J. E. STOVER & ASSOCIATES, INC.

2352 NORTH 7TH STREET, UNIT B
GRAND JUNCTION, COLORADO 81501
PHONE: (970) 245-4101, FAX 242-7908

MINE ENGINEERING
MINE RECLAMATION

CIVIL ENGINEERING
CONST. MANAGEMENT

March 4, 2021

Mr. Clayton Wein
Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

RE: Snowcap Coal Company, Inc.
Annual Hydrology Report – 2020WY
Permit No. C-1981-041

Dear Mr. Wein:

On behalf of Snowcap Coal Company, Inc., enclosed is a copy of its annual hydrology report for the 2020 water year. This submission is designed to supplement previous submissions and should be added to the 3-ring binder provided in 1993. The index pages should replace the previous index pages; the report, diagrams, tables and map should be inserted following the 2020 tab page; and the data pages should be added to or replace existing pages in the data pages binder.

Sincerely,

Tonya K. Hammond

Tonya K. Hammond
Owner's Representative
Snowcap Coal Company, Inc.

Enclosures

cc: SCC File

SNOWCAP COAL COMPANY, INC.
ANNUAL HYDROLOGY REPORT INDEX

Surface Water

SA-# - Rapid Creek, quality monitored near SWGS-04 (Discontinued 1986)
SB-# - Upper Colorado River, quality (Discontinued 1993)
SC-# - Lower Colorado River, quality (Discontinued 1993)
SD-# - Outfall 001, weekly and monthly field and lab data (Discontinued 2002)
SE-# - Outfall 002, weekly and monthly field and lab data (Discontinued 2002)
SF-# - Outfall 004, weekly and monthly field and lab data (Discontinued 2001)
SG-# - SWSG-01, Lower Rapid Creek, daily flows and hydrograph (Discontinued 2016)
SH-# - SWGS-02, Cottonwood Creek, daily flows and hydrographs (Discontinued 2016)
SI-# - SWGS-03, Upper Rapid Creek, daily flows and hydrographs (Discontinued 2016)
SJ-# - SWGS-04, Lower Rapid Creek, daily flows and hydrographs (Discontinued 1986)
SK-# - SWGS-05, Upper Cottonwood Creek, daily flows and hydrographs (Discontinued 1998)
SL-# - Outfalls 001, 002 & 016, WET test (Discontinued 2005)
SM-# - Outfall 004, WET test (Discontinued 1999)
SN-# - Outfall 001, quality (Discontinued 2001)
SO-# - Outfall 002, quality (Discontinued 2001)
SP-# - Outfall 004, quality (Discontinued 1999)
SQ-# - Colorado River, USGS station 09095500 data
SR-# - Coal Canyon Drainage, SWGS-06 & -07, flows (Discontinued 2016)
SS-# - Jerry Creek, SWGS-08 & -09, flows (Discontinued 2011)
ST-# - Spring and Seep Surveys (Discontinued 2005)
SU-# - Outfall 016, quality
SV-# - Outfall 016, Weekly and monthly field and laboratory data

Ground Water

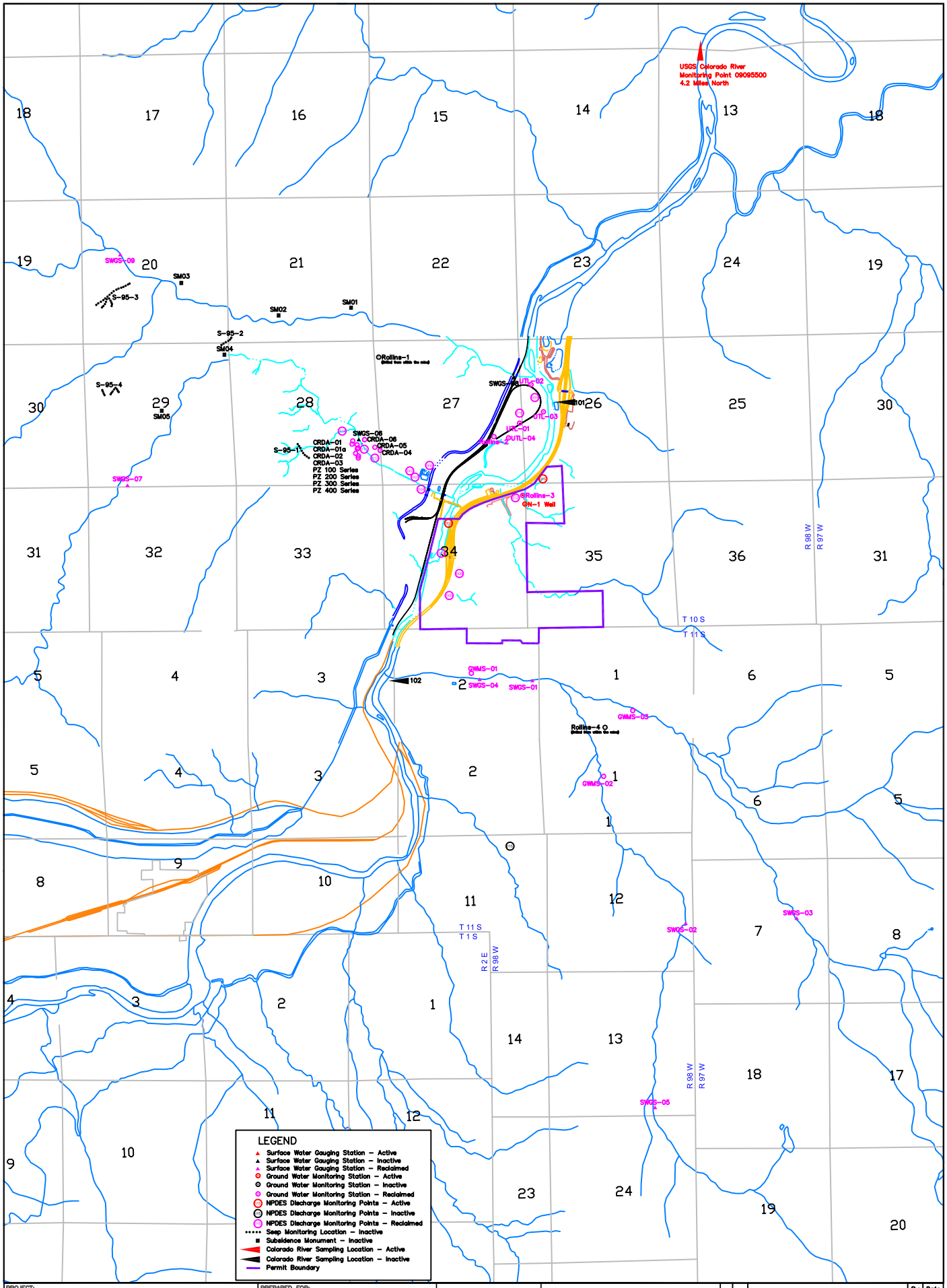
GA-# - Cottonwood Creek and Rapid Creek Groundwater Levels GWMS 01A, 01B, 02A, 02, 03A, 03B (Discontinued 2016)
GB-# - Unit Train Loadout Groundwater Level UTL-01, 02, 03, 04 (Discontinued 2011)
GC-# - Cameo Refuse Disposal Area Ground Water CRDA & PZ #s (Discontinued 2016)
GD-# - Water Quality Data UTL-02 UTL-04 (Discontinued 2010)
GE-# - Rollins Sandstone Wells depth to water and water quality Rollins-1, 2, 3, 4 (Discontinued 2011)

