2019
ANNUAL HYDROLOGIC REPORT

BOWIE RESOURCES, LLC

BOWIE RESOURCES, LLC
BOWIE NO. 2 MINE
P.O. BOX 483
PAONIA, COLORADO 81428
PERMIT C-1996-083

PREPARED BY:

2019 Annual Hydrology Report

Bowie Resources, LLC

Bowie No. 2 Mine

Permit Number C-1996-083

Paonia, Colorado

Introduction

The Bowie No. 2 Mine was built and opened by Bowie Resources during the spring and summer months of 1997 with coal production/development beginning on August 15, 1997. This room and pillar operation began developing a main and submain system of underground entries to provide the ventilation, haulage and coal conveyor support for years to come. These entries are driven carefully on projections, held to minimum widths with larger than normal coal pillars left in place to assure adequate support for the life of the mine. The mine began longwall production during November 1999.

The following 2019 Annual Hydrology Report describes the hydrologic monitoring for surface and ground water within the permit and adjacent area of the Bowie No. 2 Mine and presents baseline data for the natural mine plan progression.

In this report, springs, ponds and streams (including ditches, rivers, and canals) are considered surface water. Alluvial wells and drill holes are sampled and analyzed as ground water. Please refer to the permit application for a discussion of the methods employed during the gathering of field parameters. Permit Map-09 (attached as an exhibit in this report) indicates the location of all monitoring points referred to in this report.

At the request of the Division, we have included baseline data for all Springs, Streams, Drill Holes and Alluvial Wells on the annual tabulation figures. Previously, parameters not tested and tested but found below the Method Detection Limit (MDL) were left blank. Blank cells represent a "not tested" condition, while a "<MDL" notation is made for the condition where a parameter falls below the Method Detection Limit. Additional requests from the Division during the approval process for PR-04 have added other improvements to the tables, including minimum/maximum/average values for the baseline period and minimum/maximum/average values for the operational influenced period of the monitoring point.

Table 1 (immediately following this narrative) defines the monitoring points by type and sample frequency, field parameter sampling schedule and laboratory parameter sampling schedule.

Table 2 contains a listing of the laboratory parameters for surface and ground water to be tested in accordance with the mining permit application. Laboratory analysis are performed by Accutest Laboratories, Inc., 4036 Youngfield Street, Wheat Ridge, CO 80033 and Enviro-Chem Analytical, Inc., 685 West Gunnison Avenue, Grand Junction, CO.

Table 3 contains a listing of the field parameters and their application to the Springs, Streams, Drill Holes and Ponds within the permit boundary. Flow readings for springs and small streams are reported in gallons per minute. Stream and river flows are reported in cubic feet per second.

Table 4 contains local precipitation data for the year. This data is available from the internet at www.wrcc.dri.edu/summary/Climsmco.html select Paonia 1 SW (056306). The average precipitation for the period of record (1893 through 2016) is 15.39 inches. Precipitation during 2016 totaled 11.61 inches which is below average. Data for 2019 was not collected, however through September 19 at the Bowie No. 2 mine site, 15.72 inches was recorded which is below annual average.

Table 5 contains a listing of all monitoring points, with descriptions of their locations and a reference to the Monitoring Point Figure that contains this year's monitoring data. The included charts are given a figure number. During 2015 and 2016, approval of Technical Revision Nos. 103 and 107 eliminated, or temporarily suspended forty-seven (47) monitoring points. Table 5 hi-lights the changes to the monitoring program.

Monitoring point figures follow this introduction. Each Monitoring Point has an individual table which tabulates the annual data collection and reports Minimum, Maximum, Average and Baseline data. A reference in each footnote explains the period used for baseline data.

Flow data for the North Fork of the Gunnison River is obtained from the USGS from a website http://nwis-colo.cr.usgs.gov/historic.html. This flow reading is obtained telemetrically from a station near Somerset, CO and is reflective of upper river flows only. This monitoring point is identified by the USGS as 09132500.

Flow data for the Fire Mountain Canal is obtained from Mr. Trey Dennison, member of the Fire Mountain Canal and Reservoir Company, whose phone number is (970) 527-5166 or cell (970) 589-2857. This flow is representative of the upper and lower flows.

Monitoring point identifiers near the mine portals are historic and follow no specific naming convention. Monitoring points located in other areas typically follow a convention where the first letter(s) designates a water source type, such as "S" for Spring or "SP" for Spring and Pond. The numeral(s) following the first letter designate what Section the water source is located, for instance, SP34-2 would be a spring and pond in Section 34. The numeral separated with a dash indicates an index number for that point. SP34-2 would be the second monitoring point found in Section 34.

CDPS Monitoring Points

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.

North Fork Alluvium Monitoring Wells

Alluvial monitoring wells AW-1 through AW-6 are located near the mine entrance along the north side of Bowie Road. These wells are monitored quarterly for field parameters and semi-annually for full suite laboratory parameters during the second and fourth quarters in accordance with the permit application. Alluvial monitoring wells AW-7 through AW-9 are located near the mine entrance along the south side of Bowie Road. AW-10 cannot be reliably sampled due to a collapse of the casing, and was eliminated from the monitoring plan. These wells were installed as a requirement of PR-03 which allowed the mine operator to relocate Sediment Pond B to the south side of the highway. Alluvial Wells 11 through 13 were installed during the fall of 2000 to monitor the alluvium in the area where the new coal loadout (PR-06) was constructed. Alluvial well 13 was eliminated by the construction of the unit train loadout. Alluvial well 14 was installed during 2003 west of Pond K. Alluvial wells 15 through 17 were installed during the fourth quarter of 2003 and are located north of Bowie Road below coal mine waste disposal area #2.

The 2019 sampling season provides results consistent with baseline information provided in the permit application, showing no adverse impact to groundwater during the construction of the mine. Alluvial wells 16 and 17, two alluvial wells located south of the gob pile have conductivity values significantly higher than baseline conditions and it is unknown exactly why. There has not been any significant degradation of alluvial wells 11 and 12 which are located below gob pile #3. Alluvial well 6 did not have high conductivity values this year. Looking at the trendline on the chart for Conductivity, since November of 1996, conductivity has been trending higher. Alluvial well 3's conductivity values are also trending higher. The well is located below the coal stockpile pad, which has not held a significant amount of coal for the last two years. However, looking at the chart associated with AW-3, since November 1996 it too has been trending higher.

Surface Water Monitoring Stations: PONDS

Ponds were sampled for water quality when discharging or inflows/outflows were occurring. Ponds are typically spring-fed or seep-fed and exhibit diffuse non-concentrated areas of inflow. Often the pond outlets present the only point of concentrated flow at which flow measurements and field parameters can be obtained. Where possible, quality measurements are obtained at the pond inlet. Stagnant water in ponds is not sampled since water quality results would show the effects of

evaporation and stock use and could not be used to evaluate potential mine affects. Ponds are monitored quarterly. The following information is collected for the ponds; 1) inflow; 2) outflow; and 3) water level below spillway outlet or depth of water in pond measured from the bottom of the pond. Field data collected during the 2018 sampling season is consistent with baseline information provided in the permit application.

Surface Water Monitoring Stations: SPRINGS

Forty-nine springs and springs with ponds were monitored during the 2018 monitoring season in accordance with the Hydrologic Monitoring Plan. This plan indicates that identified springs will be inspected quarterly for field parameters with full suite laboratory parameters required on springs with flows greater than five (5) gallons per minute. During the construction phase of the mine, four (4) springs (S-6, S-7, S-9 and S-15) were eliminated by road and portal bench construction activities. The 2019 field and laboratory analysis are consistent with baseline data provided in the permit application. There has been a trend in many of the springs that shows the conductivity increases as the flow decreases. This trend is most likely caused by the increased time the water is in contact with the alluvium because of the lower flows.

Surface Water Monitoring Stations: STREAMS AND DITCHES

Twenty-three surface water monitoring stations including the North Fork of the Gunnison, Terror Creek, Hubbard Creek, Freeman Gulch, the Deer Trail Ditch, Stephens Draw, and the Fire Mountain Canal are monitored quarterly for field parameters and semi-annually for full suite analysis. The results of the 2019 field and laboratory studies are consistent with baseline information supplied in the permit application.

The USGS, with right of way permission from the USDA-Forest Service, installed continuous monitoring stations on both Hubbard and Terror Creeks. Similar stations are installed near each creek's confluence with the North Fork of the Gunnison River. These stations have been calibrated by the USGS's hydrology department and now provide accurate readings for the Annual Hydrology Reports. The USGS did not collect flow data for their station during 2019. Flow data for the creeks were determined by Resource Engineering during 2019.

Surface Water Monitoring Stations: SMALL AREA EXEMPTIONS

The locations of the small area exemptions are presented on Map 20. The Applicant will monitor the flow from the small area exemptions to assure compliance with 4.05.2(3). The Applicant will use its best efforts to obtain samples. The samples will be analyzed for pH, conductivity and total settleable solids. Samples will be in compliance if they contain settleable solid levels of 0.5 ml/l or less and the pH is greater than 6.5

and less than 9.0. No small area exemption sampling was performed during the year.

Coal Member of Mesaverde

Eleven bedrock wells were monitored during the 2019 sampling season. These holes were monitored quarterly for field parameters and semi-annually for full suite laboratory analysis. Data collected and evaluated is consistent with the baseline information provided in the permit application except for DH-39 which is adjacent to the repaired DH-15. DH-39 again had high conductivity for all four quarters. The trend in increased conductivity began after DH-15 was sealed and replaced with DH-15A, see description in the following paragraph. The mine construction work during 1997 required the elimination of four monitored drill holes. These holes are DH 42, DH 52, DH 54 and DH 55 and were located near the mine portals. Drill Holes DH-13 and DH-34b were eliminated by mining. Drill hole DH-34c was damaged by ground movement. DH-16 is blocked at 60-feet so no monitoring can be performed. Drill Holes DH-57, 57a and DH-58, 58a were added in conjunction with the Terror Creek Coal Exploration Plan, with monitoring beginning in the fall of 1999. Drill holes DH-57 and DH57a were destroyed by longwall mining during 2001. DH-58 and 58a were eliminated by mining during late 2003 so they are no longer monitored.

D-Seam monitoring wells DH-15, DH-25 and DH-38 can no longer be monitored since all three have damaged well casings. During 2016, DH-15 was sealed and replaced by new D-Seam monitoring well DH-15A. The new well is located near the old monitoring well. Monitoring of DH-15A began the fourth quarter of 2016.

Drill holes DH-65, DH-66, DH-67D, DH-67blw and DH-67abv were added in conjunction with the Iron Point Federal coal lease, with some monitoring beginning during the fall of 2000. DH-67D was damaged during 2003 so no monitoring was performed. The DH-67 holes were refurbished during 2004. DH-66 was eliminated by mining during early 2004 so it is no longer monitored. DH-67blw had a pinched casing so a new DH-67blw was drilled during 2014. Obtaining a sample from DH 67B has been challenging. Field parameters were obtained two quarters, but a full-suite sample was only obtained during the second quarter.

Drill holes DD-NM4X98-27, 28 and 29 were in-mine monitoring holes which were added to the monitoring program during 2003. The three monitoring points were abandoned when the mine activity retreated from the east mains in mid 2004. TC-03-01, 02 and 03 were added to the monitoring program during 2003. TC-03-03 was sealed in 2010 because a ventilation shaft was constructed where TC-03-03 was located. Monitoring wells TC-03-01 and TC-03-02 could not be rehabilitated during 2014. The wells could be used as water level piezometers but the wells are not functional for water quality data. Monitoring results for these well is of questionable value.

Drill holes CWI-DH-58 and CWI-DH-60 were added to the monitoring program in 2011 with the approval of permit revision 12 to cover the area west of Terror Creek. Monitoring well CWI-DH-60 was cleaned and rehabilitated between August 20 and August 23, 2014. On August 22, 2014, the well was evacuated using the airlift and bailing techniques and the water quality showed a pH of 7.70 s.u., conductivity of 863 µS/cm, and temperature of 20.5° C. After a 12 hour recovery period, the SWL was measured at 892.0 feet btoc (August 23, 2014).

A new well CWI-DH-58a was drilled to replace CWI-DH-58 late in 2014. The Applicant drilled DH-2010-1SS and DH-2010-1B during 2011. DH-2010-1B is completed in the B-Seam and DH-2010-1SS is completed in a water bearing zone above the B-Seam. Drill hole 2010-1B was refurbished during 2014. After the 2014 well rehabilitation work, 2010-1B had the following water quality: pH 9.75 su, conductivity 277 umhos/cm, total iron 4.31 mg/l, manganese 0.0621 mg/l.

Conclusion

The results of the hydrologic monitoring conducted during the 2019 season indicate consistent chemical and physical properties when compared with the baseline values provided in the permit application. Longwall mining is the focus of all mining operations at Bowie No. 2 Mine. Longwall mining ceased February 26, 2016 so there was no mining during the calendar year. Prior mining has not affected the local hydrology during the current year. Water quality at all monitored sites remains good overall and no chemical or physical impacts have been noted. Except as noted above, none of the field or laboratory parameter results indicate an adverse impact associated with the mining operations of the Bowie No. 2 Mine on the local hydrology.

Many sites require four quarters of sampling for field parameters (Terror Creek Drainage system, Dove Gulch, nearly all of the Ponds, many of the S-Series Springs, etc.). However, due to snowpack, many sites were not accessible until the second quarter of 2019. In those cases, the first quarter data has been left off of the summary sheet, so there are only three quarters of data available.

