COLORADO
Division of Water Resources
Department of Natural Resources

January 25, 2019

Cheryl Signs, P.E.
Cheryl Signs Engineering
109 East Fourth Avenue
Denver, CO 80203

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 Project, DRMS File No. M-2013-064 (WDID 0303044); SWSP ID: 5654
Kurtz Ranch Resource Recovery 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
Bearson Pit, DRMS File No. M-2015-033 (WDID 0503016); SWSP ID: 6020
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, 2019 through December 31, 2019
Contact Phone Number for Ms. Cheryl Signs: 303-778-7653
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Dear Ms. Signs:

This letter is in response to your letter dated October 23, 2018 and the additional information of December 13, 2018 and December 21, 2018, requesting a Combined Substitute Water Supply Plan ("SWSP") for Varra Companies Inc, ("VCI"), to cover mining operations at the Durham Pit, Western Sugar Pit, Varra-Coulson Resource Project Pit, Kurtz Pit, Heintzelman Pit, Bearson Pit and pumping of Feit Well. The combined plan for the above sites and Feit well, except the Kurtz Pit, Heintzelman Pit and Bearson Pit was most recently approved on March 31, 2017 for operations through December 31, 2018. The required renewal fee of $1028 ($257 x 3 gravel pits + $257 x 1 well) for Durham Pit, Western Sugar Pit, Varra-Coulson Resource Project Pit and Feit Well has been submitted (receipt no. 3689026). Separate SWSPs for Kurtz Pit and Heintzelman Pit were previously approved on April 15, 2013 for the operation through October 31, 2014 and August 26, 2011 for the operation through June 30, 2013, respectively. Since the last SWSP approval Kurtz Pit and Heintzelman Pit have been operated under the augmentation plan approved by the water court in case no. 2003CW306. The required fees of $257 ($257 x 2 gravel pits) for Kurtz Pit and Heintzelman Pit and $1593 for Bearson Pit have been submitted (receipt nos. 3688685, 3689025, and 3689826).

Plan Operation

The following tables list the sites that are involved in this combined replacement plan:

TABLE A – GRAVEL PIT SUMMARY

Site Name	WDID	DRMS Permit Number	Previous SWSP Approval	Current Well Permit Number/Receipt	Exposed Surface (acres)	New Permit Required?
Durham Pit	0303029	M-1978-056	March 31, 2017	61773-F	65.4	No

Western Sugar Pit	0303038	M-2010-049	March 31, 2017	75865-F	35	No
Varra-Coulson Resource Project Pit	0303044	M-2013-064	March 31, 2017	80764-F	100	No
Feit Well	0304999	n/a	March 28, 2016	78554-F	n/a	No
Bearson Pit*	0503016	M-2015-33	None	80584-F	39.2**	No
Kurtz Pit*	0503002	M-1999-006	April 15, 2013	74385-F	173.1	Yes
Heintzelman Pit*	0503010	M-2009-018	August 26, 2011	75616-F	105.5	Yes

*Bearson Pit, Kurtz Ranch Pit and Heintzelman Pit are also included in the augmentation plan approved by the Division 1 Water Court in case no. 2003CW306. 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. 2003CW306.
**The total surface area at the Bearson pit is 49 acres, however you reduced the surface area by 20 percent to reflect exposed ground water level, resulting in 39.2 acres.

TABLE B – GRAVEL PIT LOCATION

Site Name	Location	Stream Reach
Durham Pit	Sections 3, 9, and 10, T5N, R65W, 6th P.M.	Cache La Poudre
Western Sugar Pit	Sections 4 and 9, T5N, R65W, 6th P.M.	Cache La Poudre
Varra-Coulson Resource Project Pit	Section 10, T5N, R65W, 6th P.M.	Cache La Poudre
Feit Well	Section 26, T6N, R66W, 6th P.M.	Cache La Poudre
Bearson Pit	Section 33, T3N, R67W, 6th P.M.	Saint Vrain
Kurtz Pit	Sections 28 and 29, T3N, R67W, 6th P.M.	Saint Vrain
Heintzelman Pit	Section 32, T3N, R67W, 6th P.M.	Saint Vrain

VCI is the operator of the Durham Pit, Western Sugar Pit, Varra-Coulson Resource Project Pit, Kurtz Pit, Heintzelman Pit, and Bearson Pit. As mentioned above Kurtz Pit, Heintzelman Pit, and Bearson Pit, are also included in the augmentation plan approved by the Division 1 Water Court in case no. 2003CW306, and this SWSP will cover additional depletions not already covered by the decree in case no. 2003CW306. In addition, this plan will cover 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. 2003CW306. Mining is active at the Durham Pit, Western Sugar Pit, Varra-Coulson Resource Project Pit, Kurtz Pit, Heintzelman Pit, and Bearson Pit. Depletions at these sites are caused by evaporation of groundwater as well as operational losses including water lost in mined product, dust control, concrete batching, and reclamation irrigation. Replacement water in this combined plan will come from Greeley Irrigation Company ("GIC") shares and water stored in lined reservoirs (112, Dakolios, and Von Ohlen). The storage water source will be from changed Rural Ditch, Last Chance Ditch, and Hayseed Ditch water rights. The Rural Ditch stored water is also used to cover depletions at Kurtz Pit site (DRMS M-1999-006, WDID 0502513), Heintzelman Pit site (DRMS M-2009-18, WDID 0502525) and Bearson Pit (DRMS M-2015-033, WDID 0503016) pursuant to the decreed approved in case no. 2003CW306.

Depletions

The annual depletions under this combined SWSP resulting from evaporation, water lost in product, dust control, concrete production, and reclamation irrigation are shown in Table C below:

TABLE C – DEPLETION SUMMARY

Site Name	Evaporation Loss (ac-ft)	Product Moisture Loss (ac-ft)	Dust Control (ac-ft)	Concrete Production (ac-ft)	Reclamation Irrigation (ac-ft)	Total Depletions (ac-ft)	Lagged Depletions (ac-ft)
Durham Pit	165.0	7.9*	16.8	23.3	0.0	213.0	213.0
Feit Well	0.0	0.0	0.0	14.52	0.0	14.52	14.52
Western Sugar Pit	88.1	0.0	16.8	0.0	0.0	104.9	104.9
Varra-Coulson Resource Pit Project Pit	252.4	36.6**	16.8	0.0	0.0	305.8	305.8
					Total Cache la Poudre River Net Depletions		**638.2**
Bearson Pit	103.9	23.6***	3.4	0.0	0.0	130.9	130.9
Kurtz Pit	458.9	0.5****	5.7	0.0	275.0	740.1	740.1
Heintzelman Pit	279.6	27.9*****	4.2	0.0	10.0	321.8	321.8
					Total Saint Vrain River Net Depletions		**1192.8**

*Based on 267,931 tons of mined material (7.9 acre-feet)
**Based on 1,250,000 tons of mined material
***Based on 800,000 tons of mined material
****Based on 17,150 tons of mined material
*****Based on 949,800 tons of mined material

The total net depletions for Durham Pit, Western Sugar Pit, Varra-Coulson Resource Project Pit and Feit Well (Permit No. 78554-F) were taken from Tables 1, 2, 3 and 4 (attached). The total net depletions for Kurtz Pit, Heintzelman Pit, and Bearson Pit, were taken from Table 6, 7 and 8 (attached).

Durham Pit

The potentially exposed groundwater at this site totals 110 acres. According to the information submitted, 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 ground water exposed to the atmosphere prior to January 1, 1981 through open mining of sand and gravel, regardless of whether open mining operations continued or were reactivated on or after that date. The Water Court effectively held that Senate Bill 120 of 1989, as amended in Senate Bill 93-260, exempted all pre-1981 exposed ground water regardless of whether open mining operations continued or were reactivated on or after January 1, 1981. Accordingly, for the 110 acres potentially exposed at the site (44.6 acres exposed prior to January 1, 1981 and 65.4 exposed after December 31, 1980) of ground water currently exposed at the Durham Pit site, replacement of evaporative depletions is only required for the 65.4 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 ground water 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 this plan, which was based on the 6-feet depth to ground water, pending better site-specific information. Since the Applicant did not provide site-specific information regarding the depth to the ground water table at this location, no credit for phreatophyte is allowed in this SWSP until the depth to the ground water can be established. Therefore for the purpose of this SWSP the net evaporation from the 20.8 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 3 Column (5).

Computation of evaporation at the Durham Pit site was also reduced during the ice covered period. You have 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 Greeley weather station (ID 053533). However, for the purpose of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed ground water surface area that may occur during the assumed ice covered period (the months of January 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. The monthly depletions of the Durham Pit are included in "Table 3 Durham Gravel Pit Depletions".

Feit Well

Feit Well (Permit No. 78554-F, WDID 0304999) is used for the concrete batch plant owned by VCI, but located on the Feit Gravel Pit site. Well permit no. 78554-F limits the average annual amount of ground water 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 Demand."

Western Sugar Pit

The potentially exposed groundwater at this site totals 35 acres. Gross evaporation is estimated to be 42.12 inches per year. With an annual effective precipitation amount of 9.99 inches per year the net annual evaporation is estimated to be approximately 2.68 acre-feet per acre (32.13 inches). Computation of evaporation under this SWSP was also reduced during the ice covered period. You have 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 Greeley weather station (ID 053533). However, for the purpose of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed ground water surface area that may occur during the assumed ice covered period (the months of January 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. The monthly depletions of the Western Sugar Pit are included in "Table 2 Western Sugar Gravel Pit Depletions".

Varra-Coulson Resource Project Pit

The potentially exposed groundwater at this site totals 100 acres. Gross evaporation is estimated to be 42.12 inches per year. With an annual effective precipitation amount of 9.99 inches per year the net annual evaporation is estimated to be approximately 2.68 acre-feet per acre (32.13 inches).

Computation of evaporation under this SWSP was also reduced during the ice covered period. You have 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 Greeley weather station (ID 053533). However, for the purpose of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed ground water surface area that may occur during the assumed ice covered period (the months of January 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. The monthly depletions of the Varra-Coulson Resource Project Pit are included in "Table 4 Varra-Coulson Resource Recover Pit".

Kurtz Pit

The potentially exposed groundwater at this site totals 173.1 acres. Gross evaporation is estimated to be 43 inches per year, which is consistent with the value identified in the decree in case no. 2003CW306. With an annual effective precipitation amount of 9.17 inches per year the net annual evaporation is estimated to be approximately 2.82 acre-feet per acre (33.82 inches). Computation of evaporation under this SWSP was also reduced during the ice covered period. You have assumed the ice covered period to occur during the months of January and December, based on the average temperatures of 26.5°F for January and 29.7°F for December; taken from the Longmont 2ESE weather station. However, for the purpose of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed ground water surface area that may occur during the assumed ice covered period (the months of January 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. The monthly depletions of the Kurtz Pit are included in "Table 7-Kurtz Pit Demand". Portions of this site are being reclaimed which requires water to establish vegetation. Therefore, as identified in Table 7, column 10, 275 acre-feet of pumping is being proposed for reclamation irrigation.

