May 14, 2018

Ms. Sarah Brucker (via e-mail – Sarah.Brucker@state.co.us)
State Engineer's Office
1313 Sherman Street, Room 818
Denver, CO 80203

RE: S&H Mine SWSP Renewal Request (WDID 0202589) Pursuant to § 37-90-137(11) C.R.S. for July 1, 2018 through June 30, 2020

Dear Sarah:

Scout Investments, LLC (Scout Investments) owns the S&H Mine (DMG M-2000-158, WDID 0203036, and Well Permit No. 65464-F), located in Weld County, east of the South Platte River near its confluence with St. Vrain Creek (see Figure 1). The Division of Water Resources (DWR) previously approved a Substitute Water Supply Plan (SWSP) for the S&H Mine covering the period through June 30, 2018.

By this letter, we request an SWSP renewal for July 1, 2018 through June 30, 2020.

Once the electronic copy of this document has been transmitted via e-mail, payment in the amount of $257 will be paid by credit card to cover the application fee for renewal of the gravel pit SWSP.

Overall Summary
The S&H Mine permit area covers approximately 750 acres, divided into different mining cell areas, located northwest of Platteville, Colorado. Extraction of sand and gravel at the site has ceased.

The two major components in the SWSP are Milliken Reservoir (previously known as Sharkey's Lake or Gilcrest Reservoir) and an unlined pit located south of the reservoir called Sharkey's Pond. Milliken Reservoir is lined and has passed the DWR slurry wall leak test. Replacement water has been stored in Milliken Reservoir over the last 24 months during periods of free river, as approved by water commissioner Brent Schantz. A portion of the stored water will be made available for use as replacement water during the SWSP period, pursuant to a contract between United Milliken Reservoir Enterprise and Scout Investments. The current contract will expire on June 31, 2018. Scout Investments and United Milliken Reservoir Enterprise are in the process of renewing the contract for another two years. We will send you a copy of the renewed contract once it is finalized.

Approximately 10.8 acres of free water surface area is currently exposed at Sharkey's Pond. Evaporation depletions from Sharkey's Pond will be accounted for during the 2018/2019 SWSP period. Additional mining depletions are not expected (e.g., extraction of mined materials and water used for dust control). Any other depletions that may occur due to operations at the site will be incorporated into this plan via an SWSP amendment request.

Evaporation depletions, river depletions, and replacement operations are discussed further below.

Evaporation Depletions

Consumption of water from surface areas is estimated based on net evaporation, equal to gross evaporation less effective precipitation. Net evaporation losses are considered 100 percent consumptive.

Net evaporation is estimated as follows and summarized in Table 1:

- Gross evaporation is estimated based on linear interpolation between the isolines of average annual evaporation on the NOAA NWS-33 map. Annual gross evaporation of 43 inches (3.58 feet) is distributed on a monthly basis pursuant to the monthly percentages outlined in Senate Bill 120 for elevations less than 6,500 feet that are characteristic of the location of the S&H Mine.
- Effective precipitation is estimated as 70 percent of the average monthly precipitation recorded at the NOAA Fort Lupton climate station. The effective precipitation of 8.66 inches per year (0.72 feet) is based on average annual precipitation of 12.37 inches (1.03 feet).
- Net evaporation, based on gross evaporation minus effective precipitation, is equal to 34.34 inches per year (2.86 feet).
- Total maximum annual tributary net evaporation losses from the site are approximately 31.0 acre-feet, based on a maximum exposed surface area of 10.8 acres.

Tributary depletions at the mine site for the SWSP period are summarized in the following table. The values are lagged to the river based on the aquifer properties discussed in the following section.

Mining Depletions at Sharkey's Pond (acre-feet)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
2018 – 2019	-5.00	-4.50	-3.09	-2.22	-1.22	-0.95	-0.86	-1.12	-1.58	-2.65	-3.16	-4.55	-30.9
2019 – 2020	-5.00	-4.50	-3.09	-2.22	-1.22	-0.95	-0.86	-1.12	-1.58	-2.65	-3.16	-4.55	-30.9

River Depletions

The depletions summarized above represent the consumptive uses associated with evaporation losses at the S&H Mine. The evaporation depletions are lagged back to the river system based on the Glover

method using the Integrated Decision Support Group Alluvial Water Accounting System (IDS AWAS) software version 1.5.83. The timing of the lagged river deletions is dependent on the characteristics of the surrounding aquifer, as discussed further below.

Aquifer Characteristics

The engineering properties of the aquifer material surrounding the gravel pits have been estimated based on previous studies of the results of various aquifer tests. These studies include USGS Water Supply Paper 1658 and Groundwater Circular No. 11. The representative aquifer characteristics associated with Sharkey's Pond are summarized below.