Summary of Hydrology Monitoring Stations

Station Number	Station Name	Elevation (ft.)	Depth (ft.)	Frequency of Measurements		Report Frequency	Report Format		Comments
				Field Par.	Lab. Par.		AHR	DMR	
Surface Water Monitoring - SPRINGS WITH PONDS									
SP5-1	Terror Creek-Spring/Pond 5-1	7400		Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
SP6-4	Terror Creek-Spring/Pond 6-4	8040		Quarterly	Quarterly	Annually	Yes	No	Temporarily Suspended TR-103
SP7-1	Terror Creek-Spring/Pond 7-1	7780		Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
SP7-5	Stevens Gulch-Spring/Pond 7-5	8300		Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
SP12-4	Stevens Gulch-Spring/Pond12-4	8040		Quarterly	Quarterly	Annually	Yes	No	Permanently Suspended TR-103
SP16	Terror Creek-Spring/Pond 16	7780		Quarterly	Quarterly	Annually	Yes	No	Temporarily Suspended TR-103
SP17	Terror Creek-Spring/Pond 17	7520		Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
SP18	Terror Creek-Spring/Pond 18	7280		Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
SP19	Stevens Gulch-Spring/Pond 19	8240		Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
SP20	Terror Creek-Spring/Pond 20	7840	4	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
SP22	Terror Creek-Spring/Pond 22	7560		Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
SP23	Stevens Gulch-Spring/Pond 23	7480		Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
SP34-11	Sheep Corral-Spring/Pond 34-11	7440	3	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
ST36-2	Flat Tanks	8160		Quarterly	Quarterly	Annually	Yes	No	Temporarily Suspended TR-103
ST36-4	Oak Hills Spring Lower Tank	8040		Quarterly	Quarterly	Annually	Yes	No	Temporarily Suspended TR-103
ST36-5	Oak Hiles Spring Upper Tank	8240		Quarterly	Quarterly	Annually	Yes	No	Temporarily Suspended TR-103
Surface Water Monitoring - SPRINGS									
S-1	B Gulch-Spring 1	6990	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-2	Freeman Gulch-Spring 2	7920	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-3	Freeman Gulch-Spring 3	7920	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-4	Terror Creek-Spring 4	7880	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-4a	Terror Creek-Spring 4a	7910	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-5	Sheep Corral-Spring 5	7800	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-5a	Sheep Corral-Spring 5a	7860	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-5b	Sheep Corral-Spring 5b	7860	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-8	C Gulch-Spring 8	7220	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-10	Steven's Draw-Spring 10	7550	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-11	Steven's Draw-Spring 11	7940	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-12	B Gulch-Spring 12	7650	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-13	Freeman Gulch-Spring 13	7500	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-14	Steven's Draw-Spring 14	7100	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-16	Terror Creek-Spring 16	7750	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-17	Freeman Gulch-Spring 17	7110	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S-18	Terror Creek-Spring 18	7750	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1

Summary of Hydrology Monitoring Stations (Continued)

Station Number	Station Name	Elevation (ft.)	Depth (ft.)	Frequency of Measurements		Report Frequency	Report Format		Comments
				Field Par.	Lab. Par.		AHR	DMR	
Surface Water Monitoring Stations - SPRINGS (cont.)									
S1-3	Terror Creek-Spring 1-3	7860	N/A	Quarterly	Quarterly	Annually	Yes	No	Temporarily Suspended TR-103
S1-5	Terror Creek-Spring 1-5	8020	N/A	Quarterly	Quarterly	Annually	Yes	No	Temporarily Suspended TR-103
S2-2	Hubbard Creek-Spring 2-2	6740	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S2-3	Hubbard Creek-Spring 2-3	6740	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S2-9	Hubbard Creek-Spring 2-9	6320	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S2-10	Hubbard Creek-Spring 2-10	6320	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S3-1	Sheep Corral-Spring 3-1	6840	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S5-2	Seep West of Terror Creek Road	7200	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S5-3	Red's Spring & Pipeline	7200	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S5-4	Hugh's Family Pipe & Spring	7320	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S6-1	Terror Creek-Spring 6-1	7720	N/A	Quarterly	Quarterly	Annually	Yes	No	Temporarily Suspended TR-103
S6-6	Terror Creek-Spring 6-6	7860	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S6-7	West Fork Terror Ck Concrete Box	7600	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S7-4	Stevens Gulch-Spring 7-4	8190	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S7-9	Terror Creek-Spring 7-9	7800	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S7-10	Terror Creek-Spring 7-10	7880	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S8-5	Terror Creek-Spring 8-5	7800	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S21	Terror Creek-Spring 21	7100	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S33-4	Sheep Corral-Spring 33-4	7790	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S34-7	Sheep Corral-Spring 34-7	7390	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S34-10	Dove Gulch-Spring 34-10	6640	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S34-19	Hubbard Creek-Spring 34-19	6460	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S34-20	Hubbard Creek-Spring 34-20	6440	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S34-21	Hubbard Creek-Spring 34-21	6430	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S34-22	Hubbard Creek-Spring 34-22	6700	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S34-23	Hubbard Creek-Spring 34-23	6650	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S34-24	Hubbard Creek-Spring 34-24	6390	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S34-25	Dove Gulch-Spring 34-25	6680	N/A	Quarterly	Quarterly	Annually	Yes	No	No winter monitoring - Lab analysis >5gpm, List 1
S36-7	Seeps 11 Below Stevens Gulch Rd	8120	N/A	Quarterly	Quarterly	Annually	Yes	No	Temporarily Suspended TR-103

Summary of Hydrology Monitoring Stations (Continued)

Station Number	Station Name	Elevation (ft.)	Depth (ft.)	Frequency of Measurements		Report Frequency	Report Format		Comments
				Field Par.	Lab. Par.		AHR	DMR	
Surface Water Monitoring Stations - STREAMS AND DITCHES									
A-Gulch-lo	Drainage System	5960	N/A	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
B-Gulch-lo	Drainage System	5960	N/A	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
B-Gulch-up	Drainage System	7080	N/A	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
C-Gulch-lo	Drainage System	5960	N/A	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
C-Gulch-up	Drainage System	7120	N/A	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
D2-1	Sheep Corral-Drainage System	6360	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
D21-1	Terror Creek-Confluence w/NFG	5760	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monit-2nd & 4th Qrt, List 1-Flow USGS
D32-4	Terror Creek-Drainage System	7480	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monit-2nd & 4th Qrt, List 1-Flow USGS
D33-14	Upper Sheep Corral Gulch	7320	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
D34-13	Dove Gulch-Drainage System	6440	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
D34-14	Hubbard Creek-Drainage System	6560	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monit-2nd & 4th Qrt, List 1-Flow USGS
Deer-low	Canal-Deer Trail Ditch	5920	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monit-2nd & 4th Qrt, List 1-Aug, List 2
Deer-up	Canal-Deer Trail Ditch	5960	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monit-2nd & 4th Qrt, List 1-Aug, List 2
D-Gulch-lo	Drainage System	5960	N/A	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
D-Gulch-up	Drainage System	7160	N/A	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
FMC-Low	Canal-Fire Mountain Canal	5920	N/A	May/Jul/Sep	Semi-Annually	Annually	Yes	No	No winter monitoring - 1st & 3rd Qrt, List 1
FMC-up	Canal-Fire Mountain Canal	5960	N/A	May/Jul/Sep	Semi-Annually	Annually	Yes	No	No winter monitoring - 1st & 3rd Qrt, List 1
Free-low	Freeman Gulch-Drainage System	7560	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
Free-up	Freeman Gulch-Drainage System	6360	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
Hub-low	Hubbard Creek-Drainage System	5880	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monit-2nd & 4th Qrt, List 1-Flow USGS
Hub-up	Hubbard Creek-Drainage System	6320	N/A	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
NFG-low	North Fork-Drainage System	5680	N/A	Quarterly	Semi-Annually	Annually	Yes	No	2nd & 4th Qrt, List 1 - August, List 2 - Flow USGS
NFG-up	North Fork-Drainage System	5880	N/A	Quarterly	Semi-Annually	Annually	Yes	No	2nd & 4th Qrt, List 1 - August, List 2 - Flow USGS
Steph-low	Steven's Draw-Drainage System	7000	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
Steph-up	Steven's Draw-Drainage System	7920	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
SW-01	**West Fork Terror Ck-Downstream**	7140	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
SW-02	Terror Creek-Mid Stream	7040	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
SW-04	West Terror Creek Trib -Upstream	7880	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
SW-05	Stevens Gulch-Downstream	6600	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
SW-10	Terror Ditch	6480	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
SW-11	Stevens Gulch-Upstream	8084	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
SW-12	West Fork Terror Ck-Upstream	7920	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
EF-1	West Fork Ephemeral Channels	Varies	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1
EF-2 thru 9	West Fork Ephemeral Channels	Varies	N/A	Quarterly	Semi-Annually	Annually	Yes	No	Temporarily Suspended TR-103
EF-7 thru 9	West Fork Ephemeral Channels	Varies	N/A	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring - 2nd & 4th Qrt, List 1

Summary of Hydrology Monitoring Stations (Continued)

Station Number	Station Name	Elevation (ft.)	Depth (ft.)	Frequency of Measurements		Report Frequency	Report Format		Comments
				Field Par.	Lab. Par.		AHR	DMR	
Coal Member of Mesaverde									
DH-15	Steven's Draw-Drill Hole	7143	218	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
DH-25	C Gulch-Drill Hole	7144	325	Quarterly	N/A	Annually	Yes	No	Permanently Suspended TR-103
DH-38	D Gulch-Drill Hole	7245	454	Quarterly	N/A	Annually	Yes	No	Permanently Suspended TR-103
DH-15a	Steven's Draw-Drill Hole	7143	218	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
DH-39	Steven's Draw-Drill Hole	7143	181	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring-Lab analysis 2nd & 4th Qrts
DH-49	B Gulch-Drill Hole	7203	324	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring-Lab analysis 2nd & 4th Qrts
DH-67B	Hubbard Creek-Monitoring Well	6451	594	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring-Lab analysis 2nd & 4th Qrts
DH-67D	Hubbard Creek-Monitoring Well	6450	325	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring-Lab analysis 2nd & 4th Qrts
DH-67abv	Hubbard Creek-Monitoring Well	6451	193	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring-Lab analysis 2nd & 4th Qrts
DH-67blw	Hubbard Creek-Monitoring Well	6451	360	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring-Lab analysis 2nd & 4th Qrts
TC-03-01(B)	Terror Creek - Monitoring Well-Upper	7118	713	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
TC-03-02	Terror Creek - Monitoring Well	7095	586	Quarterly	Semi-Annually	Annually	Yes	No	Permanently Suspended TR-103
CWI-DH-58A	Upper B Seam	7442	575	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring-Lab analysis 2nd & 4th Qrts
CWI-DH-60	Upper B Seam (B1)	7921	1085	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring-Lab analysis 2nd & 4th Qrts
DH2010-1B	Above Upper B Seam - Deep	7545	1220	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring-Lab analysis 2nd & 4th Qrts
DH2010-1SS	Upper B Seam - Shallow	7545	1140	Quarterly	Semi-Annually	Annually	Yes	No	No winter monitoring-Lab analysis 2nd & 4th Qrts
North Fork Alluvium Monitoring Wells									
AW-1	Alluvial Well	5978	120	Quarterly	Semi-Annually	Annually	Yes	No	Lab anlaysis 2nd & 4th Qrts
AW-2	Alluvial Well	5967	50.4	Quarterly	Semi-Annually	Annually	Yes	No	Lab anlaysis 2nd & 4th Qrts
AW-3	Alluvial Well	5963	150	Quarterly	Semi-Annually	Annually	Yes	No	Lab anlaysis 2nd & 4th Qrts
AW-4	Alluvial Well	5978	60	Quarterly	Semi-Annually	Annually	Yes	No	Lab anlaysis 2nd & 4th Qrts
AW-5	Alluvial Well	5982	100	Quarterly	Semi-Annually	Annually	Yes	No	Lab anlaysis 2nd & 4th Qrts
AW-6	Alluvial Well	5981	112	Quarterly	Semi-Annually	Annually	Yes	No	Lab anlaysis 2nd & 4th Qrts
AW-7	Alluvial Well	5950	188	Quarterly	Semi-Annually	Annually	Yes	No	Installed Fall of 1999 - Lab 2nd & 4th Qrts
AW-8	Alluvial Well	5950	60	Quarterly	Semi-Annually	Annually	Yes	No	Installed Fall of 1999 - Lab 2nd & 4th Qrts
AW-9	Alluvial Well	5946	80	Quarterly	Semi-Annually	Annually	Yes	No	Installed Fall of 1999 - Lab 2nd & 4th Qrts
AW-11	Alluvial Well	5884	60.86	Quarterly	Semi-Annually	Annually	Yes	No	Installed Fall of 2000 - Lab 2nd & 4th Qrts
AW-12	Alluvial Well	5878	45.38	Quarterly	Semi-Annually	Annually	Yes	No	Installed Fall of 2000 - Lab 2nd & 4th Qrts
AW-14	Alluvial Well	5822	30	Quarterly	Semi-Annually	Annually	Yes	No	Installed Summer of 2003 - Lab 2nd & 4th Qrts
AW-15	Alluvial Well	5973	86	Quarterly	Semi-Annually	Annually	Yes	No	Installed Winter of 2003 - Lab 2nd & 4th Qrts
AW-16	Alluvial Well	5965	75	Quarterly	Semi-Annually	Annually	Yes	No	Installed Winter of 2003 - Lab 2nd & 4th Qrts
AW-17	Alluvial Well	5951	62	Quarterly	Semi-Annually	Annually	Yes	No	Installed Winter of 2003 - Lab 2nd & 4th Qrts

Summary of Hydrology Monitoring Stations (Continued)