Heintzelman Pit

The potentially exposed groundwater at this site totals 105.5 acres. Gross evaporation is estimated to be 43 inches per year, which is consistent with the value identified in the decree in case no. 2003CW306. With an annual effective precipitation amount of 9.17 inches per year the net annual evaporation is estimated to be approximately 2.82 acre-feet per acre (33.82 inches). Computation of evaporation under this SWSP was also reduced during the ice covered period. You have assumed the ice covered period to occur during the months of January and December, based on the average temperatures of 26.5°F for January and 29.7°F for December; taken from the Longmont 2ESE weather station. However, for the purpose of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed ground water surface area that may occur during the assumed ice covered period (the months of January 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. The monthly depletions of the Heintzelman Pit are included in "Table 8-Heitzelman Demand". A portion of this site is being reclaimed which requires water to establish vegetation. Therefore, as identified in Table 8, column 10, 10 acre-feet of pumping is being proposed for reclamation irrigation.

Bearson Pit

The potentially exposed groundwater at this site totals 39.2 acres. Gross evaporation is estimated to be 43 inches per year, which is consistent with the value identified in the decree in case no. 2003CW306. With an annual effective precipitation amount of 9.17 inches per year the net annual evaporation is estimated to be approximately 2.82 acre-feet per acre (33.82 inches). Computation of evaporation under this SWSP was also reduced during the ice covered period. You have 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 purpose of this SWSP, the Applicant shall replace the net evaporation depletions from the exposed ground water surface area that may occur during the assumed ice covered period (the months of January 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. The monthly depletions of the Bearson Pit are included in "Table 6- Bearson Demand".

Lagged Depletions

The monthly depletions to the river were lagged from the pit sites using the AWAS program developed by the IDS Group at Colorado State University. The parameters used in the model are shown in Table D below:

TABLE D – AQUIFER PARAMETERS

	Distance to river (X), ft	Aquifer Boundary (W), ft	Transmissivity (T), gpd/ft	Specific Yield
Durham Pit	1,350	2,600	100,000	0.2
Feit Well	1,100	2,600	100,000	0.2
Western Sugar Pit	1,350	2,600	100,000	0.28*
Varra-Coulson Resource Project Pit	900	2,600	180,000	0.28*
Bearson Pit	2,500	3,000	100,000	0.28*
Kurtz Pit	720	4,000	100,000	0.28*
Heintzelman Pit	225	1,300	100,000	0.28*

*Based on the USGS Water Supply Paper 1662D

In total, this SWSP and the decree in case no. 2003CW306 is required to replace 1545.9 acre-feet per year, of which 638.2 acre-feet per year are associated with the Durham Pit, Western Sugar Pit, Varra-Coulson Resource Pit and Feit Well and 1192.8 acre-feet are associated with the Kurtz Pit, Heintzelman Pit, and Bearson Pit.

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, three months for the Kurtz site, seven months for the Heintzelman site and five months for the Beason 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. **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 the pump curve data along with the accounting required for this SWSP to demonstrate if this procedure provides accurate data.**

Replacement

The proposed sources of replacement for the sites and the Feit Well included in this SWSP are VCI's ownership in Rural Ditch, Hayseed Ditch, GIC, Last Chance Ditch and if necessary portions of junior storage.

Seven shares of Greeley Irrigation Company ("GIC")

The Greeley Irrigation Company ("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 seven shares of the GIC 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 Project Pit and the remaining 5 shares were used to irrigate 33.7 acres at the Durham Pit site. The irrigated lands will be dried up as the site is mined. The values for the historical use credits of the seven shares of GIC were prorated from the historical ditch-wide analysis values decreed for the Greeley Irrigation Company in Case No. 96CW658. The seven shares of the GIC 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 the Applicant'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 Project Pit) historically irrigated with the seven shares. After applying the seven shares of Greeley Canal No. 3 and the Fossil Creek Reservoir water, there will be 565.8 acre-feet of uncompensated depletions at Feit Well, Durham Pit, Western Sugar Pit and Varra-Coulson Resource Project Pit (Table 5).

Rural Ditch (Case No. 2003CW306)

VCI owns 4 shares (or 6.64 cfs) of the Rural Ditch Company, which were changed in case no. 2003CW306. 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 percent and a ditch loss of 10 percent 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. 2003CW306 limits the diversion season from April 1 through October 31. In addition, the decree in case no. 2003CW306 limits the maximum monthly and annual volumetric delivery to the amounts shown in the table below. In addition, during any consecutive twenty-year period, total deliveries were limited to 7,752 acre-feet.

Maximum monthly and annual delivery limits in acre-feet

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

To the extent that the subject Rural Ditch water rights from the four shares are not needed for immediate use, pursuant to paragraph 13 of the decree in case no. 2003CW306, 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 releases of a portion of four shares in the Rural Ditch Company water previously stored in the 112 Reservoir, Dakolios

Reservoirs and the Von Ohlen Reservoir under the decree in case no. 2003CW306. Paragraph 14.f.iii of the decree in case no. 2003CW306 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 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 need to be measured at the new augmentation station located at the end of the ditch (WDID 0502305). Replacement water from 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 that 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 Reservoir, Dakolios Reservoirs and the Von Ohlen Reservoir will also be released to replace depletions for the VCI's Kurtz Pit, Heintzelman Pit and Bearson Pit.

Hayseed Ditch (Case No. 90CW174)

VCI's 2 cfs interest in the Hayseed Ditch was changed in case no. 90CW174. 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. 2003CW306. Use of the Hayseed Ditch under this SWSP is shown in Table 19 "Reservoir Operations Study, Dakolios East and West, 112 Reservoir & Van Ohlen Reservoir". The replacement water from Hayseed Ditch is left in the stream.

Junior Storage

Additional replacements for depletions during the non-irrigation season and during months with insufficient credits will be made by releasing water stored in VCI's Dakolios Reservoirs, 112 Reservoir, and Von Ohlen Reservoir. The water in storage is primarily junior water rights that were decreed in case no. 2001CW274 (see table below). Portion of the decreed amounts were decreed absolute in case no. 2014CW3026.

WDID	Source	Location	Appropriation Date	Decreed Amount
0600532	VCI Godding Ditch Diversion from Idaho Creek	NW1/4 SW1/4 of Sec. 21, Twp 2N, Rng. 68W (2,400'S, 900' W)	08/10/2001	11 cfs
0600551	VCI Rural Ditch Diversion from Boulder Creek	SW1/4 NE1/4 of Sec. 20, Twp 2N, Rng. 68W (2,275'N, 1,400' E)	08/10/2001	11 cfs
0600756	VCI Rural Ditch Diversion from Idaho Creek	SE1/4 SE1/4 of Sec. 16, Twp 2N, Rng. 68W (1,300'S, 420' E)	08/10/2001	11 cfs
0500642	VCI Godding Hollow Diversion from Godding Hollow	SW1/4 NW1/4 of Sec. 1, Twp 2N, Rng. 68W (2,500'N, 500' W)	09/08/2000	11 cfs
0500589	VCI Last Chance Ditch Diversion from St. Vrain Creek	SE1/4 NW1/4 of Sec. 3, Twp 2N, Rng. 68W (1,900'N, 2000' W)	08/10/2001	11 cfs

0504001	112 Reservoir	S1/2 of Sec. 2, Twp 2N, Rng. 68W (1,300'S, 2,600' E)	08/10/2001	1,552 acre-feet
0504003	Dakolios Reservoir	SW1/4 of Sec. 31, Twp 2N, Rng. 67W (1,400'S, 1,230' W)	08/10/2001	1,104 acre-feet
0504002	Von Ohlen Reservoir	SE1/4 of Sec. 31, Twp 2N, Rng. 67W (1,400'S, 1,800' E)	08/10/2001	1,300 acre-feet
0504000	Kurtz Reservoir	S1/2 of Sec. 28, Twp 3N, Rng. 67W (2,000'N, 1,300' W)	08/10/2001	4,000 acre-feet

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 November of 2017. According to the decree in case no. 2001CW274, 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 Pit site and the sites from the decree in case no. 2003CW306 have been identified as mining sites where the junior water rights decreed in case no. 2001CW274 may be used as a source of replacement water. You indicated that as of January 1, 2019 the water stored in the reservoirs totaled 3,010 acre-feet (see attached Table 15) consisting of a combination of Rural Ditch water and junior water decreed in case no. 2001CW274. The attached Table 15 shows the reservoir's operation during the period of this SWSP. 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. 2001CW274 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.

Last Chance Ditch five shares

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 No. CA6009 with appropriation dates from March 15, 1872, with a decreed diversion rate of 94.94 cfs. The Applicant owns 5 shares (24.235 cfs) of the outstanding 20 shares of the Last Chance Ditch which are included in the SWSP. Three of the five shares of the Last Chance Ditch were historically used for irrigation on the Kurtz Ranch and the other two shares of the Last Chance Ditch were historically used on a portion of the Van Ohlen Farm (one share) and Heintzelman Farm (one share). The study period of analysis chosen is 1947 through 1974. In the previous SWSP approval, we indicated if a future SWSP is requested for these shares, the study period must be extended through 2014, or the Applicant must provide additional detail to substantiate the claim that the 5 shares continued to be used for irrigation. As requested, the Applicant's water consultant provided the following information regarding the use of the 5 shares for irrigation after 1974. The Applicant's water consultant found that the study period chosen for the three 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. According to the Applicant's water consultant the increased diversions after 1974 occurred because Last Change Ditch

Company's measurement flume was leaning towards the stilling well causing the measurements to be greater than the actual diversions. The Last Change Ditch Company replaced its flume based on the order of the division engineer. Aerial photos after 1974 on the three parcels shows signs of irrigation of the farms until the mining began on these parcels. Since the Applicant's water consultant showed that there were no years of non-use or reduced use and that there wasn't an intent to abandon the water rights, the proposed study periods for the three parcels are accepted for the purpose of this SWSP. **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 years were used in the HCU analysis. Separate HCU analyses were conducted for each farm, with the following common methods and assumptions:

