last Chance Ditch, that the Applicant is not able to divert or use because of volumetric limits, shall be returned immediately to the Saint Vrain Creek after measurement by the Applicant following diversion at the Last Chance Ditch headgate and shall not be available for irrigation, augmentation, or any other use by the Applicant, other Last Chance Ditch Company shareholders, or any other person until such time as use of such water is again allowed in accordance with volumetric limits.

Long Term Augmentation

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 groundwater. The DRMS letter identifies four approaches to satisfy this requirement. The fourth approach requires documentation to identify what water rights or other permanent water source will be dedicated to the SWSP to assure that all permanent depletions from either an unforeseen abandonment of the site by the Applicant or as a result of long-term groundwater exposure after completion of mining and reclamation will be replaced so as to prevent injury to other water rights.

In accordance with approach no. 4, the Applicant has provided an affidavit dated February 27, 2024 that dedicates the Applicant's 7 shares of Greeley Irrigation Company, 4 shares of Rural Ditch Company as changed in case no. 03CW306, 5 shares of Last Chance Ditch Company, and a portion of water rights decreed in case no. 01CW274 as replacement water solely for the Durham Pit (M-1978-056), Western Sugar Pit (M-2010-049), Varra-Coulson Resource Recovery Pit (M-2013-065), Kurtz Pit (M-1999-006), Heintzelman Pit (M-2009-018), Bearson Pit (M-2015-033), and Two Rivers P124 Pit (M-2022-013) . 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.

Lease Water

Starting August 8, 2018, the provisions of Senate Bill 18-041 allows mitigation of impacts from mining and dewatering to be approved in a SWSP pursuant to section 37-90-137(11), C.R.S. For this SWSP, the Applicant is seeking to provide 100 acre-feet/year of mitigation water to be used for irrigation on the Mayer Family Farm using water from Bearson Pit dewatering. The Applicant performed a lagged depletion analysis of the dewatering water proposed to be used in this plan; therefore 100 acre-feet of the dewatering water from Bearson Pit will be used in this SWSP for mitigation. The mitigation water supply will be delivered to a settling pond at the southeast corner of the Mayer Family parcel and then to an existing pond that is proposed to be lined. The estimated deliveries are shown in Table 5.

Conditions of Approval

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

1. This SWSP is approved with the effective date of **January 1, 2024 and shall be valid through December 31, 2024** unless otherwise revoked or superseded by decree. If this SWSP will not be made absolute by a water court action by the SWSP expiration date, a renewal request must be submitted to this office with the statutory fee (currently $257 per gravel pit site) no later than **October 1, 2024**. If a renewal request is received after the expiration date of this plan, it may be considered a request for a new SWSP and the $1,593 filing fee per mining site will apply.

2. For all well(s) included in this SWSP, the Applicant shall ensure that all well permit file(s) are complete and valid and the uses proposed for the wells in this SWSP are consistent with the decreed and permitted uses. If well permits for any of the wells do not meet this standard, the permit files must be completed or valid well permits must be obtained prior to expiration of this SWSP. Should an additional SWSP be requested, the Applicant shall demonstrate that this requirement has been satisfied. Well permit no. 61773-F was obtained for Durham Pit; well permit no. 75865-F was obtained for Western Sugar Pit; well permit no. 80764-F was obtained for the Varra-Coulson Resource Recovery Pit; well permit no. 80584-F was obtained for Bearson Pit; well permit no. 87180-F was obtained for Kurtz Pit; well permit no. 75616-F was obtained for Heintzelman Pit; and well permit no. 78554-F was obtained for the Feit Well in accordance with sections 37-90-137(2) and (11), C.R.S.

3. **A new well permit must be obtained for the Durham, Western Sugar, and Bearson Pits in accordance with section 37-90-137(2) and (11), C.R.S., since the estimated depletions at the sites exceed the depletions identified in the existing well permits issued for the sites. A new well permit must be obtained for the Two Rivers P124 Pit prior to water usage at the site.** The provisions of section 37-90-137(2), C.R.S. prohibit the issuance of a permit for a well to be located within 600 feet of any existing well, unless the State Engineer finds that circumstances so warrant after a hearing held in accordance with the procedural rules in 2 CCR 402-5. This hearing may be waived if the Applicant is unable to obtain statements from the owners of all wells within 600 feet verifying that they have no objection to your use of the proposed well. Should a new well permit be denied for reasons of 600-foot spacing, or any other legitimate reason, approval of this SWSP may be canceled. An application for the Durham Pit is pending under application receipt no. 10019631 and was subject to a 600-foot spacing hearing in case no. 22SE01. The hearing in case no. 22SE01 was vacated and this permit may be issued upon approval of this SWSP. A new application for the Two Rivers P124 Pit is pending under application receipt no. 10033578. An application to re-permit the Western Sugar Pit is pending under application receipt no. 10034986. An application to re-permit the Bearson Pit is pending under application receipt no. 10034987.

4. **The total surface area exposed for each of the pits shall not exceed those values listed in Table A and the total amount of groundwater to be appropriated from each of the pits shall not exceed the values listed in Table C of this approval**. Should the total surface area exposed, or the total amount of water appropriated exceed the approved amounts, a new SWSP request shall be promptly filed with this office.

5. Computation of evaporation under this SWSP was reduced during the ice-covered period. The Applicant has assumed the ice-covered period to occur during the months of December and January, based on the average temperatures for December and January taken from the Greeley UNC (ID 053533) and Longmont 2SESE stations. However, for the purpose of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed groundwater surface area that occurred during the assumed ice-covered period (the months of December and January) for any time that the pit is not completely covered by ice.

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

7. **If the Applicant reaches any of the volumetric limits, any water that would otherwise be available to the Applicant under the five (5) shares of the Last Chance Ditch, that the Applicant is not able to divert or use because of volumetric limits, shall be returned immediately to the Saint Vrain Creek after measurement by the Applicant following diversion at the Last Chance Ditch headgate and shall not be available for irrigation, augmentation or any other use by the Applicant, other Last Chance Ditch Company shareholders, or any other person until such time as use of such water is again allowed in accordance with volumetric limits.**

8. All diversions and pumping shall be measured in a manner acceptable to the Division Engineer.

9. The water attributable to 7 shares of the Greeley Canal No. 3 and Fossil Creek Reservoir must continue to be diverted in priority at the ditch and reservoir then measured back to the Cache La Poudre River in the vicinity of the Durham Pit. Adequate measuring devices acceptable to the Water Commissioner must be installed.

10. The Applicant is required to maintain the historical return flow obligations that are associated with the use of the 7 shares of Greeley Canal No. 3, Fossil Creek Reservoir water, and the 5 shares of the Last Chance Ditch, used for replacement purposes in this SWSP. Historical return flow obligations are summarized in Tables H - K above.

11. Changes to water rights will be limited to the ditch and the shares identified in this approval. Changes to include additional shares for the ditch, or changes to include additional ditches will be allowed only if a new SWSP is approved for those additional shares/ditches and such additional water shares/ditches are identified.

12. Approval of this SWSP does not in any way eliminate the obligation of the Applicant to comply with the by-laws that restrict use of any of the shares identified in this SWSP. The use of any changed shares in this SWSP must be consistent with any applicable ditch and/or reservoir company by-laws.

13. For the approval period of the SWSP, the Applicant's Last Chance shares delivery will be limited to the historical monthly average farm headgate delivery as summarized in Table L above.

14. Replacement water must be made available to replace all out-of-priority depletions in time, place, and amount and must be made available under the direction and/or approval of the Water Commissioner. Replacement of lagged depletions, including those lagged depletions that occur to the stream after the expiration date of this SWSP, must continue until there is no longer an effect on stream flow.

15. Conveyance loss for delivery of augmentation water is subject to assessment and modification as determined by the Division Engineer.

16. The Applicant shall provide daily accounting (including, but not limited to diversions, depletions, replacement sources, and river calls) on a monthly basis. The accounting must be uploaded to the CDSS Online Reporting Tool (https://dwr.state.co.us/Tools/reporting) within 30 days of the end of the month for which the accounting applies. Instructions for using the tool are available on the Division of Water Resources website on the "Services" → "Data & Information" page under the heading of Online Data Submittal. Accounting and reporting procedures are subject to approval and modification by the Division Engineer. Accounting forms need to identify the WDID number for each structure operating under this SWSP. Additional information regarding accounting requirements can be found in the attached *Augmentation Plan Accounting Protocol*. **NOTE**: Monthly accounting, even during the winter non-irrigation season, is required.

17. The name, mailing address, and phone number of the contact person who will be responsible for operation and accounting of this SWSP must be provided on the accounting forms to the Division Engineer and Water Commissioner.

18. Applicant should refer to the *Augmentation Plan Accounting Protocol* or any other applicable protocols as referenced in the attached documents, for the operation of this SWSP.

19. If reclamation of the mine site will produce a permanent water surface exposing groundwater to evaporation, an application for a plan for augmentation must be filed with the Division 1 Water Court at least three years prior to the completion of mining to include, but not be limited to, long-term evaporation losses and lagged depletions. 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).

20. Dewatering at this site will produce delayed depletions to the stream system. As long as the pits are continuously dewatered at a relatively steady rate the water returned to the stream system should be adequate to offset the depletions attributable to the dewatering operation. Once dewatering at the site ceases, the delayed depletions must be addressed. Accordingly, dewatering is required to continue during the term of this approval at a relatively constant rate. **Should it be determined by the Water Commissioner or Division Engineer that dewatering water is being diverted for any purpose by the operator and accounting is not adequate to show that 100% of the dewatering water is returned back to the stream, the Applicant will need to account for any lagged dewatering**

depletions at the site. At least three years prior to completion of dewatering, a plan must be submitted that specifies how the post pumping dewatering depletions (including refilling of the pit) will be replaced, in time, place and amount. **In lieu of the totalizing flow meter requirement to be installed to accurately measure the monthly amount of dewatering, the Applicant proposes to rely on dewatering pump curve data assuming a maximum head to the discharge of 35 feet. Therefore, for the purpose of this SWSP, this procedure to determine the amount of dewatering will be accepted; however, if the Division Engineer determines that this procedure does not provide accurate data on the monthly amount of dewatering the Applicant will be required to install totalizing flow meter(s) to accurately measure the monthly amount of dewatering. The Applicant shall provide pump curve data along with the accounting required for this SWSP to demonstrate if this procedure provides accurate data.**

21. **As part of any SWSP renewal the Applicant must demonstrate that dewatering at the site has been continuous at a relatively steady state, such that the water returned to the stream from dewatering is adequate to offset depletions to the stream from dewatering. If dewatering at the pits is not continuous at a relatively constant rate, then the Applicant must account for the lagged depletions and accretions from dewatering and replace any un-replaced depletions.**

22. To ensure that depletions from groundwater evaporation do not occur in the unforeseen event, or events, that would lead to the abandonment of the pit, the Applicant has dedicated 7 shares of Greeley Irrigation Company, 4 shares of Rural Ditch Company as changed in case no. 03CW306, 5 shares of Last Chance Ditch Company, and a portion of water rights decreed in case no. 01CW274 as replacement water for this SWSP for as long as there are depletions at the gravel pit sites or until such time as another replacement source is obtained. A copy of the affidavit dated April 6, 2023 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 ensure proper dedication of the shares, additional information may be required prior to future SWSP approvals.**

23. In order to prevent injury to other water rights, the Division Engineer and Water Commissioner must be able to administer Applicants' replacement water past headgates on the river at times when those headgates would otherwise be legally entitled to divert all available flow in or "sweep" St. Vrain Creek, the Cache La Poudre River and the South Platte River or their tributaries. Applicant shall not receive credit for replacement of depletions to St. Vrain Creek, the Cache La Poudre River and the South Platte River below such diversion structures unless bypass and measurement structures are in place to allow the Division Engineer and Water Commissioner to confirm that Applicant's replacement water is delivered past the headgates. In the event that delivery past dry-up points requires the use of a structure for which a carriage or use agreement with a third party is required, Applicant shall be responsible for securing such agreement. Until such time as the Applicant provides a copy of the carriage or use agreement to the Division Engineer and Water Commissioner, no credit will be allowed for replacement of depletions to St. Vrain Creek, the Cache La Poudre River, and the South Platte River below such diversion structures. The Division of Water Resources will not be responsible for any enforcement or administration of third-party agreements that are not included in a decree of the water court.

24. If the gravel pits included in this SWSP causes depletions that affect a senior surface water right at a location where this SWSP cannot provide replacement water, the gravel pits are subject to curtailment until arrangements are made to provide replacement water at a point which will preclude injury to the calling senior surface water right. The gravel pit operator is responsible for providing replacement water in time, location, and amount to offset all out-of-priority depletions.

25. The Division of Water Resources will not be responsible for any enforcement or administration of third-party agreements that are not included in a decree of the water court.

26. 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.

27. 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 the substitute supply 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.

28. 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.

Please contact Wenli Dickinson in Denver at (303) 866-3581 x8206 or Michael Hein in Greeley at (970) 352-8712 if you have any questions concerning this approval.

Sincerely,

for Joanna Williams, P.E.
Chief of Water Supply

Attachments: Tables 1-19
Figures 1-4
Pre-81 Aerial
Leases
Affidavit of Dedication of Water Rights
Augmentation Plan Accounting Protocol

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JMW/idc/wad: 2024 Varra Combined SWSP - Approval.docx

Table 1
Raptor Materials

Feit Well Depletions

Month	(1) Projected Operations: Mined Product (tons)	(2) Dust Control (trucks)	(3) Exposed GW Area (acres)	(4) Produced Concrete (gallons)	(5) Irrigation / Domestic (af)	(6) Withdrawal: Mined Product (af)	(7) Dust Control (af)	(8) SEO Distribution (%)	(9) Gross Evaporation 42.1 in	(10) Effective Precipitation (in)	(11) Exposed GW Evap (af)	(12) Produced Concrete (af)	(13) Irrigation / Domestic (af)	(14) Total Withdrawal (af)	(15) Lagged Depletion (af)
Jan	0	0	0.0	136,829	0.01	0.00	0.00	4.0%	1.68	0.35	0.00	0.42	0.01	0.43	0.51
Feb	0	0	0.0	156,321	0.01	0.00	0.00	3.0%	1.26	0.28	0.00	0.48	0.01	0.49	0.50
Mar	0	0	0.0	196,345	0.01	0.00	0.00	3.0%	1.26	0.77	0.00	0.60	0.01	0.61	0.55
April	0	0	0.0	231,623	0.01	0.00	0.00	3.5%	1.47	1.26	0.00	0.71	0.01	0.72	0.63
May	0	0	0.0	247,510	0.01	0.00	0.00	5.5%	2.32	1.75	0.00	0.76	0.01	0.77	0.69
Jun	0	0	0.0	283,481	0.01	0.00	0.00	9.0%	3.79	1.33	0.00	0.87	0.01	0.88	0.78
Jul	0	0	0.0	278,122	0.01	0.00	0.00	12.0%	5.05	1.05	0.00	0.85	0.01	0.86	0.82
Aug	0	0	0.0	226,368	0.01	0.00	0.00	14.5%	6.10	0.84	0.00	0.69	0.01	0.70	0.77
Sept	0	0	0.0	171,910	0.01	0.00	0.00	15.0%	6.32	0.84	0.00	0.53	0.01	0.54	0.66
Oct	0	0	0.0	204,800	0.01	0.00	0.00	13.5%	5.68	0.70	0.00	0.63	0.01	0.64	0.63
Nov	0	0	0.0	220,073	0.01	0.00	0.00	10.0%	4.21	0.56	0.00	0.68	0.01	0.68	0.66
Dec	0	0	0.0	165,643	0.01	0.00	0.00	7.0%	2.95	0.35	0.00	0.51	0.01	0.52	0.61
Annual	0	0	0.0	2,519,025	0.1	0.0	0.0	100%	42.1	10.1	0.0	7.7	0.1	7.83	7.81

Notes

(1) Based on Raptor production predictions for 2024.
(2) Based on Raptor production predictions for 2024.
(3) Based on Raptor production predictions for 2024.
(4) Based on Raptor production predictions for 2024.
(5) Based on Raptor production predictions for 2024.
(6) Equals Column (1) times 2000 lbs per ton divided by 62.4 lb/ft3 divided by 43560 ft/ac times 4%.
(7) Equals Column (2) times 5000 gallons per truck divideb by 325851.
(8) Based on SEO Guidelines.
(9) Based on presented Annual Evaporation times Column (8).
(10) Based on prior SEO Approval general assumed to be UNC Climatological Station (53553) at 70 percent effective rate.
(11) Equals Column (3) times Column (9-10)/12. December and January are assumed to have ice cover.
(12) Equals Column (4) divided by 325851.
(13) Equals Column (5).
(14) Equals the sum of Columns (6,7,10,11,12,13).
(15) Based on AWAS Calculations (T=100,000, S=0.2, W=2,600', X=1,100').

Table 2
Raptor Materials

Durham Gravel Pit Depletions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Projected Operations					Withdrawal									
Month	Mined Product	Dust Control	Exposed GW Area	Produced Concrete	Irrigation / Domestic	Mined Product	Dust Control	SEO Distribution	Gross Evaporation	Effective Precipitation	Exposed GW Evap	Produced Concrete	Irrigation / Domestic	Total Withdrawal	Lagged Depletion
	(tons)	*(trucks)*	*(acres)*	*(gallons)*	*(af)*	*(af)*	*(af)*	*(%)*	*42.1 in*	*(in)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*
Jan	-	0	79.2	0	0.00	0.00	0.00	3.0%	1.26	0.35	***0.00***	0.00	0.00	0.0	8.2
Feb	-	0	79.2	0	0.00	0.00	0.00	3.5%	1.47	0.28	7.88	0.00	0.00	7.9	6.8
Mar	-	0	79.2	0	0.00	0.00	0.00	5.5%	2.32	0.77	10.20	0.00	0.00	10.2	8.1
April	-	0	79.2	0	0.00	0.00	0.00	9.0%	3.79	1.26	16.69	0.00	0.00	16.7	10.6
May	-	0	79.2	0	0.00	0.00	0.00	12.0%	5.05	1.75	21.79	0.00	0.00	21.8	14.4
Jun	-	0	79.2	0	0.00	0.00	0.00	14.5%	6.10	1.33	31.51	0.00	0.00	31.5	19.9
Jul	-	0	79.2	0	0.00	0.00	0.00	15.0%	6.32	1.05	34.75	0.00	0.00	34.7	25.6
Aug	-	0	79.2	0	0.00	0.00	0.00	13.5%	5.68	0.84	31.97	0.00	0.00	32.0	28.5
Sept	-	0	79.2	0	0.00	0.00	0.00	10.0%	4.21	0.84	22.24	0.00	0.00	22.2	27.5
Oct	-	0	79.2	0	0.00	0.00	0.00	7.0%	2.95	0.70	14.83	0.00	0.00	14.8	23.3
Nov	-	0	79.2	0	0.00	0.00	0.00	4.0%	1.68	0.56	7.42	0.00	0.00	7.4	17.9
Dec	-	0	79.2	0	0.00	0.00	0.00	3.0%	1.26	0.35	***0.00***	0.00	0.00	0.0	11.6
Annual	-	0	79.2	0	0.0	0.0	0.0	100%	42.1	10.1	199.3	0.0	0.0	199.3	202.5

Notes

(1) Based on Raptor production predictions for 2024.
(2) Based on Raptor production predictions for 2024.
(3) Based on Raptor production predictions for 2024.
(4) Based on Raptor production predictions for 2024.
(5) Based on Raptor production predictions for 2024.
(6) Equals Column (1) times 2000 lbs per ton divided by 62.4 lb/ft3 divided by 43560 ft/ac times 4%.
(7) Equals Column (2) times 5000 gallons per truck divideb by 325851.
(8) Based on SEO Guidelines.
(9) Based on presented Annual Evaporation times Column (8).
(10) Based on prior SEO Approval general assumed to be UNC Climatological Station (53553) at 70 percent effective rate.
(11) Equals Column (3) times Column (9-10)/12. December and January are assumed to have ice cover.
(12) Equals Column (4) divided by 325851.
(13) Equals Column (5).
(14) Equals the sum of Columns (6,7,10,11,12,13).
(15) Based on AWAS Calculations (T=100,000, S=0.28, W=2,600', X=1,350').

Table 3
Raptor Materials

Western Sugar Gravel Pit Depletions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Projected Operations					Withdrawal									
Month	Mined Product	Dust Control	Exposed GW Area	Produced Concrete	Irrigation / Domestic	Mined Product	Dust Control	SEO Distribution	Gross Evaporation	Effective Precipitation	Exposed GW Evap	Produced Concrete	Irrigation / Domestic	Total Withdrawal	Lagged Depletion
	(tons)	*(trucks)*	*(acres)*	*(gallons)*	*(af)*	*(af)*	*(af)*	*(%)*	*42.1 in*	*(in)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*
Jan	70,833	90	20.0	80,000	0.00	2.08	1.38	3.0%	1.26	0.35	***0.00***	0.25	0.00	3.7	6.1
Feb	70,833	90	20.0	80,000	0.00	2.08	1.38	3.5%	1.47	0.28	1.99	0.25	0.00	5.7	5.7
Mar	70,833	90	20.0	80,000	0.00	2.08	1.38	5.5%	2.32	0.77	2.58	0.25	0.00	6.3	6.0
April	70,833	90	20.0	80,000	0.00	2.08	1.38	9.0%	3.79	1.26	4.22	0.25	0.00	7.9	6.5
May	70,833	90	20.0	80,000	0.00	2.08	1.38	12.0%	5.05	1.75	5.50	0.25	0.00	9.2	7.4
Jun	70,833	90	20.0	80,000	0.00	2.08	1.38	14.5%	6.10	1.33	7.96	0.25	0.00	11.7	8.8
Jul	70,833	90	20.0	80,000	0.00	2.08	1.38	15.0%	6.32	1.05	8.78	0.25	0.00	12.5	10.2
Aug	70,833	90	20.0	80,000	0.00	2.08	1.38	13.5%	5.68	0.84	8.07	0.25	0.00	11.8	10.9
Sept	70,833	90	20.0	80,000	0.00	2.08	1.38	10.0%	4.21	0.84	5.62	0.25	0.00	9.3	10.6
Oct	70,833	90	20.0	80,000	0.00	2.08	1.38	7.0%	2.95	0.70	3.75	0.25	0.00	7.5	9.6
Nov	70,833	90	20.0	80,000	0.00	2.08	1.38	4.0%	1.68	0.56	1.87	0.25	0.00	5.6	8.2
Dec	70,833	90	20.0	80,000	0.00	2.08	1.38	3.0%	1.26	0.35	***0.00***	0.25	0.00	3.7	6.6
Annual	850,000	1080	20.0	960,000	0.0	25.0	16.6	100%	42.1	10.1	50.3	2.9	0.0	94.9	96.7

Notes

(1) Based on Raptor production predictions for 2024.
(2) Based on Raptor production predictions for 2024.
(3) Based on Raptor production predictions for 2024.
(4) Based on Raptor production predictions for 2024.
(5) Based on Raptor production predictions for 2024.
(6) Equals Column (1) times 2000 lbs per ton divided by 62.4 lb/ft3 divided by 43560 ft/ac times 4%.
(7) Equals Column (2) times 5000 gallons per truck divideb by 325851.
(8) Based on SEO Guidelines.
(9) Based on presented Annual Evaporation times Column (8).
(10) Based on prior SEO Approval general assumed to be UNC Climatological Station (53553) at 70 percent effective rate.
(11) Equals Column (3) times Column (9-10)/12. December and January are assumed to have ice cover.
(12) Equals Colunn (4) divided by 325851.
(13) Equals Column (5).
(14) Equals the sum of Columns (6,7,10,11,12,13).
(15) Based on AWAS Calculations (T=100,000, S=0.28, W=2,600', X=1,350').