Station Number	Station Name	Elevation (ft.)	Depth (ft.)	Frequency of Measurements		Report Frequency	Report Format		Comments
				Field Par.	Lab. Par.		AHR	DMR	
Surface Water Monitoring Stations - PONDS									
P-1	Steven's Draw-Pond 1	7080	5	Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P-2	Freeman Gulch-Pond 2	7600	5	Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P-3	Terror Creek-Pond 3	7730	4.5	Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P-4	Terror Creek-Pond 4	7880	3.5	Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P-5	Sheep Corral-Pond 5	7800	8	Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P-6	Terror Creek-Pond 6	7880	3	Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P1-4	W Fork Terror Creek-Pond 1-4	7960		Quarterly	N/A	Annually	Yes	No	Temporarily Suspended TR-103
P1-6	W Fork Terror Creek-Pond 1-6	7980		Quarterly	N/A	Annually	Yes	No	Temporarily Suspended TR-103
P1-11	W Fork Terror Creek-Pond 1-11	8000		Quarterly	N/A	Annually	Yes	No	Temporarily Suspended TR-103
P1-12	W Fork Terror Creek-Pond 1-12	7860		Quarterly	N/A	Annually	Yes	No	Temporarily Suspended TR-103
P5-5	Hugh's Pipe & Pond	7320		Quarterly	N/A	Annually	Yes	No	Temporarily Suspended TR-103
P6-2	W Fork Terror Creek-Pond 6-2	8000		Quarterly	N/A	Annually	Yes	No	Temporarily Suspended TR-103
P6-5	W Fork Terror Creek-Pond 6-5	8020		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P7-2	Stevens Gulch-Pond 7-2	8190		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P7-7	Stevens Gulch-Pond 7-7	8380		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P7-11	Stevens Gulch-Pond 7-11	8400		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P8-4	Terror Creek-Pond 8-4	6980		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P12-1	Stevens Gulch-Pond 12-1	7950		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P12-2	Stevens Gulch-Pond 12-2	8030		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P12-9	Stevens Gulch-Pond 12-9	7800		Quarterly	N/A	Annually	Yes	No	Permanently Suspended TR-103
P12-10	Stevens Gulch-Pond 12-10	7820		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P12-11	Stevens Gulch-Pond 12-11	7800		Quarterly	N/A	Annually	Yes	No	Permanently Suspended TR-103
P17-1	Coal Gulch-Pond 17-1	7340		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P18-1	Coal Gulch-Pond 18-1	7760		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P18-4	Stevens Gulch-Pond 18-4	8350		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P81	Stevens Gulch-Pond 81	8640		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P82	Terror Creek-Pond 82	7580		Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P83	Coal Gulch-Pond 83	7820	2.5	Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P33-3	Sheep Corral-Pond 33-3	7760	5.5	Quarterly	N/A	Annually	Yes	No	No winter monitoring-Reprt Inflow, Outflow, Depth
P31-1	Dry Pond Below Stevens Gulch Rd	8120		Quarterly	N/A	Annually	Yes	No	Temporarily Suspended TR-103
P36-1	Flat Pond Above Stevens Gulch Rd	8120		Quarterly	N/A	Annually	Yes	No	Temporarily Suspended TR-103
P36-3	Meadow Pond	8140		Quarterly	N/A	Annually	Yes	No	Temporarily Suspended TR-103
P36-6	Dry Pond 11	8140		Quarterly	N/A	Annually	Yes	No	Temporarily Suspended TR-103

LAB PARAMETER LIST

SURFACE WATER LIST 1

Field Parameters	
Flow Rate (gpm)	
Water Level	
pH (Standard Units)	
Conductivity (umhos/cm)	
Temerature (C)	
*Dissolved Oxygen (mg/l)	
Lab Parameters	
Wet Chemistry	**MDL**
Bicarbonate (HCO_3) (mg/l)	2 mg/L
Chloride (Cl^-) (mg/l)	0.5 mg/L
Conductivity (umhos/cm)	1 umhos/cm
Nitrate/Nitrite (mg/l)	0.1 mg/L
pH (Standard Units)	0.1 s.u.
Hardness (mg/l)	1 mg/L
Phosphate (PO_4^{-3} as P) (mg/l)	0.02 mg/L
Residue, Filterable (TDS) @180 C (mg/l)	0.5 mg/L
Residue, NonFilterable (TSS) (mg/l)	0.5 mg/L
Sodium Absorption Ratio in Water	0.15
Sulfate (SO_4^{--}) (mg/l)	0.6 mg/L
Metals	
Aluminum (Al), total recoverable (mg/l)	0.05 mg/L
Arsenic (As), total recoverable (mg/l)	0.002 mg/L
Cadmium (Cd), total recoverable (mg/l)	0.0002 mg/L
Calcium (Ca^{+2}), total recoverable (mg/l)	0.2 mg/L
Copper (Cu), total recoverable (mg/l)	0.01 mg/L
Iron (Fe), total recoverable & Diss (mg/l)	0.01 mg/L
Lead (Pb), total recoverable (mg/l)	0.02 mg/L
Magnesium (Mg^{+2}), total recoverable (mg/l)	0.2 mg/L
Manganese (Mn), total recoverable (mg/l)	0.01 mg/L
Mercury (Hg), total recoverable (mg/l)	0.000025 mg/L
Molybdenum (Mo), total recoverable (mg/l)	0.02 mg/L
Selenium (Se), total recoverable (mg/l)	0.001 mg/L
Sodium (NA^+), total recoverable (mg/l)	0.2 mg/L
Zinc (Zn), total recoverable (mg/l)	0.005 mg/L
Organic Analysis	
Oil and Grease (mg/l)	0.5 mg/L

SURFACE WATER LIST 2

Field Parameters	
Flow Rate (gpm)	
Water Level	
pH (Standard Units)	
Conductivity (umhos/cm)	
Temerature (C)	
*Dissolved Oxygen (mg/l)	
Lab Parameters	
Wet Chemistry	**MDL**
pH (Standard Units)	0.1 s.u.
Residue, Filterable (TDS) @180 C (mg/l)	0.5 mg/L
Ammonia (NH_3) (mg/l)	0.1 mg/L
Chloride (Cl) (mg/l)	0.5 mg/L
Cyanide (CN) (mg/l)	0.2 mg/L
Dissolved Oxygen (mg/l)	Report
Hardness (mg/l)	1 mg/L
Nitrate (NO_3) (mg/l)	0.1 mg/L
Nitrite (NO_2) (mg/l)	0.01 mg/L
Sulfide (S) (mg/l)	0.2 mg/L
Sulfate (SO_4^{--})(mg/l)	0.1 mg/L
Metals	
Arsenic (As), total recoverable (ug/l)	0.002 mg/L
Boron, total recoverabel (mg/l)	0.1 mg/L
Cadmium (Cd), total recoverable (ug/l)	0.0002 mg/L
Chromium III CrIII (ug/l)	0.01 mg/L
Chromium VI CrIV (ug/l)	0.02 mg/L
Copper (Cu), total recoverable (ug/l)	0.01 mg/L
Iron (Fe), dissolved (ug/l)	0.005 mg/L
Iron (Fe), total recoverable (ug/l)	0.001 mg/L
Lead (Pb), total recoverable (ug/l)	0.01 mg/L
Manganese (Mn), dissolved (ug/l)	0.01 mg/L
Manganese (Mn), total recoverable (ug/l)	0.01 mg/L
Mercury (Hg), total recoverable (ug/l)	0.000025 mg/L
Nickel, total recoverable (ug/l)	0.02 mg/L
Selenium (Se), total recoverable (ug/l)	0.001 mg/L
Silver (Ag), total recoverable (ug/l)	0.001 mg/L
Zinc (Zn), total recoverable (ug/l)	0.005 mg/L

GROUND WATER

Field Parameters	
Water Elevation (Feet)	
Depth to Water (Feet)	
pH (Standard Units)	
Conductivity (umhos/cm)	
Temperature (C)	
Lab Parameters	
Wet Chemistry	**MDL**
Bicarbonate (HCO_3) (mg/l)	2 mg/L
Carbonate (CO_3) (mg/l)	2 mg/L
Chloride (Cl^-) (mg/l)	0.5 mg/L
Conductivity (umhos/cm)	1 umhos/cm
Nitrate/Nitrite (mg/l)	0.1 mg/L
Ammonia (NH_3) (mg/l)	0.1 mg/L
pH (Lab Units)	0.1 mg/L
Hardness (mg/l)	1 mg/L
Phosphate (PO_4^{-3} as P) (mg/l)	0.02 mg/L
Residue, Filterable (TDS) @180 C (mg/l)	0.5 mg/L
Sulfate (SO_4^{--}) (mg/l)	0.6 mg/L
Metals	
Arsenic (As), dissolved (mg/l)	0.002 mg/L
Cadmium (Cd), dissolved (mg/l)	0.0002 mg/L
Calcium (Ca^{+2}), dissolved (mg/l)	0.2 mg/L
Iron (Fe), dissolved (mg/l)	0.01 mg/L
Iron (Fe), total recoverable (mg/l)	0.01 mg/L
Magnesium (Mg^{+2}), dissolved (mg/l)	0.2 mg/L
Manganese (Mn), dissolved (mg/l)	0.01 mg/L
Manganese (Mn), total recoverable (mg/l)	0.01 mg/L
Mercury (Hg), dissolved (mg/l)	0.000025 mg/L
Selenium (Se), dissolved (mg/l)	0.001 mg/L
Sodium (NA^+), dissolved (mg/l)	0.2 mg/L
Zinc (Zn), dissolved (mg/l)	0.005 mg/L

Refer to Pages 2.05-134 and 2.05-135 of Permit Application

Surface Water List 2 is applicable annually for North Fork Gunnison and Deer Trail Ditch only

NOTE: Springs are considered Surface Water

**Dissolved Oxygen is reported for Deer Trail Ditch, Fire Mountain Canal and North Fork Gunnison*

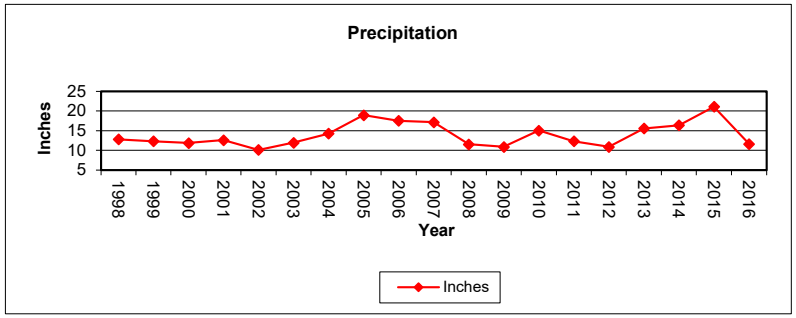
FIELD PARAMETER LIST

Parameter	Unit	Wells	Ponds	Streams	Springs
Conductivity	umhos/cm	Yes	Yes	Yes	Yes
Flow Rate	CFS/GPM	No	Yes	Yes	Yes
pH	Standard	Yes	Yes	Yes	Yes
Temperature	C	Yes	Yes	Yes	Yes
Water Level	Feet	Yes	Yes	No	No

PRECIPITATION VALUES

Monthly Precipitation Values

Month	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
January	1.13	1.08	1.93	0.73	0.55	0.26	1.31	2.05	0.81	0.68	1.67	0.91	0.42	0.49	1.22	1.83	0.66	1.02	0.9
February	0.83	0.38	1.27	1.06	0.11	1.35	1.46	1.38	0.28	0.92	1.1	1	1.66	0.87	1.41	0.89	2.16	1	0.85
March	1.43	0.42	1.03	0.42	1.03	1.17	0.14	1.93	1.58	1.39	0.54	0.89	1.2	1.22	0.3	1.14	0.77	0.76	0.3
April	1.43	2.54	0.42	0.57	0.61	0.49	3.3	1.37	0.83	1.2	0.77	1.09	0.51	1.68	0.62	1.3	1.31	1.75	1.21
May	0.16	1.00	0.67	1.75	0.28	1.81	0	1.22	0.17	1.18	0.64	2.73	1.68	0.83	0.09	1.24	1.71	3.86	1.33
June	0.47	0.94	0.86	0.39	0.04	0.48	0.34	1.64	0.5	0.99	0.67	0.63	0.55	0.32	0.05	0	0.21	1.05	0.51
July	0.66	2.7	0.89	1.31	0.28	0.76	0.02	0.4	3.06	0.85	0.24	0.27	1.44	1.74	1.26	1.37	1.11	2.43	0.8
August	1.18	1.42	1.27	2.35	0.66	0.46	0.48	1.71	0.87	1.16	2.07	0.33	2.09	0.46	2.35	0.78	2.13	1.96	1.81
September	0.75	1.16	1.27	0.34	2.43	1.93	2.85	2.84	2.32	3.2	0.62	0.32	1.15	1.2	0.92	3.28	2.96	1.2	1.07
October	1.88	0.05	0.75	0.84	2.53	0.46	1.37	2.11	5.08	1.37	0.74	0.58	1.84	1.55	0.64	2.12	1.17	1.94	0.49
November	1.87	0.07	0.73	1.85	0.9	1.74	1.72	0.84	1.39	0	0.91	0.77	0.58	0.96	0.61	0.91	0.65	1.48	0.16
December	1.00	0.57	0.78	0.99	0.71	1.03	1.26	1.47	0.65	4.20	1.55	1.36	1.91	1.01	1.41	0.69	1.56	2.70	2.18
Minimum	0.16	0.05	0.42	0.34	0.04	0.26	0.00	0.40	0.17	0.00	0.24	0.27	0.42	0.32	0.05	0.00	0.21	0.76	0.16
Average	1.07	1.03	0.99	1.05	0.84	1.00	1.19	1.58	1.46	1.43	0.96	0.91	1.25	1.03	0.91	1.30	1.37	1.76	0.97
Maximum	1.88	2.7	1.93	2.35	2.53	1.93	3.30	2.84	5.08	4.20	2.07	2.73	2.09	1.74	2.35	3.28	2.96	3.86	2.18
Total	12.79	12.33	11.87	12.60	10.13	11.94	14.25	18.96	17.54	17.14	11.52	10.88	15.03	12.33	10.88	15.55	16.40	21.15	11.61



This data is obtained from the internet at www.wrcc.dri.edu/summary/Climsmco.html select Paonia 1 SW (056306).