- 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 for calculation of effective precipitation.
- Assumed ditch loss of 10 percent.
- Temperature and precipitation data were taken from the Longmont weather station as published by NOAA.
- As requested by the previous SWSP the applicant provided information on the type of irrigation, soil properties and field slopes. The farms were 46 percent flood irrigated and 54 percent 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 you indicated that the parcels have been developed to reservoirs, gravel mines and housing development therefore historically irrigated conditions were not available.
- As requested by the previous SWSP, the Applicant used a site specific design irrigation efficiency of 65 percent for furrow and flood irrigation based on the SEO determination of site specific design efficiency for the Kurtz Farm, Von Ohlen Farm and Heintzelman Farm. The portion of the 65 percent 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 percent resulted in a calculated average seasonal irrigation efficiency for the three irrigated farms of 43 percent for the Kurtz Farm, 43 percent for the Von Ohlen Farm and 51 percent for Heintzelman Farm.
- The Applicant's model allows the soil moisture reservoir to be depleted below the point where crop transpiration would be reduced due to water stress and does not account for the resulting reduction in crop transpiration. This results in an overestimation of the historical consumptive use. **For the purpose of this SWSP the Applicant's analysis was modified to account for the reduction in crop transpiration that results from water stress. For any renewal requests the Applicant must either account for the reduction in crop transpiration that results from water stress or amend the model to limit the withdrawal from the soil moisture reservoir so that the soil moisture reservoir is not depleted below the point where the crops would experience a reduction in crop transpiration from water stress.**
- Water in excess of the irrigation requirement was added to the soil moisture bank, which was assumed to be three 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
- Return flows analyzed using AWAS software and the Glover methodology according to the parameters summarized in table below:

Summary of Glover Parameters

Farm	Distance from Farm to River (ft)	Distance from boundary to River (ft)	Transmissivity (gpd/ft)	Specific Yield
Kurtz	520	3,950	100,000	0.28
Von Ohlen	716	4,000	100,000	0.28
Heintzelman	450	1,100	100,000	0.28

The analysis for each farm is further described below.

Kurtz Farm

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 was based on a crop mix of corn, beets, alfalfa, grain, beans and pasture grass. The HCU results are summarized in the table below.

Kurtz Farm HCU Results

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Farm Headgate Delivery	0.0	0.0	0.0	12.9	92.6	165.5	229.8	210.7	145.1	18.3	0.0	0.0	874.8
On Farm Depletion of Surface Water	0.0	0.0	0.0	4.7	29.8	75.8	121.0	98.2	41.1	6.9	0.0	0.0	377.4
Surface Return Flows	0.0	0.0	0.0	1.6	11.9	17.0	20.7	21.4	19.8	2.2	0.0	0.0	94.5
Ground Water Return flows	0.0	0.0	0.0	6.6	50.9	72.7	88.2	91.1	84.3	9.2	0.0	0.0	402.9
Lagged Ground Water Return Flows	7.3	5.3	4.6	7.5	34.9	56.0	72.6	79.4	77.4	34.1	13.8	9.5	402.9
Average Net Depletion	-7.3	-5.3	-4.6	3.8	45.8	92.5	136.5	109.9	47.9	-18	-13.8	-9.5	377.4
Return Flow Factor	0.8%	0.6%	0.5%	58%	38%	34%	32%	38%	53%	3.9%	1.6%	1.1%	NA

Von Ohlen Farm

The one 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 was based on 90 acres of crop mix of corn, beets, alfalfa, grain, beans and pasture grass. The HCU results are summarized in the table below.

Von Ohlen Farm HCU Results

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Farm Headgate Delivery	0.0	0.0	0.0	4.3	30.9	55.2	76.6	70.2	48.4	6.1	0.0	0.0	291.6
On Farm Depletion of Surface Water	0.0	0.0	0.0	1.6	10.1	25.6	41.0	33.3	14.0	2.3	0.0	0.0	127.9
Surface Return Flow	0.0	0.0	0.0	0.5	4.0	5.6	6.8	7.0	6.5	0.7	0.0	0.0	31.1
Groundwater Return Flows	0.0	0.0	0.0	2.2	16.8	24.0	28.8	29.9	27.8	3.1	0.0	0.0	132.6
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	132.6
Average Net Depletion	-3.3	-2.4	-2.1	1.1	16.8	32.8	47.7	38.5	17.3	-7.9	-6.1	-4.3	127.9
Return Flow Factor	1.1%	0.8%	0.7%	63%	33%	30%	29%	35%	51%	4.6%	2.1%	1.5%	NA

Heintzelman Farm

The one 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 was based on 108.7 acres of crop mix of corn, beets, alfalfa, grain, beans and pasture grass. The HCU results are summarized in the table below.

Heintzelman Farm HCU Results

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Farm Headgate Delivery	0.0	0.0	0.0	4.3	30.9	55.2	76.6	70.2	48.4	6.1	0.0	0.0	291.6
On Farm Depletion of Surface Water	0.0	0.0	0.0	1.8	11.9	29.1	46.2	39.8	18.1	2.7	0.0	0.0	149.6
Surface Return Flow	0.0	0.0	0.0	0.6	4.4	6.0	7.0	7.0	6.9	0.8	0.0	0.0	32.7
Ground Water Return Flows	0.0	0.0	0.0	1.9	14.6	20.1	23.4	23.4	23.3	2.6	0.0	0.0	109.4
Lagged Ground Water Return Flows	0.0	0.0	0.0	1.4	11.4	18.4	22.7	23.4	23.1	8.0	0.9	0.1	109.4
Average Net Depletion	0.0	0.0	0.0	2.3	15.1	30.8	46.9	39.8	18.4	-2.7	-0.9	-0.1	149.6
Return Flow Factor	0.0%	0.0%	0.0%	33%	37%	33%	30%	33%	48%	2.7%	0.3%	0.0%	NA

The HCU results for the three farms are summarized below.

Table 6-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	1458
On Farm Depletion of Surface Water	0	0	0	8.1	51.8	130.5	208.2	171.3	73.2	11.9	0	0	654.9
Surface Return Flow	0	0	0	2.7	20.3	28.6	34.5	35.4	33.2	3.7	0	0	158.3
Ground Water Return Flows	0	0	0	10.7	82.3	116.8	140.4	144.4	135.4	14.9	0	0	644.9
Lagged Ground Water Return Flows	10.6	7.7	6.7	11.6	56.4	91.2	117.4	127.5	125.1	55.4	20.8	13.9	644.9
Average Net Depletion	-10.6	-7.7	-6.7	7.2	77.7	156.1	231.1	188.2	83.6	-28.6	-20.8	-13.9	654.8
Return Flow Factor	0.7%	0.5%	0.5%	54%	37%	33%	31%	36%	52%	3.8%	1.4%	1.0%	NA

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 6 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.

For purposes of this SWSP the Applicant's monthly share delivery shall not exceed the historical monthly average farm headgate delivery as summarized in Table 6 above.

Based on the historical study periods of 1947 through 1974, Table 6 above provides a monthly summary of the estimated yield associated with the subject 5 shares of the Last Change 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.

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 ground water. The DRMS letter identifies four approaches to satisfy this requirement. The 4th 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 ground water 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, you have provided an affidavit dated November 1, 2010 that dedicates the Applicant's 5 shares of Greeley Irrigation Company, 4 shares of Rural Ditch Company and portion of water rights decreed in case no. 2001CW274, as replacement water solely for the Durham Pit site, Kurtz Pit site (M-1999-006) and Western Sugar Mine site (M-2010-049), for as long as there are depletions at these gravel pit sites or until such time as another replacement sources are obtained. A copy of the affidavit is attached to this letter. For the purposes of this SWSP, this affidavit will be accepted for the dedication of the shares; however, if the State Engineer determines that a different affidavit or dedication process is necessary to assure proper dedication of the shares, additional information may be required prior to future SWSP approvals.

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 § 37-90-137(11), C.R.S. For the purpose of 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 either from the Last Chance Ditch or from Bearson Pit dewatering. Prior to using water from Bearson Pit dewatering, the Applicant must perform a lagged depletion analysis of the dewatering water proposed to be used in this plan, therefore use of the dewatering water from Bearson Pit is not approved under this SWSP. A Last Chance ditch lateral crosses directly south of the Meyer Family parcel. The mitigation water supply will be delivered to a settling pond to be constructed by Varra at the southeast corner of the Mayer Family parcel and thence to an existing pond that is proposed to be lined. The estimated deliveries are shown in Table 15, row 14. In addition, Table 15, row 13 shows a proposed lease of water to A&W Water Service, Inc., however this water is not proposed under § 37-90-137(11), C.R.S. and is subject to a different SWSP submitted by Varra pursuant to § 37-92-308(5), C.R.S. (#3689089).

Conditions of Approval

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

1. This SWSP is approved with the effective date of January 1, 2019 and shall be valid through December 31, 2019 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 **November 1, 2019**. 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. Well permit no. 61773-F, was obtained for the current use and exposed pond surface area of the Durham gravel pit, well permit no. 75865-F was obtained for the Western Sugar Pit, well permit no. 80764-F was obtained for the Varra-Coulson Resource Pit, well permit no. 80584-F was obtained for the Bearson Pit, well permit no. 74385-F was obtained for the Kurtz Pit, well permit no. 75616-F

was obtained for the Heintzelman Pit, and well permit no. 78554-F was obtained for the Feit Well in accordance with §37-90-137(2) and (11), C.R.S.

3. Prior to use for reclamation purposes, new well permits must be obtained for the Kurtz Pit and Heintzelman Pit in accordance with Section § 37-90-137(2) and (11), C.R.S. since the existing well permits issued for these sites do not include irrigation use for reclamation purposes. The provisions of § 37-90-137(2), C.R.S. prohibits 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 2CCR402-5. This hearing may be waived if you are able 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.

4. The total surface area of the groundwater exposed after December 31, 1980 must not exceed 65.4 acres at the Durham Pit, which results in a maximum evaporative annual loss at the Durham Pit of 165.0 acre-feet. The total surface area of groundwater exposed at the Western Sugar Pit must not exceed 35.0 acres, which results in a maximum evaporative annual loss of 88.1 acre-feet. The total surface area of groundwater exposed at the Varra-Coulson Resource Project Pit must not exceed 100 acres, which results in a maximum evaporative annual loss of 252.2 acre-feet. The total surface area of groundwater exposed at the Bearson Pit must not exceed 39.2 acres, which results in a maximum evaporative annual loss of 103.9 acre-feet. The total surface area of groundwater exposed at the Kurtz Pit must not exceed 173.1 acres, which results in a maximum evaporative annual loss of 458.9 acre-feet. The total surface area of groundwater exposed at the Heintzelman Pit must not exceed 105.5 acres, which results in a maximum evaporative annual loss of 279.6 acre-feet.

5. The total area of pond surface exposed for each of the pits shall not exceed those values listed in Table A of this approval and the total amount of ground water 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.