Table 4
Raptor Materials

Varra-Coulson Gravel Pit Depletions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Projected Operations					Withdrawal									
Month	Mined Product	Dust Control	Exposed GW Area	Produced Concrete	Irrigation / Domestic	Mined Product	Dust Control	SEO Distribution	Gross Evaporation	Effective Precipitation	Exposed GW Evap	Produced Concrete	Irrigation / Domestic	Total Withdrawal	Lagged Depletion
	(tons)	*(trucks)*	*(acres)*	*(gallons)*	*(af)*	*(af)*	*(af)*	*(%)*	*42.1 in*	*(in)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*
Jan	41,667	90	65.0	0	0.00	1.23	1.38	3.0%	1.26	0.35	***0.00***	0.00	0.00	2.6	5.6
Feb	41,667	90	65.0	0	0.00	1.23	1.38	3.5%	1.47	0.28	6.46	0.00	0.00	9.1	7.5
Mar	41,667	90	65.0	0	0.00	1.23	1.38	5.5%	2.32	0.77	8.37	0.00	0.00	11.0	9.6
April	41,667	90	65.0	0	0.00	1.23	1.38	9.0%	3.79	1.26	13.70	0.00	0.00	16.3	13.4
May	41,667	90	65.0	0	0.00	1.23	1.38	12.0%	5.05	1.75	17.89	0.00	0.00	20.5	17.3
Jun	41,667	90	65.0	0	0.00	1.23	1.38	14.5%	6.10	1.33	25.86	0.00	0.00	28.5	23.7
Jul	41,667	90	65.0	0	0.00	1.23	1.38	15.0%	6.32	1.05	28.52	0.00	0.00	31.1	27.9
Aug	41,667	90	65.0	0	0.00	1.23	1.38	13.5%	5.68	0.84	26.24	0.00	0.00	28.8	28.4
Sept	41,667	90	65.0	0	0.00	1.23	1.38	10.0%	4.21	0.84	18.25	0.00	0.00	20.9	24.5
Oct	41,667	90	65.0	0	0.00	1.23	1.38	7.0%	2.95	0.70	12.17	0.00	0.00	14.8	18.8
Nov	41,667	90	65.0	0	0.00	1.23	1.38	4.0%	1.68	0.56	6.09	0.00	0.00	8.7	13.1
Dec	41,667	90	65.0	0	0.00	1.23	1.38	3.0%	1.26	0.35	***0.00***	0.00	0.00	2.6	7.0
Annual	500,000	1080	65.0	0	0.0	14.7	16.6	100%	42.1	10.1	163.6	0.0	0.0	194.8	196.8

Notes

(1) Based on Raptor production predictions for 2024.

(2) Based on Raptor production predictions for 2024.

(3) Based on Raptor production predictions for 2024.

(4) Based on Raptor production predictions for 2024.

(5) Based on Raptor production predictions for 2024.

(6) Equals Column (1) times 2000 lbs per ton divided by 62.4 lb/ft3 divided by 43560 ft/ac times 4%.

(7) Equals Column (2) times 5000 gallons per truck divideb by 325851.

(8) Based on SEO Guidelines.

(9) Based on presented Annual Evaporation times Column (8).

(10) Based on prior SEO Approval general assumed to be UNC Climatological Station (53553) at 70 percent effective rate.

(11) Equals Column (3) times Column (9-10)/12. December and January are assumed to have ice cover.

(12) Equals Column (4) divided by 325851.

(13) Equals Column (5).

(14) Equals the sum of Columns (6,7,10,11,12,13).

(15) Based on AWAS Calculations (T=180,000, S=0.28, W=2,600', X=900').

Table 5
Raptor Materials

Bearson Gravel Pit Depletions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Projected Operations					Withdrawal										
Month	Mined Product	Dust Control	Exposed GW Area	Produced Concrete	Irrigation / Domestic	Mined Product	Dust Control	SEO Distribution	Gross Evaporation	Effective Precipitation	Exposed GW Evap	Produced Concrete	Irrigation / Domestic	Irrigation Lease Water	Total Withdrawal	Lagged Depletion
	(tons)	(trucks)	(acres)	(gallons)	(af)	(af)	(af)	(%)	43.0 in	(in)	(af)	(af)	(af)		(af)	(af)
Jan	108,333	40.6	92.0	0	0.00	3.19	0.62	3.0%	1.29	0.27	***0.00***	0.00	0.00	0	3.8	14.5
Feb	108,333	40.6	92.0	0	0.00	3.19	0.62	3.5%	1.51	0.29	9.34	0.00	0.00	0	13.1	11.5
Mar	108,333	40.6	92.0	0	0.00	3.19	0.62	5.5%	2.37	0.69	12.82	0.00	0.00	0	16.6	12.1
April	108,333	40.6	92.0	0	0.00	3.19	0.62	9.0%	3.87	1.19	20.55	0.00	0.00	0	24.4	13.8
May	108,333	40.6	92.0	0	0.00	3.19	0.62	12.0%	5.16	1.75	26.14	0.00	0.00	20	50.0	18.5
Jun	108,333	40.6	92.0	0	0.00	3.19	0.62	14.5%	6.24	1.23	38.41	0.00	0.00	20	62.2	28.2
Jul	108,333	40.6	92.0	0	0.00	3.19	0.62	15.0%	6.45	0.77	43.55	0.00	0.00	20	67.4	39.1
Aug	108,333	40.6	92.0	0	0.00	3.19	0.62	13.5%	5.81	0.79	38.44	0.00	0.00	20	62.3	47.5
Sept	108,333	40.6	92.0	0	0.00	3.19	0.62	10.0%	4.30	0.86	26.37	0.00	0.00	20	50.2	51.6
Oct	108,333	40.6	92.0	0	0.00	3.19	0.62	7.0%	3.01	0.61	18.41	0.00	0.00	0	22.2	50.1
Nov	108,333	40.6	92.0	0	0.00	3.19	0.62	4.0%	1.72	0.43	9.91	0.00	0.00	0	13.7	41.7
Dec	108,333	40.6	92.0	0	0.00	3.19	0.62	3.0%	1.29	0.30	***0.00***	0.00	0.00	0	3.8	32.4
Annual	1,300,000	487	92.0	0	0.0	38.3	7.5	100%	43.0	9.2	243.9	0.0	0.0	100.00	389.7	361.0

Notes

(1) Based on Raptor production predictions for 2024.
(2) Based on Raptor production predictions for 2024.
(3) Based on Raptor production predictions for 2024.
(4) Based on Raptor production predictions for 2024.
(5) Based on Raptor production predictions for 2024.
(6) Equals Column (1) times 2000 lbs per ton divided by 62.4 lb/ft3 divided by 43560 ft/ac times 4%.
(7) Equals Column (2) times 5000 gallons per truck divideb by 325851.
(8) Based on SEO Guidelines.
(9) Based on presented Annual Evaporation times Column (8).
(10) Based on Longmont 2ESE Station and NOAA NWS 33 Analysis from Case No. 03CW306.
(11) Equals Column (3) times Column (9-10)/12. December and January are assumed to have ice cover.
(12) Equals Column (4) divided by 325851.
(13) Equals Column (5).
(14) Based on agreed lease with Mayer Family as part of Bearson pit operations.
(15) Equals the sum of Columns (6,7,10,11,12,13, 14).
(16) Based on AWAS Calculations (T=100,000, S=0.28, W=3,000', X=2,500').

Table 6
Raptor Materials

Kurtz Gravel Pit Depletions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Projected Operations					Withdrawal									
Month	Mined Product	Dust Control	Exposed GW Area	Produced Concrete	Irrigation / Domestic	Mined Product	Dust Control	SEO Distribution	Gross Evaporation	Effective Precipitation	Exposed GW Evap	Produced Concrete	Irrigation / Domestic	Total Withdrawal	Lagged Depletion
	(tons)	*(trucks)*	*(acres)*	*(gallons)*	*(af)*	*(af)*	*(af)*	*(%)*	*43.0 in*	*(in)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*
Jan	1,150	40.6	142.0	0	0.00	0.03	0.62	3.0%	1.29	0.27	***0.00***	0.00	0.00	0.7	1.7
Feb	1,035	40.6	142.0	0	0.00	0.03	0.62	3.5%	1.51	0.29	14.41	0.00	0.00	15.1	16.0
Mar	1,495	40.6	142.0	0	0.00	0.04	0.62	5.5%	2.37	0.69	19.79	0.00	0.00	20.5	19.9
April	1,380	40.6	142.0	0	0.00	0.04	0.62	9.0%	3.87	1.19	31.71	0.00	0.00	32.4	31.9
May	1,725	40.6	142.0	0	0.00	0.05	0.62	12.0%	5.16	1.75	40.35	0.00	0.00	41.0	39.4
Jun	1,840	40.6	142.0	0	0.00	0.05	0.62	14.5%	6.24	1.23	59.29	0.00	0.00	60.0	58.8
Jul	2,070	40.6	142.0	0	0.00	0.06	0.62	15.0%	6.45	0.77	67.21	0.00	0.00	67.9	65.2
Aug	2,300	40.6	142.0	0	0.00	0.07	0.62	13.5%	5.81	0.79	59.33	0.00	0.00	60.0	58.5
Sept	2,185	40.6	142.0	0	0.00	0.06	0.62	10.0%	4.30	0.86	40.69	0.00	0.00	41.4	42.7
Oct	2,243	40.6	142.0	0	0.00	0.07	0.62	7.0%	3.01	0.61	28.41	0.00	0.00	29.1	29.6
Nov	1,150	40.6	142.0	0	0.00	0.03	0.62	4.0%	1.72	0.43	15.30	0.00	0.00	16.0	17.6
Dec	1,150	40.6	142.0	0	0.00	0.03	0.62	3.0%	1.29	0.30	***0.00***	0.00	0.00	0.7	2.5
Annual	19,723	487	142.0	0	0.0	0.6	7.5	100%	43.0	9.2	376.5	0.0	0.0	384.6	383.7

Notes

(1) Based on Raptor production predictions for 2024.
(2) Based on Raptor production predictions for 2024.
(3) Based on Raptor production predictions for 2024.
(4) Based on Raptor production predictions for 2024.
(5) Based on Raptor production predictions for 2024.
(6) Equals Column (1) times 2000 lbs per ton divided by 62.4 lb/ft3 divided by 43560 ft/ac times 4%.
(7) Equals Column (2) times 5000 gallons per truck divideb by 325851.
(8) Based on SEO Guidelines.
(9) Based on presented Annual Evaporation times Column (8).
(10) Based on Longmont 2ESE Station and NOAA NWS 33 Analysis from Case No. 03CW306.
(11) Equals Column (3) times Column (9-10)/12. December and January are assumed to have ice cover.
(12) Equals Column (4) divided by 325851.
(13) Equals Column (5).
(14) Equals the sum of Columns (6,7,11,12,13).
(15) Based on AWAS Calculations (T=100,000, S=0.28, W=4,000', X=80').

Table 7
Raptor Materials

Heintzelman Gravel Pit Depletions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Projected Operations					Withdrawal									
Month	Mined Product	Dust Control	Exposed GW Area	Produced Concrete	Irrigation / Domestic	Mined Product	Dust Control	SEO Distribution	Gross Evaporation	Effective Precipitation	Exposed GW Evap	Produced Concrete	Irrigation / Domestic	Total Withdrawal	Lagged Depletion
	(tons)	*(trucks)*	*(acres)*	*(gallons)*	*(af)*	*(af)*	*(af)*	*(%)*	*43.0 in*	*(in)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*
Jan	-	9.0	0.0	0	0.00	0.00	0.14	3.0%	1.29	0.27	***0.00***	0.00	0.00	0.1	3.1
Feb	-	9.0	0.0	0	0.00	0.00	0.14	3.5%	1.51	0.29	0.00	0.00	0.00	0.1	2.4
Mar	-	9.0	0.0	0	0.00	0.00	0.14	5.5%	2.37	0.69	0.00	0.00	0.00	0.1	1.9
April	-	9.0	0.0	0	0.00	0.00	0.14	9.0%	3.87	1.19	0.00	0.00	0.00	0.1	1.6
May	-	9.0	0.0	0	0.00	0.00	0.14	12.0%	5.16	1.75	0.00	0.00	0.00	0.1	1.3
Jun	-	9.0	0.0	0	0.00	0.00	0.14	14.5%	6.24	1.23	0.00	0.00	0.00	0.1	1.0
Jul	-	9.0	0.0	0	0.00	0.00	0.14	15.0%	6.45	0.77	0.00	0.00	0.00	0.1	0.8
Aug	-	9.0	0.0	0	0.00	0.00	0.14	13.5%	5.81	0.79	0.00	0.00	0.00	0.1	0.7
Sept	-	9.0	0.0	0	0.00	0.00	0.14	10.0%	4.30	0.86	0.00	0.00	0.00	0.1	0.6
Oct	-	9.0	0.0	0	0.00	0.00	0.14	7.0%	3.01	0.61	0.00	0.00	0.00	0.1	0.5
Nov	-	9.0	0.0	0	0.00	0.00	0.14	4.0%	1.72	0.43	0.00	0.00	0.00	0.1	0.4
Dec	-	9.0	0.0	0	0.00	0.00	0.14	3.0%	1.29	0.30	***0.00***	0.00	0.00	0.1	0.3
Annual	-	108	0.0	0	0.0	0.0	1.7	100%	43.0	9.2	0.0	0.0	0.0	1.7	14.7

Notes

(1) Based on Raptor production predictions for 2024.

(2) Based on Raptor production predictions for 2024.

(3) Based on Raptor production predictions for 2024.

(4) Based on Raptor production predictions for 2024.

(5) Based on Raptor production predictions for 2024.

(6) Equals Column (1) times 2000 lbs per ton divided by 62.4 lb/ft3 divided by 43560 ft/ac times 4%.

(7) Equals Column (2) times 5000 gallons per truck divideb by 325851.

(8) Based on SEO Guidelines.

(9) Based on presented Annual Evaporation times Column (8).

(10) Based on Longmont 2ESE Station and NOAA NWS 33 Analysis from Case No. 03CW306.

(11) Equals Column (3) times Column (9-10)/12. December and January are assumed to have ice cover.

(12) Equals Column (4) divided by 325851.

(13) Equals Column (5).

(14) Equals the sum of Columns (6,7,10,11,12,13).

(15) Based on AWAS Calculations (T=100,000, S=0.28, W=4,000', X=500').

Table 8
Raptor Materials

Last Chance Ditch River Diversions

(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1947	0	0	0	0	0	0	1,507	2,430	1,567	0	0	0
1948	0	0	0	0	555	1,190	1,825	1,835	1,349	565	0	0
1949	0	0	0	0	79	595	2,460	2,102	1,190	317	0	0
1950	0	0	0	0	1,051	1,974	2,003	1,845	1,359	278	0	0
1951	0	0	0	0	397	1,488	1,537	664	992	0	0	0
1952	0	0	0	0	555	1,646	1,845	1,617	952	179	0	0
1953	0	0	0	0	833	1,726	1,983	1,230	1,121	208	0	0
1954	0	0	0	0	1,527	1,785	1,805	1,815	1,279	89	0	0
1955	0	0	0	298	1,178	1,785	1,845	1,716	1,140	179	0	0
1956	0	0	0	417	1,845	1,785	1,845	1,845	1,200	208	0	0
1957	0	0	0	0	0	1,329	2,460	2,460	1,567	238	0	0
1958	0	0	0	0	0	1,607	1,845	1,845	1,210	159	0	0
1959	0	0	0	0	0	1,666	2,916	2,559	1,765	0	0	0
1960	0	0	0	357	60	2,380	2,460	2,221	1,785	357	0	0
1961	0	0	0	0	0	595	1,845	1,845	912	0	0	0
1962	0	0	0	357	1,607	714	1,845	1,845	1,329	79	0	0
1963	0	0	0	635	1,857	1,279	2,380	1,845	1,349	0	0	0
1964	0	0	0	0	1,371	1,785	2,360	2,460	1,507	119	0	0
1965	0	0	0	0	1,458	516	2,003	1,587	932	0	0	0
1966	0	0	0	0	1,745	2,083	2,162	1,845	1,349	238	0	0
1967	0	0	0	0	0	555	436	1,785	1,131	179	0	0
1968	0	0	0	0	0	1,131	873	785	595	179	0	0
1969	0	0	0	270	218	405	555	629	387	0	0	0
1970	0	0	0	0	565	599	557	466	345	0	0	0
1971	0	0	0	83	462	526	599	391	303	0	0	0
1972	0	0	0	250	1,162	986	450	516	424	0	0	0
1973	0	0	0	0	167	1,190	1,763	1,353	1,055	222	0	0
1974	0	0	0	0	518	1,000	1,507	159	0	0	0	0
Average	0	0	0	95	686	1,226	1,703	1,561	1,075	135	0	0

Based on diversion table from previous SEO approvals.

Table 9
Raptor Materials

Percent Crop Use for Last Chance Parcels

Crop	Corn	Beets	Alfalfa	Grain	Beans	Pasture
Portion	39%	10%	28%	5%	1%	17%

Based on NRCS Farm Service Agency records.

Table 10
Raptor Materials

Last Chance Historical Use Analysis Values - Kurtz Farm

Month	(1) Last Chance Ditch Diversion (af)	(2) Diversion of Kurt Property Shares *3 shares* (af)	(3) Farm Headgate Delivery *10%* (af)	(4) Consumptive Use 264.7 ac (af)	(5) Surface Return Flow 19% (af)	(6) Ground Water Return Flow 81% (af)	(7) Return Flow Factor (%)	(8) Lagged Ground Water Return Flow (af)	(9) Total Stream Depletion (af)
Jan	0	0.0	0.0	0.0	0.0	0.0	1.8%	7.3	-7.3
Feb	0	0.0	0.0	0.0	0.0	0.0	1.3%	5.3	-5.3
Mar	0	0.0	0.0	0.0	0.0	0.0	1.1%	4.6	-4.6
Apr	95	14.3	12.9	4.7	1.6	6.6	1.9%	7.5	3.8
May	686	102.9	92.6	29.8	11.9	50.9	8.7%	34.9	45.7
Jun	1,226	183.9	165.5	75.8	17.0	72.6	13.9%	56.1	92.4
Jul	1,703	255.4	229.8	121.0	20.7	88.2	18.0%	72.7	136.5
Aug	1,561	234.1	210.7	98.2	21.4	91.1	19.7%	79.5	109.8
Sep	1,075	161.2	145.1	41.1	19.8	84.2	19.2%	77.5	47.8
Oct	135	20.3	18.3	6.9	2.2	9.2	8.5%	34.1	-18.0
Nov	0	0.0	0.0	0.0	0.0	0.0	3.4%	13.8	-13.8
Dec	0	0.0	0.0	0.0	0.0	0.0	2.4%	9.5	-9.5
Annual	6480.4	972.1	874.8	377.5	94.5	402.9	100.0%	402.9	377.5

Notes

(1) Based on Last Chance Ditch Diversion, see Table 8.

(2) Equals Column (1) times Number of Shares presented divided by total number of shares (20).

(3) Equals Column (2) less assumed ditch loss percentage.

(4) Based on CU Rate 1.42 af/ac for Crop Mix Presented on Table 9 at presented acreage.

(5) Equals Column (3) less Column (4) tmes assumed surface return flow percentage (based on previous SEO approval).

(6) Equals Column (3) less Column (4) tmes assumed groundwate return flow percentage (based on previous SEO approval).

(7) Based on AWAS Calculations (T=100,000, S=0.28, W=520', X=3950').

(8) Sum of Column (6) times Column (7).

(9) Column (3) minus Column (5) minus Column (8).

Table 11
Raptor Materials

Last Chance Historical Use Analysis Values - Van Ohlen Farm

Month	(1) Last Chance Ditch Diversion (af)	(2) Diversion of Von Ohlen Property Shares *1 shares* (af)	(3) Farm Headgate Delivery *10%* (af)	(4) Consumptive Use 90.0 ac (af)	(5) Surface Return Flow 19% (af)	(6) Ground Water Return Flow 81% (af)	(7) Return Flow Factor (%)	(8) Lagged Ground Water Return Flow (af)	(9) Total Stream Depletion (af)
Jan	0	0.0	0.0	0.0	0.0	0.0	2.5%	3.3	-3.3
Feb	0	0.0	0.0	0.0	0.0	0.0	1.8%	2.4	-2.4
Mar	0	0.0	0.0	0.0	0.0	0.0	1.6%	2.1	-2.1
Apr	95	4.8	4.3	1.6	0.5	2.2	2.0%	2.7	1.1
May	686	34.3	30.9	10.1	3.9	16.8	7.6%	10.1	16.9
Jun	1,226	61.3	55.2	25.8	5.6	23.8	12.7%	16.8	32.8
Jul	1,703	85.1	76.6	41.1	6.7	28.7	16.7%	22.1	47.8
Aug	1,561	78.0	70.2	33.4	7.0	29.8	18.6%	24.7	38.6
Sep	1,075	53.7	48.4	14.0	6.5	27.9	18.6%	24.6	17.3
Oct	135	6.8	6.1	2.3	0.7	3.0	10.0%	13.3	-7.9
Nov	0	0.0	0.0	0.0	0.0	0.0	4.6%	6.1	-6.1
Dec	0	0.0	0.0	0.0	0.0	0.0	3.2%	4.3	-4.3
Annual	6480.4	324.0	291.6	128.4	31.0	132.2	100.0%	132.2	128.4

Notes

(1) Based on Last Chance Ditch Diversion, see Table 8.

(2) Equals Column (1) times Number of Shares presented divided by total number of shares (20).

(3) Equals Column (2) less assumed ditch loss percentage.

(4) Based on CU Rate 1.42 af/ac for Crop Mix Presented on Table 9 at presented acreage.