Mine Inflows

MA-# - South Portal inflow and quality data (Discontinued 1999)
MB-# - North Portal inflow and quality data (Discontinued 1999)

Consumptive Use

CA-# - Palisade Domestic Water and Preparation Plant, meter readings (Discontinued 2000)



PROJECT: SNOWCAP COAL COMPANY, INC.

TITLE: ROADSIDE NORTH AND SOUTH MINES MONITORING LOCATION MAP

DWG. NAME: 2020 AHR

DRMS I.D. No. C-1981-041

SCALE: NTS

PREPARED FOR:
SNOWCAP COAL COMPANY, INC.
P.O. Box 1430
Palisade, CO 81526
(970) 241-8118

PREPARED BY: J. E. STOVER & ASSOCIATES
2555 N 7th St., Unit B
Grand Jct., CO 81501

DIGITIZED	TKH	03/03/04
DRAWN:		
CHECKED:	JES	03/03/04

REVISIONS		By	Date
1	2020 Annual Hydrologic Map (Oct 2019 thru Sept 2020)	TKH	02/21

REFERENCES
C:\D_Drive\Spars\Old-D-Drive\PowderhornCoal\Powderhorn\ahr\2020MonitoringLocationMap

SNOWCAP COAL COMPANY, INC.
2020 ANNUAL HYDROLOGY REPORT
OCTOBER 1, 2019 THROUGH SEPTEMBER 30, 2020

Introduction

During the 2020 Water Year, the Year, the mines were idle. Mining ceased at the Roadside Portals on December 2, 1999. The North Mine was sealed on February 10, 2000. The Roadside South Mine was sealed on April 12, 2000. The South Fan was sealed May 22, 2000. The 2 West Portals were sealed on April 24, 2000. Production at the Roadside North utilized room and pillar mining with a continuous miner and shuttle cars.

Reclamation of CRDA-2 was completed in 2002. The sediment retained by the drop structures in Coal Canyon was harvested for cover material. Material excavated during construction of the upper diversion ditch was also used as cover material. A small amount of cover material was obtained from CBA-1. Topsoil was obtained from Topsoil Stockpiles 2, 7, 8 and 9. Reclamation of CRDA-1 was also completed in 2002. Cover material was obtained from CBA-2. The road to CRDA-1 was left open to accept coal and refuse material from other ongoing reclamation activities. The road begins at the west end of Haul Rd No. 5 and extends to the top of CRDA-1.

The North Portal was regraded to approximate original contour during 2002. Backfill material came from areas filled near Coal Creek and around the coal stockpile area.

During 2002 the RSRDA was graded to final contours. The existing cover was graded off of the slope and used as cover below the first bench. Refuse material was cut from the pile to establish two 10' - 15' wide benches on 30' to 40' elevation intervals. This refuse material was placed in an extension of the pile to the north. Cover material was obtained from the RSRDA borrow area.

During 2003, a portion of the conveyor corridor was regraded and seeded. This work extended from the culvert under Excel's frontage road to the culvert under the railroad loop. The conveyor bridge over the Colorado River was removed during the year.

During 2004, the conveyor corridor, from the Xcel culvert south to Transfer Building #2 and east of the Colorado River where the conveyor tube crossed the river, was graded to approximate original contours and seeded.

No reclamation was performed in 2005 or 2006.

During 2007, a permit revision (PR3) was approved to change the land use at the South Portal from Fish and Wildlife to Industrial/Commercial. Final grading was completed for the approved reclamation plan.

During 2008, seeding was completed at the South Portal and the "G" Substation was removed, graded to approximate original contours and seeded.

During 2009, the rail spur lying south of I.9 Road was reclaimed, graded and seeded. A phase III bond release (SL5) was approved on the reclaimed conveyor corridor lying south of I.9 Road, and a permit revision (PR4) was approved to change the land use at the Unit Train Loadout from Fish and Wildlife to Industrial/Commercial. Halliburton Energy Services purchased the UTL and began construction of their commercial sand plant operations.