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. All pumping for dust control shall be measured in a manner acceptable to the division engineer.

8. The water attributable to seven 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.

9. The Applicant is required to maintain the historical return flow obligations that are associated with the use of the seven shares of Greeley Canal No. 3, five shares of the Last Chance Ditch, and the Applicant's Fossil Creek Reservoir water used for replacement purposes in this SWSP.

10. 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.

11. Adequate accounting of depletions and replacements must be provided to the division engineer in Greeley (Div1Accounting@state.co.us) and the water commissioners (Mark Simpson at Mark.Simpson@state.co.us, Shera Sumerford at Shera.Sumerford@state.co.us , and Bob Carlson at Bob.Carlson@state.co.us) on a monthly basis or other interval acceptable to them. The accounting form provided with your application is subject to modification and approval by the division engineer. All submitted accounting shall conform to the Administration Protocol

"*Augmentation Plan Accounting, Division One – South Platte River*" (attached).

12. 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.

13. 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).

14. 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. **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 percent 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.**

15. To assure that depletions from ground water evaporation do not occur in the unforeseen event, or events, that would lead to the abandonment of the pit, the Applicant has dedicated seven (7) shares of the Greeley Canal No. 3 and Fossil Creek Reservoir, four (4) shares of the Rural Ditch Company and a portion of water rights decreed in case no. 2001CW274 as replacement water for this SWSP for as long as there are depletions at this gravel pit site or until such time as another replacement source is obtained. A copy of the affidavit dated November 1, 2010 is attached to this letter. **For the purposes of this SWSP amendment, 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.**

16. 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.

17. 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.

18. 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 Ioana Comaniciu in Denver at (303) 866-3581, or Michael Hein in Greeley at (970) 352-8712, if you have any questions concerning this approval.

Sincerely,

Jeff Deatherage, P.E.
Chief of Water Supply

Attachments: Feit Well Demand Table 1
Western Sugar Demand Table 2
Durham Demand Table 3
Varra-Coulson Resource Project Pit Table 4
Table 5 Remaining Replacement Requirement
Table 6 Bearson Pit Demand
Table 7 Kurtz Demand
Table 8 Heintzelman Demand
Table 15 Reservoir Operation Study
Affidavit of dedication of water rights
Pre-81 Aerial

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Mark Simpson, Water Commissioner, Water District 3, mark.simpson@state.co.us
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Bob Carlson, Water Commissioner District 6, bob.carlson@state.co.us
P.O. Box 380, Erie, Co 80516, (303) 438-9303

Division of Reclamation Mining and Safety

JD/JMW/idc/Varra Combined SWSP 2019

Table 1
Feit Well Demand
(All Values in acre-feet)

Month	Plant Use	Domestic Use	Withdrawal	Depletion
Jan	0.73	0.01	0.74	-1.06
Feb	0.61	0.01	0.62	-0.84
Mar	1.19	0.01	1.20	-0.95
Apr	0.29	0.01	0.30	-0.74
May	2.23	0.01	2.24	-1.25
Jun	0.54	0.01	0.55	-1.15
Jul	0.95	0.01	0.96	-0.96
Aug	2.23	0.01	2.24	-1.47
Sep	0.82	0.01	0.83	-1.35
Oct	2.23	0.01	2.24	-1.60
Nov	1.67	0.01	1.68	-1.75
Dec	0.91	0.01	0.92	-1.40
Annual	14.40	0.12	14.52	-14.52

Note: Depletion modeled using AWAS 1.5.64 New Modified with T = 100,000 gpd/ft, W = 2,600 ft, S = 0.2, X = 1,100 ft

Table 2

Western Sugar Gravel Pit Depletions

	Potential Groundwater Evaporation						Product Water Loss					
Mon	Monthly Dist (%)	Gross Evap (in)	Avg Precip (in)	Effect Precip (in)	Net Evap (in)	Net Evap (af)	Production (Tons)	Water Loss (af)	Dust Control Trucks	Dust Control Volume (af)	With-drawal (af)	Depletions (af)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Jan	3.0	1.3	0.5	0.4	0.9	ICE	0	0.0	90	1.4	1.4	-4.3
Feb	3.5	1.5	0.4	0.3	1.2	3.5	0	0.0	90	1.4	4.9	-3.8
Mar	5.5	2.3	1.1	0.8	1.5	4.4	0	0.0	90	1.4	5.8	-4.4
Apr	9.0	3.8	1.8	1.3	2.5	7.3	0	0.0	90	1.4	8.7	-5.7
May	12.0	5.1	2.5	1.7	3.3	9.7	0	0.0	90	1.4	11.1	-7.7
Jun	14.5	6.1	1.9	1.3	4.8	14.0	0	0.0	90	1.4	15.4	-10.3
Jul	15.0	6.3	1.5	1.0	5.3	15.4	0	0.0	90	1.4	16.8	-12.9
Aug	13.5	5.7	1.2	0.8	4.9	14.2	0	0.0	90	1.4	15.6	-14.3
Sep	10.0	4.2	1.2	0.8	3.4	9.9	0	0.0	90	1.4	11.3	-13.8
Oct	7.0	2.9	1.0	0.7	2.2	6.5	0	0.0	90	1.4	7.9	-12.0
Nov	4.0	1.7	0.8	0.6	1.1	3.2	0	0.0	90	1.4	4.6	-9.4
Dec	3.0	1.3	0.5	0.3	0.9	ICE	0	0.0	90	1.4	1.4	-6.5
Annual	100.0	42.1	14.3	10.0	32.1	88.1	0	0.0	1080	16.8	104.9	-104.9

NOTES:

(2) Based on state's guidelines

(3) Evaporation Rate x (2)/100

(4) Average for UNC climatological station (53553)

(5) (4) x 0.7

(6) (3) - (5)

(7) (6) x Potentially exposed ground water of 35 ac / 12

(8) Projected monthly

(9) (8) x =2000/62.4/43560*0.04 based on state's guidelines

(10) Projected number of trucks

(11) (10) x 5,000 (gal) / 325851

(12) (7) + (9) + (11)

(13) AWAS: T = 100,000, S = 0.28, W = 2,600, X = 1,350

Table 3

Durham Gravel Pit Depletions

Mon	Potential Groundwater Evaporation						Product Water Loss		Dust Control				
	Monthly Dist (%)	Gross Evap (in)	Avg Precip (in)	Effect Precip (in)	Net Evap (in)	Net Evap (ac-ft)	Product (Tons)	Water Loss (ac-ft)	Trucks	Volume (ac-ft)	Batch WS (ac-ft)	Total w/drawal (ac-ft)	Total Depletions (ac-ft)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Jan	3.0	1.3	0.5	0.4	0.9	ice	13,397	0.4	90	1.4	1.2	3.0	-7.1
Feb	3.5	1.5	0.4	0.3	1.2	6.6	12,057	0.4	90	1.4	1.0	9.4	-7.0
Mar	5.5	2.3	1.1	0.8	1.5	8.3	13,397	0.4	90	1.4	1.9	12.0	-9.1
Apr	9.0	3.8	1.8	1.3	2.5	13.7	26,793	0.8	90	1.4	0.5	16.4	-12.0
May	12.0	5.1	2.5	1.7	3.3	18.1	28,468	0.8	90	1.4	3.6	23.9	-16.8
Jun	14.5	6.1	1.9	1.3	4.8	26.2	30,812	0.9	90	1.4	0.9	29.4	-22.4
Jul	15.0	6.3	1.5	1.0	5.3	28.9	31,147	0.9	90	1.4	1.5	32.7	-27.2
Aug	13.5	5.7	1.2	0.8	4.9	26.6	30,142	0.9	90	1.4	3.6	32.5	-30.0
Sep	10.0	4.2	1.2	0.8	3.4	18.4	28,468	0.8	90	1.4	1.3	21.9	-28.0
Oct	7.0	2.9	1.0	0.7	2.2	12.2	26,458	0.8	90	1.4	3.6	18.0	-23.4
Nov	4.0	1.7	0.8	0.6	1.1	6.0	13,397	0.4	90	1.4	2.7	10.5	-18.2
Dec	3.0	1.3	0.5	0.3	0.9	ice	13,397	0.4	90	1.4	1.5	3.3	-11.8
Annual	100.0	42.1	14.3	10.0	32.1	165.0	267,931	7.9	1080	16.8	23.3	213.0	-213.0

NOTES:

(2) Based on state's guidelines

(3) Evaporation Rate x (2)/100

(4) Average for UNC climatological station (53553)

(5) (4) x 0.7

(6) (3) - (5)

(7) (6) x Potentially exposed ground water of 65.4 ac /12
zero when average monthly T < 32°

(8) Projected monthly

(9) (8) x 2000 / 62.4 / 43560 x 0.04

(10) Projected number of trucks

(11) (10) x 5,000 (gal) / 325851

(12) Projected batch water requirement

(13) (7) + (9) + (11) + (12)

(14) AWAS: T = 100,000, S = 0.28, W = 2,600, X = 1,350

Table 4

Varra-Coulson Resource Recovery Pit

Month	Evaporation						Product Water Lost		Dust Control			
	Monthly Dist.	Gross Evap	Avg Precip	Effect Precip	Net Evap > 0	Net Evap > 0	Production	Volume	Trucks	Volume	Withdraw	Depletion
	(%)	(in)	(in)	(in)	(in)	(ac-ft)	(Tons)	(ac-ft)		(ac-ft)	(ac-ft)	(ac-ft)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Jan	3.0	1.3	0.5	0.4	0.9	ice	86,220	2.5	90	1.4	3.9	-3.1
Feb	3.5	1.5	0.4	0.3	1.2	10.0	78,659	2.3	90	1.4	13.7	-8.0
Mar	5.5	2.3	1.1	0.8	1.5	12.5	86,103	2.5	90	1.4	16.4	-13.6
Apr	9.0	3.8	1.8	1.3	2.5	20.8	71,768	2.1	90	1.4	24.3	-20.9
May	12.0	5.1	2.5	1.7	3.4	28.3	99,050	2.9	90	1.4	32.6	-29.3
Jun	14.5	6.1	1.9	1.3	4.8	40.0	95,229	2.8	90	1.4	44.2	-39.9
Jul	15.0	6.3	1.5	1.0	5.3	44.2	128,578	3.8	90	1.4	49.4	-47.9
Aug	13.5	5.7	1.2	0.8	4.9	40.8	141,010	4.1	90	1.4	46.3	-48.3
Sep	10.0	4.2	1.2	0.8	3.4	28.3	99,352	2.9	90	1.4	32.6	-40.0
Oct	7.0	2.9	1.0	0.7	2.2	18.3	110,568	3.3	90	1.4	23.0	-29.1
Nov	4.0	1.7	0.8	0.6	1.1	9.2	124,021	3.6	90	1.4	14.2	-18.0
Dec	3.0	1.3	0.5	0.3	0.9	ice	129,441	3.8	90	1.4	5.2	-7.6
Ann	100.0	42.1	14.3	10.0	32.1	252.4	1,250,000	36.6	1080	16.8	305.8	-305.8