** No data recorded during the 2017-2019 water year

Bowie Resources, LLC
Bowie No. 2 Mine
2019 Annual Hydrology Report

Table 5

Monitoring Point Reports
Table of Contents

Bowie Resources, LLC
Bowie No. 2 Mine
2019 Annual Hydrology Report

Table 5

Monitoring Point Reports
Table of Contents

				Chart Fig No.
S6-7	South Side of West Fork Terror Creek Spring 6-7	Monitoring Point Report Figure No.		
S7-4	Stevens Gulch - Spring 7-4	Monitoring Point Report Figure No.	43	
S7-9	Terror Creek - Spring 7-9	Monitoring Point Report Figure No.	44	
S7-10	Terror Creek - Spring 7-10	Monitoring Point Report Figure No.	45	
S8-5	Terror Creek - Spring 8-5	Monitoring Point Report Figure No.	46	
S21	Terror Creek - Spring 21	Monitoring Point Report Figure No.	47	
S33-4	Sheep Corral - Spring 33-4	Monitoring Point Report Figure No.	48	
S34-7	Sheep Corral - Spring 34-7	Monitoring Point Report Figure No.	49	
S34-10	Dove Gulch - Spring 34-10	Monitoring Point Report Figure No.	50	
S34-19	Hubbard Creek - Spring 34-19	Monitoring Point Report Figure No.	51	
S34-20	Hubbard Creek - Spring 34-20	Monitoring Point Report Figure No.	52	
S34-21	Hubbard Creek - Spring 34-21	Monitoring Point Report Figure No.	53	
S34-22	Hubbard Creek - Spring 34-22	Monitoring Point Report Figure No.	54	
S34-23	Hubbard Creek - Spring 34-23	Monitoring Point Report Figure No.	55	
S34-24	Hubbard Creek - Spring 34-24	Monitoring Point Report Figure No.	56	
S34-25	Dove Gulch - Spring 34-25	Monitoring Point Report Figure No.	57	58
S36-7	Seeps 11 below Stevens Gulch Road	Monitoring Point Report Figure No.		

Surface Water Monitoring Stations - STREAMS AND DITCHES

A-Gulch-lo	Drainage System	Monitoring Point Report Figure No.		
B-Gulch-lo	Drainage System	Monitoring Point Report Figure No.		
B-Gulch-up	Drainage System	Monitoring Point Report Figure No.		
C-Gulch-lo	Drainage System	Monitoring Point Report Figure No.		
C-Gulch-up	Drainage System	Monitoring Point Report Figure No.		
D2-1	Sheep Corral - Drainage System	Monitoring Point Report Figure No.	59	
D21-1	Terror Creek - Confluence w/NFG	Monitoring Point Report Figure No.	60	61
D32-4	Terror Creek - Drainage System	Monitoring Point Report Figure No.	62	63
D33-14	Upper Sheep Corral Gulch	Monitoring Point Report Figure No.	64	
D34-13	Dove Gulch - Drainage System	Monitoring Point Report Figure No.	65	
D34-14	Hubbard Creek - Drainage System	Monitoring Point Report Figure No.	66	67
Deer-low	Canal - Deer Trail Ditch	Monitoring Point Report Figure No.	68	69
Deer-up	Canal - Deer Trail Ditch	Monitoring Point Report Figure No.	70	71
D-Gulch-lo	Drainage System	Monitoring Point Report Figure No.		
D-Gulch-up	Drainage System	Monitoring Point Report Figure No.		
FMC-low	Canal - Fire Mountain Canal	Monitoring Point Report Figure No.	72	
FMC-up	Canal - Fire Mountain Canal	Monitoring Point Report Figure No.	73	
Free-low	Freeman Gulch - Drainage System	Monitoring Point Report Figure No.	74	75
Free-up	Freeman Gulch - Drainage System	Monitoring Point Report Figure No.	76	
Hub-low	Hubbard Creek - Drainage System	Monitoring Point Report Figure No.	77	78
Hub-up	Hubbard Creek - Drainage System	Monitoring Point Report Figure No.		
NFG-low	North Fork - Drainage System	Monitoring Point Report Figure No.	79	80
NFG-up	North Fork - Drainage System	Monitoring Point Report Figure No.	81	82
Steph-low	Stevens Draw - Drainage System	Monitoring Point Report Figure No.	83	84
Steph-up	Stevens Draw - Drainage System	Monitoring Point Report Figure No.	85	
SW-01	West Fork Terror Creek - Downstream	Monitoring Point Report Figure No.	86	
SW-02	Terror Creek - Mid Stream	Monitoring Point Report Figure No.	87	
SW-04	Terror Creek - Upstream	Monitoring Point Report Figure No.		

Bowie Resources, LLC
Bowie No. 2 Mine
2019 Annual Hydrology Report

Table 5

Monitoring Point Reports
Table of Contents

				Chart Fig No.
SW-05	Stevens Gulch - Downstream	Monitoring Point Report Figure No.	88	89
SW-10	Terror Ditch	Monitoring Point Report Figure No.	90	91
SW-11	Stevens Gulch - Upstream	Monitoring Point Report Figure No.	92	
SW-12	West Fork Terror Creek - Upstream	Monitoring Point Report Figure No.	93	
EFH-1	Ephemeral Channel in Spruce Stomp Lease	Monitoring Point Report Figure No.		
EFH-2	Ephemeral Channel in Spruce Stomp Lease	Monitoring Point Report Figure No.		
EFH-3	Ephemeral Channel in Spruce Stomp Lease	Monitoring Point Report Figure No.		
EFH-4	Ephemeral Channel in Spruce Stomp Lease	Monitoring Point Report Figure No.		
EFH-5	Ephemeral Channel in Spruce Stomp Lease	Monitoring Point Report Figure No.		
EFH-6	Ephemeral Channel in Spruce Stomp Lease	Monitoring Point Report Figure No.		
EFH-7	Ephemeral Channel in Spruce Stomp Lease	Monitoring Point Report Figure No.		
EFH-8	Ephemeral Channel in Spruce Stomp Lease	Monitoring Point Report Figure No.		
EFH-9	Ephemeral Channel in Spruce Stomp Lease	Monitoring Point Report Figure No.		

Coal Member of Mesaverde

DH-15	Stevens Draw - Drill Hole	Monitoring Point Report Figure No.		
DH-25	C Gulch - Drill Hole	Monitoring Point Report Figure No.		
DH-38	D Gulch - Drill Hole	Monitoring Point Report Figure No.		
DH-15a	Stevens Draw - Drill Hole	Monitoring Point Report Figure No.	94	
DH-39	Stevens Draw - Drill Hole	Monitoring Point Report Figure No.	95	96
DH-49	B Gulch - Drill Hole	Monitoring Point Report Figure No.	97	98
DH-67B	Hubbard Creek - Monitoring Well	Monitoring Point Report Figure No.	99	
DH-67D	Hubbard Creek - Monitoring Well	Monitoring Point Report Figure No.	100	
DH-67abv	Hubbard Creek - Monitoring Well	Monitoring Point Report Figure No.	101	
DH-67blw	Hubbard Creek - Monitoring Well	Monitoring Point Report Figure No.	102	
TC-03-01 Upper (B)	Terror Creek - Monitoring Well	Monitoring Point Report Figure No.		
TC-03-02	Terror Creek - Monitoring Well	Monitoring Point Report Figure No.		
CWI-DH-58A	Upper B Seam & Above (B1)	Monitoring Point Report Figure No.	103	
CWI-DH-60	Upper B Seam (B1)	Monitoring Point Report Figure No.	104	
DH-2010-1B	B Seam	Monitoring Point Report Figure No.	105	
DH-2010-1SS	Above B Seam	Monitoring Point Report Figure No.	106	

North Fork Alluvium Monitoring Wells

AW-1	Alluvial Well	Monitoring Point Report Figure No.	107	108
AW-2	Alluvial Well	Monitoring Point Report Figure No.	109	
AW-3	Alluvial Well	Monitoring Point Report Figure No.	110	111
AW-4	Alluvial Well	Monitoring Point Report Figure No.	112	113
AW-5	Alluvial Well	Monitoring Point Report Figure No.	114	115
AW-6	Alluvial Well	Monitoring Point Report Figure No.	116	117
AW-7	Alluvial Well	Monitoring Point Report Figure No.	118	
AW-8	Alluvial Well	Monitoring Point Report Figure No.	119	
AW-9	Alluvial Well	Monitoring Point Report Figure No.	120	
AW-11	Alluvial Well	Monitoring Point Report Figure No.	121	
AW-12	Alluvial Well	Monitoring Point Report Figure No.	122	
AW-14	Alluvial Well	Monitoring Point Report Figure No.	123	
AW-15	Alluvial Well	Monitoring Point Report Figure No.	124	
AW-16	Alluvial Well	Monitoring Point Report Figure No.	125	
AW-17	Alluvial Well	Monitoring Point Report Figure No.	126	

Bowie Resources, LLC
Bowie No. 2 Mine
2019 Annual Hydrology Report

Table 5

Monitoring Point Reports
Table of Contents

Surface Water Monitoring Stations: PONDS

			Chart Fig No.	
P-1	Stevens Draw - Pond 1	Monitoring Point Report Figure No.	127	
P-2	Freeman Gulch - Pond 2	Monitoring Point Report Figure No.	128	
P-3	Terror Creek - Pond 3	Monitoring Point Report Figure No.	129	
P-4	Terror Creek - Pond 4	Monitoring Point Report Figure No.	130	
P-5	Sheep Corral - Pond 5	Monitoring Point Report Figure No.	131	
P-6	Terror Creek - Pond 6	Monitoring Point Report Figure No.	132	
P33-3	Sheep Corral - Pond 33-3	Monitoring Point Report Figure No.	133	
P1-4	W Fork Terror Creek - Pond 1-4	Monitoring Point Report Figure No.		
P1-6	W Fork Terror Creek - Pond 1-6	Monitoring Point Report Figure No.		
P1-11	W Fork Terror Creek - Pond 1-11	Monitoring Point Report Figure No.		
P1-12	W Fork Terror Creek - Pond 1-12	Monitoring Point Report Figure No.		
P5-5	Hugh's Pipe and Pond	Monitoring Point Report Figure No.		
P6-2	W Fork Terror Creek - Pond 6-2	Monitoring Point Report Figure No.		
P6-5	W Fork Terro Creek - Pond 6-5	Monitoring Point Report Figure No.	134	
P7-2	Stevens Gulch - Pond 7-2	Monitoring Point Report Figure No.	135	
P7-7	Stevens Gulch - Pond 7-7	Monitoring Point Report Figure No.	136	
P7-11	Stevens Gulch - Pond 7-11	Monitoring Point Report Figure No.	137	
P8-4	Terror Creek - Pond 8-4	Monitoring Point Report Figure No.	138	
P12-1	Stevens Gulch - Pond 12-1	Monitoring Point Report Figure No.	139	
P12-2	Stevens Gulch - Pond 12-2	Monitoring Point Report Figure No.	140	
P12-9	Stevens Gulch - Pond 12-9	Monitoring Point Report Figure No.		
P12-10	Stevens Gulch - Pond 12-10	Monitoring Point Report Figure No.	141	
P12-11	Stevens Gulch - Pond 12-11	Monitoring Point Report Figure No.		
P17-1	Coal Gulch - Pond 17-1	Monitoring Point Report Figure No.	142	
P18-1	Coal Gulch - Pond 18-1	Monitoring Point Report Figure No.	143	
P18-4	Stevens Gulch - Pond 18-4	Monitoring Point Report Figure No.	144	
P81	Stevens Gulch - Pond 81	Monitoring Point Report Figure No.	145	
P82	Terror Creek - Pond 82	Monitoring Point Report Figure No.	146	
P83	Coal Gulch - Pond 83	Monitoring Point Report Figure No.	147	
P31-1	Dry Pond below Stevens Gulch Road	Monitoring Point Report Figure No.		
P36-1	Flat Pond above Stevens Gulch Road	Monitoring Point Report Figure No.		
P36-3	Meadow Pond above Stevens Gulch Road	Monitoring Point Report Figure No.		
P36-6	Dry Pond 11	Monitoring Point Report Figure No.		

SP5-1
Terror Creek - Pond Spring 5-1
Elevation - 7400

Initiated	7/18/1985	7/18/1985	7/18/1985
Activated	3/31/2015	3/31/2015	3/31/2015
Date	11/18/2019	8/17/2019	5/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Outflow	GPM	0.00	0.94	7.36	0.00	1.15	4.12	0.00	Damp	Damp
Inflow	GPM	0.00	0.00	0.00	0.00	0.51	2.96	0.00	0.18	0.57
Freeboard	Feet	0.00	0.00	0.00	0.00	0.00	0.00			
Temperature	Celsius	4.1	12.8	23.2	3.80	11.17	20.10		11.5	10.2
Conductivity	umhos/cm	490	672	804	697.00	788.09	830.00		809	784
pH	su	7.3	8.2	9.0	7.62	8.15	8.55		7.9	7.62
Field Comments								Damp		
Lab Parameters	UNITS									
Bicarbonate	mg/L	256.0	383.5	441.6	453.00	467.50	482.00			
Carbonate	mg/L	16.0	16.0	16.0	0.00	0.00	0.00			
Chloride	mg/L	2.0	6.4	10.0	3.90	4.27	4.50			
Conductivity	umhos/cm	552.0	656.8	974.0	680.00	690.67	700.00			
Hardness	mg/L	182.0	250.8	287.0	246.00	250.33	256.00			
Acidity	mg/L	14.0	14.0	14.0	-410.00	-390.00	-380.00			
pH	su	6.4	7.9	8.7	7.58	7.84	8.05			
ResidueFilterable-TDS	mg/L	320.0	374.9	451.0	428.00	442.67	457.00			
ResidueNonFilterable-TSS	mg/L	2.0	128.0	742.0	91.30	119.15	147.00			
SAR		1.2	1.7	2.5	2.31	2.42	2.52			
Sulfate	mg/L	16.0	34.3	70.0	16.90	18.37	19.80			
Calcium (Dissolved)	mg/L	30.0	57.8	69.0	0.00	0.00	0.00			
Magnesium (Total)	mg/L	18.0	25.9	28.0	22.00	23.27	23.90			
Sodium (Dissolved)	mg/L	43.0	61.0	76.0	0.00	0.00	0.00			
Iron (Total)	mg/L	0.4	0.4	0.4	0.25	0.60	0.98			
Iron (Dissolved)	mg/L	0.1	0.1	0.1	0.01	0.03	0.05			
Manganese (Total)	mg/L	0.06	0.06	0.06	0.05	0.11	0.16			

The area of concern for monitoring point SP5-1 was affected by the mining operation on or about March 31, 2015.