During 2010 coal fines from the UTL were hauled to CRDA-1 and reclamation of CRDA-1 road was finalized in September. Ponds 1 and 2, sewage lagoons, topsoil pile 4 along with other areas of the UTL were reclaimed, regraded and reseeded. A phase III bond release (SL6) was approved for the Commercial/Industrial portion of the South Portal.

During 2011 Pond 7, sumps and ditches at the North Decline and Pond 8 at the South Portal were reclaimed, regraded and reseeded. A phase III bond release (SL7) was approved for the UTL, Railroad Loop, the remainder of the conveyor corridor and the permanent flood control dike.

During 2012 Ponds 6, 10, 11 and 13, CBA#1 Sump and miscellaneous sedimentation control features at the North Portal and along Coal Creek were reclaimed, regraded and reseeded. A permit revision (PR5) was approved allowing Coal Creek and Coal Gulch to remain in their present alignment and allows for the North Portal upper diversion ditch and a portion of Topsoil Pile 2 to remain as permanent features.

During 2013 Pond 9 was reclaimed, regraded and reseeded.

No reclamation was performed in 2014.

No reclamation was performed in 2015.

No reclamation was performed in 2016. Bond release application SL8 was approved on November 14, 2015. With this approval 128 surface disturbed acres achieved Phase III release; 136.5 surface disturbed acres achieved Phase II release and 22.2 surface disturbed acres achieved Phase I release. Also released with SL-8 were 1288.9 unaffected acres and 744 undisturbed acres overlying underground workings.

No reclamation was performed in 2017. A permit revision (PR6) was approved to change the land use at the Roadside North Portal Area from Fish and Wildlife to Industrial/Commercial. Bond release applications SL9 and SL10 were approved releasing 13.1 acres from Phase II liability and 13.6 acres from Phase III liability. Also released were 0.2 acres of undisturbed acres overlying underground workings.

No reclamation was performed in 2018.

During 2019 a hydrologic communication repair above the South Portal Mine was completed as approved by TR69. This repair generated a disturbance of 0.4 acres which was regraded, seeded and mulched.

No reclamation was performed in 2020. Bond release application SL11 was approved releasing 2.4 acres from Phase II liability and 10.4 acres from Phase III liability. Also released with SL11 were 291.3 undisturbed acres overlying underground workings.

The general format of this report is the same as in previous years.

Surface Water

Water flow and quality on the Colorado River is monitored by the U.S. Geologic Survey (USGS) at various locations. The closest location is Station No. 09095500, which is located upstream approximately 7 miles north east of the mine site. Water quality and flow from this site are used as a general representation of the Colorado River up gradient of the mining operation. There is a diversion to the Government Highline Canal, the addition of Plateau Creek and the addition of other minor drainages between the monitoring site and the mine site. Data Pages SQ-118 through SQ-121 includes information supplied by USGS on this site during the 2020 Water Year. The total flow at this site for the Year was 1,975,603 acre-feet which is 72% of the normal average flow for the period 1934 - 2020 (2,759,112). The estimated TDS load for the Year was 1.19 million tons. This estimate is made by converting values for conductivity reported on page SQ-121 to TDS per acre feet and multiplying by the monthly flow in acre feet. The low flow for the Year was recorded as 1120 CFS on December 19, 2019. The river was carrying approximately 1.0 tons of TDS per acre-foot on December 19, 2019. This flow and TDS load equates to approximately 2222 tons of Total Dissolved Solids, TDS, being carried by the river past the mine that day. The mine discharge on December 2, 2019 (the closest monthly analysis), was 105.6 gpm @ 1190 mg/l TDS; resulting in approximately 0.75 tons of TDS being discharged. Comparing the calculated TDS load in the River at low flow and the mine discharge near the same date, the maximum increase in the River's TDS as a result of mine discharge would have been 0.03%.

The surface water monitoring points on Cottonwood and Rapid Creeks were suspended from monitoring with the approval of TR67 on February 23, 2016, therefore no current of future monitored will be conducted. Past monitoring of these points can be found on data pages SG-61, SG-62, SH-28 and SI-28. The Cottonwood and Rapid Creek flumes associated with SWGS 01, SWGS 02 and SWGS 03 were removed in August 2016.

Monitoring on Coal Creek and Jerry Creek started in 1995. The crest stage gages installed in Coal Canyon drainage and Jerry Creek in 1996 were destroyed by a storm in the summer of 1998. Discussions with DRMS indicated there was no need to monitor the upstream locations SWGS 07 and 09. The creeks were then only monitored at the lower monitoring points. The ephemeral flow in Coal Creek was measured at culverts located between the two refuse disposal areas, SWGS 06. These culverts provided a stable cross section and were accessible throughout the year. The intermittent flow in Jerry Creek was measured at the culvert near the Highline Canal, SWGS 08. Beginning July 1999, instantaneous flows were monitored monthly. Monitoring was suspended for Jerry Creek (SWGS 08) with the approval of TR62 on 11/8/11.

Monitoring was suspended for Coal Creek (SWGS 06) with the approval of TR67 on February 23, 2016. Therefore, no monitoring was performed during the Year.

There were four seeps included in the hydrologic monitoring in 1995. The locations of the seeps are shown on the Hydrologic Monitoring Map. They are located adjacent to Coal Canyon drainage and Jerry Creek. They are primarily evident by the white staining on the hillsides from evaporation of the seeps. None of them flow to the creek channel but generally evaporate within a couple of hundred feet of the source. On April 19, 2006, Snowcap Coal Company submitted a technical revision, TR50, requesting to discontinue seep monitoring. The request was approved by the Division on July 25, 2006. Therefore, no monitoring was performed during the Year.

There was no discharge from CDPS discharge points 005 thru 015 during the Year. These outfalls cover sediment pond discharges. Discharge point 015, now inactive, was permitted to allow pumping water from the south end of the Roadside South Portal out the 2 West portals. Discharge point 016 is permitted for gravity discharge from the northwest intake pool. It replaced outfalls 001 and 002 on March 31, 2002.