Table 5

Poudre Depletion, GIC Replacement, & Remaining Requirement

	Requirement					Replacement from 7 Shares of GIC					
Month	Durham Dep (ac-ft) (1)	Feit Dep (ac-ft) (2)	Western Sugar Dep (ac-ft) (3)	Varra-Coulson Dep (ac-ft) (4)	Total Dep (ac-ft) (5)	Delivery (ac-ft) (6)	Lagged RF (ac-ft) (7)	Fossil Creek Reservoir Delivery (ac-ft) (8)	Lagged RF (ac-ft) (9)	Delivery + RF (ac-ft) (10)	Remaining Requirement (ac-ft) (11)
Jan	-7.1	-1.0	-4.3	-3.1	-15.5		-2.4		-0.1	-2.5	-17.9
Feb	-7.0	-0.8	-3.8	-8.0	-19.6		-2.2		-0.1	-2.3	-22.0
Mar	-9.1	-0.9	-4.4	-13.6	-28.0		-2.1		-0.1	-2.2	-30.2
Apr	-12.0	-0.7	-5.7	-20.9	-39.3	3.6	-2.4		-0.1	1.1	-38.2
May	-16.8	-1.3	-7.7	-29.3	-55.1	18.8	-8.8		-0.1	9.9	-45.2
Jun	-22.4	-1.1	-10.3	-39.9	-73.7	24.6	-8.7		-0.1	15.8	-57.9
Jul	-27.2	-1.0	-12.8	-47.9	-88.9	30.0	-9.2	1.5	-0.4	21.9	-67.1
Aug	-30.0	-1.5	-14.2	-48.4	-94.1	25.3	-8.1	4.3	-1.0	20.5	-73.6
Sep	-28.0	-1.4	-13.8	-40.0	-83.2	18.8	-7.8	1.0	-0.4	11.6	-71.6
Oct	-23.4	-1.6	-12.0	-29.1	-66.1	9.4	-5.2		-0.1	4.1	-62.0
Nov	-18.2	-1.8	-9.4	-18.0	-47.4		-2.8		-0.1	-2.9	-50.3
Dec	-11.8	-1.4	-6.5	-7.6	-27.3		-2.5		-0.1	-2.6	-29.9
Annual	-213.0	-14.5	-104.9	-305.8	-638.2	130.5	-62.2	6.8	-2.7	72.4	-565.8

Notes:

(1) Varra Combined SWSP

(2) Varra Combined SWSP

(3) Varra Combined SWSP

(4) Varra Combined SWSP

(5) (1) + (2) + (3) + (4)

(6) From Case No. 96CW658 for 7 shares

(7) From Case No. 96CW658 for 7 shares

(8) From Case No. 96CW658 for 7 shares

(9) From Case No. 96CW658 for 7 shares

(10) (6) + (7) + (8) + (9)

(11) (5)+ (10)

Table 6

Bearson Demand

MON	Monthly Dist. (%)	Gross Evap (in)	Avg. Precip. (in)	Effect. Precip. (in)	Net Evap. (in)	Net Evap. 39.2 ac (af)	Product Tons	Product (af)	Dust Control Trucks	Dust Control (af)	Withdrawal (af)	Depletion (af)
Jan	3.0	1.29	0.38	0.27	1.02	ICE	71,547	2.11	31	0.29	2.40	-8.50
Feb	3.5	1.51	0.41	0.29	1.22	3.98	41,810	1.23	28.25	0.26	5.47	-6.70
Mar	5.5	2.37	0.99	0.69	1.67	5.46	29,686	0.87	31	0.29	6.63	-6.23
Apr	9.0	3.87	1.70	1.19	2.68	8.75	55,729	1.64	30	0.28	10.67	-6.43
May	12.0	5.16	2.50	1.75	3.41	11.14	75,361	2.22	31	0.29	13.65	-7.70
Jun	14.5	6.24	1.75	1.23	5.01	16.37	75,508	2.22	30	0.28	18.86	-9.91
Jul	15.0	6.45	1.10	0.77	5.68	18.55	98,065	2.89	31	0.29	21.73	-12.92
Aug	13.5	5.81	1.13	0.79	5.01	16.38	81,363	2.39	31	0.29	19.06	-15.59
Sep	10.0	4.30	1.23	0.86	3.44	11.23	61,723	1.82	30	0.28	13.33	-16.46
Oct	7.0	3.01	0.87	0.61	2.40	7.84	75,432	2.22	31	0.29	10.35	-15.49
Nov	4.0	1.72	0.61	0.43	1.29	4.22	62,413	1.84	30	0.28	6.34	-13.75
Dec	3.0	1.29	0.43	0.30	0.99	ICE	71,364	2.10	31	0.29	2.39	-11.20
TOTAL	100.00	43.00	13.10	9.17	33.82	103.92	800,000	23.55	365.25	3.41	130.88	-130.88

CONSTANTS

Product Loss a-f/ton	Dust Control a-f/truck
2.9E-05	0.00921

NOTES:

(2) Based on state's guidelines

(3) Evaporation Rate x (2)/100

(4) Average for UNC climatological station (5355:

(5) (4) x 0.7

(6) (3) - (5)

(7) (6) / 12

(8) (7) x Potentially exposed ground water of 39.2 ac / 12

(9) Projected monthly

(10) (8) x =2000/62.4/43560*0.04 based on state's guidelines

(11) Projected monthly

(12) (11) x 5000 gal / 325851 (gal/af)

(13) (7) + (10) + (12)

(14) AWAS using T = 100,000, S = 0.28, W = 3,000, X = 2.500

Table 7
Kurtz Pit Mining Demand

Month	Product		Dust Control		Net Evap.			Batch Use	Irrigation	Withdrawal	Depletion
	Tons	AF	Trucks	AF	ac	in.	AF	AF	AF	AF	AF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Jan	1,000	0.03	3	0.05	173.1	1.02	ICE	0.00	0.00	0.08	-12.38
Feb	900	0.03	5	0.08	173.1	1.22	17.60	0.00	0.00	17.71	-20.48
Mar	1,300	0.04	20	0.31	173.1	1.67	24.09	0.00	0.00	24.44	-26.11
Apr	1,200	0.04	25	0.38	173.1	2.68	38.66	0.00	27.00	66.08	-52.19
May	1,500	0.04	35	0.54	173.1	3.41	49.19	0.00	55.00	104.77	-83.67
Jun	1,600	0.05	50	0.77	173.1	5.01	72.27	0.00	28.00	101.09	-90.66
Jul	1,800	0.05	55	0.84	173.1	5.68	81.93	0.00	55.00	137.82	-115.17
Aug	2,000	0.06	65	1.00	173.1	5.01	72.27	0.00	83.00	156.33	-135.42
Sep	1,900	0.06	45	0.69	173.1	3.44	49.62	0.00	27.00	77.37	-93.90
Oct	1,950	0.06	35	0.54	173.1	2.40	34.62	0.00	0.00	35.22	-55.62
Nov	1,000	0.03	25	0.38	173.1	1.29	18.61	0.00	0.00	19.02	-35.91
Dec	1,000	0.03	10	0.15	173.1	0.99	ICE	0.00	0.00	0.18	-18.60
TOTAL	17,150	0.50	373	5.73		33.82	458.86	0	275.00	740.11	-740.11

NOTES:

(1) Month of Irrigation Year
(2) Product Mined
(3) (2) x Product Loss from Constant Table
(4) Number of trucks
(5) (4) x Dust Control from Constant Table
(6) Exposed Groundwater
(7) Net Evaporation from Table 6 - Bearson Demand
(8) (6) x (7)
(9) Water used to produce concrete
(10) Water used for irrigation
(11) + (3) + (5) + (8) + (9) + (10)
(12) Lagged Withdrawal using AWAS: T 100,000 gal/day/ft; SY 0.28; W 4000'; X 80'

CONSTANTS

Product Loss a-f/ton	Dust Control a-f/truck
2.9E-05	0.01534

Table 8
Heintzelman Mine Demand

Month	Product Tons	Product AF	Dust Control Trucks	Dust Control AF	Net Evap. ac	Net Evap. in.	Net Evap. AF	Batch Use AF	Irrigation AF	Withdrawal AF	Depletion AF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Jan	96,000	2.83	3	0.05	105.5	1.02	ICE	0.00	0.00	2.87	-3.80
Feb	62,000	1.82	5	0.08	105.5	1.22	10.73	0.00	0.00	12.63	-10.26
Mar	84,300	2.48	20	0.31	105.5	1.67	14.68	0.00	0.00	17.47	-15.59
Apr	99,100	2.92	25	0.38	105.5	2.68	23.56	0.00	1.00	27.86	-24.56
May	137,000	4.03	35	0.54	105.5	3.41	29.98	0.00	2.00	36.55	-33.37
Jun	115,100	3.39	50	0.77	105.5	5.01	44.05	0.00	1.00	49.20	-44.96
Jul	111,100	3.27	55	0.00	105.5	5.68	49.94	0.00	2.00	55.21	-52.50
Aug	25,200	0.74	65	1.00	105.5	5.01	44.05	0.00	3.00	48.79	-49.81
Sep	5,000	0.15	45	0.00	105.5	3.44	30.24	0.00	1.00	31.39	-36.33
Oct	3,000	0.09	35	0.54	105.5	2.40	21.10	0.00	0.00	21.73	-25.57
Nov	140,000	4.12	25	0.38	105.5	1.29	11.34	0.00	0.00	15.84	-18.43
Dec	72,000	2.12	10	0.15	105.5	0.99	ICE	0.00	0.00	2.27	-6.63
TOTAL	949,800	27.95	373.00	4.19		33.82	279.67	0.00	10.00	321.81	-321.81

NOTES:

(1) Month of Irrigation Year
(2) Product Mined
(3) (2) x Product Loss from Constant Table
(4) Number of trucks w/ 5,000 gal capacity
(5) (4) x Dust Control from Constant Table
(6) Exposed Groundwater
(7) Net Evaporation from Table 6 Bearson Demand
(8) (6) x (7)
(9) Water used to produce concrete
(10) Water used for irrigation
(11) + (3) + (5) + (8) + (9) + (10)
(12) Lagged Withdrawal using AWAS: T 100,000 gal/day/ft; SY 0.28; W 4000'; X 500'