Sharkey's Pond Aquifer Characteristics

Distance to River (X, ft)	Aquifer Width (W, ft)	Transmissivity (gpd/ft)	Storage Coefficient (dimensionless)
1,000	16,100	156,000	0.2

For purposes of calculating lagged river depletions, mining depletions are assumed to occur at the approximate centroidal location of Sharkey's Pond. The lagged river depletions for the SWSP period, including depletions at the mine since operations started in 2003, are summarized in the following table and the attached SWSP accounting in Table 2.

S&H Mine River Depletions (acre-feet)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
2018 – 2019	-4.25	-4.22	-3.47	-2.73	-1.96	-1.51	-1.31	-1.34	-1.59	-2.23	-2.75	-3.64	-31.0
2019 – 2020	-4.25	-4.22	-3.47	-2.73	-1.96	-1.51	-1.31	-1.34	-1.59	-2.23	-2.75	-3.64	-31.0

Replacement Operations

The lagged depletions associated with evaporation are considered to affect the South Platte River in close proximity to Sharkey's Pond, which occurs at the South Platte River about one mile above its confluence with St. Vrain Creek. The river depletions will need to be replaced during those periods with a downstream call recorded at the Division 1 Office.

Milliken Reservoir held 1,486 acre-feet of water on April 1, 2016, due to previously approved diversions. The Water District 2 Commissioner approved the diversion of South Platte River water into Milliken Reservoir during periods of free river in April 2016, December 2016, January 2017, May 2017, June 2017, September 2017, and October 2017. A total of approximately 364.8 acre-feet of river water was brought into Milliken Reservoir via two pumps. Releases from Milliken Reservoir during the period of April 2016 – December 2017 include: 9.1 acre-feet in September 2016, 4.4 acre-feet in October 2016, 3.9 acre-feet

in March 2017, 2.7 acre-feet in April 2017, and 11.0 acre-feet in September 2018. The total releases in the 2016-2017 period sum to 31.1 acre-feet. Water from the pumps is commingled en route to the lake through a pipe with totalizing flow meter. A total of 62 acre-feet of the water in storage will be used for replacement purposes during the 2018/2019 SWSP.

The necessary recording devices for pumping water into the river were approved by the water commissioner on August 18, 2014. The location of the pump installed in Milliken Reservoir and the pipe layout that was used to deliver replacement water to the South Platte River both include a separate totalizing flow meter.

Brent Schantz and I discussed options for making replacements to the river in slug releases. Mr. Schantz indicated that since the monthly replacement amounts are relatively small volumes, slug releases could be made each month as long as the releases are coordinated during times when a call downstream of the Sharkey Pond is on the river. This approach to making replacements will continue for the SWSP period with the advisement of the water commissioner if any changes to this approach are recommended.

Well Permit

The most recent well permit for the S&H Mine (Permit No. 65464-F) provided for total evaporative depletions of 40.04 acre-feet per year. Annual projected evaporative depletions during the previous SWSP period and the coming SWSP period (31.0 acre-feet per year) will be less than that amount. Therefore, we request you again extend the expiration date of Permit No. 65464-F coincident with the approval period of this SWSP request.

Gravel Pit Accounting

The recommended accounting of the projected demands, river depletions, and replacement supplies for S&H Mine is summarized in the attached Table 2. Computation of the net evaporation during any time that the pit is not completely covered by ice will be determined as the pro-rata amount of the monthly exposed surface area. At present, the entire 10.8 acres of exposed surface area will be accounted for during the 2018/2019 SWSP. This accounting form is similar to that previously provided by Scout Investments, LLC to water commissioner Brent Schantz.

Demands, depletions, and replacement supplies will be accounted for on a monthly basis. Operation and administration of the S&H Mine, as described herein, will prevent injury to decreed water right holders in the South Platte River basin.

If you have any questions or need additional information about this request, please do not hesitate to contact me at (303) 709-7044 or arista@dinatalewater.com.

Respectfully yours,

Arista H. Shippy, EI
Water Resources Engineer

Enclosures
cc: Scout Investments, LLC — Drew Damiano (drew@unitedwater.com)
Water District 2 Commissioner — Brent Schantz (brent.schantz@state.co.us)