Discharge point 001 was primarily used as an overflow to a mine water system for the preparation plant during mine operations. During March and April 2000, a discharge pipe was installed from the No. 2 South Mains sump to outfall 001. The routing of this 4-inch diameter pipe is presented on permit Figure 14-6. The capacity of this discharge pipe was about 75 gpm. Flow ceased at discharge point 001 on March 31, 2002. Discharge point 001 was reclaimed during the 1st quarter of 2008 and is no longer operational.

Discharge point 002 was water siphoned from the reclaimed Northwest Intake Portal at the Roadside South Portals. Mine inflows that were not pumped to the preparation plant were routed to an abandoned portion of the mine for discharge from this point. The preparation plant was shut down during December 1999 so all mine inflows in excess of those handled by outfall 001, flow north to the lower portion of the mine where they were handled by the siphon, outfall 002. Flow ceased at discharge point 002 on March 31, 2002.

The following table presents the total dissolved solids concentration in Outfall 002.

Average TDS from Pages SE-8 ≡ SE-11 Outfall 002				
Water Year	1999	2000	2001	2002
TDS (mg/l)	1558	1560	1500	1500

Discharge point 016 was put into service April 1, 2002. Discharge began April 3, 2002. This

gravity discharge point handles all of the water that flows into the sealed South Portal. Since it is a gravity discharge point, the flow discharged will equal the flow into the mine. Table M20-1 presents a summary of the monthly flow from the mine. Data page SV-19 presents a listing of flow and water quality monitoring performed at this site during the Year. Data page SU-6 includes a full suite analysis performed on a sample collected during the Year. The average TDS value at discharge point 016 for the Year was 1235 mg/l.

Whole Effluent Toxicity (WET) tests were not performed during the Year. On May 3, 2005, Snowcap Coal Company requested, via letter to the CDPHE, the WET tests be terminated. This request was granted and the CDPS Permit was amended on June 27, 2005, becoming effective on August 1, 2005.

Ground Water

The ground water monitoring points on Cottonwood and Rapid Creeks were suspended from monitoring with the approval of TR67 on February 23, 2016, therefore no monitored was conducted for the Year. The monitoring wells associated with GWMS01 A&B, GWMS02 A&B, and GWMS03 A&B were plugged and abandoned on August 24, 2016. A copy of the abandonment report was included in the 2016 AHR.

Piezometers CRDA-01 thru 06 at the Cameo Refuse Disposal Areas (CRDA) No. 1 and No. 2 were not monitored during the Year. The monitoring was suspended for these piezometers with the approval of TR67 on February 23, 2016. The piezometers were removed and backfilled in May 2016 as specified on page 14-31 of SCC's permit document. Past monitoring shows the water levels in the piezometers were consistently below their critical depths and information can be found on data pages GC-1 through GC-25.

The past results of water level measurements at the unit train loadout are listed on Data page GB-2. Monitoring of these piezometers was discontinued with the approval of SL7 in April 2011 and the UTL-01, UTL-02, UTL-03 and UTL-04 piezometers were sealed and reclaimed on May 17, 2011. The Well Abandonment Reports were included in DRMS's quarterly report dated July 7, 2011. No monitoring was performed during the Year.

A former mine dewatering hole (N-1) located at the North Decline area of the mine is used to monitor the water level in the abandoned portions of the Roadside South Portal. Since discharge point 016 was put into service, the water level in N-1 is virtually constant and it is expected to stay at an elevation of about 4758. The results of monitoring N-1 are presented in Table M20-2.

In order to characterize the Rollins Sandstone two surface and two underground wells were installed during June 1997. The surface wells, Rollins-2 and Rollins-3, were installed at the unit train loadout and the north decline respectively. The underground wells, Rollins-1 and Rollins-4, were installed in the North and South Portals respectively. Depth to water ranged from 56.5 feet

below grade in the North Decline well to artesian in the North Portal well. Monitoring of these wells was performed in accordance with permit requirements. Prior depth to water data is presented on data page GE-1-1. Rollins-1 was sealed in December 1999 and Rollin-4 was sealed in April 2000. Rollins-2 and 3, with the approval of SL-7, were sealed in May 2011. The Well Abandonment Reports were included in DRMS's quarterly report dated July 7, 2011. No monitoring was performed during the Year.

Mine Water

There was no annual mine inflow study performed during the Year since the North and South Portals have been sealed. The last annual mine inflow was performed during December 1999 and reported in the 1999 report.

Discharge Monitoring Reports (DMRs)

DMRs are submitted monthly to the Colorado Department of Public Health and Environment with copies to the Division of Reclamation Mining and Safety and are included herein by reference.

Consumptive Use

There was no consumptive use during the Year.

Impacts

The average total dissolved solids for the mine discharges calculated with total flow for the Year yields the tons of TDS discharged for the year. Outfall 016 discharged a total of 323 tons of TDS to the river during the Year.

The 2020 TDS discharge represents 0.027% of the 1.19 million tons calculated to be carried by the River. At the Roadside South Portal, water is expected to perpetually discharge through outfall 016.

Based on flume monitoring from 1985 to 2016, no effects of mining were detected on flows in Cottonwood and Rapid Creeks. Mining ceased at the Roadside Portals on December 2, 1999. No further mining from either portal is anticipated in the foreseeable future.

Consumptive use will be insignificant in the future because mining and washing of coal has ceased. Consumptive use will be for hydro-seeding and dust control during reclamation operations.