CONSTANTS

Product Loss a-f/ton	Dust Control a-f/truck
2.9E-05	0.0153444

Table 15

Table 1
Operations Study
(All Values in af unless otherwise indicated)

	ITEM	2019 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
(1)	Beginning Contents	3,010	2,855	2,650	2,419	2,213	2,084	2,072	2,108	2,055	1,930	3,176	3,018	
(2)	Rural CU	0.0	0.0	0.0	10.2	40.2	53.7	61.6	47.6	19.7	15.0	0.0	0.0	248.0
(3)	Rural RF	-3.2	-3.0	-2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.2	-3.0	-15.1
(4)	Hayseed CU	0.0	0.0	0.0	9.2	16.9	24.7	28.9	24.7	16.2	9.9	0.0	0.0	130.4
(5)	Hayseed RF	-1.3	-1.0	-0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.5	-1.7	-7.4
(6)	Last Chance Net CU	-7.3	-5.3	-4.6	3.8	45.8	92.5	136.5	109.9	47.9	-18.0	-13.8	-9.5	377.9
(7)	Last Chance Net CU	-3.3	-2.4	-2.1	1.1	16.8	32.8	47.7	38.5	17.3	-7.9	-6.1	-4.3	128.1
(8)	Last Chance Net CU	0.0	0.0	0.0	2.3	15.1	30.8	46.9	39.8	18.4	-2.7	-0.9	-0.1	149.6
(9)	Poudre Replacement	-17.9	-22.0	-30.2	-38.2	-45.2	-57.9	-67.1	-73.6	-71.6	-62.0	-50.3	-29.9	-565.8
(10)	Kurtz Replacement	-12.4	-20.5	-26.1	-52.2	-83.7	-90.7	-115.2	-135.4	-93.9	-55.6	-35.9	-18.6	-740.1
(11)	Heintzelman Replacement	-3.8	-10.3	-15.6	-24.6	-33.4	-45.0	-52.5	-49.8	-36.3	-25.6	-18.4	-6.6	-321.8
(12)	Bearson Replacement	-8.5	-6.7	-6.2	-6.4	-7.7	-9.9	-12.9	-15.6	-16.5	-15.5	-13.7	-11.2	-130.9
(13)	Lease Replacement	-75.0	-100.0	-100.0	-40.0	-35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-350.0
(14)	Farm Replacement	0.0	0.0	0.0	-25.0	-15.0	-5.0	-10.0	-20.0	-15.0	-10.0	0.0	0.0	-100.0
(15)	Surface Area, ac	111.7	105.9	98.3	89.8	82.1	77.3	76.9	78.2	76.2	71.6	117.8	112.0	
(16)	Evap Dist, %	5.5	9.0	12.0	14.5	15.0	13.5	10.0	7.0	4.0	3.0	3.0	3.5	100.0
(17)	Evap Rate, in	2.4	3.9	5.2	6.2	6.5	5.8	4.3	3.0	1.7	1.3	1.3	1.5	43.0
(18)	Evaporation	-22.0	-34.2	-42.3	-46.6	-44.1	-37.4	-27.6	-19.6	-10.9	-7.7	-12.7	-14.0	-319.2
(19)	Trial Ending Contents	2,855	2,650	2,419	2,213	2,084	2,072	2,108	2,055	1,930	1,750	3,018	2,919	
(20)	Spill	(1,163)	(1,368)	(1,599)	(1,806)	(1,935)	(1,946)	(1,910)	(1,963)	(2,088)	(2,268)	(1,000)	(1,099)	
(21)	Ending Contents	2,855	2,650	2,419	2,213	2,084	2,072	2,108	2,055	1,930	1,750	3,018	2,919	

NOTES:

(1) Previous month contents
(2) From decree in Case No. 03CW306
(3) From decree in Case No. 03CW306
(4) From decree in Case No. 90CW174
(5) From decree in Case No. 90CW174
(6) Three shares on Kurtz
(7) One share on Von Ohlen
(8) One share on Heintzelman
(9) Table 5:Durham + Feit + Western Sugar + V-C + GIC credit - GIC RF
(10) Kurtz projection
(11) Heintzelman projection
(12) Bearson projection
(13) Reserved for lease
(14) Reserved for farm replacement
(15) Surface Area = 0.037 * contents based on total capacity of 4018 af with surface area of 149 acres
(16) Monthly Evaporation Distribution from Guidelines
(17) 43 inches per year based on NWS 33 distributed by state's guidelines
(18) (15) x (17) / 12
(19) Sum of (1) through (14) + (18)
(20) (19) - Combined capacity of 4,018 af
(21) (19) limited to maximum capacity of 4,018 af

AFFIDAVIT

I. Garrett C. Varra. Vice 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 North. Range 65 West. 6th P.M.. 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 P.M.. Weld County. Colorado.

3. The Varra-Coulson Resource Project (DRMS No. M-13-65) is located in portions of Section 10. T5N. R65W. 6th P.M.

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 P.M.. 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 P.M.. Weld County. Colorado.

6. Hayseed Ditch decreed in Case No. 90CW174. seven (7) shares of Greeley Irrigation Company. four (4) shares of Rural Ditch Company as changed in Case No. 03CW306. five (5) shares of La Chance Ditch Company, twelve (12) shares of Godding Ditch Company. and necessary portions the water rights decreed in Case No. 01CW274.

7. The water listed in 6. above is dedicated solely for use as decreed in Case No. 03CW306 and in the Substitute Water Supply Plans for the sites listed above.

8. Any additional use of the water listed in 6. above will be only with the Division of Water Resources' and/or Division One Water Court's approval.

Further Affiant sayeth naught.

Affiant
Garrett C. Varra. Vice President
8120 Gage Street
Frederick. CO 80516

STATE OF COLORADO)
) ss.
COUNTY OF WELD)

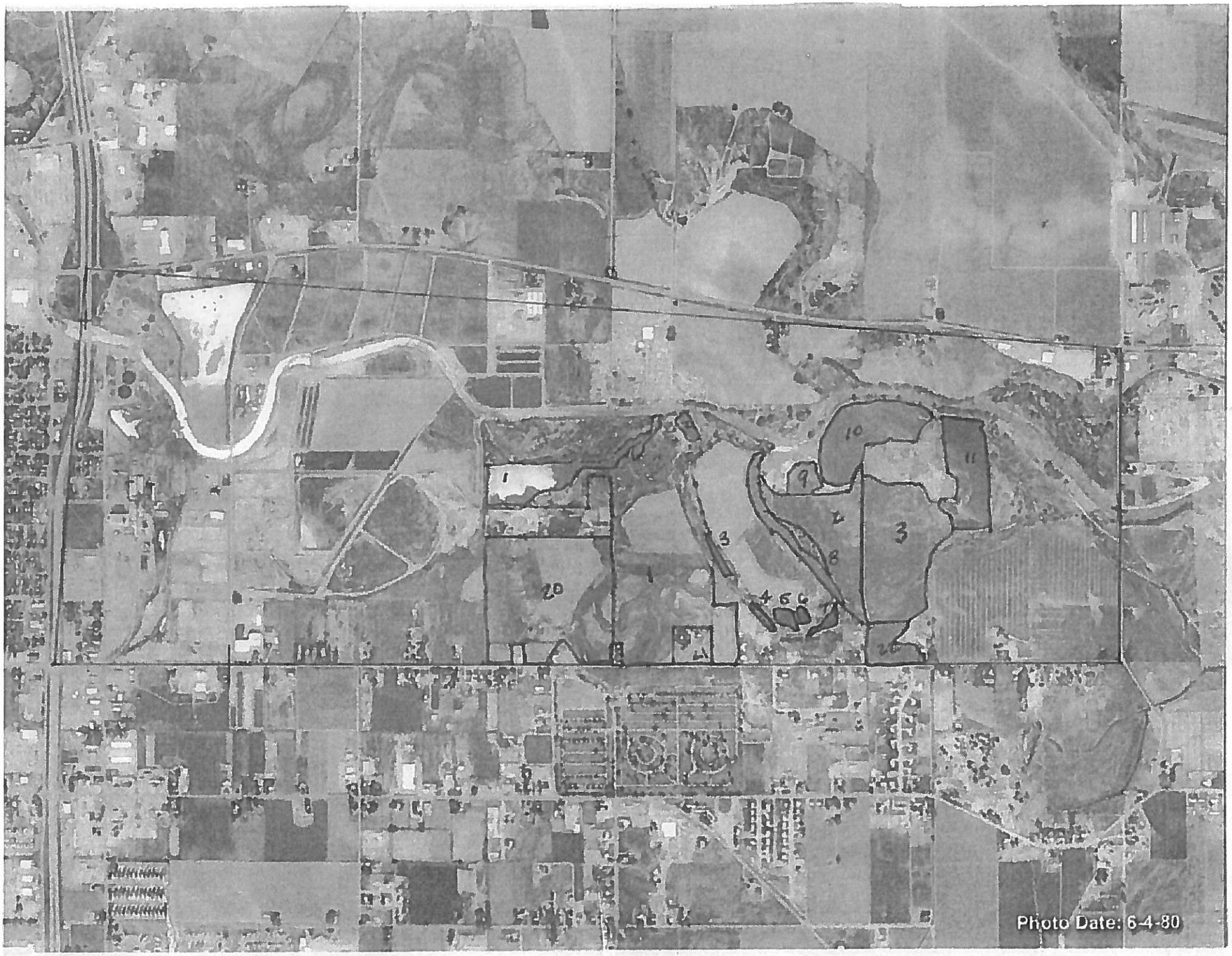
The foregoing instrument was subscribed and sworn to before me this ____ day of February 2015 by Garrett C. Varr

Witness my hand and official seal.

My commission expires: _____.

JESSICA HOOVER
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20044035571
My Commission Expires Oct. 4, 2016

Notary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MAYER FAMILY FARMS WELL SETTLEMENT AGREEMENT

THIS AGREEMENT is made and entered into this 27 day of October, 2016, by and between Varra Companies, Inc., ("Varra") and Mayer Family Farms, LLC ("Mayer"). All parties collectively may be referred to herein as the "Parties."

