COLORADO
Division of Water Resources
Department of Natural Resources

July 6, 2021

Paul Weiss, P.E.
Williams and Weiss Consulting, LLC
5255 Ronald Reagan Blvd, Ste 220
Johnstown CO 80534

Re: Derr Pit Substitute Water Supply Plan (WDID 0302547, Plan ID 5240)
DRMS Permit No. M-2008-017 (WDID 0303035)
S½ NE¼ Section 4, T5N, R65W, 6th P.M.
Water Division 1, Water District 3, Weld County

Approval Period: August 1, 2021 through July 31, 2022
Contact information for Mr. Weiss: 970-221-5159; pswwater@msn.com

Dear Mr. Weiss:

We have reviewed your letter dated June 16, 2021 requesting approval of a substitute water supply plan ("SWSP") on behalf of Broken Arrow Investments, LLC ("Broken Arrow" or "Applicant") in accordance with section 37-90-137(11), C.R.S., to cover depletions caused by an existing gravel pit operation known as the Derr Pit (M-2008-017). A SWSP for this site was originally approved on November 12, 2010 and was most recently renewed in a letter dated July 22, 2020 to cover operations through July 31, 2021. The required renewal fee of $257 has been received (receipt no. 10013025).

SWSP Operations

The Derr Pit (WDID 0303035, well permit no. 82868-F) is a gravel pit operation located in the NE¼ of Section 4, Township 5 North, Range 65 West of the 6th P.M., in Weld County (see attached Exhibit 2). Mining operations at the Derr Pit ceased after December 31, 2012, but recommenced in the spring of 2019. In 2018, Broken Arrow obtained an amendment (AM01) to their reclamation permit to add 105.8 acres to permit M-2008-017 and to revise the mining and reclamation plans. According to information provided by the Applicant, operations at the site did not expose any groundwater until late April 2019. During this plan period, consumptive uses at the Derr Pit site will consist of evaporative losses from exposed groundwater, water used for dust control purposes, and water lost in the mined product. The pit is proposed to be continuously dewatered up until a slurry wall is constructed around the site. A slurry wall is anticipated to be constructed around Phases 1-4 of the original permit area in the next 1 to 2 years. A second cell is proposed to be constructed around Phases 5-7 prior to the exposure of groundwater in those cells, approximately 4 to 5 years from now. The replacement source proposed to be utilized in this SWSP is water stored in the nearby Loloff Pit under free river conditions.

Depletions

A maximum of 3.0 acres of groundwater surface area are anticipated to be exposed in Phases 1-4 of the original permit area, consisting of 0.75 acres in dewatering trenches and two recharge ponds with surface areas of 0.95 and 1.3 acres. Net evaporative depletions were calculated to total 8.75 acre-feet per year based on a gross annual evaporation of 45 inches from the exposed water surfaces, and a credit of 9.97 inches for effective precipitation (see attached Table 1). No credit was claimed for anticipated ice-covered periods. The estimated monthly depletions due to evaporation during this plan period are shown on the attached Table 1.

Broken Arrow estimates that they will mine a total of 600,000 tons of sand and gravel during this plan period. All of the material will be mined below the groundwater table, but in a dewatered state. Of this amount, 30% (180,000 tons) will be washed. The water retained by the washed sand and gravel is considered to be 4% of the mined material by weight, all of which is considered to be a groundwater diversion, resulting in a groundwater loss of 5.30 acre-feet. The other 70% (420,000 tons) will not be washed. The water retained by the unwashed sand and gravel is considered to be 2% of the mined material by weight, resulting in a groundwater loss of 6.18 acre-feet. The total amount of water expected to be lost with the mined material is 11.48 acre-feet.

The Applicant has estimated that a total of 6.10 acre-feet of water will be used for dust control purposes at the site during this plan period, based on a projected daily usage of 2,000 to 9,000 gallons per day. A water truck will be utilized to apply water for dust control purposes. Water used for dust control purposes is considered to be 100% consumed.

A monthly breakdown of operational and evaporative consumptive use at the site is shown in the attached Table 2. Evaporative and operational consumptive use will total 26.33 acre-feet during this plan period.