ROADSIDE SOUTH PORTAL DISCHARGE

2020 WATER YEAR

OUTFALL 016

DATE	DAYS	METER	K-GAL.	GPM
9/17/19		354,923		
10/1/19	14	357,312	2389	118.5
10/14/19	13	359,401	2089	111.6
11/4/19	21	362,652	3251	107.5
11/12/19	8	363,882	1230	106.8
12/2/19	20	366,922	3040	105.6
12/10/19	8	368,089	1167	101.3
1/6/20	27	371,956	3867	99.5
1/14/20	8	373,302	1346	116.8
2/3/20	20	376,823	3521	122.3
2/11/20	8	378,279	1456	126.4
3/2/20	20	381,991	3712	128.9
3/10/20	8	383,505	1514	131.4
4/6/20	27	388,747	5242	134.8
4/14/20	8	390,314	1567	136.0
5/4/20	20	394,274	3960	137.5
5/12/20	8	395,867	1593	138.3
6/1/20	20	399,571	3704	128.6
6/9/20	8	400,958	1387	120.4
7/6/20	27	405,368	4410	113.4
7/20/20	14	407,654	2286	113.4
8/3/20	14	409,892	2238	111.0
8/11/20	8	411,155	1263	109.6
8/17/20	6	412,140	985	114.0
9/1/20	15	414,760	2620	121.3
9/14/20	13	417,135	2375	126.9
Total	363		**62212**	**119.0**

File TM3

Snowcap Coal Company, Inc.

N-1 Monitoring Well
North Decline
2020

N-1 Top of Pipe - Elevation 4833

Date	Depth to Water	Elevation
10/1/2019	75.38	4757.62
10/14/2019	75.40	4757.60
11/4/2019	75.44	4757.56
11/12/2019	75.42	4757.58
12/2/2019	75.45	4757.55
12/10/2019	75.44	4757.56
1/6/2020	75.44	4757.56
1/14/2020	75.45	4757.55
2/3/2020	75.33	4757.67
2/11/2020	75.38	4757.62
3/2/2020	75.36	4757.64
3/10/2020	75.35	4757.65
4/6/2020	75.33	4757.67
4/14/2020	75.34	4757.66
5/4/2020	75.31	4757.69
5/12/2020	75.30	4757.70
6/1/2020	75.35	4757.65
6/9/2020	75.39	4757.61
7/6/2020	75.40	4757.60
7/20/2020	75.38	4757.62
8/3/2020	75.39	4757.61
8/11/2020	75.40	4757.60
9/1/2020	75.35	4757.65
9/14/2020	75.36	4757.64
Min	75.30	4757.55
Max	75.45	4757.70
Average	75.38	4757.62

Desired Range 4755 to 4762

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2019-10-01 to 2020-09-30
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2019	2019	2019	2020	2020	2020	2020	2020	2020	2020	2020	2020
1	2,420	2,170	1,780	1,220	1,450	1,510	1,690	3,960	12,400	3,950	2,180	1,980
2	2,430	2,160	1,540	1,400	1,490	1,530	1,720	4,670	12,800	3,650	2,070	1,920
3	2,450	2,140	1,550	1,670	1,490	1,550	1,850	5,350	12,600	3,440	2,080	1,860
4	2,450	2,080	1,780	1,660	1,530	1,590	1,860	5,750	11,700	3,230	2,120	1,820
5	2,440	2,010	1,760	1,560	1,280	1,590	1,830	5,930	10,700	3,080	2,070	1,780
6	2,390	2,020	1,830	1,560	1,350	1,580	1,820	5,470	10,100	3,110	2,030	1,760
7	2,410	2,010	1,770	1,610	1,390	1,600	1,820	5,270	11,400	3,050	1,970	1,770
8	2,420	1,960	1,710	1,580	1,600	1,640	1,930	5,260	9,650	2,990	1,960	1,840
9	2,410	1,960	1,730	1,630	1,640	1,710	2,030	5,130	8,500	2,780	2,040	2,110
10	2,410	1,960	1,760	1,630	1,690	1,760	2,140	5,050	7,670	2,620	2,070	2,090
11	2,420	1,940	1,620	1,490	1,610	1,770	2,310	5,190	6,690	2,490	1,980	2,130
12	2,400	1,930	1,550	1,420	1,560	1,750	2,370	5,780	5,990	2,380	1,970	2,020
13	2,400	1,860	1,640	1,450	1,530	1,770	2,440	6,160	5,810	2,300	2,080	1,840
14	2,370	1,810	1,770	1,540	1,580	2,010	2,330	6,210	6,060	2,230	2,020	1,790
15	2,370	1,800	1,740	1,550	1,570	1,810	2,120	6,320	6,240	2,250	1,990	1,660
16	2,370	1,830	1,580	1,550	1,600	1,750	2,100	6,290	5,860	2,280	1,940	1,670
17	2,310	1,850	1,410	1,520	1,620	1,760	2,130	6,390	5,400	2,330	1,920	1,750
18	2,340	1,840	1,200	1,450	1,600	1,770	2,110	7,000	5,130	2,450	1,910	1,740
19	2,370	1,830	1,120	1,370	1,570	1,930	2,050	8,250	4,950	2,290	1,880	1,690
20	2,390	1,860	1,280	1,360	1,520	2,060	2,090	9,100	4,780	2,230	1,880	1,680
21	2,390	1,880	1,310	1,430	1,450	1,840	2,090	9,170	4,520	2,160	1,920	1,710
22	2,400	1,880	1,400	1,540	1,390	1,730	2,090	8,590	4,360	2,120	1,890	1,680
23	2,420	1,900	1,530	1,570	1,450	1,690	2,060	7,970	4,180	2,130	1,860	1,690
24	2,440	1,830	1,620	1,580	1,510	1,670	2,090	7,540	4,160	2,090	1,850	1,750
25	2,490	1,740	1,750	1,560	1,500	1,620	2,180	7,010	4,090	2,140	1,830	1,660
26	2,450	1,740	1,760	1,570	1,460	1,640	2,210	6,440	4,220	2,160	1,820	1,650
27	2,430	1,800	1,620	1,570	1,380	1,760	2,290	6,210	4,440	2,300	1,780	1,710
28	2,450	1,610	1,520	1,540	1,440	1,840	2,460	6,550	4,530	2,330	1,750	1,710
29	2,470	1,660	1,540	1,500	1,500	1,820	2,860	7,750	4,360	2,230	1,770	1,730
30	2,420	1,860	1,490	1,520		1,750	3,420	9,140	4,190	2,080	1,870	1,770
31	2,370		1,290	1,500		1,700		10,800		2,220	1,970	
Total	74,700	56,920	48,950	47,100	43,750	53,500	64,490	205,700	207,500	79,090	60,470	53,960
Mean	2,410	1,897	1,579	1,519	1,509	1,726	2,150	6,635	6,916	2,551	1,951	1,799
Max	2490	2170	1830	1670	1690	2060	3420	10800	12800	3950	2180	2130
Min	2310	1610	1120	1220	1280	1510	1690	3960	4090	2080	1750	1650
Ac-ft	148,200	112,900	97,090	93,420	86,780	106,100	127,900	408,000	411,500	156,900	119,900	107,000