(5) Equals Column (3) less Column (4) tmes assumed surface return flow percentage (based on previous SEO approval).

(6) Equals Column (3) less Column (4) tmes assumed groundwate return flow percentage (based on previous SEO approval).

(7) Based on AWAS Calculations (T=100,000, S=0.28, W=715, X=4000').

(8) Sum of Column (6) times Column (7).

(9) Column (3) minus Column (5) minus Column (8).

Table 12
Raptor Materials

Last Chance Historical Use Analysis Values - Heintzelman Farm

Month	(1) Last Chance Ditch Diversion (af)	(2) Diversion of Heintzelman Property Shares *1 shares* (af)	(3) Farm Headgate Delivery *10%* (af)	(4) Consumptive Use 108.7 ac (af)	(5) Surface Return Flow 23% (af)	(6) Ground Water Return Flow 77% (af)	(7) Return Flow Factor (%)	(8) Lagged Ground Water Return Flow (af)	(9) Total Stream Depletion (af)
Jan	0	0.0	0.0	0.0	0.0	0.0	0.0%	0.0	0.0
Feb	0	0.0	0.0	0.0	0.0	0.0	0.0%	0.0	0.0
Mar	0	0.0	0.0	0.0	0.0	0.0	0.0%	0.0	0.0
Apr	95	4.8	4.3	1.9	0.5	1.8	1.7%	1.8	1.9
May	686	34.3	30.9	12.2	4.3	14.3	13.5%	14.2	12.4
Jun	1,226	61.3	55.2	31.1	5.5	18.5	18.4%	19.3	30.3
Jul	1,703	85.1	76.6	49.7	6.2	20.7	21.4%	22.5	47.9
Aug	1,561	78.0	70.2	40.3	6.9	23.0	21.4%	22.5	40.9
Sep	1,075	53.7	48.4	16.9	7.2	24.2	21.3%	22.4	18.7
Oct	135	6.8	6.1	2.8	0.8	2.5	2.4%	2.5	2.8
Nov	0	0.0	0.0	0.0	0.0	0.0	0.0%	0.0	0.0
Dec	0	0.0	0.0	0.0	0.0	0.0	0.0%	0.0	0.0
Annual	6480.4	324.0	291.6	155.0	31.4	105.2	100.0%	105.2	155.0

Notes

(1) Based on Last Chance Ditch Diversion, see Table 8.

(2) Equals Column (1) times Number of Shares presented divided by total number of shares (20).

(3) Equals Column (2) less assumed ditch loss percentage.

(4) Based on CU Rate 1.42 af/ac for Crop Mix Presented on Table 9 at presented acreage.

(5) Equals Column (3) less Column (4) tmes assumed surface return flow percentage (based on previous SEO approval).

(6) Equals Column (3) less Column (4) tmes assumed groundwate return flow percentage (based on previous SEO approval).

(7) Based on AWAS Calculations (T=100,000, S=0.28, W=450', X=1100').

(8) Sum of Column (6) times Column (7).

(9) Column (3) minus Column (5) minus Column (8).

Table 13
Raptor Materials

Last Chance Ditch Net Stream Depletion - Credits

Month	*(1)* Kurtz *(af)*	*(2)* Von Ohlen *(af)*	*(3)* Heinzelman *(af)*	*(4)* Total Stream Depletion *(af)*
Jan	-7.31	-3.29	0.00	-10.60
Feb	-5.31	-2.40	0.00	-7.70
Mar	-4.61	-2.10	0.00	-6.70
Apr	3.80	1.08	1.92	6.80
May	45.74	16.85	12.37	74.97
Jun	92.37	32.81	30.32	155.50
Jul	136.48	47.82	47.95	232.24
Aug	109.81	38.57	40.87	189.26
Sep	47.85	17.28	18.74	83.87
Oct	-18.01	-7.89	2.85	-23.06
Nov	-13.82	-6.09	0.00	-19.90
Dec	-9.51	-4.29	0.00	-13.80
Total	377.5	128.4	155.0	660.9

Notes

(1) Based on Table 10.

(2) Based on Table 11.

(3) Based on Table 12.

(4) Equals the sum of Columns (1 thru 4).

Table 14
Raptor Materials

Two Rivers Well Depletions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	Projected Operations					Withdrawal											
Month	Mined Product	Dust Control	Exposed GW Area	Produced Concrete	Irrigation / Domestic	Mined Product	Dust Control	SEO Distribution	Gross Evaporation	Effective Precipitation	Exposed GW Evap	Produced Concrete	Irrigation / Domestic	Total Withdrawal	Lagged Depletion	Lagged Dewatering Depletion	Total Depletion
	(tons)	*(trucks)*	*(acres)*	*(gallons)*	*(af)*	*(af)*	*(af)*	*(%)*	*42.1 in*	*(in)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*
Jan	54,000	67.5	55.0	0	0.00	1.59	0.62	3.0%	1.26	0.35	4.18	0.00	0.00	6.40	1.25	-473.90	-472.65
Feb	93,000	67.5	55.0	0	0.00	2.74	0.62	3.5%	1.47	0.28	5.47	0.00	0.00	8.83	3.90	-285.93	-282.03
Mar	127,500	67.5	55.0	0	0.00	3.75	0.62	5.5%	2.32	0.77	7.08	0.00	0.00	11.46	6.40	293.21	299.61
April	138,000	67.5	55.0	0	0.00	4.06	0.62	9.0%	3.79	1.26	11.59	0.00	0.00	16.27	9.26	171.53	180.79
May	139,500	67.5	55.0	0	0.00	4.11	0.62	12.0%	5.05	1.75	15.13	0.00	0.00	19.86	12.64	108.26	120.90
Jun	135,000	67.5	55.0	121,429	0.00	3.97	0.62	14.5%	6.10	1.33	21.88	0.37	0.00	26.85	16.76	68.54	85.30
Jul	127,500	67.5	55.0	121,429	0.00	3.75	0.62	15.0%	6.32	1.05	24.13	0.37	0.00	28.88	21.01	43.40	64.40
Aug	118,500	67.5	55.0	121,429	0.00	3.49	0.62	13.5%	5.68	0.84	22.20	0.37	0.00	26.68	23.30	27.48	50.78
Sept	93,000	67.5	55.0	121,429	0.00	2.74	0.62	10.0%	4.21	0.84	15.45	0.37	0.00	19.18	22.97	17.40	40.36
Oct	60,000	67.5	55.0	121,429	0.00	1.77	0.62	7.0%	2.95	0.70	10.30	0.37	0.00	13.06	20.19	11.01	31.21
Nov	60,000	67.5	55.0	121,429	0.00	1.77	0.62	4.0%	1.68	0.56	5.15	0.37	0.00	7.91	16.37	6.97	23.34
Dec	54,000	67.5	55.0	121,429	0.00	1.59	0.62	3.0%	1.26	0.35	4.18	0.37	0.00	6.77	12.92	4.42	17.33
Annual	1,200,000	810	55.0	850,000	0.0	35.3	7.5	100%	42.1	10.1	146.8	2.6	0.0	192.14	166.97	-7.62	159.35

Notes

(1) Based on Raptor production predictions for 2024.
(2) Based on Raptor production predictions for 2024.
(3) Based on Raptor production predictions for 2024.
(4) Based on Raptor production predictions for 2024.
(5) Based on Raptor production predictions for 2024.
(6) Equals Column (1) times 2000 lbs per ton divided by 62.4 lb/ft3 divided by 43560 ft/ac times 4%.
(7) Equals Column (2) times 3000 gallons per truck divided by 325851.
(8) Based on SEO Guidelines *(SWSP for Sand and Gravel Pits, 2011)*.
(9) Based on presented Annual Evaporation times Column (8).
(10) Based on prior SEO Approval general assumed to be UNC Climatological Station (53553) at 70 percent effective rate.
(11) Equals Column (3) times Column (9-10)/12. December and January are assumed to have ice cover.
(12) Equals Column (4) divided by 325851.
(13) Equals Column (5).
(14) Equals the sum of Columns (6,7,10,11,12,13).
(15) Based on AWAS Calculations (T=100,000, S=0.28, W=2,800', X=1,500').
(16) From Table 19
(17) Equals Column (15) plus (16)

Table 15
Raptor Materials

Operations Study

	(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Month	Cache la Poudre River								St Vrain River								Beginning		Effective		Release	Storage	Ending
	Depletions					Augmentation Credits		Remaining	Depletions				Credits			Remaining	Reservoir	Surface	Evaporation	Evaporation			Reservoir
	Feit Well	Durham Pit	Wester Sugar Pit	Varra-Coulson Pit	Total	Greeley Irrigation Company Available	Used	Depletion	Bearson Pit	Kurtz Pit	Heintzelman Pit	Total	Last Chance Ditch Farms Available	Rural Ditch Available	Hayseed Ditch Available	Depletion	Storage		Rate *43.0 in*				Storage
	(af)	(af)	(af)	(af)		(af)	(af)	(af)	(af)	(af)	(af)	(af)	(af)	(af)	(af)	(af)	(af)	(ac)	(af/ac)	(af)	(af)	(af)	(af)
January	0.51	8.17	6.13	5.59	20.40	-1.99	-1.99	22.40	14.46	1.66	3.08	19.21	-10.60	-3.20	-1.30	56.71	2,810.00	104.2	0.07	7.49	56.71	0.00	2,745.80
February	0.50	6.82	5.75	7.50	20.57	-1.88	-1.88	22.46	11.53	16.03	2.41	29.97	-7.70	-3.00	-1.00	64.13	2,745.80	101.8	0.10	10.22	64.13	0.00	2,671.46
March	0.55	8.08	5.98	9.57	24.18	-1.77	-1.77	25.96	12.06	19.95	1.93	33.94	-6.70	-2.70	-0.90	70.19	2,671.46	99.1	0.17	17.33	70.19	0.00	2,583.93
April	0.63	10.58	6.51	13.35	31.07	3.88	3.88	27.19	13.84	31.92	1.57	47.34	6.80	10.20	9.20	48.33	2,583.93	95.8	0.30	28.61	48.33	0.00	2,506.99
May	0.69	14.42	7.42	17.30	39.83	9.92	9.92	29.92	18.45	39.35	1.27	59.08	74.97	40.20	16.90	-43.07	2,506.99	93.0	0.37	34.61	0.00	43.07	2,515.46
June	0.78	19.93	8.78	23.70	53.19	9.34	9.34	43.84	28.16	58.80	1.04	88.00	155.50	53.70	24.70	-102.06	2,515.46	93.3	0.42	39.22	0.00	102.06	2,578.30
July	0.82	25.64	10.20	27.92	64.58	12.04	12.04	52.54	39.10	65.17	0.85	105.12	232.24	61.60	28.90	-165.08	2,578.30	95.6	0.39	37.45	0.00	165.08	2,705.93
August	0.77	28.51	10.89	28.38	68.56	12.60	12.60	55.95	47.50	58.49	0.69	106.69	189.26	47.60	24.70	-98.92	2,705.93	100.3	0.38	38.30	0.00	98.92	2,766.55
September	0.66	27.51	10.64	24.53	63.35	10.82	10.82	52.53	51.59	42.67	0.58	94.84	83.87	19.72	16.20	27.58	2,766.55	102.6	0.29	30.18	27.58	0.00	2,708.79
October	0.63	23.34	9.59	18.82	52.38	9.78	9.78	42.60	50.11	29.63	0.48	80.22	-23.06	15.00	9.90	120.98	2,708.79	100.5	0.18	18.57	120.98	0.00	2,569.23
November	0.66	17.85	8.21	13.05	39.76	-2.33	-2.33	42.09	41.74	17.55	0.41	59.70	-19.90	-3.20	-2.50	127.40	2,569.23	95.3	0.07	6.82	127.40	0.00	2,435.02
December	0.61	11.63	6.64	7.05	25.92	-2.21	-2.21	28.13	32.41	2.51	0.34	35.26	-13.80	-3.00	-1.70	81.90	2,435.02	90.3	0.06	5.12	81.90	0.00	2,347.99
Annual	7.8	202.5	96.7	196.8	503.8	58.2	58.2	445.6	361.0	383.7	14.7	759.4	660.9	232.9	123.1	188.1	n/a	n/a	2.8	273.9	597.2	409.12	n/a

Notes

(1) Based on Table 1
(2) Based on Table 2
(3) Based on Table 3
(4) Based on Table 4
(5) Greeley Irrigation Company (7 shares) are an based on actually amount that is calculated based on GCI diversion presented in VCI 2021 accounting. These credits are generally calculated based on parameters in Case No. 96CW658 (Aug Stations & GCI Supplies)
(6) Amount of Credit used based on Column (5).
(7) Equals Column (4) miss Column (6).
(8) Based on Table 5.
(9) Based on Table 6.
(10) Based on Table 7.
(11) Equals the sum of Columns (8 thru 10).
(12) Based on Table 13.
(13) Based on Decree No. 03CW306
(14) Based on Decree No. 90CW174.
(15) Based on Column (7) plus Column (11) minus Columns (12, 13, 14)).
(16) Starts with amount from 2023 Accounting, then equals column (25).
(17) Surface area based on Column (16), Resevoir Storage Area based 149 ac at 4018 af of total storage capacity
(18) Based on Longmont 2ESE Station and NOAA NWS 33 Analysis from Case No. 03CW306
(19) Equlas Column (17) times Column (18).
(20) Equals Column (15) if postive.
(21) Equals Column (15) if negative, times -1.
(22) Equals Column (16) minus Column (20) plus Column (21).

Table 16
Raptor Materials

Operations Study With Two Rivers Pit

	(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)		(17)	(18)	(19)	(20)	(21)	(22)	(23)
Month	Cache la Poudre River								St Vrain River								South Platte River		Beginning		Effective		Release	Storage	Ending
	Depletions					Augmentation Credits		Remaining	Depletions				Credits			Remaining	Depletions	Remaining	Reservoir	Surface	Evaporation	Evaporation			Reservoir
	Feit Well	Durham Pit	Wester Sugar Pit	Varra-Coulson Pit	Total	Greeley Irrigation Company Available	Used	Depletion	Bearson Pit	Kurtz Pit	Heintzelman Pit	Total	Last Chance Ditch Farms Available	Rural Ditch Available	Hayseed Ditch Available	Depletion	Two Rivers Pit	Depletion	Storage		Rate *43.0 in*				Storage
	(af)	*(af)*	*(af)*	*(af)*		*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	*(af)*	(ac)	(af/ac)	(af)	(af)	(af)	(af)
January	0.51	8.17	6.13	5.59	20.40	-1.99	-1.99	22.40	14.46	1.66	3.08	19.21	-10.60	-3.20	-1.30	56.71	-472.65	-415.95	2,810.00	104.2	0.07	7.49	0.00	415.95	3,097.00
February	0.50	6.82	5.75	7.50	20.57	-1.88	-1.88	22.46	11.53	16.03	2.41	29.97	-7.70	-3.00	-1.00	64.13	-282.03	-217.90	3,097.00	114.8	0.10	11.52	0.00	217.90	3,097.00
March	0.55	8.08	5.98	9.57	24.18	-1.77	-1.77	25.96	12.06	19.95	1.93	33.94	-6.70	-2.70	-0.90	70.19	299.61	369.81	3,097.00	114.8	0.17	20.09	369.81	0.00	2,707.10
April	0.63	10.58	6.51	13.35	31.07	3.88	3.88	27.19	13.84	31.92	1.57	47.34	6.80	10.20	9.20	48.33	180.79	229.12	2,707.10	100.4	0.30	29.97	229.12	0.00	2,448.01
May	0.69	14.42	7.42	17.30	39.83	9.92	9.92	29.92	18.45	39.35	1.27	59.08	74.97	40.20	16.90	-43.07	120.90	77.82	2,448.01	90.8	0.37	33.79	77.82	0.00	2,336.40
June	0.78	19.93	8.78	23.70	53.19	9.34	9.34	43.84	28.16	58.80	1.04	88.00	155.50	53.70	24.70	-102.06	85.30	-16.75	2,336.40	86.6	0.42	36.43	0.00	16.75	2,316.72
July	0.82	25.64	10.20	27.92	64.58	12.04	12.04	52.54	39.10	65.17	0.85	105.12	232.24	61.60	28.90	-165.08	64.40	-100.68	2,316.72	85.9	0.39	33.65	0.00	100.68	2,383.75
August	0.77	28.51	10.89	28.38	68.56	12.60	12.60	55.95	47.50	58.49	0.69	106.69	189.26	47.60	24.70	-98.92	50.78	-48.14	2,383.75	88.4	0.38	33.74	0.00	48.14	2,398.16
September	0.66	27.51	10.64	24.53	63.35	10.82	10.82	52.53	51.59	42.67	0.58	94.84	83.87	19.72	16.20	27.58	40.36	67.94	2,398.16	88.9	0.29	26.16	67.94	0.00	2,304.05
October	0.63	23.34	9.59	18.82	52.38	9.78	9.78	42.60	50.11	29.63	0.48	80.22	-23.06	15.00	9.90	120.98	31.21	152.19	2,304.05	85.4	0.18	15.80	152.19	0.00	2,136.06
November	0.66	17.85	8.21	13.05	39.76	-2.33	-2.33	42.09	41.74	17.55	0.41	59.70	-19.90	-3.20	-2.50	127.40	23.34	150.74	2,136.06	79.2	0.07	5.67	150.74	0.00	1,979.65
December	0.61	11.63	6.64	7.05	25.92	-2.21	-2.21	28.13	32.41	2.51	0.34	35.26	-13.80	-3.00	-1.70	81.90	17.33	99.23	1,979.65	73.4	0.06	4.17	99.23	0.00	1,876.26
Annual	7.8	202.5	96.7	196.8	503.8	58.2	58.2	445.6	361.0	383.7	14.7	759.36	660.9	232.9	123.1	188.1	159.3	347.4	n/a	n/a	2.8	258.5	1,146.9	799.4	n/a

Notes

(1) Based on Table 1
(2) Based on Table 2
(3) Based on Table 3
(4) Based on Table 4
(5) Greeley Irrigation Company (7 shares) are an based on actually amount that is calculated based on GCI diversion presented in VCI 2021 accounting. These credits are generally calculated based on parameters in Case No. 96CW658 (Aug Stations & GCI Supplies)
(6) Amount of Credit used based on Column (5).
(7) Equals Column (4) miss Column (6).
(8) Based on Table 5.
(9) Based on Table 6.
(10) Based on Table 7.
(11) Equals the sum of Columns (8 thru 10).
(12) Based on Table 13.
(13) Based on Decree No. 03CW306
(14) Based on Decree No. 90CW174.
(15) Based on Column (7) plus Column (11) minus Columns (12, 13, 14)).
(16) Starts with amount from 2023 Accounting, then equals column (25).
(17) Surface area based on Column (16), Resevoir Storage Area based 149 ac at 4018 af of total storage capacity
(18) Based on Longmont 2ESE Station and NOAA NWS 33 Analysis from Case No. 03CW306
(19) Equlas Column (17) times Column (18).
(20) Equals Column (15) if postive.
(21) Equals Column (15) if negative, times -1.
(22) Equals Column (16) minus Column (20) plus Column (21).

Table 17
Eagle Materials

Cache la Poudre Depletions, GIC Replacement, and Remaining Requirement

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Withdrawals					Replacement from 7 Shares of GIC					
Month	Feit (af)	Durham (af)	Western-Sugar (af)	Varra-Coulson (af)	Total Depletion (af)	Canal No. 3 Direct Delivery (af)	Lagged RF (af)	Fossil Creek Reservoir (af)	Lagged RF (af)	Delivery RF (af)	Remaining Requirement (af)
Jan	0.51	8.17	6.13	5.59	20.40	0.00	1.95	0.00	0.04	-1.99	22.40
Feb	0.50	6.82	5.75	7.50	20.57	0.00	1.84	0.00	0.04	-1.88	22.46
Mar	0.55	8.08	5.98	9.57	24.18	0.00	1.73	0.00	0.04	-1.77	25.96
Apr	0.63	10.58	6.51	13.35	31.07	8.54	4.63	0.00	0.04	3.88	27.19
May	0.69	14.42	7.42	17.30	39.83	18.29	8.38	0.06	0.05	9.92	29.92
Jun	0.78	19.93	8.78	23.70	53.19	17.96	8.59	0.00	0.03	9.34	43.84
Jul	0.82	25.64	10.20	27.92	64.58	22.26	10.32	0.20	0.10	12.04	52.54
Aug	0.77	28.51	10.89	28.38	68.56	21.81	10.27	1.65	0.59	12.60	55.95
Sep	0.66	27.51	10.64	24.53	63.35	19.81	9.56	0.93	0.36	10.82	52.53
Oct	0.63	23.34	9.59	18.82	52.38	18.83	9.11	0.17	0.11	9.78	42.60
Nov	0.66	17.85	8.21	13.05	39.76	0.00	2.28	0.00	0.05	-2.33	42.09
Dec	0.61	11.63	6.64	7.05	25.92	0.00	2.17	0.00	0.05	-2.21	28.13
Annual	7.81	202.48	96.75	196.76	503.80	127.51	70.82	3.00	1.50	58.19	445.61

Notes

(1) Based on Table 1.
(2) Based on Table 2.
(3) Based on Table 3.
(4) Based on Table 4.
(5) Equals the sum of Column (1 -4).
(6) From Case No. 96CW658 for 7 shares, data from GCI dashboard based on WY2021
(7) From Case No. 96CW658 for 7 shares
(8) From Case No. 96CW658 for 7 shares, data from GCI dashboard based on WY2021
(9) From Case No. 96CW658 for 7 shares
(10) Equals Column (6) minus Column (7) plus Column (8) minus Column (9).
(11) Equals Column (5) minus Col (10).