The Alluvial Water Accounting System ("AWAS"), which utilizes the Glover method, was used with the alluvial aquifer boundary condition to determine the lagged depletions to the Cache la Poudre River from past and projected evaporation and operational losses at the site. The following parameters were used in the model: a distance (X) of 2,126 feet from the exposed groundwater surface to the river; a distance (W) of 22,900 feet from the stream to the impermeable boundary; a harmonic transmissivity (T) of 76,056 gallons per day per foot; and a specific yield (S) of 0.2.

The estimated lagged stream depletions due to projected operations at the Derr Pit will total 20.59 acre-feet during this plan period, as shown on the attached Table 2. The point of depletion for the Derr Pit is assumed to be on the Cache la Poudre River perpendicular to the pit, just downstream of the headgate of the Ogilvy Ditch (WDID 0300937).

Dewatering

Dewatering at the Derr Pit began in late April of 2019 and the site is proposed to be continuously dewatered up until final slurry wall construction. Dewatering water is currently delivered to two recharge sites located within the Derr Pit. Derr Pit Recharge Area 1 (WDID 0302068) is located on the west side of the site, and Derr Pit Recharge Area 2 (WDID 0302069) is located on the east side of the site (see attached Exhibit 6). Because the recharge sites are located within the Derr Pit and are closer to the river than the mined area, the timing of dewatering depletions will

approximately match the timing of dewatering accretions, with accretions returning to the stream slightly ahead of depletions. As long as the mine site is continuously dewatered, the water returned to the stream system should be adequate to offset the depletions attributable to dewatering operations. Totalizing flow meters must be installed at each discharge location and meter readings must be reported on the submitted accounting. The meter readings will be used in calculating the post-pumping depletions that must be replaced if dewatering ceases at the site during mining operations and/or upon the conclusion of mining operations at the site. Evaporative depletions from the recharge ponds have been incorporated into the overall pit depletions, as described in the section above.

The District 3 water commissioner performed a site visit on October 17, 2019 and found the dewatering of Derr Pit was more water than the Recharge Areas can handle, and that the excess water was flowing into the Ogilvy Ditch. Between October 2019 and January 2020, 24.6 acre-feet of water was spilled from the recharge ponds. It was assumed that 50% of the amount spilled, or 12.3 acre-feet, was consumed and did not infiltrate into the ground or return to the river without use. Depletions resulting from the 12.3 acre-feet spilled from the ponds and assumed to be consumed were lagged to the river using the same aquifer parameters as given above. For this plan period, a total of 1.09 acre-feet of lagged dewatering depletions will be replaced. No spillages from the recharge ponds have occurred since January 2020.

Replacements

Depletions associated with the Derr Pit will be replaced via release of water from the Loloff Pit, which is located due west of the Derr Pit in the SE¼ of the NW¼ of Section 4, Township 5 North, Range 65 West of the 6th P.M. The slurry wall liner for the Loloff Pit was approved by the State Engineer's Office as meeting the design standard for liners on April 26, 2019, and the Loloff Pit is now classified as a lined reservoir in accordance with the *August 1999 State Engineer Guidelines for Lining Criteria for Gravel Pits* (Loloff Reservoir, WDID 0303483). As of the end of April 2021, there were 178.34 acre-feet stored in the lined Loloff Pit that was diverted under free river conditions with the knowledge and approval of the water commissioner. Of this amount, 75 acre-feet are reserved for replacement purposes under the Loloff Pit SWSP (WDID 0302524, Plan ID 3270). Based on the current surface area of 15.51 acres, another 45.24 acre-feet will be lost to evaporation over the year, leaving an estimated 58.10 acre-feet of available water. A stage-area-storage capacity table has been provided to this office, and the Applicant has installed a staff gage in the reservoir to measure the amount of water in storage. **The Applicant must continue to submit reservoir accounting for the Loloff Reservoir in order to be able to use water stored in this structure as a replacement source in this SWSP.** Water was diverted into storage in the Loloff Pit by diverting from the river at the Ogilvy Ditch, conveying the water down the ditch, and pumping the water from the ditch into the pit. A copy of an agreement between the Ogilvy Irrigating and Land Company and Mill Iron Mining LLC, allowing for the use of the Ogilvy Ditch for this purpose is attached to this approval. Mill Iron Mining, LLC is associated with Loloff Construction, Inc., which in turn is also known as Broken Arrow Investments. Under the agreement, Mill Iron Mining is entitled to use the first 200 acre-feet of free river water stored in the Loloff Pit annually for augmentation purposes. Metered pumping from the Loloff Pit will be discharged into the unnamed natural seep located south of the property, from where it will work its way back to the Cache la Poudre River just below the Derr Pit and the Ogilvy Ditch. Consistent with the Loloff Pit SWSP, 50% of the releases to the seep will be deemed to enter the river system as surface water, while the other 50% will be lagged back to the river system as subsurface flow. You have projected that a total of 30.50 acre-feet of previously