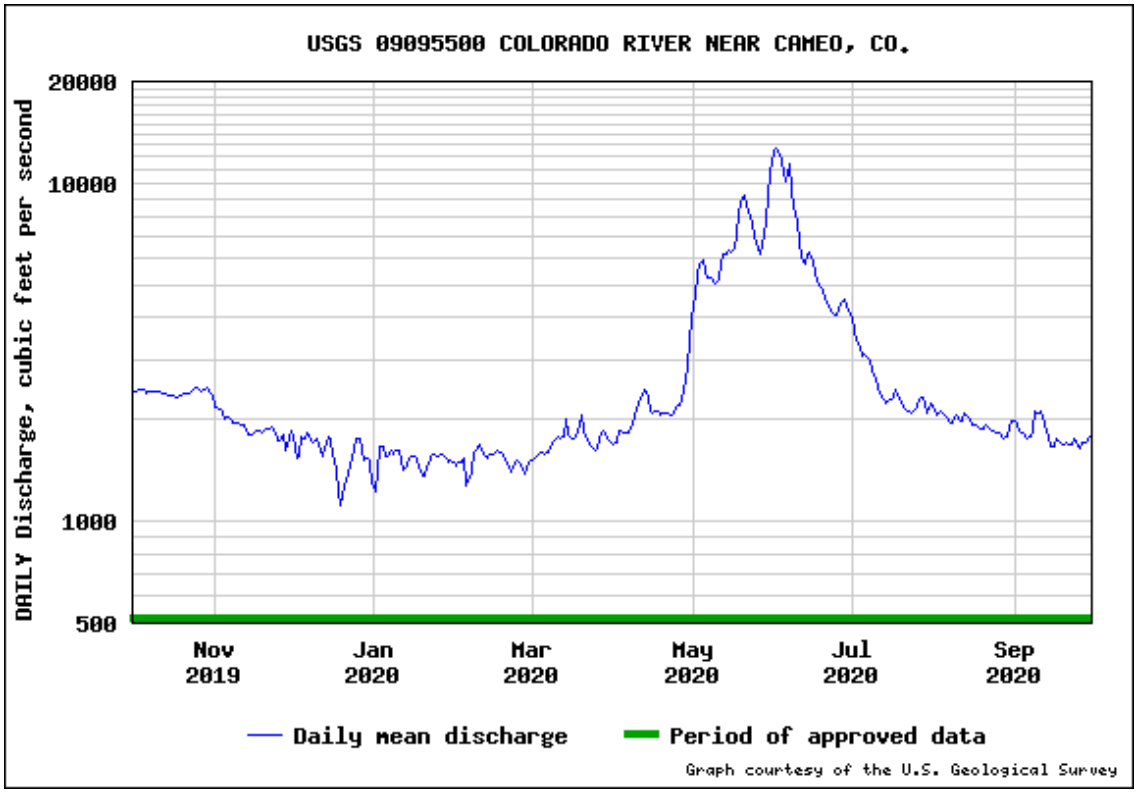
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 2020, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	2,203	1,933	1,674	1,571	1,587	1,809	3,127	8,771	12,150	5,712	2,833	2,264
Max	3,731	3,253	3,002	2,621	2,775	3,365	8,615	20,290	25,829	17,430	6,571	4,271
(WY)	(1985)	(1985)	(1985)	(1985)	(1986)	(1986)	(1962)	(1984)	(1984)	(1957)	(1984)	(1984)
Min	1,084	1,038	1,004	940	941	1,019	1,428	2,536	2,606	1,515	1,332	1,243
(WY)	(1935)	(1935)	(1935)	(1964)	(1935)	(1935)	(2013)	(1977)	(2002)	(1934)	(1940)	(1934)

SUMMARY STATISTICS

	Water Year 2020		Water Years 1934 - 2020	
Annual total	996,100			
Annual mean	2,722		3,808	
Highest annual mean			7,605	1984
Lowest annual mean			1,751	2002
Highest daily mean	12,800	Jun 02	38,000	May 26, 1984
Lowest daily mean	1,120	Dec 19	608.0	Dec 23, 2012
Annual 7-day minimum	1,321	Dec 17	852.4	Dec 24, 1939
Maximum peak flow	13,300[a]	Jun 02	39,300[a]	May 26, 1984
Maximum peak stage	9.00	Jun 02	14.36	May 26, 1984
Annual runoff (cfsm)	0.341		0.477	
Annual runoff (inches)	4.64		6.48	
10 percent exceeds	5,789		9,100	
50 percent exceeds	1,925		2,160	
90 percent exceeds	1,520		1,370	

[a] Discharge affected to unknown degree by Regulation or Diversion



SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
YEAR 2019-10-01 to 2020-09-30
DAILY MEAN VALUES