Table-18
Raptor Materials

Greeley Canal No. 3 and Fossil Creek Reservoir Delivery and Return Flow Estimates Based on Case 96CW0658

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*	*(17)*	*(18)*	*(19)*	*(20)*	*(21)*	*(22)*	*(23)*	*(24)*	*(25)*	*(26)*	*(27)*	*(28)*	*(29)*	*(30)*	*(31)*	*(32)*
	Canal No. 3											Fossil Creek											Total									
Month	Average 2020-2023 HG Deliveries * *(af)*	HG Deliveries 7 Shares** *(af)*	Ditch Loss *(af)*	Irrigation Deliveries *(af)*	HCU *(af)*	Return Flows *(af)*	Surface Returns *(af)*	Sub-surface Returns *(af)*	Lagged Returns *(af)*	Total Lagged Return Flows *(af)*	Delivery Return Flow *(af)*	Average 2020-2023 HG Deliveries* *(af)*	HG Deliveries 7 Shares** *(af)*	Ditch Loss *(af)*	Irrigation Deliveries *(af)*	HCU *(af)*	Return Flows *(af)*	Surface Returns *(af)*	Sub-surface Returns *(af)*	Lagged Returns *(af)*	Total Lagged Return Flows *(af)*	Delivery Return Flow *(af)*	HG Deliveries 7 Shares *(af)*	Ditch Loss *(af)*	Irrigation Deliveries *(af)*	HCU *(af)*	Return Flows *(af)*	Surface Returns *(af)*	Sub-surface Returns *(af)*	Lagged Returns *(af)*	Total Lagged Return Flows *(af)*	Delivery Return Flow *(af)*
J	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95	1.95	-1.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99	1.99	-1.99
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	1.84	-1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	1.88	-1.88
M	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	1.73	-1.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77	1.77	-1.77
A	1260.96	8.54	1.28	7.26	3.79	3.47	1.72	1.75	1.63	4.63	3.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	-0.04	8.54	1.28	7.26	3.79	3.47	1.72	1.75	1.66	3.38	3.88
M	2701.64	18.29	2.74	15.55	8.12	7.43	3.68	3.75	1.95	8.38	9.91	8.22	0.06	0.01	0.05	0.03	0.02	0.01	0.01	0.03	0.05	0.00	18.35	2.75	15.60	8.14	7.45	3.69	3.76	1.98	5.68	9.92
J	2653.23	17.96	2.69	15.27	7.97	7.30	3.62	3.68	2.28	8.59	9.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	-0.03	17.96	2.69	15.27	7.97	7.30	3.62	3.68	2.31	5.93	9.34
J	3288.40	22.26	3.34	18.92	9.88	9.05	4.49	4.56	2.49	10.32	11.95	28.81	0.20	0.03	0.17	0.10	0.07	0.03	0.03	0.04	0.10	0.09	22.46	3.37	19.09	9.98	9.11	4.52	4.60	2.53	7.05	12.04
A	3221.15	21.81	3.27	18.54	9.68	8.86	4.39	4.47	2.60	10.27	11.54	243.34	1.65	0.25	1.40	0.83	0.57	0.28	0.29	0.06	0.59	1.06	23.46	3.52	19.94	10.50	9.44	4.67	4.76	2.66	7.34	12.60
S	2926.21	19.81	2.97	16.84	8.79	8.05	3.99	4.06	2.60	9.56	10.25	137.84	0.93	0.14	0.79	0.47	0.33	0.16	0.17	0.06	0.36	0.57	20.75	3.11	17.63	9.26	8.37	4.15	4.22	2.66	6.82	10.82
O	2781.07	18.83	2.82	16.01	8.35	7.65	3.79	3.86	2.49	9.11	9.72	24.79	0.17	0.03	0.14	0.08	0.06	0.03	0.03	0.05	0.11	0.06	19.00	2.85	16.15	8.44	7.71	3.82	3.89	2.55	6.37	9.78
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.28	2.28	-2.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	-0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33	2.33	-2.33
D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	2.17	-2.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	-0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.21	2.21	-2.21
Total	18832.65	127.51	19.13	108.38	56.58	51.81	25.69	26.12	26.01	70.82	56.68	443	3.00	0.45	2.55	1.50	1.05	0.51	0.53	0.54	1.50	1.50	130.51	19.58	110.93	58.08	52.85	26.20	26.65	26.55	52.75	58.19

Notes:

(1) Average 2020-2023 HG Deliveries from Company Records
(2) Prorated to 7 shares plus limited to average 10-year running limit
(3) 15% of Column (2)
(4) Column (2) minus Column (3)
(5) Column (4) times 0.522
(6) Column (4) minus Column (5)
(7) Column (4) times 0.237
(8) Column (6) minus column (7)
(9) Total Yearly Irrigation Deliveries (Column (4)) times RF Factors
(10) Column (3) plus Column (7) plus Column (9)
(11) Column (2) minus Column (10)
(12) Average 2020-2023 HG Deliveries from Company Records
(13) Prorated to 7 shares plus limited to average 10-year running limit
(14) 15% of Column (13)
(15) Column (13) minus Column (14)
(16) Column (15) times 0.522
(17) Column (15) minus Column (16)
(18) Column (15) times 0.237
(19) Column (17) minus column (18)
(20) Total Yearly Irrigation Deliveries (Column (15)) times RF Factors
(21) Column (14) plus Column (718 plus Column (20)
(22) Column (13) minus Column (21)
(23) Column (2) plus Column (13)
(24) Column (3) plus Column (14)
(25) Column (4) plus Column (15)
(26) Column (5) plus Column (16)
(27) Column (6) plus Column (17)
(28) Column (7) plus Column (18)
(29) Column (8) plus Column (19)
(30) Column (9) plus Column (20)
(31) Column (10) plus Column (21)
(32) Column (11) plus Column (22)

* HG Diversions for April are limited to 4/15-4/30

** Prorated from actual 2020-2023 diversions to result in a total Greeley Canal No. 3 and Fossil Creek Reservoir releases of 18.664 af-ft per share or 130.51 ac-ft.

Table 19
Raptor Materials

Two Rivers Initial Dewatering Depletions

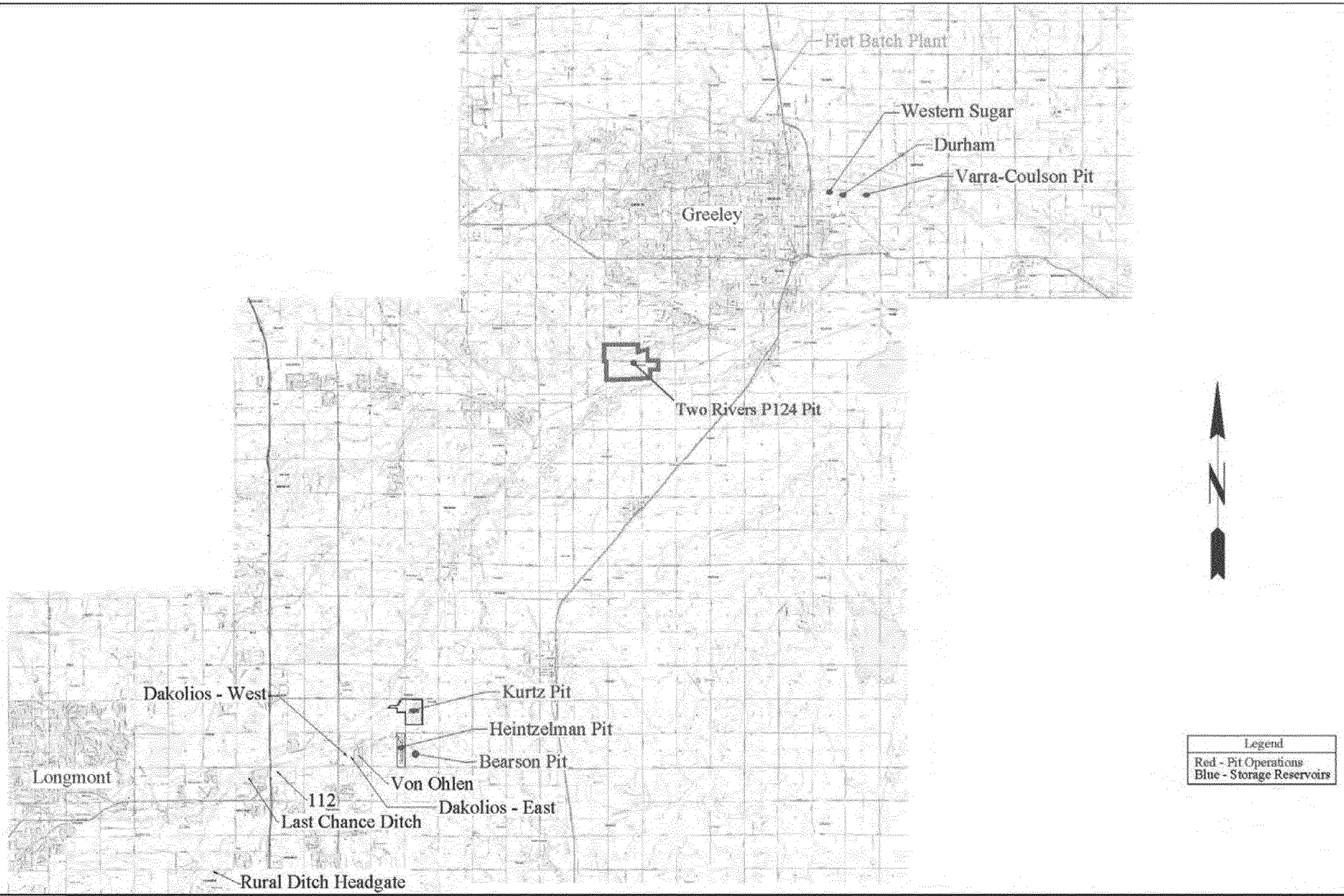
Month	(1) Dewatering (Returned to River) (af)	(2) Lagged Depletion (af)	(3) Total River Depletion (af)
Jan	591.4	117.54	-473.90
Feb	591.4	305.51	-285.93
Mar	0	293.21	293.21
April	0	171.53	171.53
May	0	108.26	108.26
Jun	0	68.54	68.54
Jul	0	43.40	43.40
Aug	0	27.48	27.48
Sept	0	17.40	17.40
Oct	0	11.01	11.01
Nov	0	6.97	6.97
Dec	0	4.42	4.42
Annual	1,182.87	1175.25	-7.62

Notes

(1) Initial dewatering is for 2 months at 4,400 GPM

(2) Based on AWAS Calculations (T=100,000, S=0.28, W=2,800', X=1,500').

(3) Equals Column (2) minus Column (3).



RESPEC CONSULTING & SERVICES
720 South Colorado Blvd., Suite 410S
Denver, CO 80246
Phone: 303 757 3655
www.respec.com

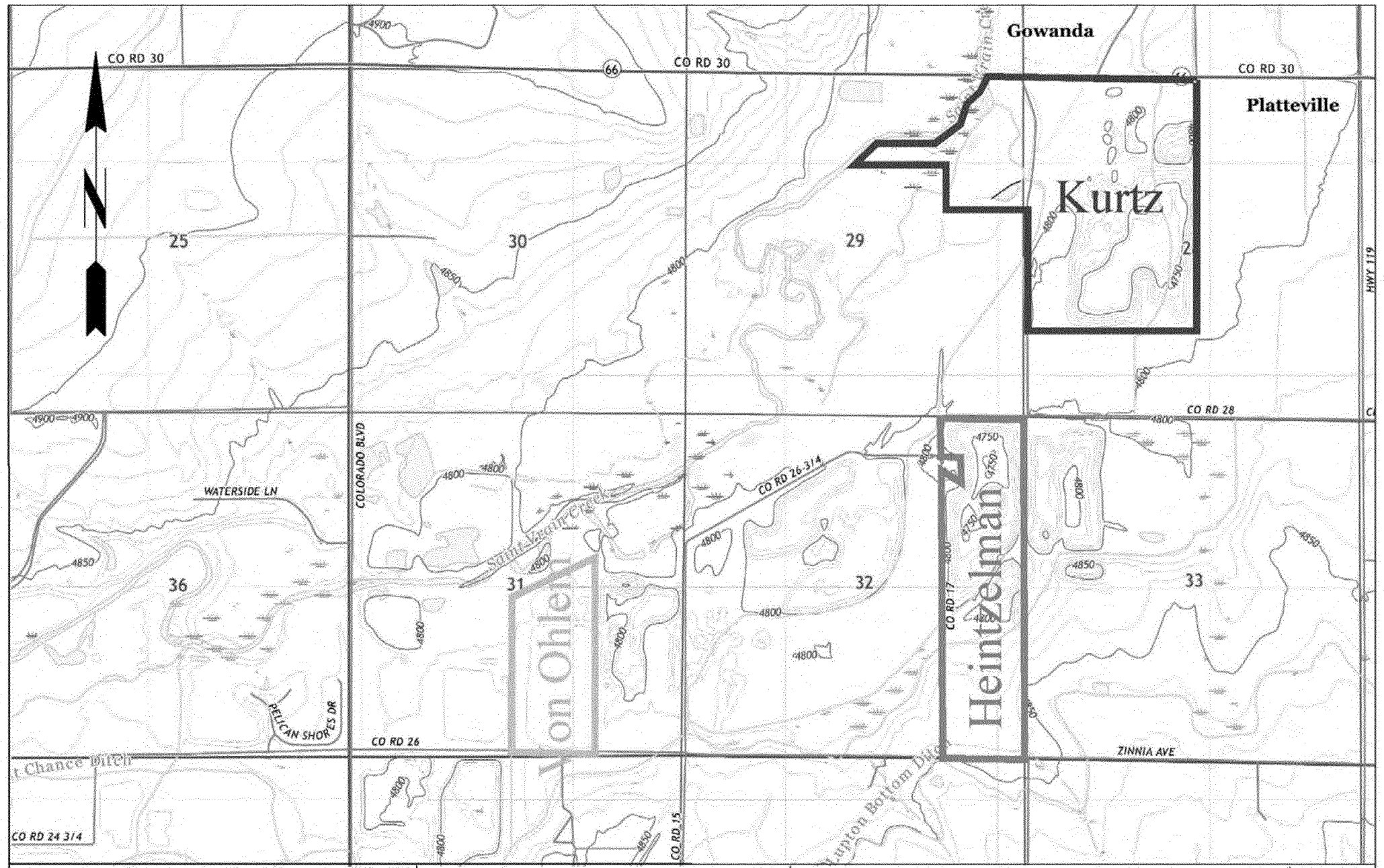
Raptor Materials

2023 SWSP Submittal

General Location Map

Date: 12- 28-2022 *Scale: nts*

Figure 1



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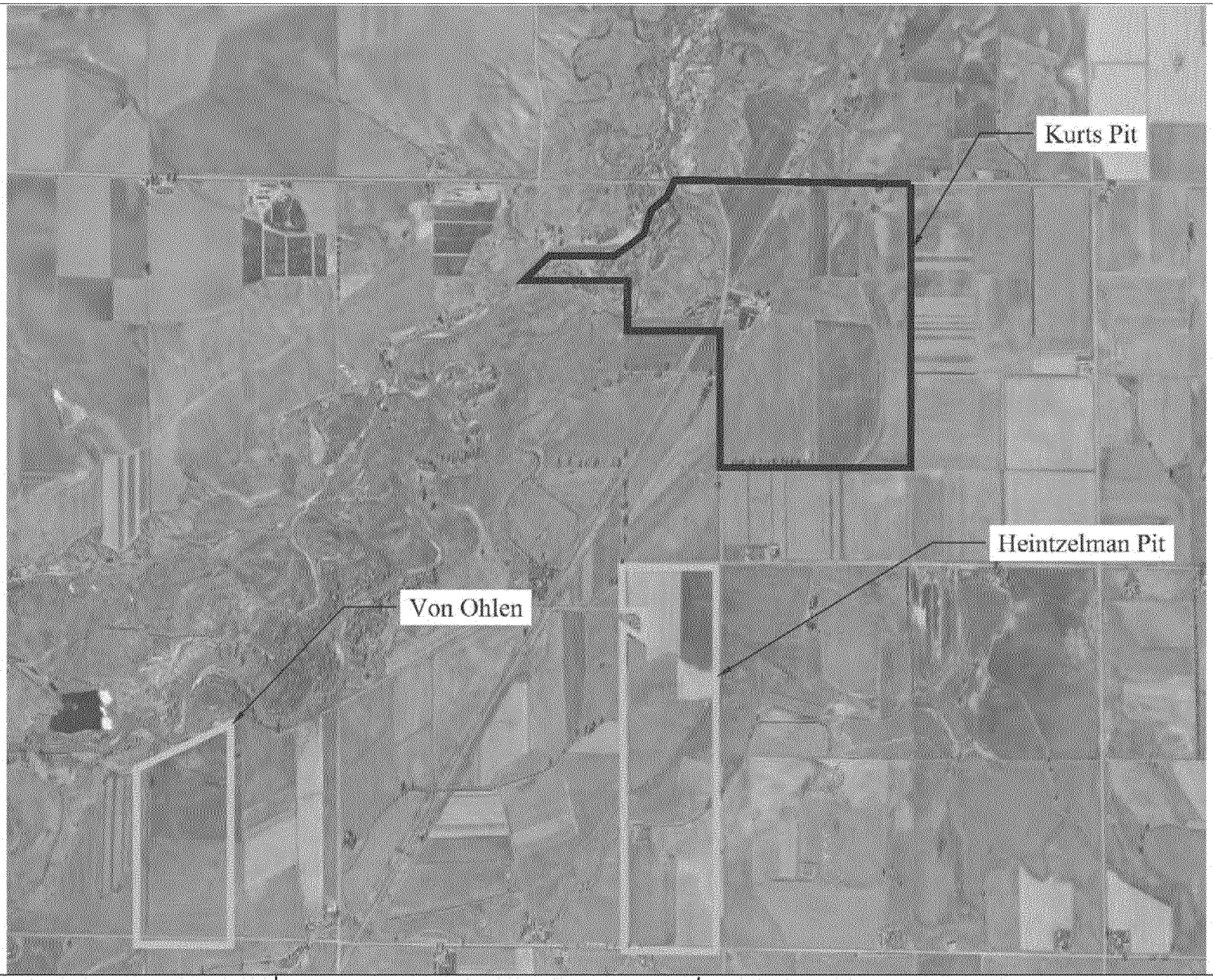
1969 Aerial Map - Historic Irrigated Farms
Date: 12- 28-2022

Figure 2

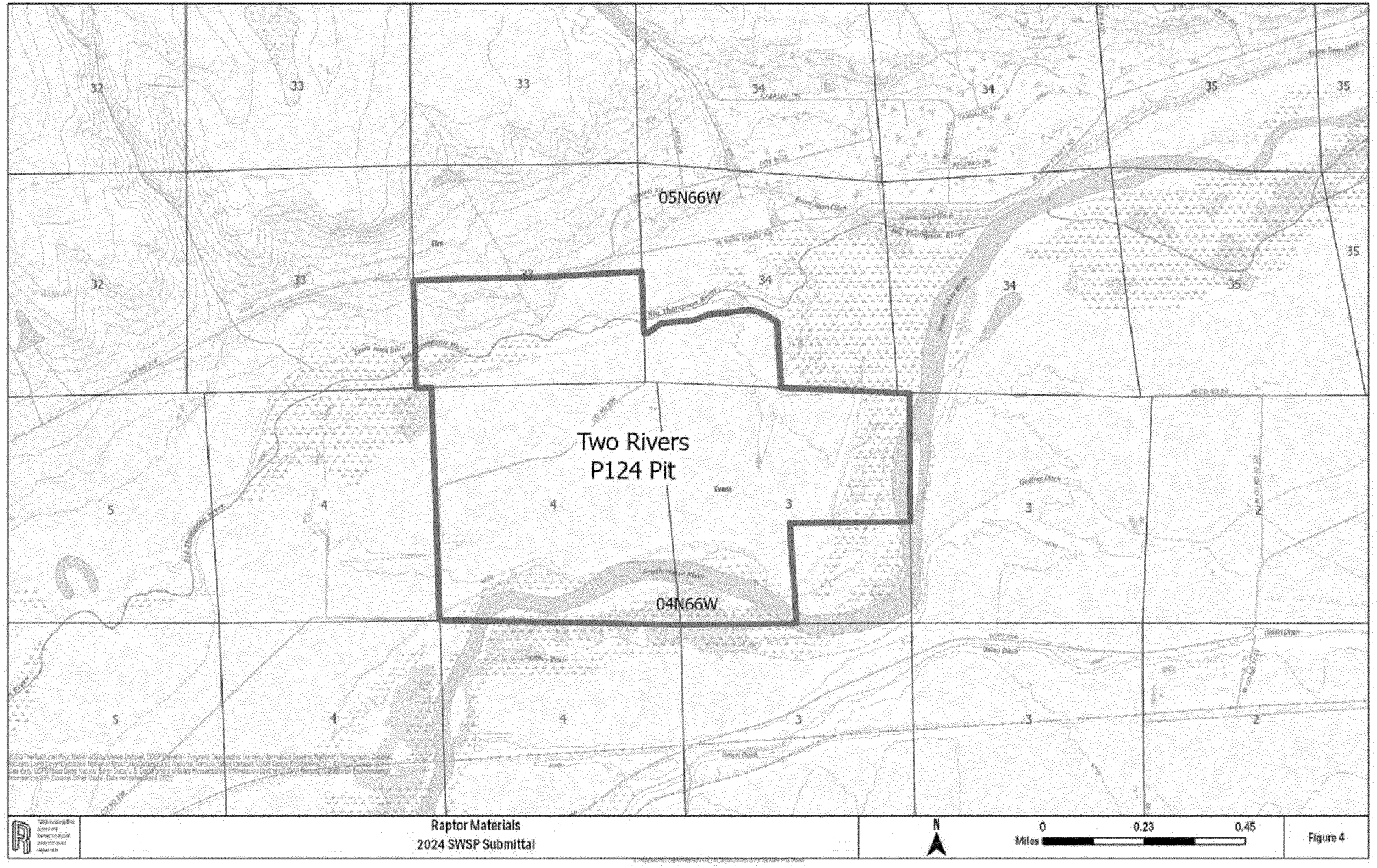


RESPEC CONSULTING & SERVICES
720 South Colorado Blvd., Suite 410S
Denver, CO 80246
Phone: 303 757 3655
www.respec.com