stored free river water will be pumped from the Loloff Pit for replacement purposes in this SWSP, of which 15.25 acre-feet will return to the river as surface flows, and 15.25 acre-feet will return to the river as subsurface flows. Of the 30 acre-feet of water expected to be pumped from the Loloff Pit during the August 2020-July 2021 plan period, 15 acre-feet were expected to return to the river as subsurface return flows, a portion of which will accrue to the stream during this plan period. Past and projected pumping from the Loloff Pit returning to the river as subsurface flows will result in 11.36 acre-feet of accretions at the river during this plan period. The monthly depletions and replacement requirements are found on the attached Table 2. As shown on Table 3, total replacements (15.25 + 11.36 = 26.61 acre-feet) will exceed total lagged depletions (20.59 + 1.09 = 21.68 acre-feet) on both an annual and monthly basis.

Long Term Augmentation

In accordance with the letter dated April 30, 2010 from the Colorado Division of Reclamation, Mining, and Safety ("DRMS"), all sand and gravel mining operators must comply with the requirements of the Colorado Reclamation Act and the Mineral Rules and Regulations for the protection of water resources. The April 30, 2010 letter from DRMS requires that you provide information to DRMS to demonstrate you can replace long term injurious stream depletions that result from mining related exposure of groundwater. In accordance with approach number 3, a total bond amount of $2,161,816, which includes the cost of installing a slurry wall around Phase 1-4 of the original permit area, has been set. DRMS approved a phased mining plan operation which allows the bond to be posted in phases. Prior to opening a new phase the operator will submit an increased financial warranty so as to hold enough bond at any given time to construct a slurry wall around the actively mined phases. The DRMS currently holds a Financial Warranty Corporate Surety for $1,845,016, and a Financial Warranty Letter of Credit for $316,800 which covers dry mining in Phases 1-4 of the original permit area and Phase 5A of the amendment area. Prior to exposing groundwater or disturbing additional surface areas, the Applicant is required to notify DRMS so that the reclamation bond may be adjusted appropriately. Proof that such a bond has been obtained and the requirements of the April 30, 2010 letter from DRMS have been satisfied must be provided to this office (the Division of Water Resources).

Conditions of Approval

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

1. This SWSP shall be valid for the period of August 1, 2021 through July 31, 2022, unless otherwise revoked or superseded by decree. If a court decreed plan for augmentation is not obtained for the proposed uses by the SWSP expiration date, a renewal request must be submitted to this office with the statutory fee of $257 no later than June 1, 2021. If a renewal request is received after the expiration date of this plan, it may be considered a request for a new SWSP, in which case a $1,593 filing fee will apply.
2. Well permit no. 82868-F was obtained for the current use and exposed pond surface area of the gravel pit in accordance with sections 37-90-137(2) and (11), C.R.S.
3. The total surface area of the groundwater exposed at the Derr Pit must not exceed 3.0 acres, which results in an annual net evaporative loss of 8.75 acre-feet.

4. The annual amount of water used for operational purposes at the Derr Pit shall not exceed 17.58 acre-feet, estimated as 6.10 acre-feet for dust suppression and 11.48 acre-feet lost with the production of 600,000 tons of mined product (180,000 tons washed and 420,000 tons not washed).

5. Total consumption at the Derr Pit must not exceed these aforementioned amounts unless an amendment is made to this SWSP.

6. Approval of this SWSP is for the purposes as stated herein. Any additional uses for which the water may be used will be allowed only if a new SWSP is approved for those additional uses.

7. Releases of replacement water must be sufficient to cover all out-of-priority depletions in time, place, and amount and must be made under the direction and/or the approval of the water commissioner. Notice must be provided and approval made by the water commissioner at least 48 hours prior to the release of replacement water, or as required by the water commissioner.