Day	Oct 2019	Nov 2019	Dec 2019	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020
1	873	939	1,170	1,320	1,260	1,270	1,110	632	302	579	904	939
2	873	994	1,140	1,420	1,270	1,270	1,110	546	294	613	922	927
3	868	1,010	1,180	1,410	1,280	1,250	1,090	463	288	646	942	937
4	870	1,030	1,250	1,300	1,290	1,260	1,060	445	297	670	930	964
5	866	1,050	1,180	1,250	1,300	1,230	1,040	424	327	707	914	980
6	878	1,090	1,150	1,250	1,320	1,190	1,020	424	334	716	911	995
7	891	1,060	1,120	1,250	1,360	1,210	1,020	435	311	714	916	1,000
8	890	1,030	1,130	1,240	1,340	1,210	1,050	439	321	719	926	988
9	898	1,060	1,160	1,230	1,240	1,190	1,030	463	361	738	928	973
10	901	1,070	1,150	1,230	1,200	1,140	989	473	---	774	907	937
11	914	1,070	1,150	1,220	1,170	1,110	936	477	---	805	901	943
12	911	1,080	1,180	1,230	1,210	1,080	882	465	462	826	933	935
13	923	1,080	1,220	1,260	1,220	1,080	881	438	485	866	936	966
14	914	1,100	1,190	1,300	1,240	1,060	861	431	470	897	908	1,020
15	922	1,130	1,150	1,300	1,220	1,020	864	435	456	916	914	1,030
16	922	1,130	1,160	1,290	1,230	1,060	908	445	447	918	912	1,070
17	932	1,120	1,190	1,220	1,200	1,110	931	451	478	899	938	1,070
18	948	1,110	1,250	1,240	1,190	1,100	911	438	492	882	936	1,050
19	944	1,110	1,320	1,260	1,200	1,090	915	409	506	868	937	1,040
20	934	1,110	1,440	1,280	1,210	1,070	930	364	519	895	942	1,060
21	930	1,100	1,520	1,320	1,240	1,070	920	360	537	915	941	1,070
22	923	1,100	1,470	1,320	1,280	1,100	918	372	556	931	941	1,060
23	923	1,090	1,410	1,250	1,330	1,140	914	400	567	947	960	1,060
24	917	1,090	1,320	1,220	1,310	1,160	917	412	579	950	979	1,070
25	908	1,100	1,210	1,210	1,290	1,170	900	432	583	962	982	1,060
26	896	1,140	1,160	1,200	1,280	1,190	865	456	587	947	988	1,080
27	906	1,160	1,150	1,210	1,280	1,190	852	475	566	922	983	1,070
28	913	1,140	1,160	1,210	1,320	1,140	837	471	549	876	988	1,070
29	913	1,180	1,210	1,230	1,310	1,100	784	432	553	871	998	1,030
30	924	1,200	1,250	1,240		1,090	697	379	563	893	995	1,020
31	926		1,280	1,260		1,100		337		925	965	
Max	948	1200	1520	1420	1360	1270	1110	632		962	998	1080
Min	866	939	1120	1200	1170	1020	697	337		579	901	927
Mean	908	1089	1226	1264	1262	1144	938	439	457	832	942	1014

Snowcap Coal Company, Inc.
2020 Water Year

NPDES POINT 016 — Chemical Analysis — SU-6

Field Parameters		**8/20/2018**	**8/26/2019**	**8/17/2020**
pH	SU	7.18	7.32	7.06
Conductivity	umhos/cm	2000	2100	2000
Temperature	(C)	20.9	21.2	21.1

Laboratory Results		**8/20/2018**	**8/26/2019**	**8/17/2020**
Carbonate (CO_3^{-2})	mg/l	54.3	14.6	40.1
Aluminum, Dissolved	mg/l	<0.03	<0.05	<0.05
Arsenic, Dissolved	mg/l	<0.0002	<0.0002	<0.0002
Barium, Dissolved	mg/l	1.14	1.52	1.46
Boron, Dissolved	mg/l	0.82	0.86	0.83
Cadmium, Dissolved	mg/l	<0.0001	<0.00005	<0.00005
Calcium, Dissolved	mg/l	11.1	11	11.2
Chloride, Dissolved	mg/l	26.9	23.6	24.7
Chromium, Dissolved	mg/l	<0.0005	<0.0005	<0.0005
Copper, Dissolved	mg/l	<0.01	<0.01	<0.01
Fluoride, Dissolved	mg/l	1.8	1.6	1.7
Hardness, (as Ca Co3)	mg/l	28.0	28.0	28.0
Iron, Dissolved	mg/l	<0.02	<0.03	<0.06
Lead, Dissolved	mg/l	<0.0001	0.0006	0.0001
Magnesium, Dissolved	mg/l	5.6	5.4	5.40
Manganese, Dissolved	mg/l	0.027	0.03	0.04
Mercury, Dissolved	mg/l	<0.0002	<0.0002	<0.0002
Molybdenum, Dissolved	mg/l	<0.02	<0.02	<0.02
Nickel, Dissolved	mg/l	<0.008	<0.008	<0.008
Nitrate ($N0_3^{-1}$)	mg/l	<0.02	<0.02	<0.02
Phosphate (PO_4^{-3}, as P)	mg/l	0.5	0.47	0.43
Potassium, Dissolved	mg/l	3.0	3.2	3.1
Selenium, Dissolved	mg/l	<0.0001	0.0001	<0.0001
Sodium, Dissolved	mg/l	495	511	464
Solids, Total Dissolved	mg/l	1250	1240	1230
Solids, Total Suspended	mg/l	<5.0	<5.0	<5.0
Sulfate, SO4	mg/l	38.6	5.3	15.80
Zinc, Dissolved	mg/l	<0.01	<0.01	<0.02
Ammonia, Nitrogen, NH_3	mg/l	0.66	0.64	0.64
Bicarbonate (HCO_3^{-1})	mg/l	1060	1100	1140
SAR	Ratio	31.0	32.0	29.0