Raptor Materials
2023 SWSP Submittal

1969 Aerial Map - Historic Irrigated Farms
Date: 12- 28-2022
Scale: 1" = 2000'

Figure 3

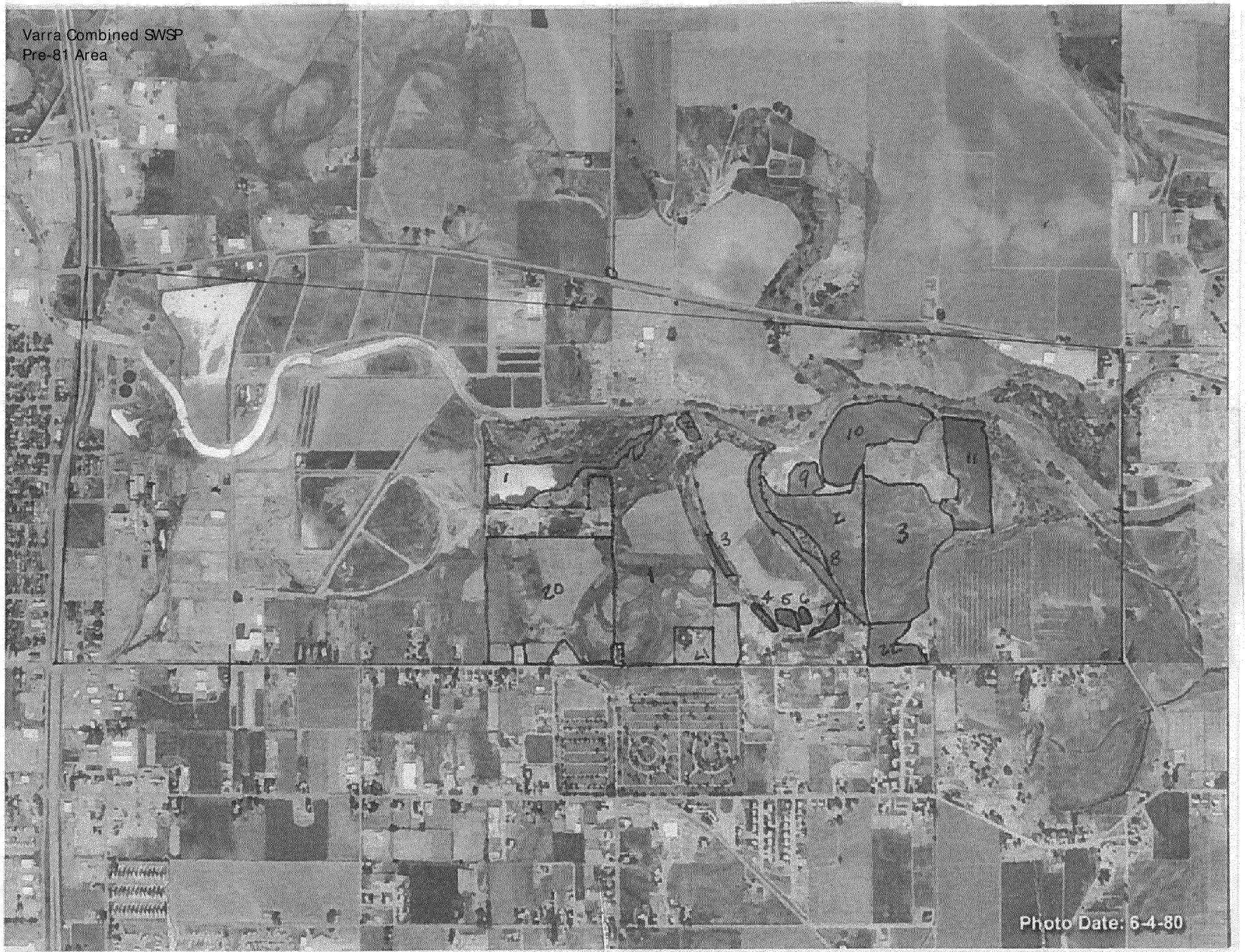


Raptor Materials
2024 SWSP Submittal

N

0 0.23 0.45
Miles

Figure 4


Varra Combined SWSP
Pre-81 Area
Photo Date: 6-4-80

4821928 04/26/2022 03:19 PM
Total Pages: 8 Rec Fee: $48.00
Carly Koppes - Clerk and Recorder, Weld County , CO

Eagle Materials Inc.
5960 Berkshire Lane, Suite 900
Dallas, TX 75225
Attn: General Counsel
Email: jgraass@eaglematerials.com

MEMORANDUM OF AGREEMENT

THIS MEMORANDUM OF AGREEMENT is made as of April 22, 2022, by and between VARRA COMPANIES, INC., a Colorado corporation ("***Varra***"), with an address at 12618 County Road 13, Longmont, CO 80504, Garrett Varra and Peter Varra (collectively Garrett Varra and Peter Varra are the "***Reservoir Owners***") and Raptor Materials LLC, a Delaware limited liability company ("***Lessee***"), with an address at 5960 Berkshire Lane, Suite 900, Dallas, TX 75225.

RECITALS:

A. Pursuant to that certain Water Rights Agreement dated April 22, 2022 (the "***Agreement***"), by and between Varra, Reservoir Owners and Lessee, Varra leases to Lessee and Lessee leases from Varra certain water rights, which are described more particularly on Exhibit A attached hereto and incorporated herein by this reference (as more fully described in the Agreement, and hereinafter defined, the "***Leased Water Rights***").

B. The Dakolios East and West Reservoirs and Von Ohlen Reservoir owned by Varra are used to store all or portions of the Leased Water Rights, and the 112 Reservoir owned by Varra and the Reservoir Owners are used to store all or portions of the Leased Water Rights, all as more particularly described on Exhibit A (collectively the "***Reservoirs***").

C. Varra owns property on which a pond is located (the "***Pond Property***"), which is described more particularly on Exhibit A, and water from the Pond may be used as described in the Agreement.

D. Varra, Reservoir Owners and Lessee desire to place of record their respective interests under the Agreement.

NOW, THEREFORE, in consideration of the Agreement and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Varra, Reservoir Owners and Lessee hereto agree as follows:

1. Water Rights. Varra, Reservoir Owners and Lessee are parties to the Agreement pursuant to which the Leased Water Rights are leased.

2. Term. As used herein, the term "***Term***" shall mean the term of the Agreement, which will commence on April 22, 2022 (the "***Commencement Date***") and will expire on the date that is forty (40) years after the Commencement Date, unless earlier terminated, as provided in the Agreement.

3. Memorandum. This Memorandum of Agreement has been executed and delivered by the parties for the purpose of recording and giving notice that a contractual relationship for the leasing of the Leased Water Rights has been created between Varra, Reservoir Owners and Lessee in accordance with the terms, covenants and conditions of the Agreement.

4. Lessee's Right to Purchase. Pursuant to the Agreement, for a period of twenty (20) years after the Commencement Date or the earlier termination or expiration of the Agreement, Varra and the Reservoir Owners have granted Lessee the right to purchase the Leased Water Rights, Reservoirs, and Pond Property as further described in the Agreement.

5. Lessee's Right of First Refusal. Pursuant to the Agreement, Lessee has a right of first refusal to purchase the Leased Water Rights, Reservoirs, and Pond Property from Varra and/or the Reservoir Owners during the Term, subject to the terms and conditions contained in the Agreement.

6. Incorporation by Reference. The terms, covenants and conditions of the Agreement are incorporated by reference into this Memorandum of Agreement as if set forth fully herein. In the event of any conflict between the Agreement and this Memorandum of Agreement, the Agreement shall control. All capitalized terms used herein and not otherwise defined shall have the meanings given to such terms in the Agreement.

7. Counterparts. This Memorandum of Agreement may be executed in counterparts and, when counterparts of this Memorandum of Agreement have been executed and delivered by all of the parties hereto, this Memorandum of Agreement shall be fully binding and effective, just as if all of the parties hereto had executed and delivered a single counterpart hereof.

[SIGNATURES APPEAR ON THE FOLLOWING PAGE]

IN WITNESS WHEREOF, the parties have executed this Memorandum of Agreement as of the day and year first above written.

VARRA:

VARRA COMPANIES, INC.,
a Colorado corporation

By _____
Name: Garrett Varra
Its: President

STATE OF COLORADO)
)ss.
COUNTY OF BOULDER)

The foregoing instrument was acknowledged before me this 20th day of April, 2022, by Garrett Varra as President of Varra Companies, Inc., a Colorado corporation.

Witness my hand and official seal.

My commission expires: _____.

JAYNIE R POOLE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19934016730
MY COMMISSION EXPIRES NOVEMBER 20, 2025

Jaynie R. Poole
Notary Public

LESSEE:

Raptor Materials LLC,
a Delaware limited liability company

By _____
Name: Bill Devlin
Its: Vice President

STATE OF Texas)
)ss.
COUNTY OF Dallas)

The foregoing instrument was acknowledged before me this 20th day of April, 2022, by Bill Devlin as VP of Raptor Materials LLC, a Delaware limited liability company.

Witness my hand and official seal.

My commission expires: 7/23/2025.

_____
Notary Public

Angela Camille Kelley
My Commission Expires
7/23/2025
Notary ID
12011468

RESERVOIR OWNERS:

Garrett Varra

Peter Varra

STATE OF COLORADO)
)ss.
COUNTY OF BOULDER)

The foregoing instrument was acknowledged before me this 20th day of April, 2022, by Garrett Varra.

Witness my hand and official seal.

My commission expires: _____.

JAYNIE R POOLE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19934016730
MY COMMISSION EXPIRES NOVEMBER 20, 2025

Jaynie R. Poole
Notary Public

STATE OF COLORADO)
)ss.
COUNTY OF BOULDER)

The foregoing instrument was acknowledged before me this 20th day of April, 2022, by Peter Varra.

Witness my hand and official seal.

My commission expires: _____.

JAYNIE R POOLE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19934016730
MY COMMISSION EXPIRES NOVEMBER 20, 2025

Jaynie R. Poole
Notary Public

Exhibit A to Memorandum of Lease

Description of the Leased Water Rights

I. Storage Water Rights for 112 Reservoir, Dakolios Reservoirs and Von Ohlen Reservoir (the "Reservoirs"):

a. Total of 3542.3 acre-feet absolute water rights, and 413.7 acre-feet conditional water rights for Reservoirs. Conditional water rights for the Reservoirs were originally determined and adjudicated by the decree entered in Case No. 2001CW274[1]. 1903.2 acre-feet of the water rights for the Reservoirs decreed absolute by the decree entered in Case No. 2014CW3206. An additional 1,639.1 acre-feet of the water rights for the Reservoirs decreed absolute by the decree entered in Case No. 2017CW3144.

b. One refill in the total amount of 3,000 acre-feet for storage in the Reservoirs decreed by the decree entered in Case No. 2001CW274.

c. Conditional filling rates originally decreed by the decree entered in Case No. 2001CW274 for Storage in the Reservoirs, with portions subsequently made absolute by decrees entered in Case No. 2014CW3206 or Case No. 2017CW3144:

1. VCI Godding Ditch Diversion from Idaho Creek – 90 cfs conditional for storage.
2. VCI Rural Ditch Diversion from Boulder Creek – 47.8 cfs conditional and 42.2 cfs absolute for storage.
3. VCI Rural Ditch Diversion from Idaho Creek – 64.81 cfs conditional and 25.19 cfs absolute for storage.
4. VCI Godding Hollow Diversion – 0.41 cfs conditional and 9.59 cfs absolute for storage.
5. VCI Last Chance Ditch Diversion – 97.22 cfs conditional and 2.78 cfs absolute for storage.
6. Water tributary to properties – 190 cfs absolute.

II. Conditional Direct Flow Water Rights determined and adjudicated by the decree entered in Case No. 2001CW274 in an amount not to exceed 11 cfs for the following:

a. VCI Godding Ditch Diversion from Idaho Creek.
b. VCI Rural Ditch Diversion from Boulder Creek.
c. VCI Rural Ditch Diversion from Idaho Creek.
d. VCI Godding Hollow Diversion.
e. VCI Last Chance Ditch Diversion.

III. Augmentation Plan approved by the decree entered in Case No. 03CW306.

IV. The 2.0 cfs of Hayseed Ditch water rights, changed by the decree entered in Case No. 90CW174.

---

[1] All water court decrees identified in this exhibit are in Water Division 1, for the District Court of the State of Colorado, Weld County.

V. The water rights represented by the following shares of capital stock in The Rural Ditch Company:
a. 1 ½ shares, Certificate No. 343
b. 3 ½ shares, Certificate No. 401
c. 2 shares, Certificate No. 421
d. Change of water rights for 4 of the 7 shares approved by the decree entered in Case No. 03CW306.

VI. The water rights represented by the following shares of capital stock in The Last Chance Ditch Company:
a. 5/9 share, Certificate No. 87
b. 5 shares, Certificate No. 89
c. 1 ¾ shares, Certificate No. 93
d. ¼ share, Certificate No. 94

VII. The water rights represented by the following shares of capital stock in The Godding Ditch Company:
a. 12 shares, Certificate No. 303
b. 1 share, Certificate No. 306
c. 12 shares, Certificate No. 312
d. 1 share, Certificate No. 337

VIII. The water rights represented by the following shares of capital stock in The Greeley Irrigation Company:
a. 1 share, Certificate No. 3416
b. 1 share, Certificate No. 3438

IX. The water rights represented by 12 shares of the capital stock in The Bee Line Ditch Company with Stock Certificate No. 343.

X. The water rights represented by 4 shares of the capital stock in The Bee Line Ditch Company with Stock Certificate No. ____.

XI. The water rights represented by 9 shares of the capital stock in The Big Thompson and Platte River Ditch Company with Stock Certificate No. 253.

XII. The water rights represented by 4 shares of the capital stock in The Big Thompson and Platte River Ditch Company with Stock Certificate No. ___.

XIII. The water rights represented by 2 shares of the capital stock in The Lower Latham Ditch Company with Stock Certificate No. 1632.

Legal Descriptions for Reservoirs

112 Reservoir: The 112 Reservoir is in the south half of Section 2, T. 2 N., R. 68 W, 6th P.M., Weld County, Colorado. The center of the reservoir is located approximately 2,600 feet west of the east section line of said Section 2 and approximately 1,300 feet north of the south section line of said Section 2.

Dakolios Reservoirs: The Dakolios Reservoirs are in the southwest quarter of Section 31, T. 3 N., R. 67 W, 6th P.M., Weld County, Colorado. The center of the reservoirs is located approximately 1,230 feet east of the west section line of said Section 31 and approximately 1,400 feet north of the south section line of said Section 31.

Von Ohlen Reservoir: Von Ohlen Reservoir is in the southeast quarter of Section 31, T. 3 N., R. 67 W, 6th P.M., Weld County, Colorado. The center of the reservoir is located approximately 1,800 feet west of the east section line of said Section 31 and approximately 1,400 feet north of the south section line of said Section 31.

Legal Description for Pond Property

LOT 2A, VARRA-STAR MINOR SUBDIVISION, FIRST REPLAT recorded December 26, 2019 at Reception No. 4553178 of the records of Weld County Clerk and Recorder, located in the SE1/4 of Section 26, Township 6 North, Range 66 West of the 6th P.M, County of Weld, State of Colorado.

All that portion of the SE1/4 of the SE1/4 of Section 26, Township 6 North, Range 66 West of the 6th P.M. lying South of "O" Street, also known as County Road No. 64, EXCEPTING therefrom River View Subdivision, recorded December 14, 1977 at Reception No. 1738761 of the records of the Weld County Clerk and Recorder, County of Weld, State of Colorado.

Weld County Parcel #s 080526405003 and 080526000045.

WHEN RECORDED RETURN TO:

Davis Graham & Stubbs LLP
1550 17th Street, Suite 500
Denver, Colorado 80202
Attn: Chris Lane

SHORT FORM OF AGGREGATES SUBLEASE

This SHORT FORM OF AGGREGATES SUBLEASE (this "Short Form") is made and entered into as of the 22nd day of April, 2022 (the "Effective Date"), by and between Varra Companies, Inc., a Colorado corporation, whose address is 12618 County Road 13, Longmont, CO 80504 ("Sublessor"), and Raptor Materials LLC, a Delaware limited liability company, whose address is 5960 Berkshire Lane, Suite 900, Dallas, TX 75225 ("Subtenant").

RECITALS

A. Sublessor is the Lessee under that Sand & Gravel Mining Lease dated as of February 4, 1985 (as amended, the "Lease") between Doeringsfeld and Aratas, a Partnership d.b.a. Doeringsfeld and Aratas, a Joint Venture ("Lessor") and M.S. Corp., a Colorado corporation, as tenant ("Original Lessee"). Pursuant to that certain Assignment of Lease dated November 17, 1998, Original Lessee assigned all of its right, title and interest under the Lease to Sublessor, and the parties thereto amended certain provisions of the Lease. [A memorandum of the Lease was recorded in the official records of Weld County, Colorado, on _____, 2022, at Doc. No. _____.]

B. Pursuant to the terms of the Lease, Sublessor has the right to extract all sand, gravel, rock, clay, topsoil, squeegee and other aggregate (collectively, "Material") and to conduct operations associated therewith on certain real property owned by Lessor in Weld County, Colorado, as more particularly described on **Exhibit A** attached hereto (the "Property").

C. Sublessor and Subtenant are parties to that certain Aggregates Sublease dated _____ __, 2022 (the "Sublease"), pursuant to which Sublessor granted to Subtenant certain rights to explore for, develop and mine Material from the Property, as described in Section 1 below.

D. Sublessor and Subtenant now wish to execute this Short Form for the purposes of (i) confirming that grant of rights from Sublessor to Subtenant under the Sublease and other provisions of the Sublease pertaining to the Property, and (ii) providing record notice of the Sublease. Capitalized terms used but not defined herein shall have the meanings ascribed to such terms in the Sublease.

AGREEMENT

In consideration of the rights and obligations of the parties under the Sublease, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the parties hereto, Sublessor and Subtenant hereby promise and agree as follows:

1. **Grant of Rights**.

(a) Sublease of Property. Subject to the limitations contained in the Sublease and all exclusions and reservations of Lessor contained in the Lease, Sublessor has granted pursuant to the Sublease, and hereby grants, to Subtenant the right to enter upon and use the Property for the purposes of, but not limited to, surveying, exploring for and defining the extent and quality of, all Material of every kind and character whatsoever in, on and under the Property, and for the purposes of, but not limited to, developing, mining, stockpiling, milling, treating, processing, removing, shipping, marketing and selling or otherwise disposing of such Material by whatever methods Subtenant may deem appropriate, whether now known or hereafter developed, including but not limited to strip, surface, and open-pit mining (all of the activities described above and in Subsections 1(b) through (d) below being collectively referred to as "Operations"), together with all easements and all rights-of-way for ingress to and egress from and across the Property to which Sublessor may be entitled, in each case, to the extent permitted in the Lease. Sublessor and Subtenant each acknowledge and agree that Lessor has reserved all right, title and interest in all oil, gas, coal and other hydrocarbons in, on or under the Property, and that the term "Material" does not include any such substances.

(b) Additional Rights to Use of Property. Sublessor has granted pursuant to the Sublease, and hereby grants, to Subtenant the right and privilege, in each case, to the extent permitted in the Lease:

(i) to use the Property for any purposes, including but not limited to the deposit, storage, stockpiling and/or, in coordination with Sublessor based upon Sublessor's obligation to reclaim the land pursuant to that reclamation plan as set forth in DRMS Permit No. M1978-056 (the "DRMS Permit"), permanent disposal of any broken rock, mine and other waste material, including but not limited to residues, overburden or other byproducts of development, mining, production or other activities associated with Subtenant's Operations;

(ii) to construct, use, maintain, repair, replace and relocate buildings, roads, mills, processing facilities, shops, plants, machinery, living accommodations, treatment facilities, power lines, utilities, communication lines, waste dumps, ponds, railroad corridors, loadout facilities, conveyors, ditches, pipelines, and open pits and, without limitation, other permanent or temporary improvements and facilities in, on and under the Property as Subtenant may consider reasonably necessary, convenient, suitable for or incidental to any of its Operations;

(iii) to use and upgrade existing roads or trails anywhere on the Property, and to construct new roads on the Property, as may be reasonably necessary, convenient, suitable for or incidental to any of its Operations;

(iv) to use, destroy, mine or cave so much of the surface and subsurface of the Property as may be necessary, convenient, suitable for or incidental to any of the rights and privileges of Subtenant under the Sublease or otherwise reasonably necessary or convenient for the purposes set forth in the Sublease without any obligation to preserve any portion of the same to the extent that such use, destruction, mining, or caving does not materially interfere with Sublessor's reclamation plan as set forth in the DRMS Permit, including Sublessor's ability to use waste materials on the Property to complete same, and subject to Subtenant's obligation to comply with all applicable Laws and Subtenant's indemnification obligations under the Sublease;

(v) to exercise all other rights which are incidental to any or all of the rights specified above, and to use so much of the Property and all easements and rights-of-way appurtenant thereto in such a manner as may be reasonably useful, necessary, convenient or suitable for Subtenant's Operations; and

(vi) to apply for permits as required by any Governmental Authority to conduct its Operations.

(c) Sublessor Access. Subject to Section 1(e), and upon reasonable notice to Subtenant, Sublessor shall have access to the Property for purposes of ingress and egress in relation to reclamation and water related activities on the Property and adjacent properties owned or controlled by Sublessor.

(d) Cross-Development. The rights granted to Subtenant in this Agreement to use the surface of the Property and to construct and use buildings, roads, power and communication lines, workings and other improvements located in, on or under the Property, may be exercised by Subtenant in connection with its Operations, as well as in connection with mineral rights in and under lands in the general vicinity of the Property which are acquired by or leased to Subtenant from third parties, or which are otherwise controlled by Subtenant, provided that Subtenant exercises its rights under this Section 1(d) in a manner that would not materially interfere with Sublessor's reclamation plan for the Property as set forth in the DRMS Permit.

(e) Non-interference. Sublessor shall not enter upon or interfere with the Operations, and shall not authorize any of Sublessor's affiliates, subsidiaries, guests, licensees, permittees, invitees, lessees, contractors, agents, or representatives to enter upon or interfere with the Operations, without the prior consent of Subtenant or as otherwise authorized under the Sublease.

(f) Cooperation. With respect to the Property and Subtenant's Operations thereon, Sublessor shall cooperate with Subtenant's reasonable requests concerning easements, dedications, permitting, zoning, and obtaining any approval from Governmental Authorities for easements, dedications, permitting and zoning variances, including (i) joining with Subtenant in

executing and delivering such documents as may be appropriate, necessary, or required by governmental agencies, public utilities, and companies and (ii) executing such documents, petitions, applications, and authorizations as are appropriate or required for obtaining permits, zoning and re-zoning, variances, or other governmental approval or authorization as reasonably necessary for Subtenant's Operations. Sublessor shall not plat, obtain zoning, seek rezoning, or object to rezoning of the Property in any way that adversely affects the Property or Subtenant's use of the Property without the prior written consent of Subtenant. Nothing in this Section or this Agreement shall be interpreted to require Sublessor to take any action which could violate any provision of the Lease.

2. Term of Sublease. The term of the Sublease ("Term") shall commence upon the Effective Date and shall continue in full force and effect until April 30, 2025, unless earlier terminated pursuant to the provisions of the Sublease.

3. Assignment.

(a) By Subtenant. Subtenant shall have the right to assign the Sublease in whole or in part at any time during the term hereof only with the prior written consent of Sublessor, which consent shall not be unreasonably withheld, conditioned or delayed, and of Lessor, which consent shall not be unreasonably withheld, conditioned or delayed, in accordance with the Lease. Any such assignment or sublease shall be expressly made subject to all the terms, conditions and covenants of the Sublease. Upon any assignment by Subtenant of its interests under the Sublease made with Sublessor's and Lessor's prior written consent, Subtenant shall have no ongoing obligations or liabilities under the Sublease.

(b) By Sublessor. Any conveyance by Sublessor of its interest in the Lease or the Property or assignment of its rights under the Sublease shall be subject to the Sublease and shall not be binding upon Subtenant until 30 days following written notice and receipt by Subtenant of the original or a certified copy of the recorded instrument effecting such conveyance or assignment, in which the transferee assignee agrees to assume and be bound by all of the terms and conditions of the Sublease. Any conveyance by Sublessor of all or any portion of its leasehold interest in the Property which does not comply with the provisions of this Subsection 3(b) shall be null and void.