8. The release of replacement water may be aggregated at the discretion of the division engineer and/or water commissioner. The water commissioner and/or the division engineer shall determine the rate and timing of any aggregated release.

9. The replacement water that is the subject of this SWSP cannot be sold or leased to any other entity. As a condition of subsequent renewals of this SWSP, the replacement water must be appurtenant to this site until a plan for augmentation is obtained.

10. All diversions and discharges shall be measured in a manner acceptable to the division engineer. The Applicant shall install and maintain such measuring devices as required by the division engineer for operation of this SWSP. **Reservoir accounting must continue to be submitted for the Loloff Reservoir (WDID 0303483).**

11. Conveyance loss for delivery of augmentation water is subject to assessment and modification as determined by the division engineer.

12. The Applicant shall provide daily accounting (including, but not limited to diversions, depletions, replacement sources, and river calls) on a monthly basis, or more frequent if required by the water commissioner. The accounting must be emailed to the water commissioner (Mark Simpson at Mark.Simpson@state.co.us) **and** DNR_Div1Accounting@state.co.us within 30 days of the end of the month for which the accounting applies. Accounting and reporting procedures are subject to approval and modification by the division engineer. Accounting forms need to identify the WDID number for each well operating under this SWSP. **NOTE:** Monthly accounting, even during the winter non-irrigation season, is required.

13. The Applicant shall follow the attached Augmentation Plan Accounting Protocol for the operation of this SWSP.

14. Dewatering at this site will produce delayed depletions to the stream system. As long as the pit is continuously dewatered, the water returned to the stream system should be adequate to offset the depletions, thus dewatering is required to continue during the term of this plan. Once dewatering at the sites cease, the delayed depletions must be addressed, including depletions resulting from the gradual refilling of the pit. The monthly volume of water

pumped for dewatering operations must be recorded through a totalizing flow meter and shown on the submitted accounting sheets.

15. If dewatering of the site is discontinued prior to completion of the slurry wall liner(s), the pit would fill, creating additional depletions to the stream system due to increased evaporation. To assure that additional depletions to the river do not occur, a Financial Warranty Corporate Surety for $1,845,016, and a Financial Warranty Letter of Credit for $316,800 totaling $2,161,816 through the DRMS for lining or backfilling of exposed groundwater have been obtained. Therefore, if the dewatering is discontinued, the bond can finance the completion of the lining or the backfilling of the pit, thus preventing ongoing depletions to the stream system.

16. The approved final reclamation plan for the Derr Pit is a lined water storage reservoir. If a lined pond results after reclamation, replacement of lagged depletions, including lagged dewatering depletions, is required to continue until there is no longer an effect on stream flow. If reclamation of the mine site produces 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 (3) years prior to the completion of mining to include, but not be limited to, long-term evaporation losses. Granting of this plan does not imply approval by this office of any such court application(s).

17. 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 excavation of product from below the water table, and all other use of water at the pit, must cease immediately.

18. 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.

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

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

Sincerely,

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

Attachments: Exhibit 2 - Derr Pit Site Map
Exhibit 3 - Tables 1-3
Exhibit 6 - Location Map for Pits and Recharge Ponds
Exhibit 7 - Ogilvy/Mill Iron Mining Agreement
Letter from DRMS dated April 30, 2010
Augmentation Plan Accounting Protocol

Cc: Michael Hein, Lead Assistant Division Engineer, Michael.Hein@state.co.us
1809 56th Avenue, Greeley, CO 80634; 970-352-8712