ROADSIDE SOUTH PORTAL DISCHARGE
OUTFALL 016 - CPDS #CO - 0027146

DATE	METER	FLOW GPM	PH SU	COND. umhos/cm	TEMP C	TSS Month	Unit	TDS Qrtly	Unit	Iron (TR) Qrtly	Unit	Arsenic (T) 2/Mo	Unit	Cadmium (PD) 2/Mo	Unit	Copper (PD) 2/Mo	Unit	Cyanide (WAD) 2/Mo	Unit	Lead (PD) 2/Mo	Unit	Selenium (PD) 2/Mo	Unit	Silver (PD) 2/Mo	Unit	Sulfide (H2S) 2/Mo	Unit
9/17/2019	354,923,000																										
10/1/2019	357,312,000	118.5	7.2	1990	21.2	< 5.0	mg/l	= 1190	mg/l	= 15	ug/l	< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.10	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.19	mg/l
10/14/2019	359,401,000	111.6	7.3	1980	22.1							< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.20	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.71	mg/l
11/4/2019	362,652,000	107.5	7.2	2100	18.1	< 5.0	mg/l					< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.80	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.62	mg/l
11/12/2019	363,882,000	106.8	7.1	1980	22.5							< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.40	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.58	mg/l
12/2/2019	366,922,000	105.6	7.2	1940	19.3	< 5.0	mg/l					< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.40	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.57	mg/l
12/10/2019	368,089,000	101.3	7.2	2100	18.2							< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.70	ug/l	0.10	ug/l	< 0.10	ug/l	= 0.50	mg/l
1/6/2020	371,956,000	99.5	7.0	2100	16.4	< 5.0	mg/l	= 1230	mg/l	= 14	ug/l	< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.20	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.45	mg/l
1/14/2020	373,302,000	116.8	7.2	2100	19.3							< 0.20	ug/l	< 0.05	ug/l	= 3.4	ug/l	< 3.0	ug/l	= 1.10	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.39	mg/l
2/3/2020	376,823,000	122.3	7.2	2000	18.0	< 5.0	mg/l					< 0.20	ug/l	< 0.05	ug/l	= 3.0	ug/l	< 3.0	ug/l	= 0.60	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.43	mg/l
2/11/2020	378,279,000	126.4	7.6	2100	16.6							< 0.20	ug/l	< 0.05	ug/l	= 1.8	ug/l	< 3.0	ug/l	= 0.30	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.41	mg/l
3/2/2020	381,991,000	128.9	7.3	2100	18.5	< 5.0	mg/l					< 0.20	ug/l	< 0.05	ug/l	= 2.0	ug/l	< 3.0	ug/l	= 0.20	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.50	mg/l
3/10/2020	383,505,000	131.4	7.3	2100	18.6							< 0.20	ug/l	< 0.05	ug/l	= 4.1	ug/l	< 3.0	ug/l	= 0.80	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.55	mg/l
4/6/2020	388,747,000	134.8	7.3	2100	19.1	< 5.0	mg/l	= 1260	mg/l	= 18	ug/l	< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.30	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.52	mg/l
4/14/2020	390,314,000	136.0	7.3	2100	18.0							< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.30	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.33	mg/l
5/4/2020	394,274,000	137.5	7.2	2100	20.7	< 5.0	mg/l					< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.10	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.54	mg/l
5/12/2020	395,867,000	138.3	7.0	2000	21.2							< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	< 0.10	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.35	mg/l
6/1/2020	399,571,000	128.6	7.4	2000	23.1	< 5.0	mg/l					< 0.20	ug/l	< 0.05	ug/l	= 1.1	ug/l	< 20.0	ug/l	= 0.20	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.58	mg/l
6/9/2020	400,958,000	120.4	7.5	2100	20.4							< 0.20	ug/l	< 0.05	ug/l	= 18.1	ug/l	< 3.0	ug/l	= 0.10	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.58	mg/l
7/6/2020	405,368,000	113.4	7.3.	2100	21.8	< 5.0	mg/l	= 1260	mg/l	= 15	ug/l	< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	< 0.10	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.16	mg/l
7/20/2020	407,654,000	113.4	7.2	2000	21.6							< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 6.0	ug/l	< 0.10	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.57	mg/l
8/3/2020	409,892,000	111.0	7.1	2000	23.5	= 5.0	mg/l					< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	< 0.10	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.60	mg/l
8/11/2020	411,155,000	109.6	7.0	2000	20.4							< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.70	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.60	mg/l
9/1/2020	414,760,000	119.2	7.0	2100	22.0	< 5.0	mg/l					= 0.30	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	= 0.20	ug/l	= 0.10	ug/l	< 0.10	ug/l	= 0.53	mg/l
9/14/2020	417,135,000	126.9	7.2	2100	21.3							< 0.20	ug/l	< 0.05	ug/l	< 0.8	ug/l	< 3.0	ug/l	< 0.10	ug/l	< 0.10	ug/l	< 0.10	ug/l	= 0.58	mg/l
2020 WY	**Averages**	**119.4**	**7.2**	**2054**	**20.1**	**< 5.0**	**mg/l**	**= 1235**	**mg/l**	**= 16**	**ug/l**	**< 0.20**	**ug/l**	**< 0.05**	**ug/l**	**< 2.0**	**ug/l**	**< 3.8**	**ug/l**	**< 0.34**	**ug/l**	**< 0.10**	**ug/l**	**< 0.10**	**ug/l**	**= 0.49**	**mg/l**

Effective February 1, 2012 monitoring frequencies were changed as follows:
Flow, pH, TSS - Monthly TDS, Iron, Oil & Grease - Quarterly Arsenic, Cadmium, Copper, Cyanide, Lead, Selenium, Silver & Sulfide - 2 Days/Month