4. Inurement. Subject to the provisions of Section 3 above, the Sublease is, and shall be, binding upon and inure to the benefit of the heirs, representatives, successors and assigns of the parties hereto. During the Term, the Sublease shall be deemed a covenant running with the Property and shall be binding upon any purchaser from, and the successors and assigns of, the parties hereto.

5. Relationship of Parties. The relationship of the parties hereto is contractual only. Neither this Short Form nor the Sublease, nor any related documents to which Subtenant and Sublessor are parties creates a joint venture, partnership, agency relationship or fiduciary duty, and no joint venture, partnership, agency relationship or fiduciary duty shall be deemed to exist, between Subtenant and Sublessor.

6. Execution. This Short Form may be executed in counterparts and, when counterparts of this Short Form have been executed and delivered by the parties hereto, this Short Form shall be fully binding and effective, just as if all of the parties hereto have executed and delivered a single counterpart hereof.

7. Effect. Nothing in this Short Form shall limit or conflict with any o the rights and duties of the parties under the Sublease, and in the event of any conflict between the terms and provisions of this Short Form and the terms and provisions of the Sublease, the terms and provisions of the Sublease shall prevail. The terms, covenants and conditions of the Sublease are incorporated by reference into this Short Form as if set forth fully herein.

8. Governing Law. The Sublease and this Short Form shall be construed and enforced in accordance with the laws of the State of Colorado, other than its rules as to conflicts of law which would result in the imposition of the laws of some other jurisdiction.

9. Counterparts. This Short Form may be executed in multiple counterparts, and all such counterparts taken together shall be deemed to constitute a single document binding on the parties.

[Signature Pages Follow]

IN WITNESS WHEREOF, the parties hereto have executed this Short Form, intending that it be valid and effective from and after the day and year first written above.

SUBLESSOR
VARRA COMPANIES, INC.,
a Colorado corporation

By: _____
Name: Garrett Varra
Title: President

ACKNOWLEDGMENTS

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

This instrument was acknowledged before me on April 20, 2022, by Garrett Varra, as President of Varra Companies, Inc., a Colorado corporation.

Witness my hand and official seal.

My Commission expires: _____

JAYNIE R POOLE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19934016730
MY COMMISSION EXPIRES NOVEMBER 20, 2025

_____
Notary Public

SUBTENANT

RAPTOR MATERIALS LLC,
a Delaware limited liability company

By: _____

Name: Bill Devlin

Title: Vice President

ACKNOWLEDGMENT

STATE OF Texas)
) ss.
COUNTY OF Dallas)

This instrument was acknowledged before me on April 20th, 2022, by Bill Devlin, as VP of Raptor Materials LLC, a Delaware limited liability company.

Witness my hand and official seal.

My Commission expires: 7/23/25

_____
Notary Public

Angela Camille Kelley
My Commission Expires
7/23/2025
Notary ID
12011468

EXHIBIT A

The Property

LEGAL DESCRIPTION:

A PARCEL OF LAND SITUATED IN THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER AND THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 3, THE NORTH HALF OF SECTION 10 AND THE NORTHEAST QUARTER OF SECTION 9, ALL IN TOWNSHIP 5 NORTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 10 AND CONSIDERING THE SOUTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 10 TO BEAR SOUTH 90°00'00" WEST AND WITH ALL OTHER BEARINGS CONTAINED HEREIN BEING RELATIVE THERETO; THENCE SOUTH 90°00'00" WEST ALONG THE SOUTH LINE OF THE NORTHWEST QUARTER OF SAID SECTION 10 8.00 FEET; THENCE NORTH 00°00'00" EAST 30.00 FEET TO A POINT ON THE NORTH RIGHT-OF-WAY LINE OF EAST 16TH STREET, SAID POINT BEING THE TRUE POINT OF BEGINNING; THENCE CONTINUING NORTH 00°00'00" EAST 357.20 FEET; THENCE NORTH 90°00'00" WEST 225.00 FEET; THENCE SOUTH 00°00'00" WEST 157.88 FEET; THENCE NORTH 90°00'00" WEST 727.95 FEET; THENCE NORTH 04°24'15" WEST 124.50 FEET; THENCE NORTH 43°19'45" WEST 353.55 FEET; THENCE NORTH 86°30'18" WEST 106.02 FEET; THENCE SOUTH 01°00'08" EAST 267.49 FEET; THENCE SOUTH 01°34'00" WEST 319.83 FEET TO A POINT ON THE NORTH RIGHT-OF-WAY LINE OF EAST 16TH STREET; THENCE ALONG SAID NORTH RIGHT-OF-WAY LINE, NORTH 90°00'00" WEST 273.36 FEET; THENCE NORTH 00°00'00" EAST 365.30 FEET; THENCE SOUTH 90°00'00" WEST 360.95 FEET; THENCE SOUTH 00°00'00" WEST 365.00 FEET TO THE NORTH RIGHT-OF-WAY LINE OF EAST 16TH STREET; THENCE SOUTH 90°00'00" WEST ALONG THE NORTH RIGHT-OF-WAY LINE OF EAST 16TH STREET 543.20 FEET; THENCE NORTH 00°09'20" EAST 190.00 FEET; THENCE SOUTH 90°00'00" WEST 50.00 FEET; THENCE SOUTH 00°09'20" WEST 150.00 FEET TO A POINT ON THE NORTH RIGHT-OF-WAY LINE OF EAST 16TH STREET; THENCE SOUTH 90°00'00" WEST ALONG THE NORTH RIGHT-OF-WAY LINE OF EAST 16TH STREET 50.00 FEET TO A POINT ON THE WEST LINE OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 10; THENCE NORTH 00°09'20" EAST ALONG THE WEST LINE OF SAID NORTHWEST QUARTER 1,953.57 FEET TO THE SOUTHEAST CORNER OF LOT 1 OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9; THENCE SOUTH 89°36'26" WEST 331.75 FEET TO THE SOUTHWEST CORNER OF SAID LOT 1; THENCE SOUTH 00°02'04" WEST ALONG THE EAST LINE OF LOT 7 OF SAID NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 9 329.14 FEET TO THE SOUTHEAST CORNER OF THE NORTH HALF OF SAID LOT 7; THENCE NORTH 89°56'13" WEST ALONG THE SOUTH LINE OF THE NORTH HALF OF LOTS 5, 6 AND 7 OF SAID NORTHEAST QUARTER OF THE NORTHEAST QUARTER 989.23 FEET TO THE

SOUTHWEST CORNER OF THE NORTH HALF OF SAID LOT 5; THENCE NORTH 00°21'09" EAST ALONG THE WEST LINE OF LOTS 4 AND 5 OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 9 963.89 FEET TO THE NORTHWEST CORNER OF SAID LOT 4; THENCE NORTH 68°21'22" EAST ALONG THE NORTH LINE OF LOTS 3 AND 4 OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 9 652.60 FEET TO THE NORTHEAST CORNER OF SAID LOT 3; THENCE NORTH 87°55'50" EAST ALONG THE NORTH LINE OF LOTS 1 AND 2 OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 9 663.58 FEET TO THE NORTHEAST CORNER OF SAID LOT 1, SAID POINT BEING THE NORTHWEST CORNER OF SAID SECTION 10; THENCE SOUTH 89°23'26" EAST ALONG THE NORTH LINE OF LOT 2 OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 10 659.12 FEET TO THE NORTHEAST CORNER OF SAID LOT 2; THENCE NORTH 89°54'45" EAST ALONG SAID NORTH LINE OF THE NORTHWEST QUARTER OF SAID SECTION 10 1,970.44 FEET TO THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 10; THENCE NORTH 01°40'50" EAST ALONG THE WEST LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 3 198.90 FEET; THENCE NORTH 86°38'50" EAST 92.81 FEET; THENCE SOUTH 85°27'10" EAST 289.70 FEET; THENCE SOUTH 79°10'10" EAST 240.94 FEET; THENCE SOUTH 69°32'10" EAST 295.61 FEET; THENCE SOUTH 82°37'10" EAST 401.00 FEET; THENCE NORTH 07°48'50" EAST 23.27 FEET TO A POINT ON THE NORTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 10; THENCE NORTH 89°48'50" EAST ALONG THE NORTH LINE OF SAID NORTHEAST QUARTER 12.01 FEET; THENCE SOUTH 00°10'42" WEST ALONG THE EAST LINE OF THE WEST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 10, 1329.94 FEET; THENCE SOUTH 89°54'25" WEST ALONG THE NORTH LINE OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SAID SECTION 10 658.64 FEET; THENCE SOUTH 00°14'13" WEST ALONG THE EAST LINE OF THE WEST HALF OF THE WEST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 10 884.00 FEET; THENCE SOUTH 85°51'30" WEST 612.67 FEET; THENCE SOUTH 04°06'30" WEST 371.63 FEET TO A POINT ON THE NORTH RIGHT-OF-WAY LINE OF EAST 16TH STREET; THENCE SOUTH 90°00'00" WEST ALONG THE NORTH RIGHT-OF-WAY LINE OF EAST 16TH STREET 32.15 FEET TO THE POINT OF BEGINNING, CONTAINING 230 ACRES MORE OR LESS.

EXCEPTING THEREFROM THE WEST 49.50 FEET OF LOTS 4 AND 5 OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 10 AND LOT 3 OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 10 ACCORDING TO THE SUBDIVISION OF LANDS BY THE UNION COLONY OF COLORADO, SAID TRACT CONTAINING ± 2 ACRES MORE OR LESS.

12618 County Road 13, Longmont, Colorado 80516
Phone: (303) 666-6657 – Fax: (303) 666-6743

March 31, 2023

Donna L. Coble, Secretary
The Greeley Irrigation Company
P.O. Box 445
Greeley, CO 80632
***VIA EMAIL* to ditchoffice@gicditch.com**

RE: Request for Augmentation Delivery

Dear Donna,

Varra Companies, Inc. requests that the 5 shares represented by certificate No 2627, one share represented by certificate No.3416 and one share represented by certificate No. 3438 be delivered to the Cache la Poudre via GIC's 16th street augmentation station. This water augments mining at the Durham, Western Sugar and Varra/Coulson mines. A copy of the 2023 SWSP request is attached for your records. As I mentioned in a previous message, the SWSP has not been approved yet. As is typical with our SWSP it renews in January and we have seen the approvals lag by about 3 to 3 and a half months over the past few years. We will have an approval shortly and I will provide that as soon as I receive it.

Delivery targets for the upcoming season are:

Daily Delivery Rate - **16th St**

Month	Number of Shares	Apr	May 1 - 14	May 15 - 30	Jun	Jul 1 - 15	Jul 16 - 31	Aug	Sep	Oct
Varra Companies (cfs)	7	0.03	0.31	0.31	0.43	0.50	0.50	0.41	0.34	0.13

If you have any comments or questions, please give me a call or send an email.

Thank you,

Garrett Varra

Affidavit

I, Garrett C. Varra, General Manager of Raptor Materials LLC and President of Varra Companies, Inc. do swear and depose as follows:

1. The Durham Pit (DMG No. M-78-056) is located in portions of Sections 3, 9, and 10 Township 5 North Range 65 West 6th PM Weld County, Colorado.

2. The Western Sugar Mine (DMG No. M-10-49) is located in portions of Sections 4 and 9, Township 5 North Range 65 West 6th PM Weld County, Colorado.

3. The Varra-Coulson Resource Project (DRMS M-13-65) is located in portions of Section 10, Township 5 North, Range 65 West 6th PM.

4. The Kurtz Resource Recovery Project (DMG No. M-99-006) is located in portions of Sections 2 and 29, Township 3 North, Range 67 West 6th PM Weld County, Colorado.

5. The Heintzelman Mine (DMG No. M-09-18) is located in a portion of Section 32, Township 3 North, Range 67 West 6th PM Weld County, Colorado.

6. The Bearson Mine (DMG No. M-15-33) is located in a portion of Section 33 Township 3 North Range 67 West 6th PM Weld County, Colorado.

7. The Two Rivers Mine (DRMS M-2022-013) is located in portions of Sections 33 and 34 Township 5 Range 66 West and Sections 3 and 4 Township 4 Range 65 West 6th PM Weld County, Colorado.

8. Water Rights from Hayseed Ditch decreed in Case No. 90CW174, Two (2) shares of Greeley Irrigation Company, Four (4) shares of Rural Ditch Company decreed in Case No. 03CW306, Five (5) shares of Last Chance Ditch Company, and necessary portions of the water rights decreed in Case No. 01CW274 which are described in the April 22, 2022 Memorandum of Use.

9. Water Rights from Five (5) shares of the Greeley Irrigation Company which are described in the April 2022 short lease of aggregates which is based on the original 1985 Sand & Gravel Mining Lease which is understood in a manner that the Doeringsfeld & Aratas site and water rights as a jointly described "property".

10. The water rights listed in Items 8 & 9 above are dedicated solely for use as described in Case No. 03CW306 and in the Combined Substitute Water Supply Plan for the sites listed above.

11. Any additional use of the water rights listed in Items 8 & 9, above, will only be used with the Division of Water Resources and/or Division One Water Court approval.

Further Affiant sayeth naught.

Garrett C. Varra

Affiant

Garrett Varra, Raptor Materials LLC and Varra Companies, Inc.

State of Colorado

County of Weld

The foregoing instrument was subscribed and sworn before me on this date 2/27/2024 by Garrett C. Varra.

Witness my hand and official seal.

My Commission expires 10/4/2024

JESSICA HOOVER
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20044035571
MY COMMISSION EXPIRES OCTOBER 4, 2024

Notary

COLORADO
Division of Water Resources
Department of Natural Resources

Augmentation Plan Accounting Protocol
June 2022

Accounting is an administrative tool to confirm water use is in accordance with a decree or other approval including that any required replacement is made to the stream system at the correct time, location, and amount. This guideline is subordinate to any decree language or Division Engineer specific accounting requirements. It describes basic augmentation plan accounting scenarios. Accounting for more complex scenarios can build on the fundamentals described herein.

Contents

1. Background and definitions

A thorough description of augmentation plans for well pumping is available in the Beginners Guide to Augmentation Plans for Wells. The following terms are used in this document:

- **Diversions** are withdrawals from a well, stream, or pond/reservoir.
- **Depletions** are the volume of reduced streamflow caused by a diversion. Lagged depletions are those that occur at a later time than when water is diverted by well pumping or groundwater pond evaporation due to the timing of water movement through the subsurface between the well/groundwater pond and the stream.
- **Hydrobase** is DWR's database of water information.
- **Colorado's Decision Support Systems ("CDSS")** is a State of Colorado website (https://cdss.colorado.gov/) providing access to water data and tools.
- **Replacement water** is a volume of water provided to the stream system to replace depletions and satisfy the unmet needs of senior water rights. Replacement water is typically provided from a reservoir release or another source that has been contracted for the purpose of replacing depletions. Replacement water may also be provided in the form of historic consumptive use ("HCU") credits derived from a change of water right where the use of a water right was changed to augmentation.
- **Transit loss** is the diminishment of the amount of water in a stream as water travels from upstream to the downstream location.
- **Priority Admin Number** indicates the seniority of a water right; equal to the number of days between a water right's priority date and the earliest decreed priority, December 31, 1849. For example, the Priority Admin Number for a water right with a priority date of May 5, 1950 is 36650.00000. The lower the Priority Admin Number, the more senior the water right. The five digits to the right of the period are used when the postponement doctrine applies to a water right due to a delay in decreeing the water right in the court (read more about this in the Administrative Call Standard, Appendix A).
- **Administrative Call** is a term that indicates there are unfulfilled downstream water rights "calling" for curtailment of upstream junior water rights to fulfill their need. In accounting, when the downstream Administrative Call is from a senior water right (with a lower Priority Admin Number), diversions/depletions are out-of-priority and replacement water must be provided.
- **Balance** is the amount of replacement water minus the depletions and obligations, not considering the Administrative Call. The balance may be negative when the diversions resulting in the depletions are in priority.
- **Net Effect** is the amount of replacement water minus the depletions and obligations, considering the Administrative Call. When the net effect is zero or positive, it shows that the Augmentation Plan prevented injury by replacing all out-of-priority diversions/depletions.

2. Methods to submit accounting

a. Accounting and Reporting Uploader (preferred)

The preferred method to submit accounting is through the use of the CDSS Accounting and Reporting Uploader tool. To set up an online account, call or email the Division contacts for the appropriate Water Division as shown in Table 1. Additional information is available on DWR's website under Data and Information/Online Data Submittal.

b. Email

Submit via email to the Water Commissioner and the Division Accounting email shown in Table 1. File names for accounting sheets should include the 7 digit Augmentation Plan WDID assigned by the Division Engineer's office.

3. Timing of accounting submittal

Accounting must be submitted as specified by your decree, DWR administrative approval (SWSP, Replacement Plan, etc.), or as requested by the Division Engineer or designated representative(s). If timing is not specified, submit accounting with the timing shown in Table 1.[1]

Table 1. Accounting Submittal Emails and Phone Number by Division

Division	Accounting Question & Submittal Email	Contact Phone Number	Standard Submittal Timing
1 - South Platte	Div1Accounting@state.co.us	970-352-8712	30 days after the end of the reporting month
2 - Arkansas	water.reporting@state.co.us	719-542-3368	10 days after the end of the reporting month*
3 - Rio Grande	kevin.boyle@state.co.us	719-589-6683	10 days after the end of the reporting month
4 - Gunnison	greg.powers@state.co.us	970-249-6622	10 days after the end of the reporting month
5 - Colorado	dnr_div5acct@state.co.us	970-945-5665	10 days after the end of the reporting month
6 - Yampa/White	brian.romig@state.co.us	970-846-0036	Annually by November 15 or as needed upon request
7 - San Juan/ Dolores	dnr_div7acct@state.co.us	970-247-1845	10 days after the end of the reporting month**
Designated Ground Water Basins	chris.grimes@state.co.us	303-866-3851 ext. 8253	Annually by February 15 for the prior year

*for approvals deemed critical for administration; all others (including simple subdivisions) bi-annual readings before and after the irrigation season

**for approvals deemed critical for administration; annual submittals for others

[1] For proper administration, Water Commissioners may request regular and direct submission of water data in addition to accounting submittals described herein.

4. Overall organization of accounting spreadsheet and required information per tab

a. Overall organization

The following are typical spreadsheet tab names in accounting. See the example and screenshots section for an overview of what this might look like:

i. Contact/Plan Information tab
ii. Input tab(s)
iii. Depletions & Obligations tab
iv. Replacement tab
v. Summary tab
vi. DWR tab
vii. DWR Meters tab
viii. Version/Notes tab

Fewer or additional tabs as necessary for more simple or complex accounting, subject to approval by the Division Engineer

b. Contact/Plan Information Tab

The accounting must provide the contact information including name and email address for:

i. The party(s) responsible for submitting the accounting
ii. The plan administrator and/or the plan attorney
iii. Water court case number (format of YYCWXXXX), SWSP name and 4-digit Plan ID, or Ground Water Commission Order represented in the accounting.
iv. The 7-digit overall WDID(s) associated with the augmentation plan (not the individual structure WDIDs).[2]

c. Input Tab(s)

When possible, all cells showing diversion of water (well pumping and stream diversions) should be located on one or multiple input tabs as shown below. Cells with regular input, such as meter readings and reservoir releases, should be shaded a specifically identified color to distinguish them from cells that use formulas to convert or summarize the input.

Depending on the specific operation, the following may be included on Input tabs:

i. **Estimated water use or evaporation:**
When meters or measurement structures are not required, water consumption is estimated based on counts (number of homes, number of domestic animals, acreage of pond surface area, etc.) multiplied by a factor. Include a column or row for each of the following that are relevant to the augmentation plan:
   1. Type of use: single family dwellings, domestic animals, area of lawn and garden (include units - square feet or acres), area of pond evaporation (include units - square feet or acres), etc.
   2. Count or area input value for each type: the number of homes or domestic animals or the area (square footage or acres of home lawn and garden irrigation or pond surface evaporation). [this is the "Input" that could change regularly]

[2] Colorado Decision Support System Tools (https://dwr.state.co.us/Tools) can be used to find WDIDs (see Structures), court case numbers (see Water Rights), and other supporting information.

3. Factor to convert input to consumption in acre-feet.
4. Acre-feet of consumption.

ii. Well diversion data using flow meters:

Enter raw readings or measurements (e.g., from totalizing flow meters) and how those raw readings or measurements are converted to volumes of water. There should be one row or column for each well with a meter as described below. Once the spreadsheet formulas have been established, generally only the meter reading is entered with every submittal. The well and meter information may be located in a separate well & meter information tab (see example and screenshots section).

1. Well WDID
2. Well Permit Number
3. Priority Admin Number
4. Flow Meter Serial Number
5. Reading Date
6. Reading[3] [this is the "Input" that will change regularly]
   Enter reading exactly as shown on the face of the meter as a non-negative integer.
7. Comment
   a. When a meter rolls over (such as from 999 to 000), is replaced or reset[4] , add a comment stating the old meter serial number, the maximum number before the rollover or replacement and then enter the number on the face of the meter at the end of the reporting period. Update the meter information section with the new meter's serial number.
8. Meter information:
   a. Make
   b. Model
   c. The units represented by the digits on the meter (such as gallons or acre-feet)
   d. Multiplier for meter reading (if applicable)
      i. Residential well meters typically have a multiplier of 1.0 with units of gallons. Readings should generally report all numbers on the face of the meter (including non-rotating digits) with a multiplier of 1.0.
      ii. Larger agricultural or commercial wells typically read in acre-feet and typically have a decimal multiplier. For instance, with a multiplier of 0.001, a meter reading of 123456 represents 123.456 acre-feet.
   e. Correction factor
      i. This is a multiplier used when a meter test shows a need to correct the installed meter to an accurate reading. This will be 1.0 when there is not a test showing a need for correction.
9. Acre-feet pumped
   Use a formula to convert from the meter reading to acre-feet using the multiplier and correction factor. To convert meter readings in gallons to acre-feet, divide by 325,851.

iii. Well diversion data using Electricity Consumption

For wells approved to use power records and a Power Conversion Coefficient (PCC) to estimate water pumped, the accounting information is similar to well diversion data using flow meters (section 4.c.ii) above with the following replacements (instead of 6. "Reading" and 8. "Meter information):

---

[3] A comment on the Meter Reading cell is used to note "Actual, Estimated, Corrected, or Calculated" for all wells subject to measurement rules when the entry is not based on a reading taken on the actual date specified.

[4] Resetting a meter may be prohibited by local well measurement rules.