Negative value of acidity indicates alkalinity

Baseline Information Collection initiated on 7/18/85 and completed on March 31, 2015.
Point SP5-1 has been influenced by mining.

SP7-1
Terror Creek - Pond Spring 7-1
Depth 3'
Elevation - 7780

Initiated	7/25/1985	7/25/1985	7/25/1985
Activated	6/1/2013	6/1/2013	6/1/2013
Date	11/19/2019	8/7/2019	5/14/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Outflow	GPM	0	3.35	30	0	2.93	16.91	No flow	0.36	1.11
Inflow	GPM	0	0.00	0	0	2.37	10.9	No flow	large seep	0.5
Freeboard	Feet	0	1.07	3	0	0.25	1.1	1.1		0
Temperature	Celsius	10.3	16.68	32	7.4	14.68	22.8			14.6
Conductivity	umhos/cm	353	602.53	928	539	612.27	654			603
pH	su	6.7	7.95	9.4	7.57	8.22	8.63			8.02
Field Comments										
Lab Parameters	UNITS									
Bicarbonate	mg/L	226	382.24	603	253.28	318.57	368			
Chloride	mg/L	2	8.98	54.59	2.3	5.27	13.08			
Conductivity	umhos/cm	450	633.06	1120	475	523.00	585			
Hardness	mg/L	145	233.44	295	190.28	227.57	254			
Nitrate-Nitrite	mg/L	0.3	0.30	0.3	0.031	0.03	0.031			
Oil and Grease	mg/L	0	<MDL	0	0	<MDL	0			
pH	su	7	7.81	8.4	7.18	7.95	8.22			
Phosphate	mg/L	0	<MDL	0	0.073	0.09	0.11			
ResidueFilterable-TDS	mg/L	280	404.33	808	348	366.50	382			
ResidueNonFilterable-TSS	mg/L	2	85.47	580	7	40.78	81.2			
SAR		1.2	1.70	2.9	1.37	2.01	3.681			
Sulfate	mg/L	10	20.32	39	27.99	29.97	33.6			
Aluminum (TREC)	mg/L	0.034	0.03	0.034	0.12	249.86	999			
Arsenic (TREC)	mg/L	0.06	0.06	0.06	0.002	0.00	0.002			
Cadmium (TREC)	mg/L	0.02	0.02	0.02	0.002	0.00	0.002			
Calcium (TREC)	mg/L	33	50.86	70.6	41.9	52.93	58.8			
Copper (TREC)	mg/L	0.003	0.00	0.003	0.009	0.01	0.009			
Iron (TREC)	mg/L	1.24	1.24	1.24	0.157	0.48	1.19			
Lead (TREC)	mg/L	0.02	0.02	0.02	0.02	0.02	0.02			
Magnesium (TREC)	mg/L	13.9	25.89	37	20.8	23.15	26.1			
Manganese (TREC)	mg/L	0.376	0.38	0.376	0.03	0.06	0.0904			
Mercury (TREC)	mg/L	0.00003	0.00	0.00003	2E-05	0.00	2E-05			
Molybdenum (TREC)	mg/L	0.007	0.01	0.007	0.001	0.00	0.001			
Selenium (TREC)	mg/L	0.003	0.00	0.003	0.002	0.00	0.002			
Sodium (TREC)	mg/L	78.1	78.10	78.1	45.2	67.73	116.7			
Zinc (TREC)	mg/L	0.01	0.01	0.01	0.02	0.02	0.02			

The area of concern for monitoring point SP7-1was activated on or about 06/1/2013.

Baseline Information Collection initiated on 7/25/85 and not yet completed.
Point SP7-1 has not been influenced by mining.

SP7-5
Steven's Gulch - Pond Spring 7-5
Elevation - 8300

Initiated	7/6/1983	7/6/1983	7/6/1983
Activated			
Date	10/5/2019	8/7/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Inflow	GPM	0.00	0.89	4.49				Damp	0.010	0.190
Outflow	GPM	0.00	0.13	0.75				0.000	0.000	0.190
Freeboard	Feet	0.00	0.40	2.20				0.5		
Temperature	Celsius	3.5	9.6	21.7					6.4	4.5
Conductivity	umhos/cm	202	327	800					332	288
pH	su	6.4	7.5	9.0					7.5	6.58
Field Comments								Dry		
Lab Parameters	UNITS									
Bicarbonate	mg/L	71.81	183.45	227.00						
Chloride	mg/L	<MDL	4.39	19.82						
Conductivity	umhos/cm	184	298	430						
Hardness	mg/L	74.97	154.5	228.0						
Nitrate-Nitrite	mg/L	<MDL	0.256	0.256						
Oil & Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	6.7	7.4	8.4						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	163	204	260						
ResidueNonFilterable-TSS	mg/L	<MDL	42	236						
SAR		0.250	0.350	0.933						
Sulfate	mg/L	<MDL	18.2	154.0						
Aluminum (TREC)	mg/L	<MDL	0.022	0.022						
Arsenic (TREC)	mg/L	<MDL	0.04	0.04						
Cadmium (TREC)	mg/L	<MDL	0.01	0.01						
Calcium (TREC)	mg/L	19.8	27.7	35.6						
Copper (TREC)	mg/L	<MDL	0.02	0.02						
Iron (TREC)	mg/L	0.10	0.31	0.62						
Lead (TREC)	mg/L	<MDL	0.05	0.05						
Magnesium (TREC)	mg/L	6.2	16.1	27.0						
Manganese (TREC)	mg/L	<MDL	0.02	0.02						
Mercury (TREC)	mg/L	<MDL	0.00004	0.00004						
Molybdenum (TREC)	mg/L	<MDL	0.006	0.006						
Selenium (TREC)	mg/L	<MDL	0.023	0.023						
Sodium (TREC)	mg/L	8.50	17.53	26.56						
Zinc (TREC)	mg/L	<MDL	0.006	0.006						

The area of concern for monitoring point SP7-5 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Baseline Information Collection initiated on 7/6/83 and not yet considered complete.
Point SP7-5 has not been influenced by mining.

SP17
Terror Creek - Pond Spring 17
Depth 4'
Elevation - 7520

Initiated	4/15/1983	4/15/1983	4/15/1983
Activated			
Date	11/19/2019	8/7/2019	5/15/2019

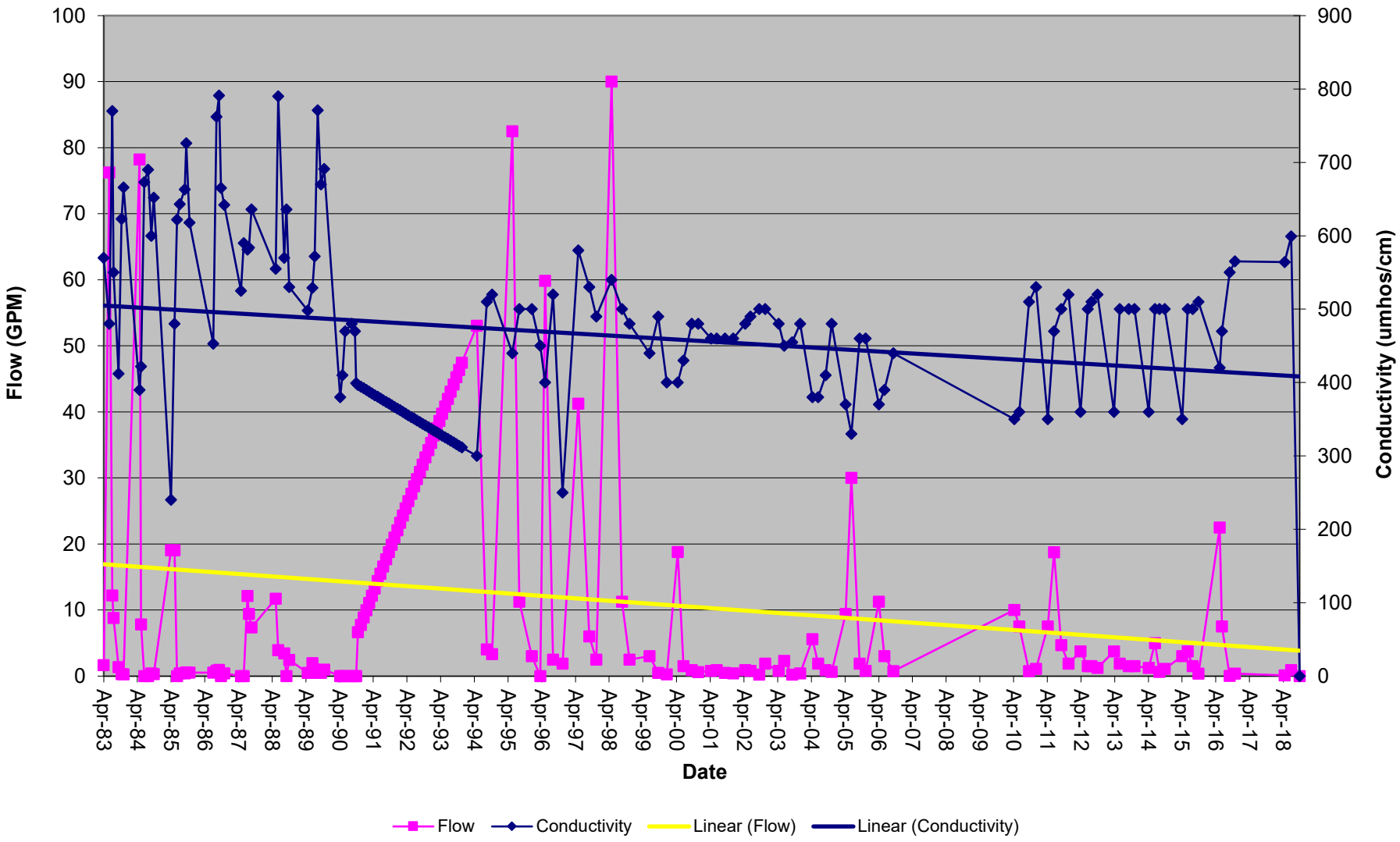
Field Parameters	UNITS	Summary Information Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Outflow	GPM	0	2.91	31.7				0.03	2.4	31.7
Inflow	GPM	0	11.75	90				0.03	2.7	31.7
Freeboard	Feet	0	0	0.6				0	0	0
Temperature	Celsius	3.6	9.6	25				6.5	8.7	7.4
Conductivity	umhos/cm	240	471	791				569	526	402
pH	su	6.8	7.6	9.3				7.56	7.99	8.11
Field Comments										
Lab Parameters	UNITS									
Bicarbonate	mg/L	186.0	263.2	361.0						
Chloride	mg/L	<MDL	11	202						202
Conductivity	umhos/cm	325	483	686						325
Hardness	mg/L	17.00	174.10	232.00						127
Nitrate-Nitrite	mg/L	<MDL	0.63	1.1						<MDL
Oil and Grease	mg/L	<MDL	<MDL	<MDL						<MDL
pH	su	6.8	7.6	8.3						7.72
Phosphate	mg/L	<MDL	<MDL	<MDL						<MDL
ResidueFilterable-TDS	mg/L	145	286	430						215
ResidueNonFilterable-TSS	mg/L	<MDL	17	74						<MDL
SAR		1.08	2.58	41.10						1.35
Sulfate	mg/L	5.35	27.03	68						18
Aluminum (TREC)	mg/L	<MDL	242.112	1210						<MDL
Arsenic (TREC)	mg/L	<MDL	0.01	0.02						<MDL
Cadmium (TREC)	mg/L	<MDL	0.01	0.01						<MDL
Calcium (TREC)	mg/L	33.7	43.3	56.2						33.7
Copper (TREC)	mg/L	<MDL	0.01	0.01						<MDL
Iron (TREC)	mg/L	0.0197	0.31	2.25						0.0765
Lead (TREC)	mg/L	<MDL	0.03	0.04						<MDL
Magnesium (TREC)	mg/L	10.3	14.9	18.9						10.3
Manganese (TREC)	mg/L	<MDL	0.024	0.0862						<MDL
Mercury (TREC)	mg/L	<MDL	0.00008	0.00022						<MDL
Molybdenum (TREC)	mg/L	<MDL	0.003	0.006						<MDL
Selenium (TREC)	mg/L	<MDL	0.00531	0.014						<MDL
Sodium (TREC)	mg/L	32.2	49.8	112.6						32.2
Zinc (TREC)	mg/L	<MDL	0.010	0.02						<MDL

The area of concern for monitoring point SP17 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

A diffuse flow from an area of approximately 30' x 20' discharges into a pond measuring approximately 30' x 50'. (Hanna, 99)

Baseline Information Collection initiated on 4/15/83 and not yet considered complete.
Point SP17 has not been influenced by mining.