RECITALS

WHEREAS, Mayer owns a 144 acre field of irrigated land located in the NE ¼ of Section 33, Township 3N, Range 67 W, 6th P.M., Weld County, Colorado ("Mayer Property") that has historically been primarily irrigated with water from the Lupton Meadows Ditch Company ("Lupton Meadows Water"); and

WHEREAS, Mayer owns a groundwater well with Permit No. 15750 located on the Mayer Property (the "Mayer Well"), and the decreed and permitted use of the Mayer Well is to provide an additional irrigation supply for the Mayer Property at a pumping rate of 900 gpm ("Allowed Use"); and

WHEREAS, depletions from the Allowed Use of the Mayer Well are augmented by the Well Augmentation Subdistrict of the Central Colorado Water Conservancy District pursuant to its plan for augmentation decreed in Case No. 03CW99, District Court, Water Division 1 ("WAS Plan"); and

WHEREAS, under WAS Contract No. 72 to operate the Mayer Well for Allowed Use pursuant to the WAS Plan, Mayer asserts that it is entitled to pump the Mayer Well for the Allowed Use specified annually by WAS in an amount of up to 16.06 acre-feet; and

WHEREAS, Mayer asserts that it has augmentation water available under other WAS Contracts that it may trade to allow additional pumping by the Mayer Well for the Allowed Use pursuant to the WAS Plan; and

WHEREAS, Mayer historically delivered Lupton Meadows Water and water pumped from the Mayer Well pursuant to the WAS Plan to an existing unlined irrigation pond located on Mayer Property which is used to supply a pivot for irrigation at the Mayer Property; and

WHEREAS, Varra will be excavating and extracting sand and gravel, including performing dewatering operations, at Cells A and B of the 122 gravel pit ("122 Gravel Pit") located on certain real property in Section 33, Township 3N, Range 67 W of the 6th P.M., Weld County, Colorado ("Varra Property"); and

WHEREAS, the Mayer Well is located on the Mayer Property which is adjacent to the Varra Property; and

WHEREAS, to allow for Varra's excavating and extracting sand and gravel and dewatering at the 122 Gravel Pit, Varra filed a Regular Impact (112) Permit Application M-

2015-033 with the Colorado Division of Reclamation, Mining and Safety ("DRMS Application"); and

WHEREAS, Mayer has filed an objection to the DRMS Application ("Mayer Objection") based on its concerns that dewatering operations at the 122 Gravel Pit will temporarily lower the local water table and reduce the yield of, and therefore Mayer's ability to use the Mayer Well for the Allowed Use during the period dewatering operations occur; and

WHEREAS, the parties have not analyzed the historical use of the Mayer Well for the Allowed Use prior to the Effective Date of this Agreement and have agreed on the amount of Replacement Water provided according to this Agreement for the limited purpose of resolving the Mayer Objection and addressing any potential alleged impact on the ability to put the Mayer Well to the Allowed Use during the period of dewatering operations at the 122 Gravel Pit; and

WHEREAS, to allow for withdrawal of the Mayer Objection and to address any potential alleged impact on the ability to put the Mayer Well to the Allowed Use during the period of dewatering operations at the 122 Gravel Pit, Varra is willing to provide to Mayer a temporary supply of 100 acre-feet of water to be used for irrigation of the Mayer Property ("Replacement Water"); and

WHEREAS, as a result of alleged future impacts from the dewatering, Mayer alleges its unlined irrigation pond must be sealed and an adjacent new settling pond constructed to take delivery of the Replacement Water at the Mayer Property where the Allowed Use occurs; and

WHEREAS, Varra intends to reclaim Cells A and B and may convert each cell to sealed water storage vessels, by construction of either a liner within each cell or a slurry wall surrounding each cell. Once Varra completes dewatering, delivery of the Replacement Water shall cease according to the conditions of this Agreement; and

WHEREAS, the Parties wish to fully and completely resolve all existing and potential claims between the Parties regarding sand and gravel excavations and dewatering operations at the 122 Gravel Pit in connection with any alleged interference with use of the Mayer Well for Allowed Use at the Mayer Property, until the time that such sand and gravel excavations and dewatering operations are completed and Cells A and B are sealed.

AGREEMENT

NOW, THEREFORE, for and in consideration of the mutual covenants, conditions and agreements, the Parties agree as follows:

1. Recitals. The above recitals are incorporated herein by reference.

2. Delivery of Replacement Water. The parties agree Varra shall have no obligation to provide Replacement Water under this Agreement before Varra commences excavating and extracting sand and gravel and dewatering within Cells A and B. The parties agree that under no circumstances shall Varra be required to provide more than 100 acre-feet per year of

Replacement Water pursuant to this Agreement.

2.1 During any period in which Varra is conducting sand and gravel operations and dewatering within Cell B, and continuing through the period that Varra completes dewatering at the 122 Gravel Pit, Varra shall provide to Mayer up to 100 acre-feet per year of Replacement Water according to the requirements of Paragraph 2.3.

2.2 During any period in which Varra is not required to provide Replacement Water pursuant to Paragraph 2.1 above and Varra is also conducting sand and gravel operations and dewatering within Cell A, Varra shall monitor the water level in the Mayer Well weekly and once water in the Mayer Well is more than five feet lower than it was on April 1 of the same year, Varra shall provide up to 100 acre-feet of Replacement Water in that same year according to the requirements of Paragraph 2.3. Once Varra is required to deliver Replacement Water pursuant to this Paragraph 2.2 during any year, Varra may monitor water levels in the Mayer Well on a weekly, or less frequent, basis for the remainder of that year; Varra's obligation to monitor the water level in the Mayer Well on a weekly basis shall re-commence on March 1 of the following year to the extent Varra has not completed dewatering.

2.3 At times when Replacement Water is required to be delivered to Mayer pursuant to Paragraphs 2.1 or 2.2, Replacement Water shall be delivered to the irrigation pond located at the Mayer Property to allow Mayer to put the Replacement Water to irrigation of the Mayer Property. Varra shall have sole discretion to determine the method for delivery of Replacement Water to the pipe or lateral used to deliver such water to the settling pond located at the Mayer Property. Varra shall have sole discretion to determine the source of water to be used for Replacement Water, and such source of Replacement Water may change from time to time in Varra's sole discretion, provided that such water shall be lawfully available for Mayer's irrigation of the Mayer Property and is of a quality adequate for irrigation of the Mayer Property. To confirm Replacement Water can be provided for irrigation of the Mayer Property at times Mayer requires it to be available, the annual delivery schedule shall be mutually agreed to in advance by Varra and Mayer. Replacement Water shall be available to Mayer from April 1 through October 31 each year. Mayer shall provide at least twenty-four hours prior notice to Varra of a request for delivery of Replacement Water. The parties acknowledge that deliveries of Replacement Water will be contingent on the capacities of the settling pond, irrigation pond and irrigation pivot located at the Mayer Property and delivery of Replacement Water is not required to exceed a rate of 900 g.p.m. Mayer acknowledges there may be times when Varra cannot make deliveries of Replacement Water at the requested time due to equipment failure, and the parties agree that Varra shall make efforts to repair or otherwise correct the failure and deliver water within forty-eight hours of the requested time for delivery.

3. Seal Irrigation Pond and Construction of Settling Pond. Once excavating and extracting of sand and gravel and dewatering commences at Cell A and the water level in the Mayer Well is more than five feet lower than it was on April 1 of the same year, or excavating and extracting sand and gravel and dewatering commences at Cell B, whichever occurs first,

Varra agrees to seal the existing irrigation pond located at the Mayer Property with a low permeability clay or soil liner and to construct a settling pond with a low permeability clay or soil liner with dimensions of 15 feet by 30 feet adjacent to the existing irrigation pond at a location on the Mayer Property acceptable to Mayer. Mayer hereby grants permission for Varra to install a pipe or lateral across the Mayer Property for the purpose of delivering Replacement Water from locations off of the Mayer Property to the location where the settling pond is constructed; provided that Mayer and Varra shall first confer and agree upon the location of the pipe or lateral. Mayer hereby grants Varra permission to access the Mayer Property for the purposes of satisfying Varra's obligations under this Agreement. Upon Varra's completion of construction of the settling pond and sealing the irrigation pond, Mayer shall confirm within seven days following such completion that the same are installed and operating in the manner that allows the Replacement Water to be used for irrigation of the Mayer Property.

4. Maintenance and Repair. Upon completion of construction and sealing facilities as described in Paragraph 3, Mayer agrees to perform routine day-to-day maintenance of the lateral, settling pond or irrigation pond located on the Mayer Property used to deliver Replacement Water. Should Varra choose to install a pipe in order to deliver Replacement Water to the settling pond, Varra shall be solely responsible for maintaining and keeping in working order said pipe. Varra shall not be responsible for any costs and expenses associated with such routine day-to-day maintenance performed by Mayer. In the event that any portions of the pipe or lateral become damaged or destroyed, through no fault of the parties, all costs and expenses for replacement and repairs necessary to restore such structure to its previous condition shall be born by Varra. In the event that any portions of the settling pond or irrigation pond become damaged or destroyed, through no fault of the parties, all costs and expenses for replacement and repairs necessary to restore such structure to its previous condition shall be born by Mayer. In the event that any portions of the pipe or lateral, settling pond or irrigation pond become damaged or destroyed, through the fault of either Mayer or Varra, all costs and expenses for replacement and repairs necessary to restore such structure to its previous condition shall be born by the party at fault for such damage or destruction.

5. Post Liner/Slurry Wall Approval Commitments. Following Varra's completion of dewatering at the 122 Gravel Pit, Varra shall continue to provide Replacement Water to Mayer until the end of the irrigation season (April 1-October 31) for the year in which Varra provides notice to Mayer that dewatering at the 122 Gravel Pit is complete, and at the end of such irrigation season, Varra shall cease to provide Replacement Water to Mayer as described in Paragraph 2 above. Thereafter, all of Varra's obligations under this paragraph shall be deemed satisfied.

6. Post-Mining Commitments for the Mayer Well. While excavation and extraction of sand and gravel and dewatering operations occur at the 122 Gravel Pit, it is possible the Mayer Well may, or may not, operate for long periods of time. The parties agree the following procedures shall be used to determine whether any such long periods that the Mayer Well does not operate will result in degradation of the well casing or other infrastructure of the Mayer Well together with a reduction in the level of production of water by the well and whether Varra will have an obligation to re-drill the Mayer Well:

6.1 Within thirty days of commencement of excavating and extracting of sand and gravel and dewatering at Cell A, or commencement of excavating and extracting sand and gravel and dewatering at Cell B, whichever occurs first, Varra shall retain a water well construction and pump installation contractor licensed by the State of Colorado ("Licensed Contractor") of Varra's choosing who shall inspect the Mayer Well, including inspection and operation of the pump and evaluation of the well casing with a video camera, and offer an opinion of the operational condition and water production level for the Mayer Well as of the date of the inspection. Varra shall be responsible for all costs associated with the Licensed Contractor's inspection of the Mayer Well. The parties agree to rely on the opinion of the Well Contractor as the baseline for the operational condition and water production level for the Mayer Well ("Baseline Condition").