6. Power meter reading [this is the "Input" that will change regularly]
8. Power Meter Information
    a. PCC

iv. Surface diversion data

Include a column or row for each surface diversion with the following information:

1. Diversion structure name or a.k.a.
2. Structure WDID
3. Measured flow through the measurement structure and units
    a. If more than one water right is diverted through the structure, there should be adjacent columns for each. Each source should have a designated column or row and labeling should include the measuring structure WDID and the source of the water (e.g. case number).
    b. If there is a multiplier that adjusts the standard measurement-flow relationship to reflect the actual measurement-flow relationship of the specific structure ("shift"), the adjusted value should be reflected in a separate column.
4. Priority Admin Number
5. Storage and release

If the diversion is to storage, which will be followed by a release of water, follow the instructions in the Reservoir Accounting Guideline.

v. Administrative Call (are diversions in-priority?)

In portions of Colorado, there may be times when depletions are in-priority, and do not require replacement. Depletions are in-priority when water rights on the stream system that are senior to the diversion have enough water and are not "calling" for more water.

1. **Simplified (percent of month administrative call)**
   For certain basic accounting, such as subdivision well depletions, the Division Engineer may allow or apply an estimate of the days of expected administrative call each month. Typically, replacement water is provided based on projected call days, which is later compared to actual administrative call data to ensure that adequate replacement was provided. In this case, the accounting should have an input field either for the number of call days or the percentage of days in the month with a call.
2. **Daily record of administrative call**
   Provide a column that shows whether depletions are either "IN" or "OUT" of priority each day.
    - Locations with minimal call variation: In areas with minimal variation in the call, the Division Office may not require a formula comparing Priority Admin Numbers, but will accept manual entries of "IN" or "OUT" of priority each day.
    - All other locations: "IN" or "OUT" of priority is determined daily using formulas comparing the Priority Admin Number of depletions to the Priority Admin Number of the calling water right in each depleted stream reach. Include a column for each of the following:
        - The Priority Admin Number of the calling water right. Calling structure information can be obtained programmatically from:
            - CDSS REST services - insert a link that pulls the required information directly from DWR's database.
            - CDSS Administrative Calls tool.

          DWR accounting staff can provide guidance on incorporating this information within an accounting spreadsheet.

- The Name of the calling water right
- "In" or "Out"-of-priority either for all structures covered by the accounting or for each structure in its own column. Use a formula to compare the Priority Admin Number of the calling structure to the Priority Admin Number of the structure(s) in the accounting.

d. Depletion & Obligation tab

Used to (1) convert well pumping (and groundwater pond evaporation) to lagged depletions impacting the stream and (2) show lagged depletions that are out-of-priority, and (3) include any additional water obligations of the plan for augmentation.

i. Calculate lagged depletions - Although well pumping and modeling may use a monthly step function to determine the depletions from pumping, the monthly result may, if requested by the Division Office or required by decree, then be divided by the number of days in the month in order to calculate a daily impact for daily water administration.
   1. Well Pumping (or groundwater pond evaporation) - Reference back to the Input tab for the acre-feet of water pumped or evaporated.
   2. Consumption factor (%) - If the decree or approval describes that a percentage of the water pumped is consumed and only the consumed amount is replaced.
   3. Acre-feet consumed - Multiply the acre-feet pumped by the consumption factor.
   4. Delay Factors - show factors that convert pumping in one month to depletions in future months. These may be percentages per month, that total 100 percent over an extended period of time.
   5. Depletions - a formula that combines previous months and present month pumping with the delay factors to determine depletions impacting the stream this month and in future months.

ii. Out-of-priority depletions are combined into one column for each reach considering the administrative call information included on the Input tab.

iii. Return flow obligations (if applicable): Replacement water sources changed from a historical irrigation use usually have a return flow obligation that must also be tracked in accounting. Return flow obligations are similar to depletions because they must be replaced in time, place, and amount. Depending on decree language and preference, return flow obligations may be included under the replacement tab in section 4.e. below. For each replacement source with return flow obligations, include the following:
   - the basis and volume of the return flow obligation,
   - the location of the return flow obligation,
   - replacement of the return flow obligation.

e. Replacement tab

List each structure providing replacement water, transit loss information, and volumes released:

i. Structure providing replacement water: name of reservoir, ditch, well, leased or other replacement water, its WDID, and the water court decree allowing its use for augmentation or replacement. For instructions on accounting for replacement using recharge accretions, refer to specific recharge guidance.

ii. Replacement water travel distance (miles)
the distance from the point of release to the location of the out-of-priority depletion where replacement is owed

iii. Transit loss percent per mile (%)

iv. Total transit loss (%)
v. Volume released (acre-feet)
vi. Transit loss volume (acre-feet)
vii. Volume delivered (acre-feet) - equal to volume released minus transit loss volume
viii. Return flow obligations (acre-feet): Depending on decree language as described above, these may be included here instead of in the depletion tab. See description under section 4.d. above.

f. Summary Tab

The Summary Tab is used to calculate the Net Effect of the Plan on each impacted stream reach. The summary should reference back to information and formulas in the other spreadsheet tabs. The summary tab compares obligations, replacements and that replacements equal or exceed obligations in time, place, and amount. The Summary tab should only summarize data and calculations located in other tabs of the accounting. It should not contain manual entries, input data, or make calculations that are used in other tabs.

The Summary Tab should contain the following for each impacted stream reach (typically on a daily basis or as required by the division office):

i. Total depletions and obligations
ii. Total replacement
iii. Balance - Total replacement minus total depletions and obligations, which may be negative when the diversions resulting in the depletions are in priority.
iv. Net Effect - Total replacement minus out-of-priority depletions and obligations. If the net effect is negative, the Plan resulted in injury.

g. DWR tab for Diversion Record Data Import

A tab titled "**DWR**" can be used to convert data input or numbers calculated in other tabs into rows that represent diversion record water classes, which DWR staff can upload to create official diversion records. When appropriate, DWR staff will develop this tab or work with plan owners to develop this tab, and ensure it follows the format shown in the "Diversion Record Spreadsheet User Guide" and utilizes water classes according to the Diversion Records Standard. This format is necessary to allow the records to be imported directly into Hydrobase.

h. DWR Meters tab for Meter Reading Data Import

A tab titled "**DWR Meters**" can be included for use in bulk uploading meter readings. This calculates pumping totals in compliance with well rules or to meet other Division-specific requirements. In order for this tab to be bulk uploaded into Hydrobase, the columns in this tab must be formatted as shown in the "User Guide - How to Bulk Upload Meter Readings".

i. Version/Notes tab

A tab to document changes in accounting formulas and the date of those changes.

5. Requirements and recommendations for all tabs

a. Accounting should show how raw input data is manipulated using formulas to determine the resulting impact on the river. Accounting must therefore include a functional spreadsheet (ie no pdfs) showing all operations, formulas, etc. to clearly show calculations.

b. The use of a water year of November 1 through October 31 is required unless specifically decreed otherwise. When a different water year is required by decree, DWR may request additional months of data in the accounting to include the November 1 through October 31

time period, resulting in more than 12 months of data being reported.

c. For all tabs other than the Summary tab, include running accounting for the entire water year without monthly subtotals. Monthly subtotals commonly result in errors in the spreadsheet. The Summary tab can be used as a place to show monthly totals.

d. Date fields should be complete dates (month, day, and year, recognized as a date value by the spreadsheet software) but may be formatted to display as desired.

e. Use consistent cell color shading to clearly identify the different types of information, such as manual input cells and formula cells (provide a legend for data types, see example below)

f. Enter "0" in cells to document no diversion or use, rather than blanks, hyphens, or another character.

g. When a formula is overwritten with a manual entry, the cell should be highlighted and a comment added for the reasoning.

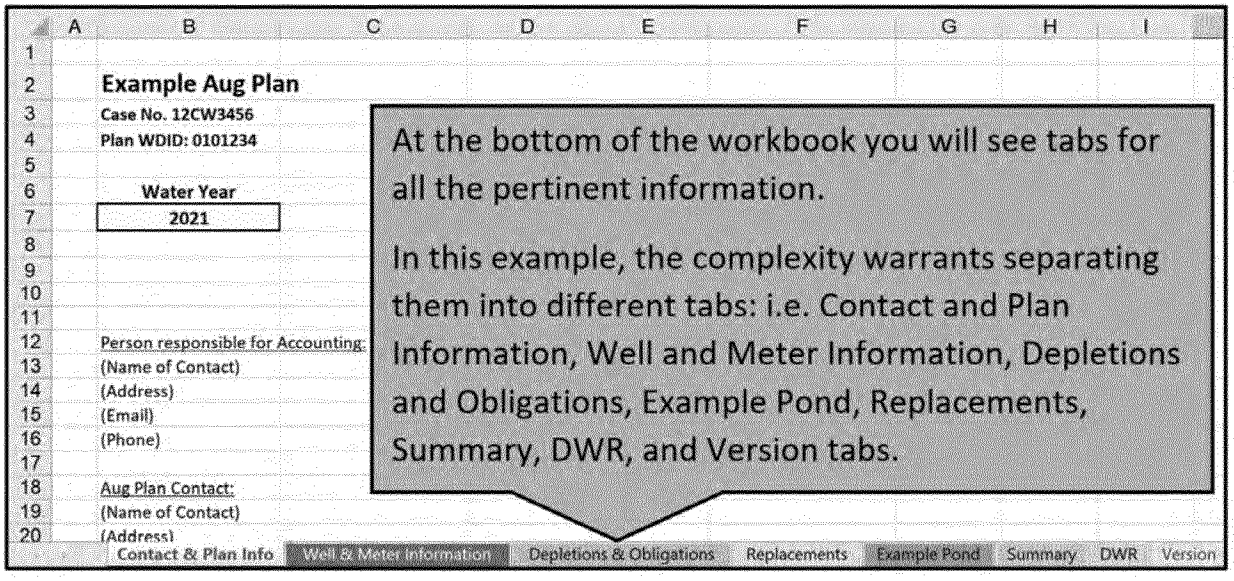
h. When there are multiple stream reaches involved, organize accounting from upstream to downstream.

i. Footnotes should be utilized, as necessary, to describe the basis for formulas, calculations imposed on the raw input data, and column descriptions.

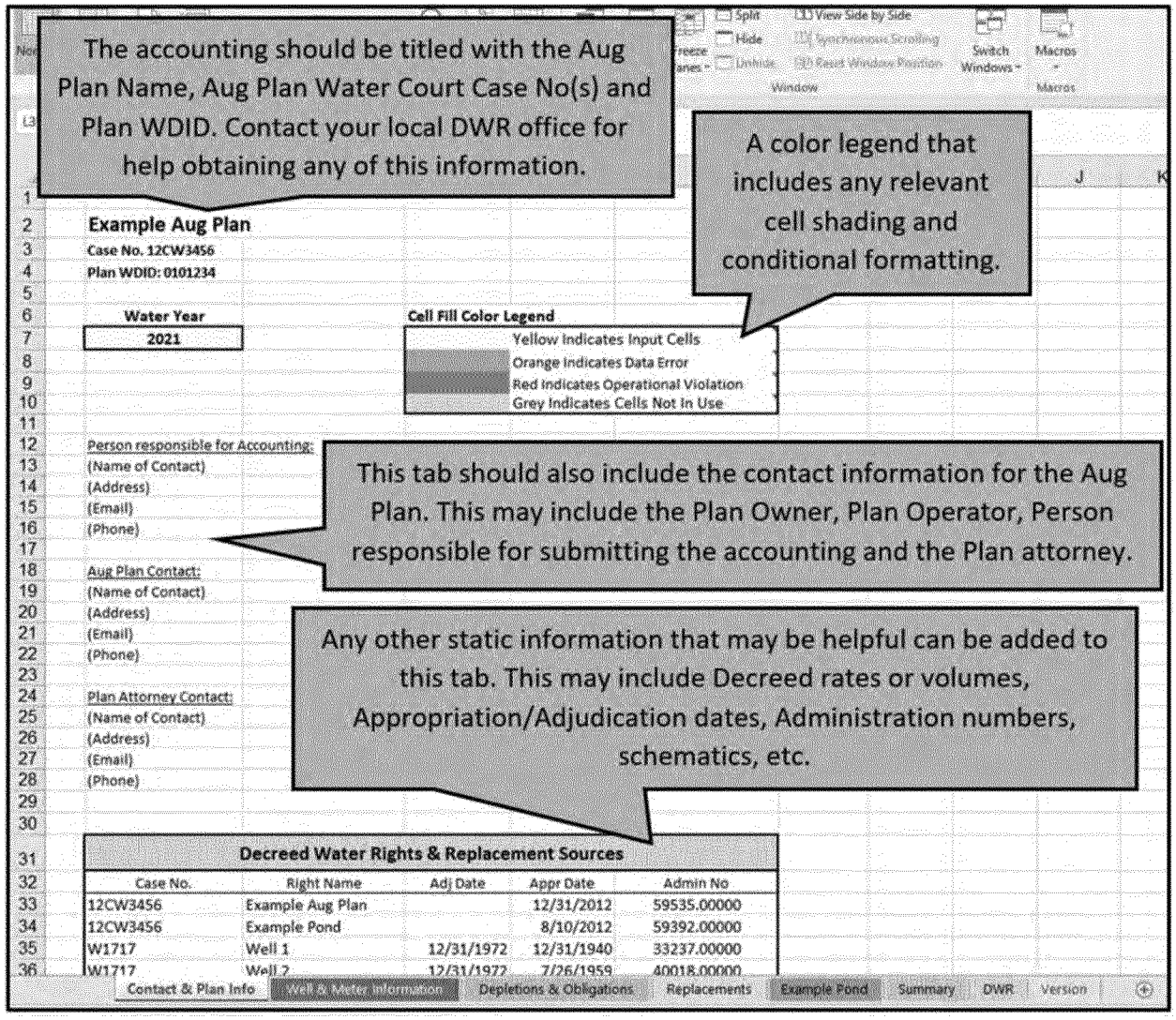
6. Example, Screenshots, and Spreadsheet Templates

Water users may request spreadsheet templates from their local division office for use as examples of how accounting may be assembled, but are responsible for developing their own functional accounting customized for their own Plan requirements. Note that example and actual accounting may have slightly different organization than what is described above.

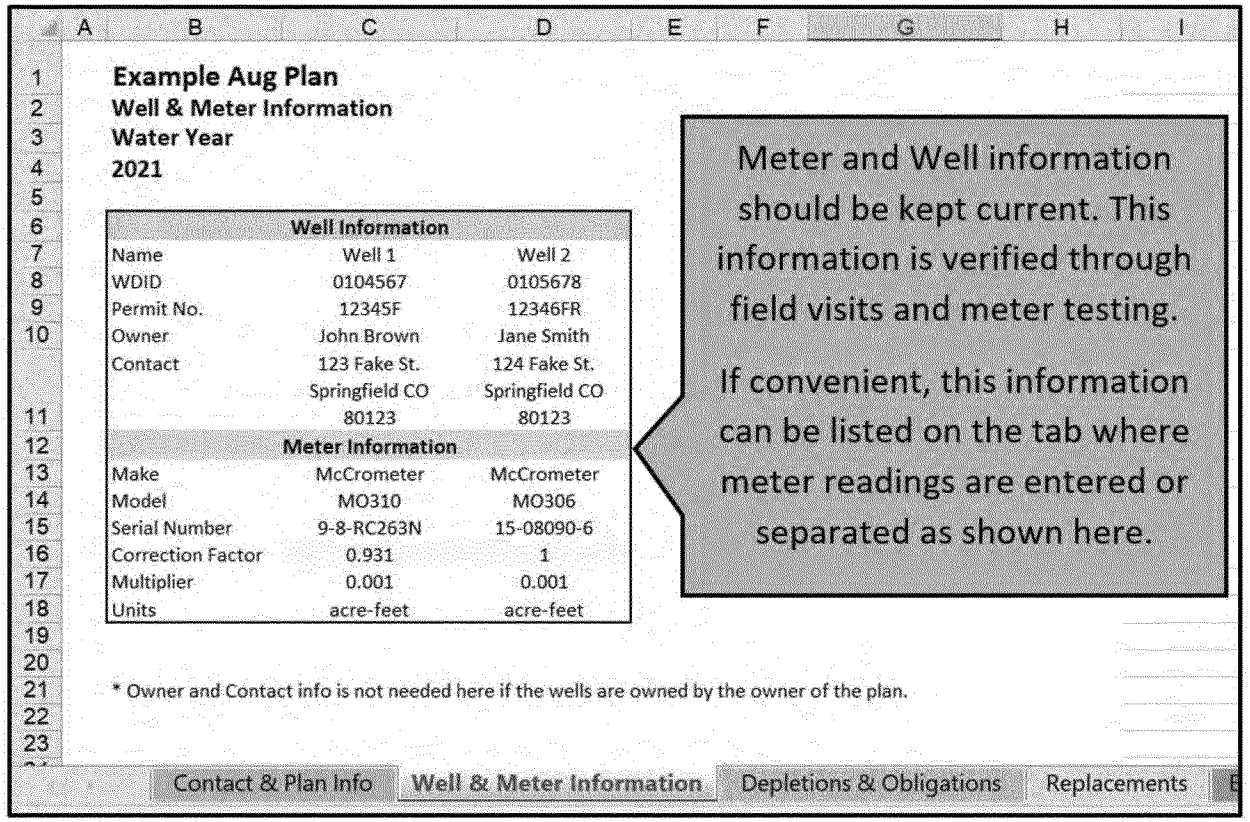
a. (List of relevant tabs)



b. (Contact & Plan Information)



c. (Well & Meter Information)



Example Aug Plan
Well & Meter Information
Water Year
2021

Well Information		
Name	Well 1	Well 2
WDID	0104567	0105678
Permit No.	12345F	12346FR
Owner	John Brown	Jane Smith
Contact	123 Fake St. Springfield CO 80123	124 Fake St. Springfield CO 80123
Meter Information		
Make	McCrometer	McCrometer
Model	MO310	MO306
Serial Number	9-8-RC263N	15-08090-6
Correction Factor	0.931	1
Multiplier	0.001	0.001
Units	acre-feet	acre-feet

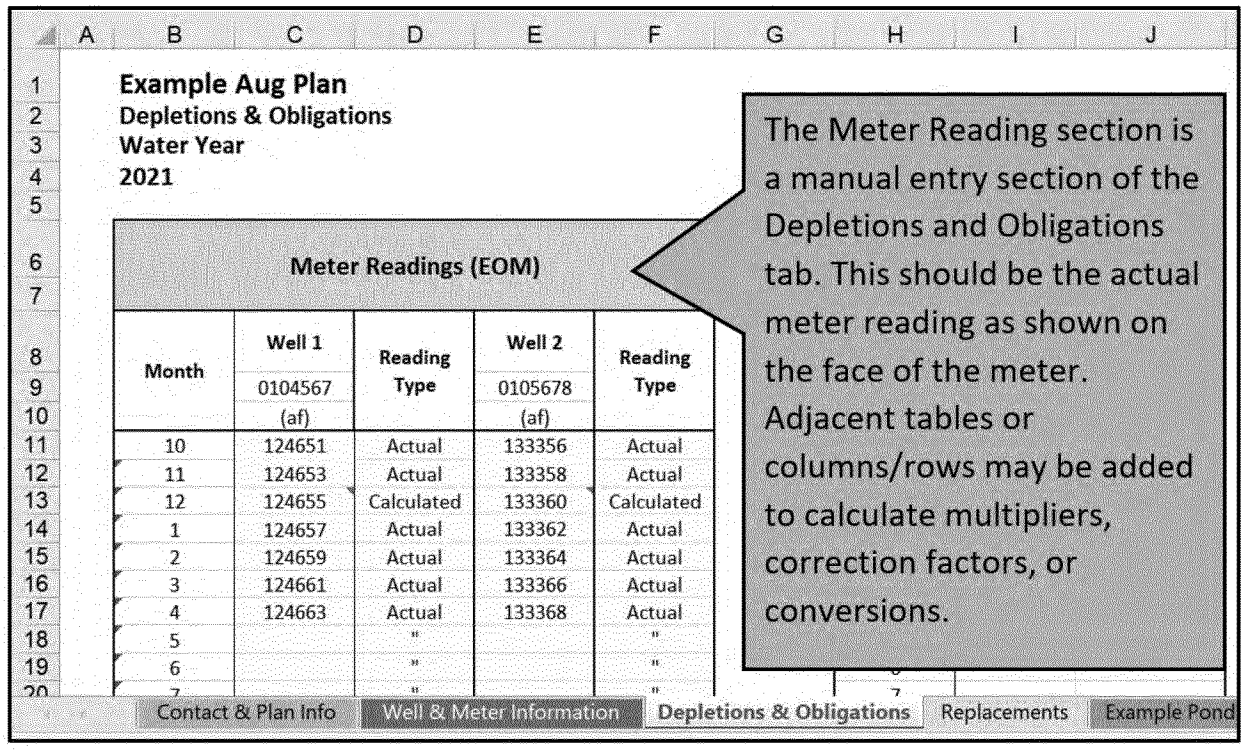
Meter and Well information should be kept current. This information is verified through field visits and meter testing.

If convenient, this information can be listed on the tab where meter readings are entered or separated as shown here.

* Owner and Contact info is not needed here if the wells are owned by the owner of the plan.

Contact & Plan Info | Well & Meter Information | Depletions & Obligations | Replacements

d. (Depletions & Obligations) - in this example, the Depletions & Obligations tab includes cells for entering meter readings, calculating well pumping over the period, and converting that to lagged depetions.