Plot of Flow and Conductivity



SP17 - Terror Creek Spring Pond 17

Table 5

SP18
Terror Creek - Pond Spring 18
Elevation - 7280

Initiated	4/15/1983	4/15/1983	4/15/1983
Activated			
Date	11/19/2019	8/7/2019	5/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Outflow	GPM	0.00	1.24	3.96				0.00	0.52	2.54
Inflow	GPM	0.09	2.89	17.50				0.12	3.57	10.63
Freeboard	Feet	0.00	0.00	0.00					0	0
Temperature	Celsius	3.0	10.2	21.3				5.3	10.0	8.3
Conductivity	umhos/cm	260	626	832				637	682	654
pH	su	7.7	8.3	8.9				8.9	8.7	8.0
Field Comments										
Lab Parameters	UNITS									
Bicarbonate	mg/L	133.0	343.7	408.7						
Chloride	mg/L	3.00	7.94	62.04						
Conductivity	umhos/cm	230	606	892						
Hardness	mg/L	86.00	235.68	277.00						
Nitrate-Nitrite	mg/L	<MDL	0.5	0.8						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	7.2	8.0	8.3						
Phosphate	mg/L	<MDL	0.023	0.024						
ResidueFilterable-TDS	mg/L	110	344	678						
ResidueNonFilterable-TSS	mg/L	2	39	171						
SAR		0.89	1.39	1.84						
Sulfate	mg/L	10	27	53						
Aluminum (TREC)	mg/L	0.028	260.405	806.000						
Arsenic (TREC)	mg/L	<MDL	0.04	0.04						
Cadmium (TREC)	mg/L	<MDL	0.01	0.01						
Calcium (TREC)	mg/L	57.9	62.4	66.8						
Copper TREC)	mg/L	<MDL	0.003	0.003						
Iron (TREC)	mg/L	0.24	1.24	4.51						
Lead (TREC)	mg/L	0.03	0.03	0.03						
Magnesium (TREC)	mg/L	21.0	24.7	28.1						
Manganese (TREC)	mg/L	0.01	3.04	21.20						
Mercury (TREC)	mg/L	<MDL	0.00007	0.00007						
Molybdenum (TREC)	mg/L	<MDL	0.010	0.010						
Selenium (TREC)	mg/L	<MDL	0.012	0.012						
Sodium (TREC)	mg/L	49.1	56.7	69.7						
Zinc (TREC)	mg/L	<MDL	0.004	0.004						

The area of concern for monitoring point SP18 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Baseline Information Collection initiated on 4/15/83 and not yet considered complete.
Point SP18 has not been influenced by mining.

SP19
Steven's Gulch - Pond Spring 19
Elevation - 8240

Initiated	8/22/1983	8/22/1983	8/22/1983
Activated	2/28/2015	2/28/2015	2/28/2015
Date	10/5/2019	8/7/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Outflow	GPM	0	0.41	8.62	0	0.43	3.75	0	0	0
Inflow	GPM	0	0.03	0.49	0	0.26	2.50	0	0	0
Freeboard	Feet	0	1.45	2.70	0	0.97	1.80		.	0.2
Temperature	Celsius	-1.4	17.66	27.50	12.5	15.20	17.90			
Conductivity	umhos/cm	110	286.89	545.00	140	146.75	153.50			
pH	su	7.7	8.43	10.00	8.1	8.23	8.35			
Field Comments								Dry	Dry	Dry
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	84.2	166.2	256.2						
Carbonate	mg/L									
Chloride	mg/L	<MDL	3	7						
Conductivity	umhos/cm	150	272	410						
Hardness	mg/L	61	120	185						
pH	su	6.9	7.5	8.4						
ResidueFilterable-TDS	mg/L	100	174	256						
ResidueNonFilterable-TSS	mg/L	6	64	396						
SAR		0.15	0.37	1.00						
Sulfate	mg/L	<MDL	24	101						
Calcium (Dissolved)	mg/L	16	28	41						
Magnesium (Total)	mg/L	5	12	20						
Sodium (Dissolved)	mg/L	3	9	23						

The area of concern for monitoring point SP19 was affected by the mining operation on or about February 28, 2015.

** Data not provided in field notes*

Baseline Information Collection initiated on 8/22/83 and complete February 28, 2015.
Point SP19 has been influenced by mining.

SP20
Terror Creek - Pond Spring 20
Depth 4'
Elevation - 7840

Initiated	5/15/1983	5/15/1983	5/15/1983
Activated	6/30/2013	6/30/2013	6/30/2013
Date	11/19/2019	8/27/2019	5/14/2019

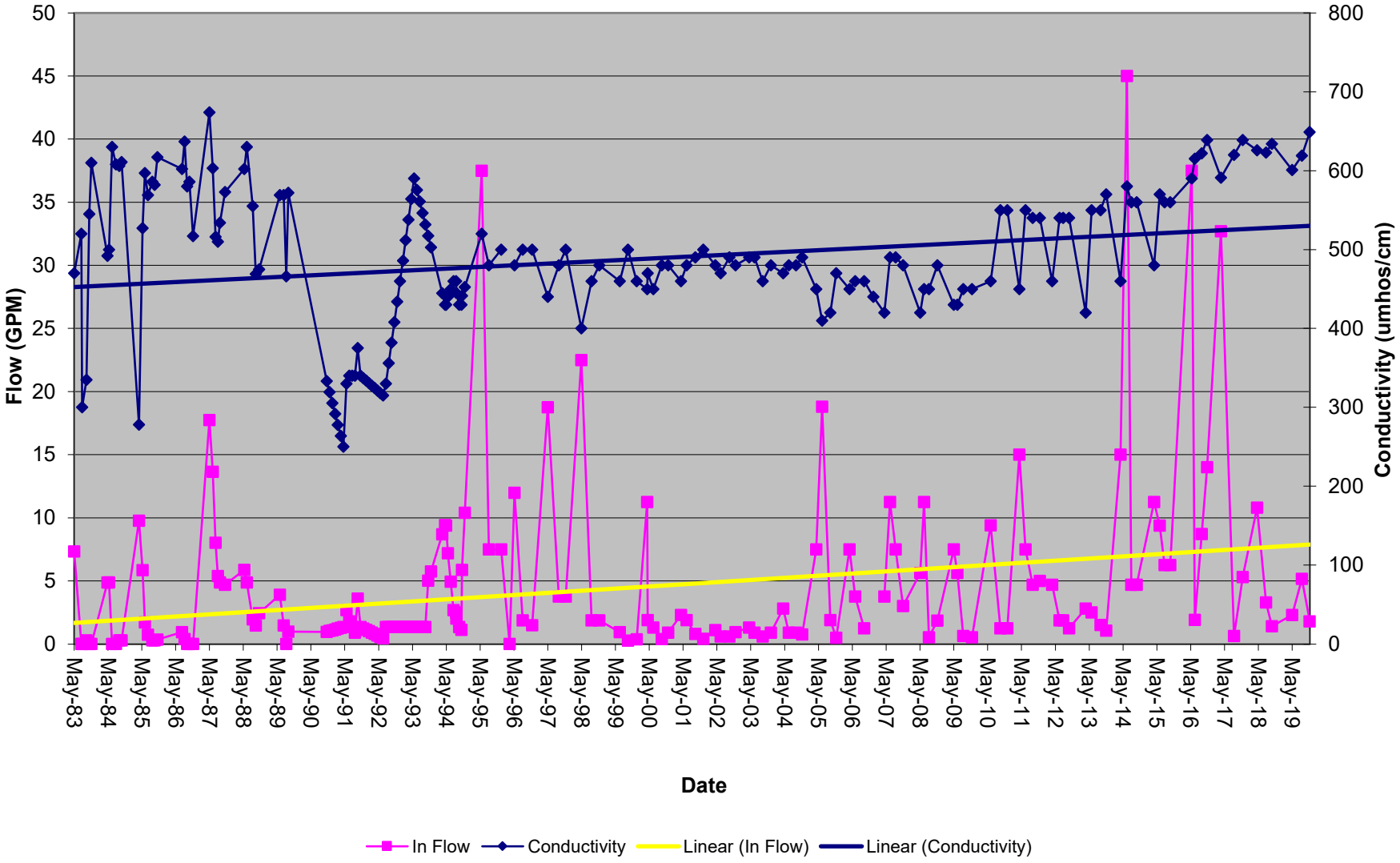
Field Parameters	UNITS	Summary Information Baseline Min	Ave	Max	Operation Min	Ave	Max			
Outflow	GPM	0.0	0.6	2.3	0.0	7.2	42.2	0.00	5.55	1.80
Inflow	GPM	0.0	3.5	37.5	0.6	11.8	45.0	1.8	5.15	2.3
Freeboard	Feet	0.0	0.0	0.8	0.0	0.0	0.0			
Temperature	Celsius	2.0	8.8	27.7	6.7	8.1	9.8	8.6	8.9	9.3
Conductivity	umhos/cm	250.0	471.2	674.0	460.0	587.4	649.0	649	619	601
pH	su	5.3	7.5	8.9	7.0	7.4	7.9	7.71	7.9	7.46
Field Comments										
Lab Parameters	UNITS									
Bicarbonate	mg/L	144.7	289.9	342.0	247.4	330.8	385.0			329
Chloride	mg/L	0.0	5.0	28.3	2.3	2.7	4.6			2.5
Conductivity	umhos/cm	311.5	513.5	714.0	484.0	521.4	591.0			513
Hardness	mg/L	108.0	207.6	511.9	197.0	223.4	243.0			226
Nitrate-Nitrite	mg/L	<MDL	0.3	0.3	<MDL	<MDL	0.1			<MDL
Oil and Grease	mg/L	<MDL	<MDL	0.0	<MDL	<MDL	0.0			<MDL
pH	su	6.7	7.4	8.5	7.0	7.4	8.0			7.82
Phosphate	mg/L	<MDL	<MDL	0.0	<MDL	0.0	0.0			0.023
ResidueFilterable-TDS	mg/L	240.0	318.8	460.0	337.0	358.2	438.0			352
ResidueNonFilterable-TSS	mg/L	<MDL	88.9	1800.0	<MDL	9.0	9.0			<MDL
SAR		0.5	1.3	2.3	1.2	1.9	5.4			1.26
Sulfate	mg/L	0.8	12.5	60.0	0.0	28.6	34.2			34.2
Aluminum (TREC)	mg/L	<MDL	0.2	0.5	<MDL	93.1	186.0			<MDL
Arsenic (TREC)	mg/L	<MDL	0.0	0.0	<MDL	0.0	0.0			<MDL
Cadmium (TREC)	mg/L	<MDL	0.0	0.0	<MDL	0.0	0.0			<MDL
Calcium (TREC)	mg/L	36.3	69.1	128.3	42.1	53.6	59.8			54.9
Copper (TREC)	mg/L	<MDL	0.0	0.0	<MDL	0.0	0.0			<MDL
Iron (TREC)	mg/L	0.0	0.1	0.2	0.0	0.1	0.3			0.03
Lead (TREC)	mg/L	<MDL	0.0	0.0	<MDL	0.0	0.0			<MDL
Magnesium (TREC)	mg/L	17.2	28.6	46.5	20.2	21.8	22.9			21.5
Manganese (TREC)	mg/L	<MDL	0.0	0.0	<MDL	7.7	23.0			<MDL
Mercury (TREC)	mg/L	<MDL	0.0	0.0	<MDL	0.0	0.0			<MDL
Molybdenum (TREC)	mg/L	<MDL	0.0	0.0	<MDL	0.0	0.0			<MDL
Selenium (TREC)	mg/L	<MDL	0.0	0.0	<MDL	0.0	0.0			<MDL
Sodium (TREC)	mg/L	40.2	47.6	53.1	43.5	52.3	124.8			43.5
Zinc (TREC)	mg/L	<MDL	0.0	0.0	<MDL	0.0	0.0			<MDL

Activated 6/30/2013

This spring and pond consists of an area of approximately 20' x 20' of diffuse flow which is collected in a pond of approximately 30' x 60'. (Hanna, 99)

Baseline Information Collection initieated on 5/15/83 and not yet considered complete.
Point SP20 has not been influenced by mining.

Plot of Flow and Conductivity



SP20 - Terror Creek Spring Pond 20

Table 9

SP22
Terror Creek - Pond Spring 22
Depth 4'
Elevation - 7480

Initiated	7/18/1983	7/18/1983	7/18/1983
Activated	8/5/2012	8/5/2012	8/5/2012
Date	11/19/2019	8/7/2019	5/14/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Inflow	GPM	0.00	0.33	5.63	0.00	0.22	5.81	0.00	0.00	0.00
Outflow	GPM	0.00	0.00	0.00	0.00	0.01	0.20	0.00	0.00	0.00
Freeboard	Feet	0.0	1.1	4.0	0.00	0.36	2.50	0.50	2.50	1.20
Temperature	Celsius	6.9	16.9	28.6						
Conductivity	umhos/cm	343	661	915						
pH	su	7.3	8.3	9.7						
Field Comments								No flow	No flow	No flow
Lab Parameters	UNITS									
Bicarbonate	mg/L	165.9	343.38	584						
Carbonate	mg/L	<MDL	1.9282	11.71						
Chloride	mg/L	1	7.6205	13						
Conductivity	umhos/cm	390	629.15	878						
Hardness	mg/L	132	277.64	377						
pH	su	7.3	8.013	8.56						
ResidueFilterable-TDS	mg/L	145	377.3	564						
ResidueNonFilterable-TSS	mg/L	4	20.579	65						
SAR		0.53	1.0868	1.897						
Sulfate	mg/L	14	48.52	230						
Calcium (Dissolved)	mg/L	17	57.892	90						
Magnesium (Total)	mg/L	12	32.355	51						
Sodium (Dissolved)	mg/L	14	40.51	63						

The monitoring point for Spring and Pond 22 is located on an east facing slope that drains down toward Terror Creek.