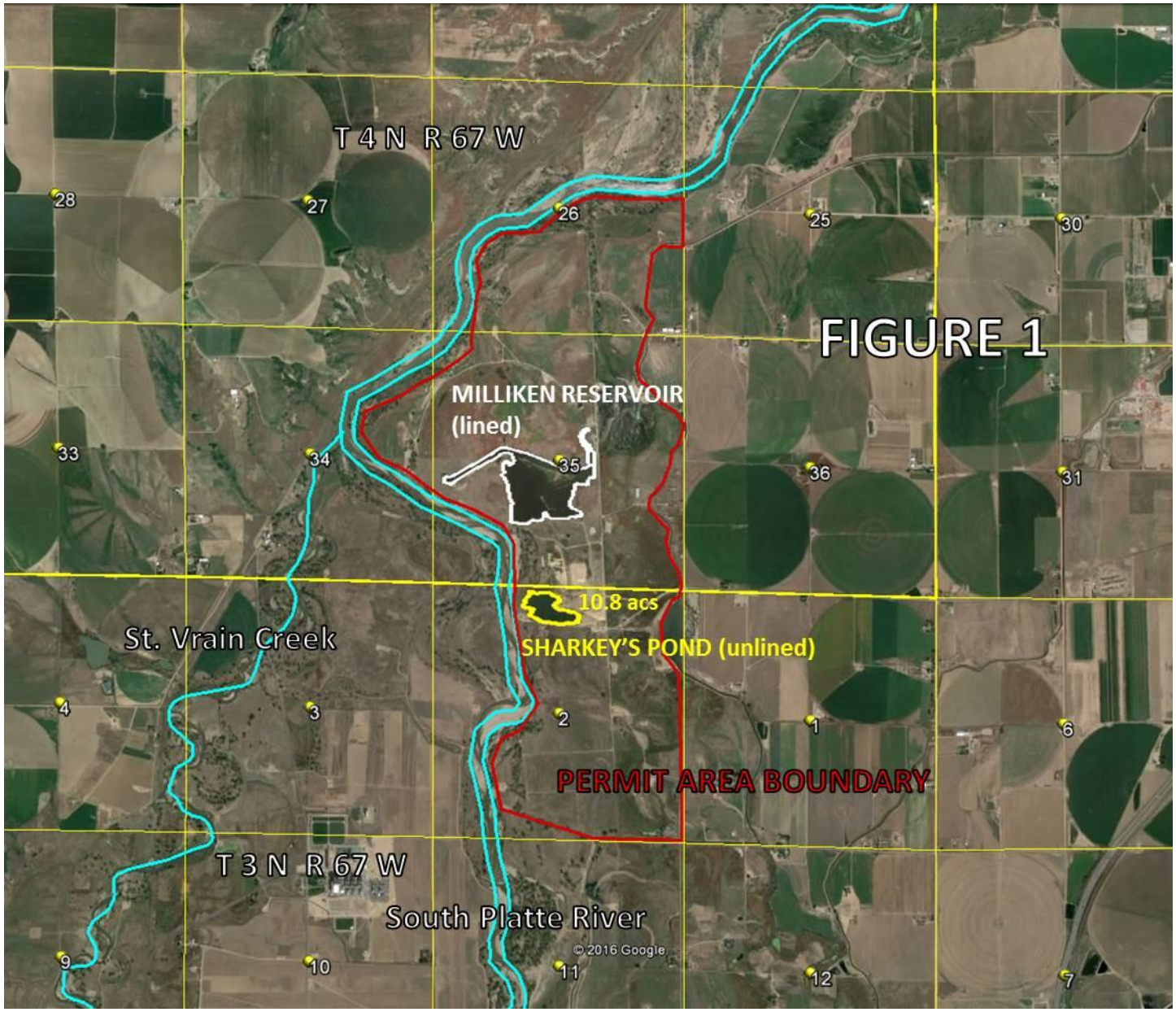
T 4 N R 67 W
28
27
26
25
30
FIGURE 1
MILLIKEN RESERVOIR
(lined)
33
34
35
36
31
10.8 acs
SHARKEY'S POND (unlined)
St. Vrain Creek
4
3
2
1
6
PERMIT AREA BOUNDARY
T 3 N R 67 W
South Platte River
© 2016 Google
9
10
11
12
7

Table 1
Scout Investment LLC S&H Mine (DMG Permit No. M-2000-158)
Projected Evaporation Depletions

	(1)	(2)	(3)	(4)	(5)	(6)
Date	Monthly Distribution	Gross Evaporation	Average Precipitation	Effective Precipitation	Unit Net Depletion	
		(in)	(in)	(in)	(in)	(ft)
January	3.0%	1.29	0.48	0.34	0.95	0.08
February	3.5%	1.51	0.38	0.27	1.24	0.10
March	5.5%	2.37	0.87	0.61	1.76	0.15
April	9.0%	3.87	1.32	0.92	2.95	0.25
May	12.0%	5.16	2.35	1.65	3.52	0.29
June	14.5%	6.24	1.68	1.18	5.06	0.42
July	15.0%	6.45	1.27	0.89	5.56	0.46
August	13.5%	5.81	1.15	0.81	5.00	0.42
September	10.0%	4.30	1.24	0.87	3.43	0.29
October	7.0%	3.01	0.77	0.54	2.47	0.21
November	4.0%	1.72	0.52	0.36	1.36	0.11
December	3.0%	1.29	0.34	0.24	1.05	0.09
Total	100.0%	43.00	12.37	8.66	34.34	2.86