Example Aug Plan
Depletions & Obligations
Water Year
2021

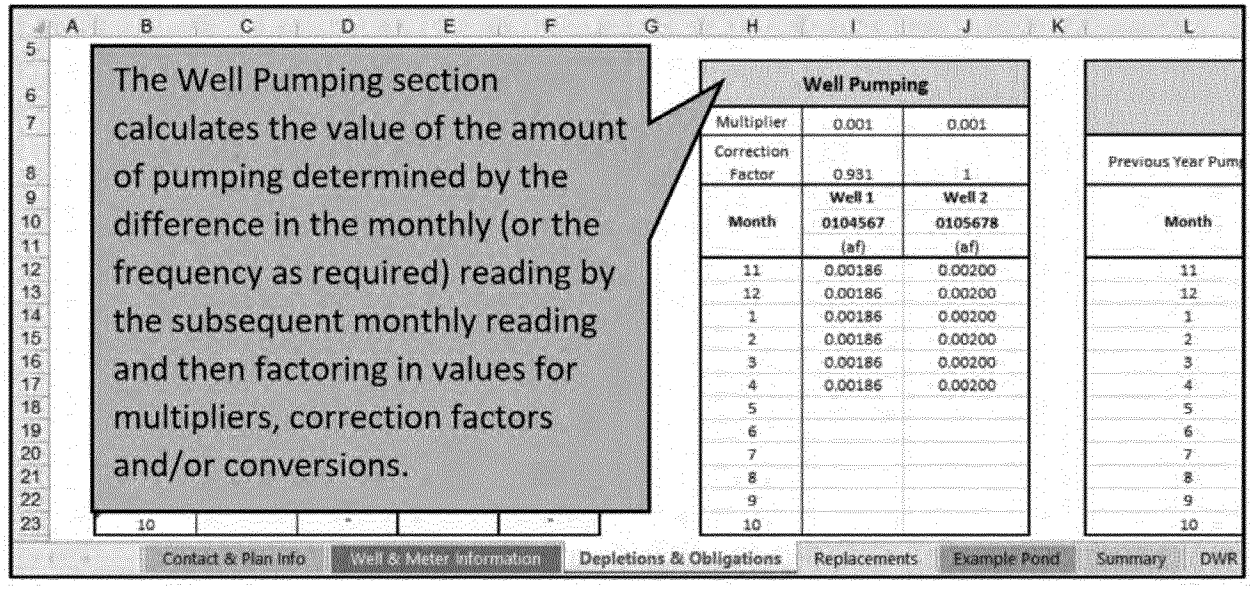
The Meter Reading section is a manual entry section of the Depletions and Obligations tab. This should be the actual meter reading as shown on the face of the meter. Adjacent tables or columns/rows may be added to calculate multipliers, correction factors, or conversions.

Meter Readings (EOM)

Month	Well 1 0104567 (af)	Reading Type	Well 2 0105678 (af)	Reading Type
10	124651	Actual	133356	Actual
11	124653	Actual	133358	Actual
12	124655	Calculated	133360	Calculated
1	124657	Actual	133362	Actual
2	124659	Actual	133364	Actual
3	124661	Actual	133366	Actual
4	124663	Actual	133368	Actual
5		"		"
6		"		"

Contact & Plan Info | Well & Meter Information | Depletions & Obligations | Replacements | Example Pond

e. (Depletions & Obligations)



The Well Pumping section calculates the value of the amount of pumping determined by the difference in the monthly (or the frequency as required) reading by the subsequent monthly reading and then factoring in values for multipliers, correction factors and/or conversions.

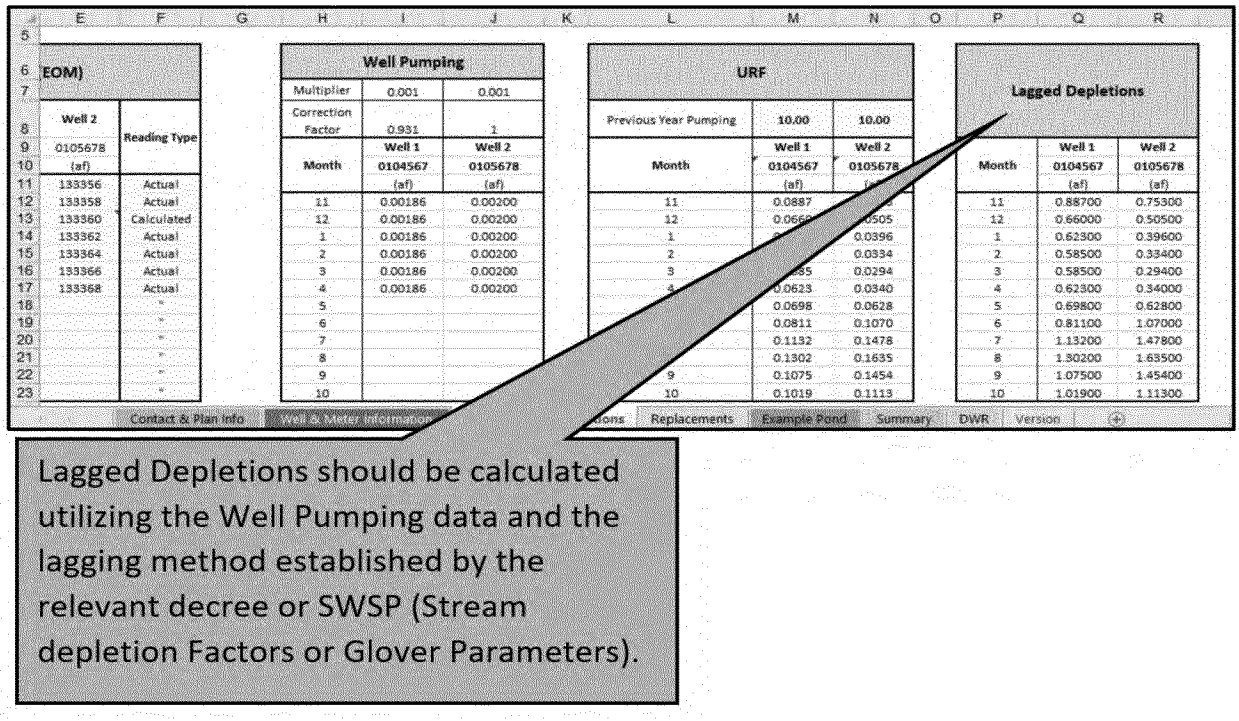
Well Pumping

Multiplier	0.001	0.001
Correction Factor	0.931	1
Month	Well 1 0104567 (af)	Well 2 0105678 (af)
11	0.00186	0.00200
12	0.00186	0.00200
1	0.00186	0.00200
2	0.00186	0.00200
3	0.00186	0.00200
4	0.00186	0.00200
5		
6		
7		
8		
9		
10		

Previous Year Pump
Month
11
12
1
2
3
4
5
6
7
8
9
10

Contact & Plan Info | Well & Meter Information | Depletions & Obligations | Replacements | Example Pond | Summary | DWR

f. (Depletions & Obligations) - calculate lagged depletions for the month



EOM)	
Well 2 0105678 (af)	Reading Type
133356	Actual
133358	Actual
133360	Calculated
133362	Actual
133364	Actual
133366	Actual
133368	Actual

Well Pumping		
Multiplier	0.001	0.001
Correction Factor	0.931	1
Month	Well 1 0104567 (af)	Well 2 0105678 (af)
11	0.00186	0.00200
12	0.00186	0.00200
1	0.00186	0.00200
2	0.00186	0.00200
3	0.00186	0.00200
4	0.00186	0.00200
5		
6		
7		
8		
9		
10		

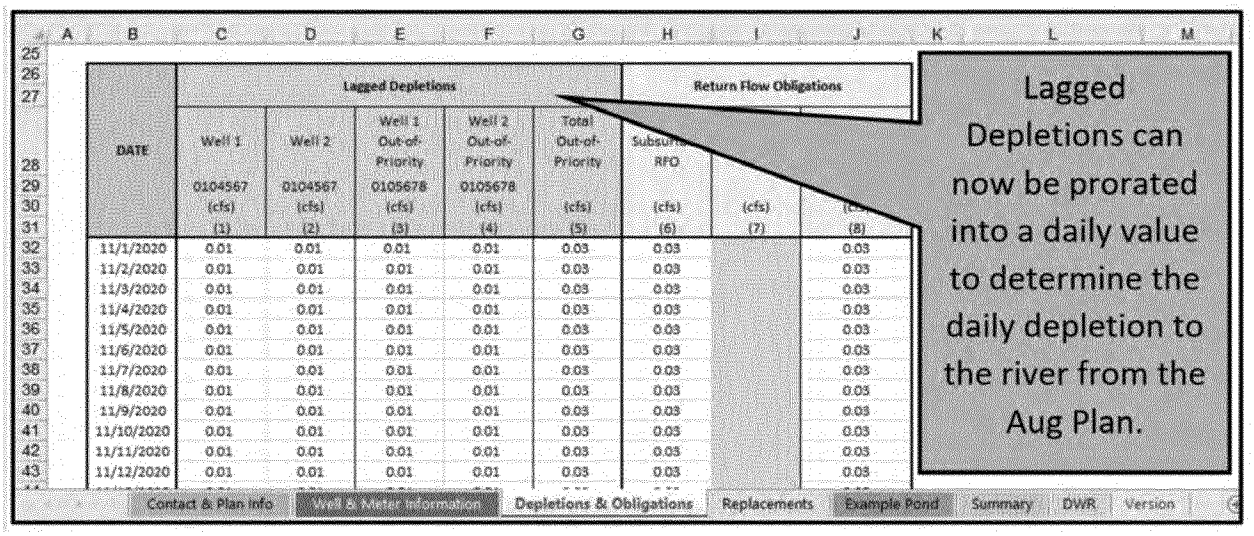
URF		
Previous Year Pumping	10.00	10.00
Month	Well 1 0104567 (af)	Well 2 0105678 (af)
11	0.0887	
12	0.0669	0505
1		0.0396
2		0.0334
3	385	0.0294
4	0.0623	0.0340
5	0.0698	0.0628
6	0.0811	0.1070
7	0.1132	0.1478
8	0.1302	0.1635
9	0.1075	0.1454
10	0.1019	0.1113

Lagged Depletions		
Month	Well 1 0104567 (af)	Well 2 0105678 (af)
11	0.88700	0.75300
12	0.66000	0.50500
1	0.62300	0.39600
2	0.58500	0.33400
3	0.58500	0.29400
4	0.62300	0.34000
5	0.69800	0.62800
6	0.81100	1.07000
7	1.13200	1.47800
8	1.30200	1.63500
9	1.07500	1.45400
10	1.01900	1.11300

Contact & Plan Info | Well & Meter Information | ...ons | Replacements | Example Pond | Summary | DWR | Version

Lagged Depletions should be calculated utilizing the Well Pumping data and the lagging method established by the relevant decree or SWSP (Stream depletion Factors or Glover Parameters).

g. (Depletions & Obligations) - convert monthly lagged depletions to daily

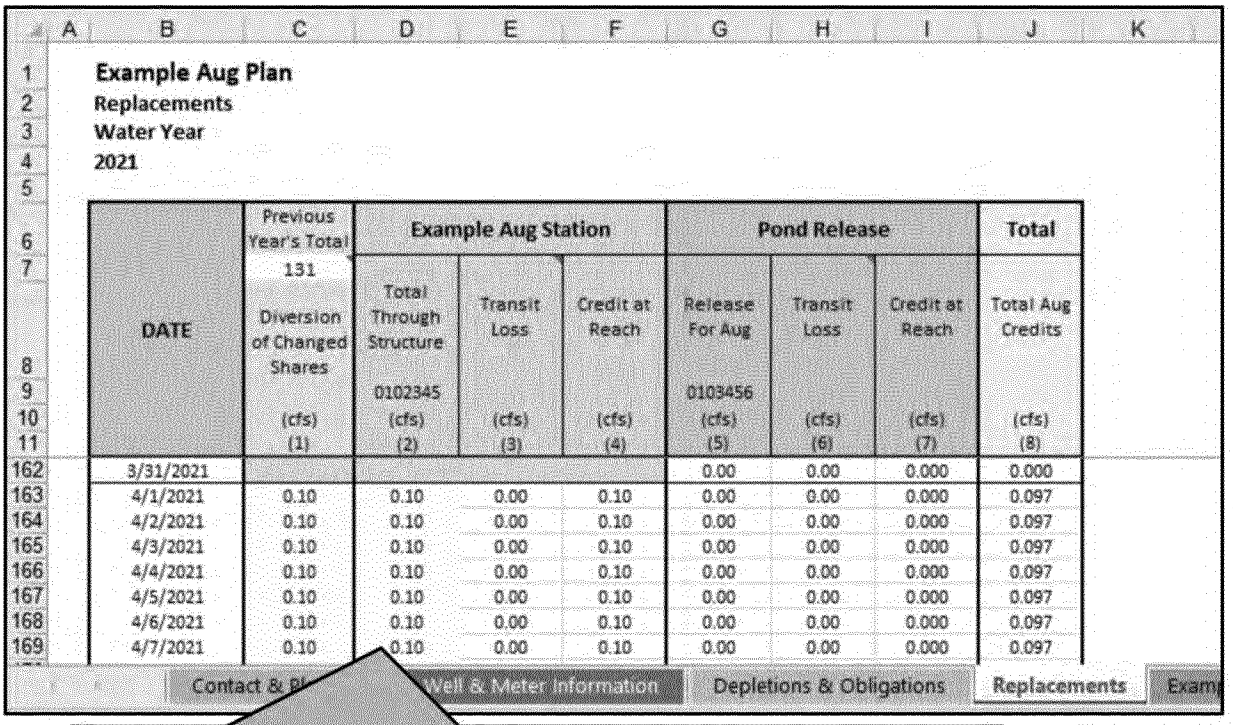


DATE	Lagged Depletions: Well 1 0104567 (cfs) (1)	Well 2 0104567 (cfs) (2)	Well 1 Out-of-Priority 0105678 (cfs) (3)	Well 2 Out-of-Priority 0105678 (cfs) (4)	Total Out-of-Priority (cfs) (5)	Return Flow Obligations: Subsurface RFO (cfs) (6)	(cfs) (7)	(cfs) (8)
11/1/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/2/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/3/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/4/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/5/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/6/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/7/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/8/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/9/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/10/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/11/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03
11/12/2020	0.01	0.01	0.01	0.01	0.03	0.03		0.03

Contact & Plan Info | Well & Meter Information | Depletions & Obligations | Replacements | Example Pond | Summary | DWR | Version

Lagged Depletions can now be prorated into a daily value to determine the daily depletion to the river from the Aug Plan.

h. (Replacements)



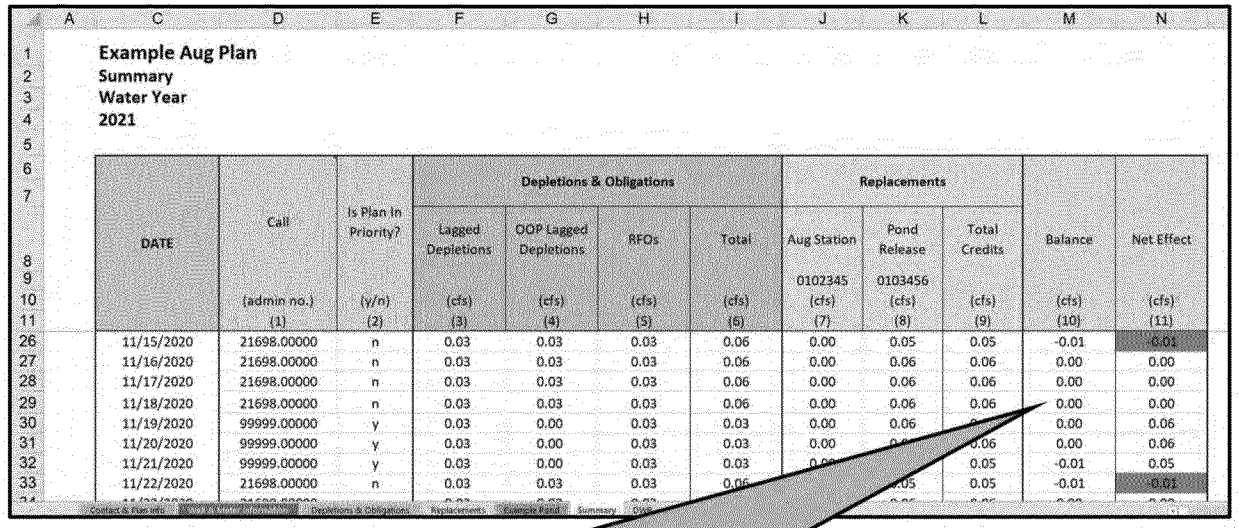
Example Aug Plan
Replacements
Water Year
2021

DATE	Previous Year's Total	Example Aug Station			Pond Release			Total
	131							
	Diversion of Changed Shares	Total Through Structure 0102345	Transit Loss	Credit at Reach	Release For Aug 0103456	Transit Loss	Credit at Reach	Total Aug Credits
	(cfs) (1)	(cfs) (2)	(cfs) (3)	(cfs) (4)	(cfs) (5)	(cfs) (6)	(cfs) (7)	(cfs) (8)
3/31/2021					0.00	0.00	0.000	0.000
4/1/2021	0.10	0.10	0.00	0.10	0.00	0.00	0.000	0.097
4/2/2021	0.10	0.10	0.00	0.10	0.00	0.00	0.000	0.097
4/3/2021	0.10	0.10	0.00	0.10	0.00	0.00	0.000	0.097
4/4/2021	0.10	0.10	0.00	0.10	0.00	0.00	0.000	0.097
4/5/2021	0.10	0.10	0.00	0.10	0.00	0.00	0.000	0.097
4/6/2021	0.10	0.10	0.00	0.10	0.00	0.00	0.000	0.097
4/7/2021	0.10	0.10	0.00	0.10	0.00	0.00	0.000	0.097

Contact & Pl... | Well & Meter Information | Depletions & Obligations | Replacements | Exam...

Input information should be shaded differently than the calculated (cells with formulas) cells. Please provide a legend with the color/shading scheme.

i. (Summary) - daily

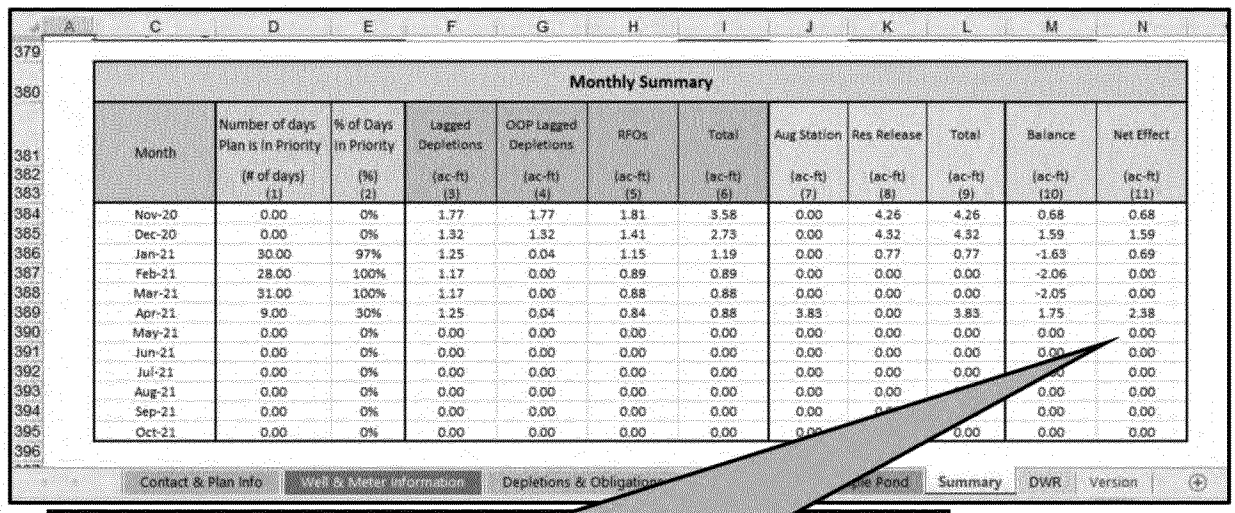


Example Aug Plan
Summary
Water Year
2021

DATE	Call (admin no.) (1)	Is Plan In Priority? (y/n) (2)	Depletions & Obligations: Lagged Depletions (cfs) (3)	Depletions & Obligations: OOP Lagged Depletions (cfs) (4)	Depletions & Obligations: RFOs (cfs) (5)	Depletions & Obligations: Total (cfs) (6)	Replacements: Aug Station 0102345 (cfs) (7)	Replacements: Pond Release 0103456 (cfs) (8)	Replacements: Total Credits (cfs) (9)	Balance (cfs) (10)	Net Effect (cfs) (11)
11/15/2020	21698.00000	n	0.03	0.03	0.03	0.06	0.00	0.05	0.05	-0.01	-0.01
11/16/2020	21698.00000	n	0.03	0.03	0.03	0.06	0.00	0.06	0.06	0.00	0.00
11/17/2020	21698.00000	n	0.03	0.03	0.03	0.06	0.00	0.06	0.06	0.00	0.00
11/18/2020	21698.00000	n	0.03	0.03	0.03	0.06	0.00	0.06	0.06	0.00	0.00
11/19/2020	99999.00000	y	0.03	0.00	0.03	0.03	0.00	0.06	[illegible]	0.00	0.06
11/20/2020	99999.00000	y	0.03	0.00	0.03	0.03	0.00	[illegible]	0.06	0.00	0.06
11/21/2020	99999.00000	y	0.03	0.00	0.03	0.03	[illegible]	[illegible]	0.05	-0.01	0.05
11/22/2020	21698.00000	n	0.03	0.03	0.03	0.06	[illegible]	[illegible]	0.05	-0.01	-0.01

The Balance column is the balance of Replacements and actual Depletions/Obligations regardless of whether the plan is in or out of priority. It is calculated by subtracting Depletions and Obligations from Replacements.

j. (Summary) - a monthly summary table may be added at the bottom of the Summary tab below the daily summary



Monthly Summary

Month	Number of days Plan is in Priority (# of days) (1)	% of Days in Priority (%) (2)	Lagged Depletions (ac-ft) (3)	OOP Lagged Depletions (ac-ft) (4)	RFOs (ac-ft) (5)	Total (ac-ft) (6)	Aug Station (ac-ft) (7)	Res Release (ac-ft) (8)	Total (ac-ft) (9)	Balance (ac-ft) (10)	Net Effect (ac-ft) (11)
Nov-20	0.00	0%	1.77	1.77	1.81	3.58	0.00	4.26	4.26	0.68	0.68
Dec-20	0.00	0%	1.32	1.32	1.41	2.73	0.00	4.32	4.32	1.59	1.59
Jan-21	30.00	97%	1.25	0.04	1.15	1.19	0.00	0.77	0.77	-1.63	0.69
Feb-21	28.00	100%	1.17	0.00	0.89	0.89	0.00	0.00	0.00	-2.06	0.00
Mar-21	31.00	100%	1.17	0.00	0.88	0.88	0.00	0.00	0.00	-2.05	0.00
Apr-21	9.00	30%	1.25	0.04	0.84	0.88	3.83	0.00	3.83	1.75	2.38
May-21	0.00	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jun-21	0.00	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jul-21	0.00	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug-21	0.00	0%	0.00	0.00	0.00	0.00	0.00	0.00	[illegible]	0.00	0.00
Sep-21	0.00	0%	0.00	0.00	0.00	0.00	0.00	[illegible]	[illegible]	0.00	0.00
Oct-21	0.00	0%	0.00	0.00	0.00	0.00	[illegible]	[illegible]	0.00	0.00	0.00

Contact & Plan Info | Well & Meter Information | Depletions & Obligations | [illegible] | Summary | DWR | Version

Net Effect is the Balance or Net Impact value with the priority of the plan included. Plans considered in priority may not be required to replace depletions. This column represents whether the Aug plan shows injury to the river or has sufficiently replaced its uses.