Baseline Information is derived from monitoring events beginning on 7/18/83 through 8/5/2012,
Point SP22 influenced by mining on 8/5/12.

SP23
Stevens Gulch - Pond Spring 23
Elevation - 8300

Initiated	8/22/1983	8/22/1983	8/22/1983
Activated	7/15/2014	7/15/2014	7/15/2014
Date	10/5/2019	8/7/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Outflow	GPM	0.00	1.05	9.29	0.00		62.50	Damp	Seep	0.08
Inflow	GPM							Damp	Seep	Seep
Freeboard	Feet	0.00	0.02	0.28	0.00	0.51	3.10	0	0	
Temperature	Celsius	-0.10	10.07	21.70	3.50	10.82	19.90		19.9	8.0
Conductivity	umhos/cm	220.00	403.91	891.00	220	397	521		458	356
pH	su	6.80	7.42	9.60	6.3	7.4	9.4		7.49	6.34
Field Comments										
Lab Parameters	UNITS									
Bicarbonate	mg/L	91.9	254.6	424.6						
Chloride	mg/L	<MDL	5.15	17.37						
Conductivity	umhos/cm	236	424	670						
Hardness	mg/L	105.00	209.37	322.00						
Nitrate-Nitrite	mg/L	0.11	0.11	0.11						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	6.4	7.3	8.4						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	156	270	380						
ResidueNonFilterable-TSS	mg/L	2	61	216						
SAR		0.120	0.437	1.010						
Sulfate	mg/L	<MDL	10.08	43.00						
Aluminum (TREC)	mg/L	0.0210	0.0210	0.0210						
Arsenic (TREC)	mg/L	0.0200	0.0200	0.0200						
Cadmium (TREC)	mg/L	0.0100	0.0100	0.0100						
Calcium (TREC)	mg/L	41.300	41.300	41.300						
Copper (TREC)	mg/L	0.003	0.003	0.003						
Iron (TREC)	mg/L	0.15	0.54	1.15						
Lead (TREC)	mg/L	0.05	0.05	0.05						
Magnesium (TREC)	mg/L	11.0	23.4	38.0						
Manganese (TREC)	mg/L	0.010	0.067	0.110						
Mercury (TREC)	mg/L	0.00008	0.00008	0.00008						
Molybdenum (TREC)	mg/L	0.0030	0.0030	0.0030						
Selenium (TREC)	mg/L	0.0180	0.0180	0.0180						
Sodium (TREC)	mg/L	15.78	15.78	15.78						
Zinc (TREC)	mg/L	0.010	0.010	0.010						

**Multiple Seeps Inflow - Unmeasurable*

Activated 7/15/2014

Baseline Information Collection initiated on 8/22/83.
Point SP23 was influenced by mining 7/15/2014.

SP34-11
Sheep Corral - Spring/Pond 34-11
Elevation - 7440
Depth - 3'

Initiated	10/27/1997	10/27/1997	10/27/1997
Activated	6/1/2002	6/1/2002	6/1/2002
Date	10/29/2019	7/27/2019	6/10/2019

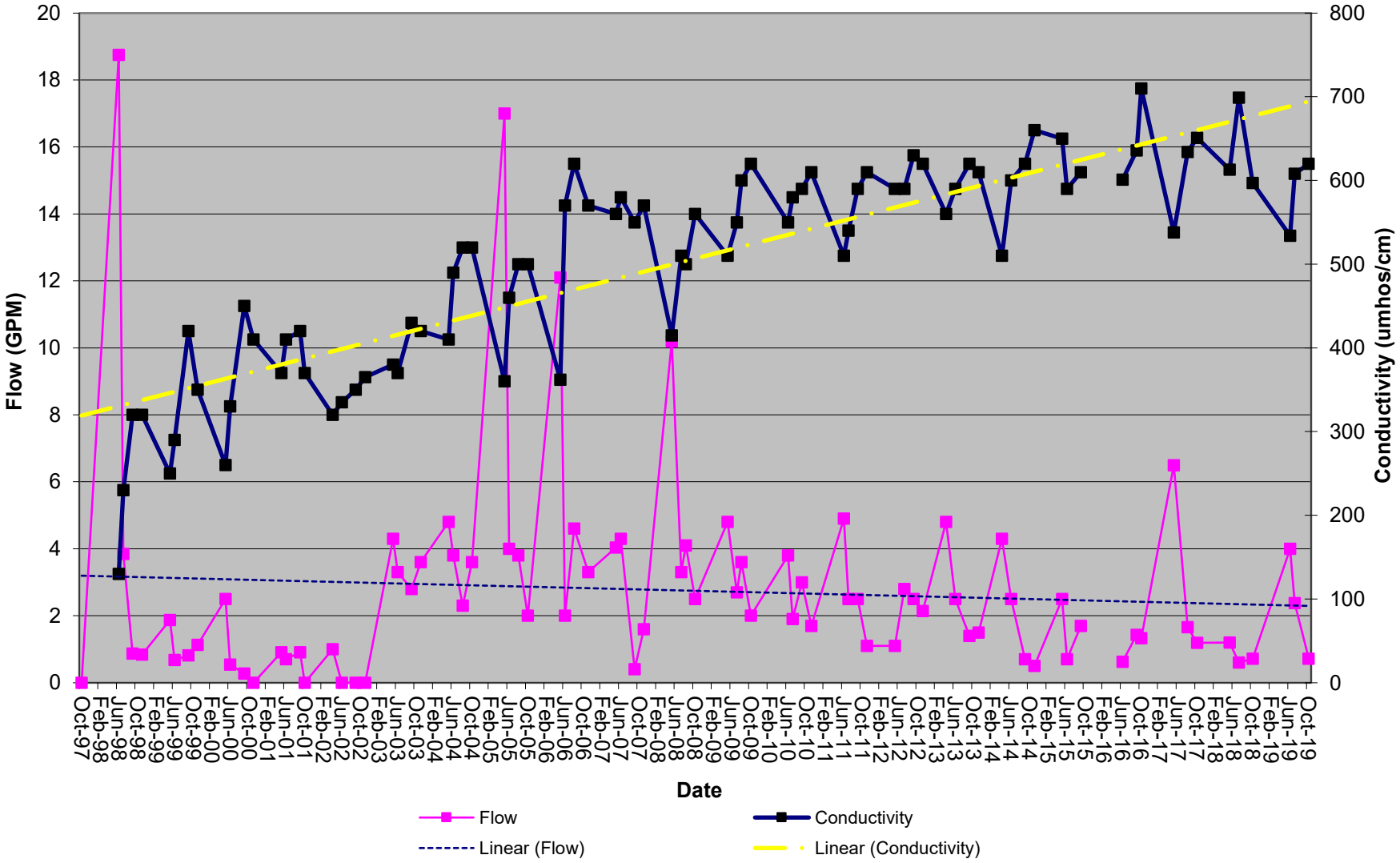
Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Outflow	GPM	0.0	2.2	18.8	0.0	2.96	17.00	0	0.32	2
Inflow	GPM				0.0	2.09	6.49	0.72	2.38	4
FieldComment										
ph	su	6.9	7.5	8.0	6.7	7.65	8.50	7.9	7.61	6.65
Conductivity	umhos/cm	130	325	450	360	556	710	620	608	534
Temperature	Celsius	6.1	10.0	15.1	4.5	8.0	12.8	6.8	6.6	5.8
Lab Parameters	UNITS									
Bicarbonate	mg/L	165	197	217	137.9	236.3	331.0			
Chloride	mg/L	<MDL	2	3	<MDL	5.30	11.79			
Conductivity	umhos/cm	324	412	482	367.8	469.8	554.0			
Hardness	mg/L	92	103	111	100.0	121.4	152.5			
Nitrate-Nitrite	mg/L	<MDL	0.03	0.09	<MDL	1.744	2.580			
Oil and Grease	mg/L	<MDL	<MDL	<MDL	<MDL	0.077	0.077			
pH	su	6.9	7.5	8.0	6.23	7.21	8.09			
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	0.048	0.072			
ResidueFilterable-TDS	mg/L	180	247	290	55.5	230.1	371.0			
ResidueNonFilterable-TSS	mg/L	<MDL	51	154	<MDL	31.4	60.5			
SAR		<MDL	<MDL	<MDL	2.09	3.25	4.75			
Sulfate	mg/L	30	33	40	26.34	41.42	57.42			
Aluminum	mg/L	0.04	2.15	6.34	<MDL	56.59	226.00			
Arsenic	mg/L	<MDL	0.0003	0.001	0.009	0.013	0.015			
Cadmium	mg/L	<MDL	<MDL	<MDL	<MDL	0.004	0.006			
Calcium	mg/L	27.5	30.3	32.1	7.7	30.4	43.6			
Copper	mg/L	<MDL	0.31	0.92	<MDL	<MDL	<MDL			
Iron (Total)	mg/L	0.04	2.35	6.89	0.01	0.16	0.38			
Lead	mg/L	<MDL	<MDL	<MDL	<MDL	0.03	0.03			
Magnesium	mg/L	5.7	6.7	7.5	3.41	7.02	10.60			
Manganese (Total)	mg/L	<MDL	0.046	0.137	<MDL	0.01	0.02			
Mercury	mg/L	<MDL	<MDL	<MDL	<MDL	0.0001	0.0002			
Molyebdenum	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
Selenium	mg/L	<MDL	<MDL	<MDL	0.0010	0.0205	0.0560			
Sodium	mg/L	30.8	49.5	64.1	59.7	216.9	807.0			
Zinc	mg/L	<MDL	0.01	0.04	0.01	0.02	0.02			

The monitoring point for SP34-11 is along the old coal exploration road winding down Sheep Corral Gulch. The spring in sandstone just above the pond surface.

Baseline Information for Point SP34-11 is derived from events beginning on 10/27/97 through 6/1/02.
Point influenced by mining on 6/1/02.

Plot of Flow and Conductivity



SP34-11 - Sheep Corral Spring and Pond 34-11

Table 13

S-1
B Gulch - Spring 1
Elevation - 6990

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	3/30/1997	3/30/1997	3/30/1997
Date	10/22/2019	7/23/2019	5/13/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.38	1.25	0.00	0.02	0.75	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	8.4	8.6	8.7	8.1	8.3	8.5			
Conductivity	umhos/cm	1520	2053	2300	2000	2067	2200			
Temperature	Celsius	2.4	10.5	17.1	12.8	17.2	20.1			
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	784	784	784						
Chloride	mg/L	28	28	28						
Conductivity	umhos/cm	2140	2140	2140						
Hardness	mg/L	570	570	570						
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	7.5	7.5	7.5						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	1480	1480	1480						
ResidueNonFilterable-TSS	mg/L	30	30	30						
SAR		5.66	5.66	5.66						
Sulfate	mg/L	490	490	490						
Aluminum	mg/L	0.89	0.89	0.89						
Arsenic	mg/L	<MDL	<MDL	<MDL						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	52	52	52						
Copper	mg/L	<MDL	<MDL	<MDL						
Iron (Total)	mg/L	1.01	1.01	1.01						
Lead	mg/L	<MDL	<MDL	<MDL						
Magnesium	mg/L	107	107	107						
Manganese (Total)	mg/L	0.017	0.017	0.017						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	0.002	0.002	0.002						
Sodium	mg/L	307	307	307						
Zinc	mg/L	0.01	0.01	0.01						

The S-1 monitoring point location is along the Stevens Draw road where it crosses B Gulch. This spring is located on the upper side of the road, discharges along the road and eventually contributes its flow through Sediment Pond B.

Baseline Information for Point S-1 is derived from events beginning on 6/12/95 through 3/30/97.
Point influenced by mining on 3/20/97.

S-2
Freeman Gulch - Spring 2
Elevation - 7920

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	11/10/2001	11/10/2001	11/10/2001
Date	10/2/2019	7/23/2019	5/16/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.22	1.88	0.00	0.00	0.30	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	6.8	7.3	7.8						
Conductivity	umhos/cm	40	106	525						
Temperature	Celsius	1.2	10.2	19.1						
Lab Parameters	UNITS									
Bicarbonate	mg/L	57	57	57						
Chloride	mg/L	1	1	1						
Conductivity	umhos/cm	126	126	126						
Hardness	mg/L	44	44	44						
Nitrate-Nitrite	mg/L	0.51	0.51	0.51						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	6.0	6.0	6.0						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	90	90	90						
ResidueNonFilterable-TSS	mg/L	<MDL	<MDL	<MDL						
SAR		0.43	0.43	0.43						
Sulfate	mg/L	<MDL	<MDL	<MDL						
Aluminum	mg/L	0.10	0.10	0.10						
Arsenic	mg/L	0.002	0.002	0.002						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	14.2	14.2	14.2						
Copper	mg/L	<MDL	<MDL	<MDL						
Iron (Total)	mg/L	0.71	0.71	0.71						
Lead	mg/L	<MDL	<MDL	<MDL						
Magnesium	mg/L	2.1	2.1	2.1						
Manganese (Total)	mg/L	0.063	0.063	0.063						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	<MDL	<MDL	<MDL						
Sodium	mg/L	6.5	6.5	6.5						
Zinc	mg/L	<MDL	<MDL	<MDL						

The monitoring point for S-2 is located along the old coal exploration road which leads down into Freeman Gulch, to Pond 2, Drill holes 34B and 34C and the monitoring point for the Upper end of Freeman Gulch.

Baseline Information for Point S-2 is derived from events beginning on 6/12/95 through 11/10/01.
Point influenced by mining on 11/10/01.