Notes:
1. Monthly distribution per Senate Bill 89-120 guidelines for elevations < 6,500 ft
2. Annual gross evaporation from NOAA NWS-33 (43 in.) distributed monthly per (1)
3. Average monthly precipitation from Fort Lupton weather station
4. (3) * 0.7
5. (2) - (4)
6. (5) / 12

Table 2
Scout Investment LLC S&H Mine
July 2018 to June 2020 SWSP Accounting
(all values in acre-feet, unless otherwise noted)

Person Responsible for this plan:
Rebecca D. Evans
(303) 709-7044

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	DEPLETIONS						**REPLACEMENTS**	
	Evaporation							
Month	Exposed Area (ac)	Net Evap Rate (ft)	Total Evap.	Lagged Depletions	% Month w/ Call	Total Obligation	Pumping to River from Milliken Reservoir	**RIVER BALANCE**
Jul-18	10.8	-0.46	-5.00	-4.25	100%	-4.25	4.25	0.0
Aug-18	10.8	-0.42	-4.50	-4.22	100%	-4.22	4.22	0.0
Sep-18	10.8	-0.29	-3.09	-3.47	100%	-3.47	3.47	0.0
Oct-18	10.8	-0.21	-2.22	-2.73	100%	-2.73	2.73	0.0
Nov-18	10.8	-0.11	-1.22	-1.96	100%	-1.96	1.96	0.0
Dec-18	10.8	-0.09	-0.95	-1.51	100%	-1.51	1.51	0.0
Jan-19	10.8	-0.08	-0.86	-1.31	100%	-1.31	1.31	0.0
Feb-19	10.8	-0.10	-1.12	-1.35	100%	-1.35	1.35	0.0
Mar-19	10.8	-0.15	-1.58	-1.59	100%	-1.59	1.59	0.0
Apr-19	10.8	-0.25	-2.65	-2.23	100%	-2.23	2.23	0.0
May-19	10.8	-0.29	-3.16	-2.75	100%	-2.75	2.75	0.0
Jun-19	10.8	-0.42	-4.55	-3.64	100%	-3.64	3.64	0.0
July 2018 - June 2019		**-2.86**	**-30.9**	**-31.0**		**-31.0**	**31.0**	**0.0**
Jul-19	10.8	-0.46	-5.00	-4.25	100%	-4.25	4.25	0.0
Aug-19	10.8	-0.42	-4.50	-4.22	100%	-4.22	4.22	0.0
Sep-19	10.8	-0.29	-3.09	-3.47	100%	-3.47	3.47	0.0
Oct-19	10.8	-0.21	-2.22	-2.73	100%	-2.73	2.73	0.0
Nov-19	10.8	-0.11	-1.22	-1.96	100%	-1.96	1.96	0.0
Dec-19	10.8	-0.09	-0.95	-1.51	100%	-1.51	1.51	0.0
Jan-20	10.8	-0.08	-0.86	-1.31	100%	-1.31	1.31	0.0
Feb-20	10.8	-0.10	-1.12	-1.35	100%	-1.35	1.35	0.0
Mar-20	10.8	-0.15	-1.58	-1.59	100%	-1.59	1.59	0.0
Apr-20	10.8	-0.25	-2.65	-2.23	100%	-2.23	2.23	0.0
May-20	10.8	-0.29	-3.16	-2.75	100%	-2.75	2.75	0.0
Jun-20	10.8	-0.42	-4.55	-3.64	100%	-3.64	3.64	0.0
July 2019 - June 2020		**-2.86**	**-30.9**	**-31.0**		**-31.0**	**31.0**	**0.0**

Notes:
1. Exposed surface area at Sharkey's Pond, tributary to the South Platte. Does not include area covered with ice throughout the month.
2. Net unit evaporation from exposed surface areas (see Table 1). Set to negative values to represent depletions.
3. Equal to (1) * (2).
4. Tributary depletions at S&H Mine since 2003, including values in (3), lagged to river based on X = 1,000 feet; W = 16,100 feet; T = 156,000 gpd/ft; S = 0.2; Negative values (-) represent net depletion.
5. Percentage of month with downstream call based on Division 1 records.
6. Equal to (4) * (5).
7. Pumping to river of reusable supplies from Milliken Reservoir based on totalizing flow meter recordings. Note winter replacements (Nov - Mar) may be aggregated in whole or in part during the five winter months.
8. Equal to (6) + (7); Negative values (-) represent net depletion; positive values (+) represent net accretion.