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

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

Eric C. Scott, Division of Reclamation Mining and Safety, Eric.Scott@state.co.us

Exhibit 2. Derr Pit Site Map

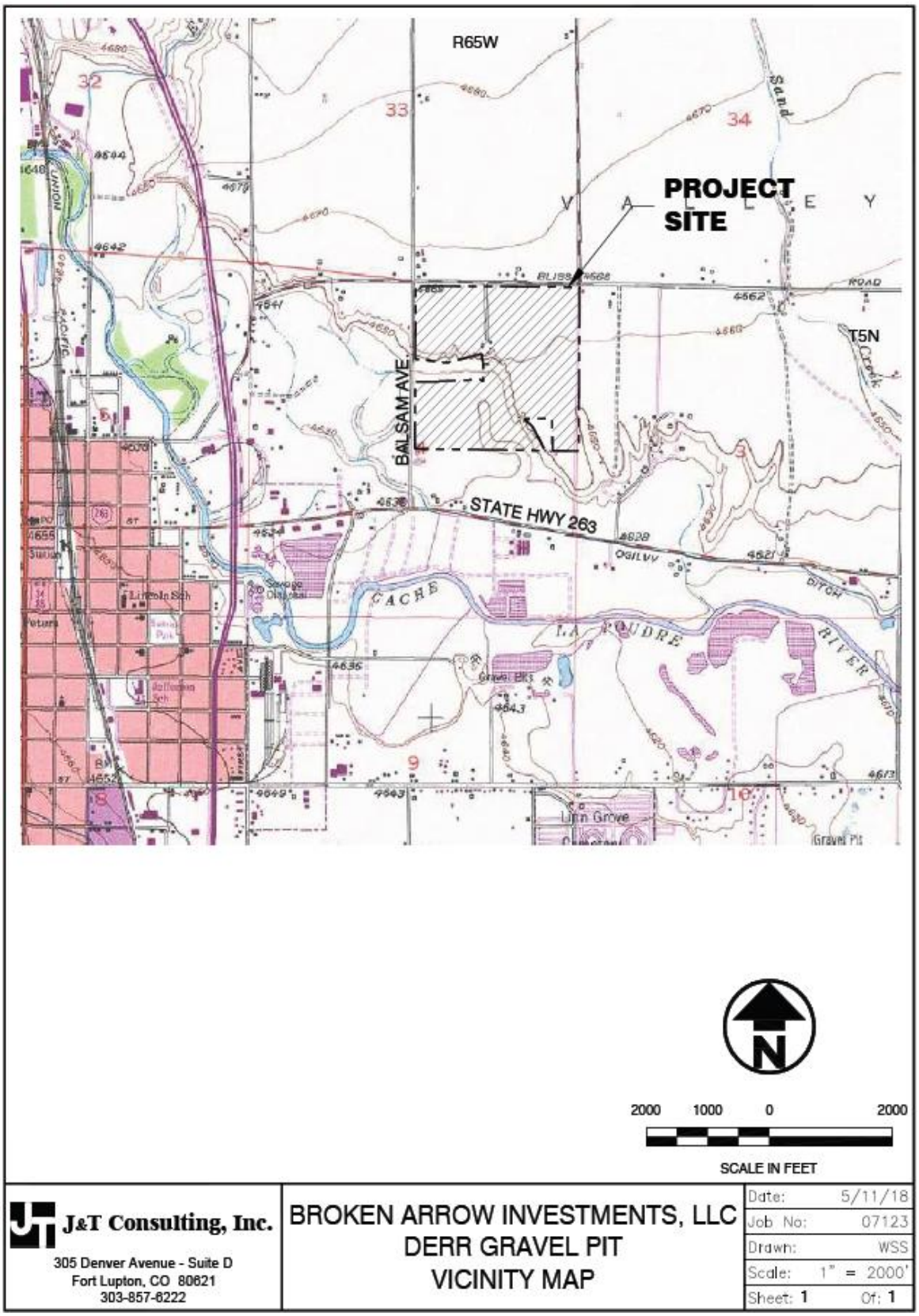

Exhibit 3 Table1, Table2, Table3. Operational Losses, Lagged Depletions, and Water Balance

Derr Pit
Evaporation Losses
Table 1

Williams and Weiss Consulting, LLC

Submitted by:
Paul Weiss, P.E.
5255 Ronald Reagan Boulevard, Suite 220
Johnstown, CO 80534

Total Exposed Water Surface Area 3 acres

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	TOTAL
Distribution of Annual Evaporation[2]	0.135	0.100	0.070	0.040	0.030	0.030	0.035	0.055	0.090	0.120	0.145	0.150	1.000
Net Free Water Surface Evaporation (feet)[3]	0.394	0.292	0.204	0.117	0.088	0.088	0.102	0.160	0.263	0.350	0.423	0.438	2.917
Net Evaporation at Loloff Pit (ac-ft)	1.181	0.875	0.613	0.350	0.263	0.263	0.306	0.481	0.788	1.050	1.269	1.313	8.750

Notes:

[2] Distribution of annual evaporation per DWR Guidelines for gravel pits at elevations below 6,500 feet.