6.2 Within thirty days after Varra provides notice to Mayer that Varra has completed dewatering at the 122 Gravel Pit, Varra shall retain a Licensed Contractor of Varra's choosing who shall inspect the Mayer Well, including inspection and operation of the pump and evaluation of the well casing with a video camera, and offer an opinion of the operational condition and water production level for the Mayer Well as of the date of the inspection, and Varra shall be responsible for all costs associated with the Licensed Contractor's inspection of the Mayer Well. Varra and Mayer agree that if in the opinion of the Licensed Contractor the Mayer Well operates and produces less than the Baseline Condition Varra shall retain a contractor, of Varra's choosing, to re-drill the Mayer Well at Varra's expense so that the replaced Mayer Well can operate and produce water at the Allowed Use, and upon completion of re-drilling the Mayer Well, all of Varra's obligations under this paragraph shall be deemed satisfied. To the extent the Mayer Well operates and produces water at equal to or greater than the Baseline Condition, Varra shall have no obligation to re-drill the Mayer Well, and all of Varra's obligations under this paragraph shall be deemed satisfied.

7. Monitoring Wells. Mayer hereby grants permission to Varra to access the Mayer Well and the other existing monitoring well located on the Mayer Property for purposes of monitoring water levels within the wells, as frequently as Varra desires in its sole discretion. Varra shall provide monitoring well data to Mayer upon request.

8. Costs. Varra agrees to pay all of its construction costs associated with installing the pipe or lateral to deliver water to the settling pond, sealing the irrigation pond and construction of the settling pond described in paragraph 3 above, all costs associated with the Licensed Contractor's inspection of the Mayer Well described in Paragraph 6, and all of Varra's legal and water acquisition costs associated with securing and delivering Replacement Water pursuant to this Agreement.

9. Mayer Attorneys' Fees. Varra shall reimburse Mayer for the reasonable attorneys' fees of up to $10,000.00 incurred until the Effective Date by Mayer in negotiations concerning its claims described herein and drafting this Agreement. Mayer shall submit for payment all monthly bills for attorneys' fees with privileged matters redacted, and Varra shall pay such bills within 30 days.

10. In exchange for Varra's agreement to provide Replacement Water, construct the settling pond, line the irrigation pond, and re-drill the Mayer Well, if necessary, pursuant to the terms of this Agreement, Mayer agrees as follows:

10.1 By acceptance of this Agreement, Mayer agrees to withdraw its objection to the DRMS Application and shall complete and submit a Party Status Withdrawal Form to the Colorado Division of Reclamation, Mining and Safety on the Effective Date;

10.2 Mayer agrees not to oppose claims included in any water court application, or substitute water supply plan application, filed by Varra in connection with obtaining approval of the Water Court or State Engineer to provide Replacement Water under this Agreement; and

10.3 Mayer agrees not to oppose Varra's applications for well permits and county approval associated with water matters at the Varra Property or the 122 Gravel Pit.

11. Release and Covenant Not to Sue. Upon the Effective Date, Mayer hereby fully releases Varra from any and all claims, demands, lawsuits, liens, damages, liabilities, legal fees, expenses and costs of any nature whatsoever, whether known or unknown, fixed or contingent, suspected or unsuspected, they may have or which exist or which may arise against Varra in anyway related to alleged interference with use of the Mayer Well or lowering of the water table underneath the Mayer Property associated with sand and gravel extraction and dewatering operations at the 122 Gravel Pit performed by Varra during the term of this Agreement, and covenants not to sue, file any claim, action, complaint, lawsuit or other legal, equitable or administrative proceeding, including but not limited to filing a complaint with the Colorado Division of Reclamation, Mining and Safety or otherwise seek legal recourse against Varra, from or for any claim or cause of action of any kind related to alleged interference with use of the Mayer Well or lowering of the water table underneath the Mayer Property associated with sand and gravel excavation and dewatering operations at the 122 Gravel Pit performed by Varra during the term of this Agreement. This release and covenant does not affect or limit any Party's right to initiate legal proceedings to enforce this Agreement. This release and covenant not to sue is intended to be effective only as to those claims alleging damage to the Mayer Well and from lowering of the water table beneath the Mayer Property associated with sand and gravel extraction and dewatering operations at the 122 Gravel Pit that occur during the term of this Agreement. This Agreement does not address any alleged impacts from the proposed lined storage facilities following completion of mining and dewatering activities at the 122 Gravel Pit and fulfillment of Varra's obligations under this Agreement and therefore does not address any right to bring future claims related to those future alleged impacts.

12. Term. This Agreement shall become effective upon the Effective Date and continue until Varra has satisfied its obligations pursuant to Paragraphs 5 and 6, and thereafter all of Varra's obligations under this Agreement shall be deemed satisfied.

13. Mutual Cooperation/Communications. The Parties shall cooperate with one another to effectuate the purposes of this Agreement and shall communicate regarding the

expected timing of the deliveries of Replacement Water.

14. Nothing herein shall give Mayer any vested or adverse right, or ownership interest, in any of the water, water rights, structures, pipelines, or appurtenances owned by Varra. The Replacement Water provided hereunder is provided on a temporary basis only pursuant to the terms of this Agreement and Mayer has no right to use, or receive Replacement Water except pursuant to the terms of this Agreement.

15. No Fault Admitted. Nothing in this Agreement shall be construed as an admission of fault or liability by Varra, nor shall this Agreement be relied upon by Mayer in any suit alleging the same. This Agreement is entered into by way of compromise and settlement of Mayer's Objection, including potential interference with the use of the Mayer Well for the Allowed Use and lowering of the water table beneath the Mayer Property as alleged by Mayer, and shall not be construed as concurrence beyond the agreement reached herein with any findings of fact or engineering methodologies utilized by Mayer and its employees or consultants.

16. Confidentiality. This Agreement is entered into by way of compromise and settlement of the subirrigation and operational issues with the Mayer Well for the Allowed Use, and lowering of the water table beneath the Mayer Property as alleged by Mayer and Mayer's Objection and the terms and conditions set forth herein are the result of confidential substantial discussions and negotiations among the parties. Except as required by law or order by a court of competent jurisdiction, Mayer and its representatives (including legal counsel or consultants) agree not to discuss, disclose, reveal or otherwise make available to anyone not a party to this Agreement the existence or substance of such discussions and negotiations and the terms and conditions contained in this Agreement. Mayer shall be liable for any breach of the confidentiality requirements of this Agreement by its representatives. In the event of breach of the confidentiality requirements of this Agreement, remedies therefore shall include all available legal remedies which Varra may be entitled to at law or in equity, including but not limited to reimbursement to Varra of all costs incurred regarding this Agreement, including the specific costs described in Paragraph 5, 6, 8 and 9 herein and any attorney or other consulting fees incurred regarding this Agreement. The confidentiality requirements of this Agreement shall survive termination, expiration or cancellation of this Agreement. Recording a Notice of Agreement with the Weld County Clerk and Recorder's Office or providing information of this Agreement to any potential purchaser of the Mayer Property shall not constitute a breach of confidentiality under this Paragraph.

17. The Parties represent and warrant that they have full capacity and authority to settle, compromise, and release their claim(s) and that no other person or entity has or will in the future acquire or have any right to assert against the other party any portion of the claims released herein. The Parties represent that they have not assigned, transferred or subrogated to any other person any claim, right, or cause of action released in this Agreement, and that they have the right and authority to execute this Agreement. If any party to this Agreement is subjected to further claims from any person under an actual or purported assignment or substitution, the party who made or purportedly made the assignment or substitution shall indemnify, defend and hold the other party harmless from any liability or cost, including

reasonable attorneys' fees, incurred in dealing with such further claim(s).

18. Except as provided in Paragraph 9, each party to this Agreement shall bear their own attorneys' fees and costs associated with the underlying dispute and this Agreement.

19. Notices. Notices shall be given by personal delivery or by registered or certified mail, postage prepaid, addressed as follows:

Mayer: Mayer Family Farms, LLC
13895 Cnty Rd. 21
Platteville, CO 80651

with copy to: P. Andrew Jones
Lawrence Jones Custer Grasmick LLP
5245 Ronald Reagan Blvd
Johnstown 80534

Varra: Garrett Varra
8120 Gage Street
Frederick, CO 80516

with copy to: Matthew S. Poznanovic, Esq.
Petrock & Fendel, P.C.
700 17th Street, Suite 1800
Denver, CO 80202

20. Binding Effect. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns, subject to paragraph 22. However, nothing in this paragraph shall be construed to permit the assignment or delegation of this Agreement except as specifically authorized herein.

21. Modifications. This Agreement may only be amended or modified in writing by the Parties.

22. Assignment. Mayer may assign this Agreement to its successors in interest to the Mayer Property. Varra may assign this Agreement to its successors in interest to the Varra Property or successors of operator to the 122 Gravel Pit. Notice of any assignment allowed pursuant to this paragraph shall be made pursuant to Paragraph 19.

23. Entire and Complete Agreement. This Agreement embodies the entire and complete agreement of the Parties with respect to the subject matter of this Agreement. No understanding exists between the Parties except as expressly set forth herein. All prior and contemporaneous negotiations and understandings between the Parties are integrated and merged into this Agreement.

24. Attorneys' Fees for Litigation. In the event that there is any litigation with respect to the enforcement or interpretation of this Agreement the prevailing party in such

litigation shall be entitled to an award of reasonable attorneys' fees and costs incurred in the litigation.

25. Jurisdiction and Venue. This Agreement shall be governed and its terms construed under the laws of the State of Colorado, and venue shall be in the County of Weld.

26. Descriptive Headings. The descriptive headings used herein are for convenience of reference only and they are not intended to have any effect whatsoever in determining the rights or obligations of the Parties.

27. Effective Date. The "Effective Date" shall be the later of the date on which this Agreement is executed by Mayer or Varra.

IN WITNESS WHEREOF, each of the undersigned has duly executed this Agreement as of the Effective Date set forth hereinabove.

Mayer Family Farms, LLC:

Signature Linda A Pyeatt Date 10-27-16
By Linda Pyeatt
Title: Mgr

Signature Ritchie E Pyeatt Date 10-27-16
By Ritchie Pyeatt
Title: Mgr

Varra Companies, Inc.:

Signature Garrett Varra Date 10/31/2016
Name: Garrett Varra
Title: VP.

ADMINISTRATION PROTOCOL
Augmentation Plan Accounting
Division One – South Platte River

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

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

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

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

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

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

i. daily volume in AF diverted into the site;

ii. monthly volume in AF released from the site;

iii. monthly net evaporative loss in AF;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

   "Plan**WDID**_YYMMDD"

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

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

   "0103333_040515.xls"

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

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

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

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