[3] Annual gross evaporation rate of 45 inches taken from NOAA Technical Report NWS 33.
Consistent with previously approved Loloff SWSP, a credit of 9.97 inches of effective precipitation results in approximately 35 inches net evaporation.

Operations Water Balance: Derr Pit Substitute Water Supply Plan
Table 2

Williams and Weiss Consulting, LLC

Submitted by:
Paul Weiss, P.E.
5255 Ronald Reagan Boulevard, Suite 220
Johnstown, CO 80534

	Depletions											
Month	Monthly Net Evap (ft)	Exposed Water Surface Area (acres)	Evaporative Losses (ac-ft)	Mining Production (tons)	Water Retained in Material (ac-ft)	Water Used For Dust Control (ac-ft)	Total CU (ac-ft)	Lagged Depletions (ac-ft)	Percent of Month Under Call (%)	Operations Augmentation Requirement (ac-ft)	Dewatering Lagged Depletions (ac-ft)	Net Impact to Poudre River (ac-ft)
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
Aug-21	0.39	3.00	1.18	50,000	0.96	0.85	2.99	-1.88	100%	-1.88	-0.12	-2.00
Sep-21	0.29	3.00	0.88	50,000	0.96	0.75	2.58	-1.97	100%	-1.97	-0.12	-2.09
Oct-21	0.20	3.00	0.61	50,000	0.96	0.50	2.07	-1.91	100%	-1.91	-0.11	-2.02
Nov-21	0.12	3.00	0.35	50,000	0.96	0.40	1.71	-1.78	100%	-1.78	-0.10	-1.88
Dec-21	0.09	3.00	0.26	50,000	0.96	0.20	1.42	-1.62	100%	-1.62	-0.10	-1.72
Jan-22	0.09	3.00	0.26	50,000	0.96	0.20	1.42	-1.49	100%	-1.49	-0.09	-1.58
Feb-22	0.10	3.00	0.31	50,000	0.96	0.20	1.46	-1.42	100%	-1.42	-0.08	-1.50
Mar-22	0.16	3.00	0.48	50,000	0.96	0.40	1.84	-1.43	100%	-1.43	-0.08	-1.51
Apr-22	0.26	3.00	0.79	50,000	0.96	0.50	2.24	-1.52	100%	-1.52	-0.08	-1.60
May-22	0.35	3.00	1.05	50,000	0.96	0.60	2.61	-1.68	100%	-1.68	-0.07	-1.75
Jun-22	0.42	3.00	1.27	50,000	0.96	0.75	2.98	-1.86	100%	-1.86	-0.07	-1.93
Jul-22	0.44	3.00	1.31	50,000	0.96	0.75	3.02	-2.03	100%	-2.03	-0.07	-2.10
TOTAL	2.92		8.75	600,000	11.48	6.10	26.33	-20.59		-20.59	-1.09	-21.68

Notes:
(A) Monthly evaporation
(B) Exposed water surface
(C) Monthly evaporation = (C) x (B)
(D) Estimated Production
(E) Water Retained in Material, 70% roadbase not washed, 30% washed
(F) Estimated Water Use for Dust Control
(G) Total Consumptive Use = (C) + (E) + (F)
(H) Lagged Depletions computed with AWAS
(I) Percent of Month under Call Affecting Recharge Reach
(J) Augmentation Requirement = (H) x (I)
(K) Lagged depletions from recharge pond spills in late 2019
(L) Net Impact to Poudre River = (K) + (J)

Releases and Water Balance: Derr Pit Substitute Water Supply Plan
Table 3

Williams and Weiss Consulting, LLC

Submitted by:
Paul Weiss, P.E.
5255 Ronald Reagan Boulevard, Suite 220
Johnstown, CO 80534

	Replacement Supply				
Month	Loloff Pit Release (ac-ft)	Infiltration of Release (ac-ft)	Infiltration Lagged Return (ac-ft)	Total Loloff Accretions to River (ac-ft)	Net Effect on the Poudre River (ac-ft)
	(A)	(B)	(C)	(D)	(E)
Aug-21	3.00	1.50	0.90	2.40	0.40
Sep-21	2.50	1.25	0.94	2.19	0.10
Oct-21	2.50	1.25	0.94	2.19	0.17
Nov-21	2.50	1.25	0.94	2.19	0.31
Dec-21	2.50	1.25	0.94	2.19	0.47
Jan-22	2.50	1.25	0.94	2.19	0.61
Feb-22	2.50	1.25	0.95	2.20	0.70
Mar-22	2.50	1.25	0.95	2.20	0.69
Apr-22	2.50	1.25	0.96	2.21	0.61
May-22	2.50	1.25	0.96	2.21	0.46
Jun-22	2.50	1.25	0.97	2.22	0.29
Jul-22	2.50	1.25	0.97	2.22	0.12
TOTAL	30.50	15.25	11.36	26.61	4.93

Notes:
(A) Pumped water from Loloff Pit
(B) 50% infiltration in drainage ditch and Ogilvy Canal
(C) Lagged returns using AWAS: T=79056 gpd/ft, S=0.2, W = 22900 ft, X = 2500 ft
(D) Net Accretions = (A) - (B) + (C)
(E) Net Effect on Poudre River = (D) + Table1 (L)

Exhibit 6. Location Map for Pits and Recharge Ponds

Exhibit 7. Loloff/Ogilvy Term Sheet

March 23, 2020
Kelly Hodge
Mill Iron Mining LLC

RE: Loloff Pit Term Sheet

The following sets forth the basic terms of understanding ("Term Sheet") between Ogilvy Irrigating and Land Company (herein after "Ogilvy") and Mill Iron Mining LLC (herein after "MIM") concerning the immediate use and eventual purchase, by Ogilvy, of the Loloff Pit ("Pit"). The Term Sheet is intended to set forth the parties' understanding and will be used as the basis for the development of a legally binding agreement between the parties ("Agreement"). however, this Term Sheet does not bind either party to enter into the Agreement, but shall govern the delivery and use free river water to Pit upon execution while the Agreement is being negotiated and executed.

Purposes:

- Allow MIM to start pumping free river water to the Pit as soon as possible while free river exists to help MIM with its immediate augmentation needs.
- Allow Ogilvy to store free river in the Pit for water sales and augmentation needs.
- Set forth general terms by which Ogilvy will purchase the Pit in 2022.

Free River Storage Prior to Agreement:

- The parties will coordinate and cooperate to pump free river water, when it is available, from the Ogilvy Ditch.
- To the extent necessary, Ogilvy grants a carrying right in the Ogilvy Ditch for this purpose. The carrying right is for free river water to be delivered by Ogilvy in the Ditch at times when it will not be injurious to the Company or its shareholders. However, to the extent possible the parties will maximize the delivery and use of free river water for storage in the Pit.
- The parties will coordinate on the location and set-up for the pump that will allow water to be pumped from the Ditch to the Pit, but such pump shall be a minimum 8" pump.
- This understanding is intended to govern free water deliveries prior to Ogilvy acquiring the Pit.

- MIM shall be entitled to use the first 200 acre feet of free river water stored in the Pit annually for augmentation of the Pit. Any additional amount, up to 500 acre feet, from any source (other than free river), may be stored each year and available for Ogilvy.

- MIM may pump possible excess water from the Dust & Dirt property into the Loloff Pit and take back to Dust & Dirt when needed. This shall not be in deemed a conflict or detrimental to this Agreement.

- MIM shall pay the cost and expense of pumping the first 200 acre feet. Ogilvy shall pay the costs of any additional amount pumped. The parties shall share the cost of pump set up and break down in relation to the amount of water pumped by each, if any. The parties shall share metering data, but shall otherwise be responsible for their own accounting. MIM shall be responsible for accounting for the Pit. The parties shall share evaporation/seepage in proportion to the amount of water each has stored in the Pit.

- The parties shall individually bear the cost and responsibility for delivering their water from the Pit to the ditch or the river. MIM shall be entitled to discharge to the river via the Ogilvy Ditch, provided that such discharge doesn't displace Ogilvy water from the Ditch. Ogilvy shall have the right to access and use the Pit and MIM property to the extent necessary to remove its water and deliver it to the Ditch. The parties shall work to cooperate to the extent possible to make joint deliveries to and releases from the Pit. Any additional metering or measuring devises needed by MIM as the operation of its plan for augmentation (e.g. for measuring returns to the river) shall be borne by MIM.

These terms of use shall govern until the Agreement is executed or until the parties determine no such Agreement will be executed. In the later event, Ogilvy shall have until the following storage season (commencing November 1) to remove any water it has stored in the Pit.

The parties hereto agree as of the date first written above.

Ogilvy Irrigating and Land Company

By: Donald G Wacker
Donald G. Wacker, President

Mill Iron Mining, LLC

By:
Kelly Hodge, Manager

STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY
Department of Natural Resources

1313 Sherman St., Room 215
Denver, Colorado 80203
Phone: (303) 866-3567
FAX: (303) 832-8106

M-2008-017

COLORADO DIVISION OF RECLAMATION MINING & SAFETY

April 30, 2010

Broken Arrow Investments, LLC
699 N. First Avenue
Greeley, CO 806310000

RE: Mining Operations with Exposed Ground water

To Whom It May Concern:

The Division of Reclamation Mining and Safety is responsible for ensuring that Sand and Gravel mining operators comply with the requirements of the Colorado Land Reclamation Act for the Extraction of Construction Materials (Act) and the Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials (Rules). Among these requirements are provisions for the protection of water resources. The Act requires that reclamation plans must ensure minimization of disturbances to the prevailing hydrologic balance, including disturbances to the quantity of water in the area affected by mining and in the surrounding areas. § 34-32.5-116(4)(h). Rule 3.1.6(1)(a) requires compliance with Colorado water laws and regulations governing injury to existing water rights both during and after mining. Permits must specify how the permittee will comply with applicable Colorado water laws and regulations governing injury to existing water right rights. Rule 6.3.3(j); Rule 6.4.5(2)(c). After an extensive review, the Division determined that several operators may not have appropriate permit conditions to address certain reclamation liabilities arising from impacts to water resources.

In September 2009 the Division of Water Resources (DWR) updated its Guidelines for Sand and Gravel Pits. These guidelines provide guidance on achieving compliance with state law regarding replacement of depletions from sand and gravel mining, thus the guidelines provide a benchmark for the protection of hydrologic balance required under the Act and Rules. As noted in the Guidelines, sand and gravel operations which expose groundwater without complying with state law create a reclamation liability by impacting available groundwater.

State law requires that any person exposing ground water must obtain a well permit from the SEO pursuant to § 37-90-137(11). Because exposed groundwater results in out-of-priority water depletions, operations which expose ground water must also eventually obtain a water-court approved augmentation plan. Currently, several operators do not have either an augmentation plan or bonding to provide an alternative method to mitigate injurious stream depletions that result from mining-related exposure of ground water. The Division has a statutory duty to ensure that lands affected by mining are reclaimed in a manner that complies with state law and to ensure that operators have sufficient bonding to achieve reclamation. In order to assist operators in achieving compliance with these requirements, the Division proposes that, by April 30, 2011, operators should contact the Division and agree upon a plan for achieving compliance.

The Division has identified four approaches for operators:

1. File a financial warranty that will ensure backfilling of the pit to cover the exposed ground water to a depth of two feet above the static ground water level or,

2. Obtain a court approved augmentation plan prior to exposing ground water or,

3. File a financial warranty to cover the cost of installing a clay liner or slurry wall that meets the Division of Water Resources requirements for preventing ground water exposure or,

4. Obtain approval from the Division of Water Resources that acknowledges compliance with the SEO's requirements pursuant to § 37-90-137(11).

The Division will work with operators on an individual basis as they move to implement one of these plans. It is likely that options 1 and 3 will require the submittal of a technical revision or an amendment to the existing permit depending on the nature of the current mining and reclamation plan and the proposed changes. Increased financial warranties, as a result of these modifications, may be posted in a phased manner not to exceed three years. Amendments or revisions currently under review will be required to be approved by April 30, 2011 and may use the phased financial warranty approach described above. New applications going forward or presently under review by the Division will be required to meet the requirements of one of the options 1-4 at the time of application approval. Failure of affected operators to initiate contact with the Division and gain compliance as described above could result in an enforcement action being issued by the Division.

If you have any questions, please contact Tony Waldron at 303-866-3567, extension 8150.

cc: M2008017 Derr Pit

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*)*