S-3
Freeman Gulch - Spring 3
Elevation - 7920

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	10/15/2001	10/15/2001	10/15/2001
Date	10/24/2018	10/24/2018	10/24/2018

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.29	3.75	0.00	0.00	0.00	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	6.7	7.8	8.5						
Conductivity	umhos/cm	120	222	443						
Temperature	Celsius	7.6	15.6	28.7						
Lab Parameters	UNITS									
Bicarbonate	mg/L	77	77	77						
Chloride	mg/L	4	4	4						
Conductivity	umhos/cm	164	164	164						
Hardness	mg/L	72	72	72						
Nitrate-Nitrite	mg/L	0.05	0.05	0.05						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	7.5	7.5	7.5						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	110	110	110						
ResidueNonFilterable-TSS	mg/L	8	8	8						
SAR		0.34	0.34	0.34						
Sulfate	mg/L	<MDL	<MDL	<MDL						
Aluminum	mg/L	0.35	0.35	0.35						
Arsenic	mg/L	<MDL	<MDL	<MDL						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	21.7	21.7	21.7						
Copper	mg/L	<MDL	<MDL	<MDL						
Iron (Total)	mg/L	0.37	0.37	0.37						
Lead	mg/L	<MDL	<MDL	<MDL						
Magnesium	mg/L	4.2	4.2	4.2						
Manganese (Total)	mg/L	0.014	0.014	0.014						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	<MDL	<MDL	<MDL						
Sodium	mg/L	6.6	6.6	6.6						
Zinc	mg/L	<MDL	<MDL	<MDL						

The monitoring point for S-3 is located along the old coal exploration road which leads down into Freeman Gulch, to Pond 2, Drill Holes 34B and 34C and the monitoring point for the Upper end of Freeman Gulch.

Baseline Information for Point S-3 is derived from events beginning on 6/12/95 through 10/15/01.
Point influenced by mining on 10/15/01.

S-4
Terror Creek - Spring 4
Elevation - 7880

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	1/15/2001	1/15/2001	1/15/2001
Date	10/22/2019	7/24/2019	5/16/2019

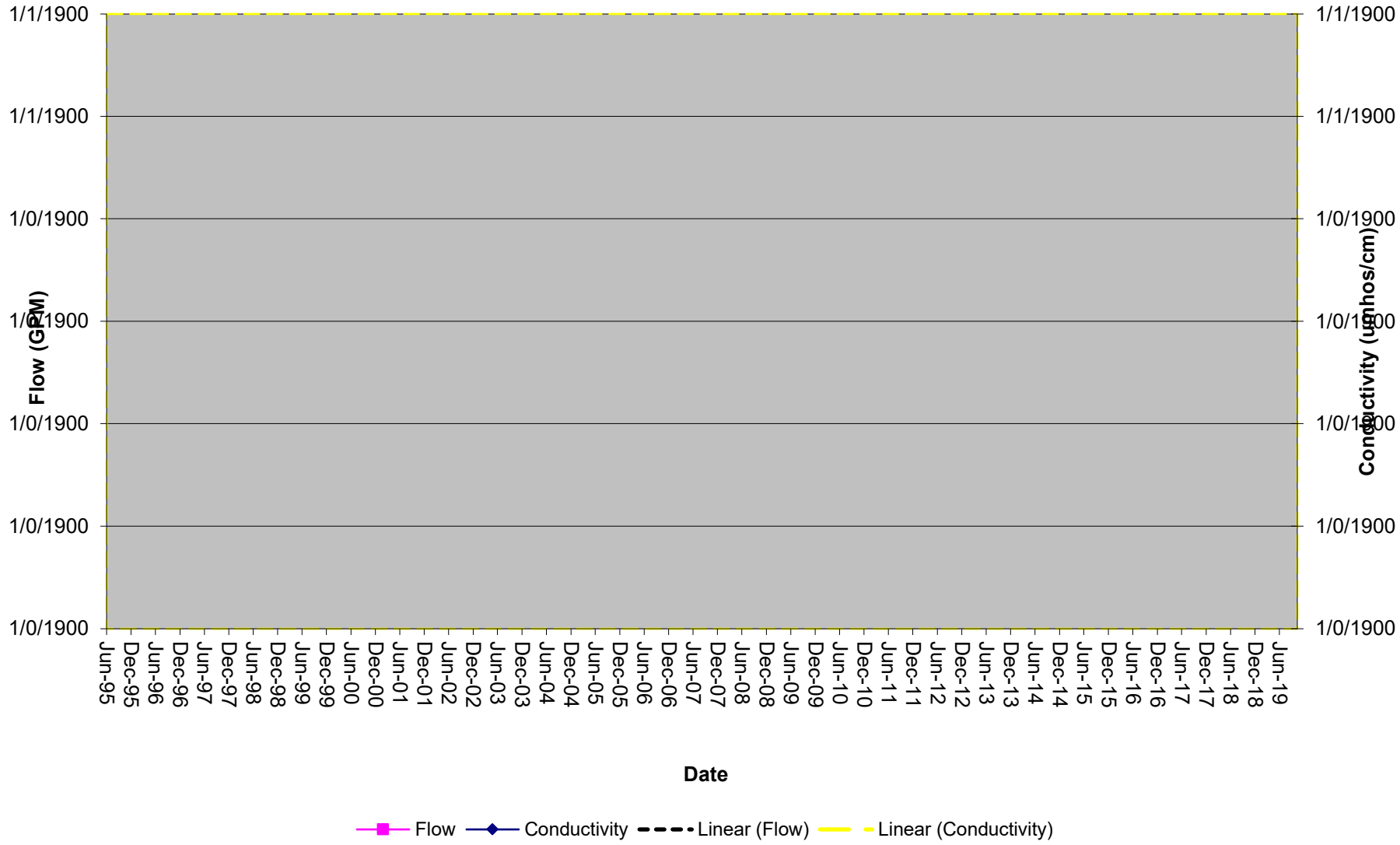
Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.24	3.75	0.00	0.25	2.37	Iced over -	Seep -	Seep -
FieldComment								no visible flow	no visible flow	no visible flow
ph	su	6.4	7.4	9.0	7.1	7.5	8.0			
Conductivity	umhos/cm	80	268	433	300	385	537			
Temperature	Celsius	1.2	10.0	24.0	1.8	6.5	10.7			
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	56	56	56	231.8	231.8	231.8			
Chloride	mg/L	2	2	2	49.63	49.63	49.63			
Conductivity	umhos/cm	99	99	99	438	441	443			
Hardness	mg/L	44	44	44	150.69	150.69	150.69			
Nitrate-Nitrite	mg/L	0.62	0.62	0.62	0.32	0.32	0.32			
Oil and Grease	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
pH	su	6.7	6.7	6.7	6.8	6.9	7.1			
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
ResidueFilterable-TDS	mg/L	60	60	60	236	245	253			
ResidueNonFilterable-TSS	mg/L	16	16	16	1	19	36			
SAR		0.29	0.29	0.29	1.85	1.85	1.85			
Sulfate	mg/L	<MDL	<MDL	<MDL	60.51	60.51	60.51			
Aluminum (TREC)	mg/L	0.98	0.98	0.98	0.039	0.039	0.039			
Arsenic (TREC)	mg/L	<MDL	<MDL	<MDL	0.03	0.03	0.03			
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL	0.01	0.01	0.01			
Calcium (TREC)	mg/L	13.6	13.6	13.6	46	46	46			
Copper (TREC)	mg/L	<MDL	<MDL	<MDL	0.01	0.01	0.01			
Iron (TREC)	mg/L	0.88	0.88	0.88	0.15	0.56	0.97			
Lead (TREC)	mg/L	<MDL	<MDL	<MDL	0.03	0.03	0.03			
Magnesium (TREC)	mg/L	2.4	2.4	2.4	8.7	8.7	8.7			
Manganese (TREC)	mg/L	0.03	0.03	0.03	0.020	0.026	0.032			
Mercury (TREC)	mg/L	0.0002	0.0002	0.0002	0.00006	0.00006	0.00006			
Molyebdenum (TREC)	mg/L	<MDL	<MDL	<MDL	0.005	0.005	0.005			
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL	0.008	0.008	0.008			
Sodium (TREC)	mg/L	4.5	4.5	4.5	52.9	52.9	52.9			
Zinc (TREC)	mg/L	<MDL	<MDL	<MDL	0.005	0.005	0.005			

The monitoring point for S-4 is located along an unmarked road in an un-named gulch leading down from the broad ridge that separates Sheep Corral and Freeman Gulches from Terror Creek. This spring feeds P-4.

Baseline Information for Point S-4 is derived from events beginning on 6/12/95 through 1/15/01.
Point influenced by mining on 1/15/01.

Plot of Flow and Conductivity



S-4 - Terror Creek Spring 4

S-4a
Terror Creek - Spring 4a
Elevation - 7910

Initiated	11/9/1995	11/9/1995	11/9/1995
Activated	1/15/2001	1/15/2001	1/15/2001
Date	10/1/2019	7/24/2019	5/16/2019

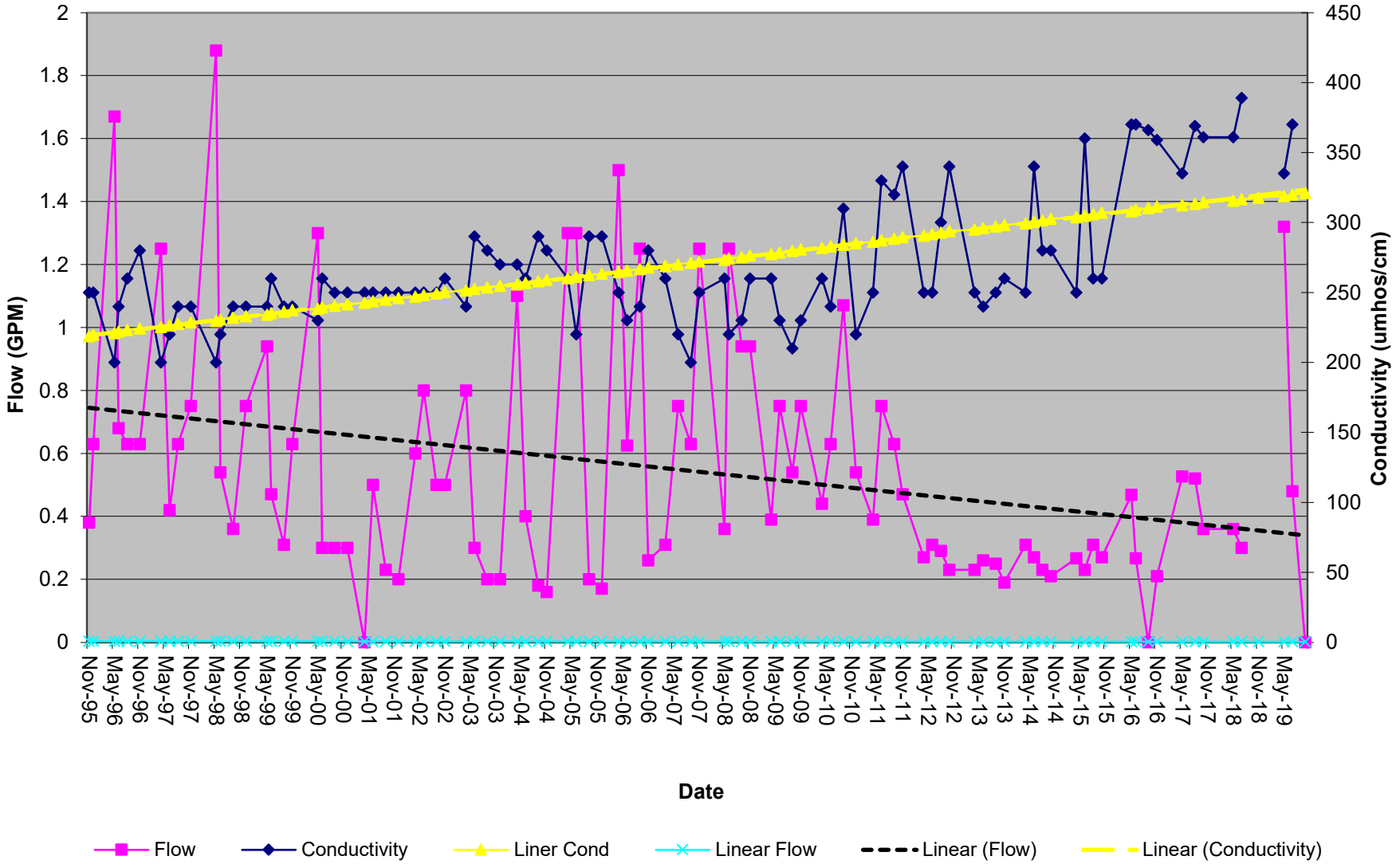
Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.30	0.72	1.88	0.00	0.51	1.50	Damp -	0.48	1.32
FieldComment								No visible flow		
ph	su	7.2	7.8	8.5	6.3	7.5	8.1		7.8	7.79
Conductivity	umhos/cm	200	239	280	200	279	389		370	335
Temperature	Celsius	2.4	7.4	14.2	4.3	6.6	15.0		7.80	6.1
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	146	146	146	204.9	204.9	204.9			
Chloride	mg/L	2	2	2	47.15	47.15	47.15			
Conductivity	umhos/cm	289	289	289	313	321	330			
Hardness	mg/L	125	125	125	131.95	131.95	131.95			
Nitrate-Nitrite	mg/L	0.16	0.16	0.16	0.31	0.31	0.31			
Oil and Grease	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
pH	su	7.30	7.30	7.30	7.1	7.3	7.5			
Phosphate	mg/L	0.08	0.08	0.08	<MDL	<MDL	<MDL			
ResidueFilterable-TDS	mg/L	200	200	200	196	226	263			
ResidueNonFilterable-TSS	mg/L	<MDL	<MDL	<MDL	2	27	48			
SAR		0.49	0.49	0.49	0.658	0.658	0.658			
Sulfate	mg/L	13	13	13	14.41	14.41	14.41			
Aluminum (TREC)	mg/L	0.88	0.88	0.88	0.023	0.023	0.023			
Arsenic (TREC)	mg/L	<MDL	<MDL	<MDL	0.005	0.005	0.005			
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL	0.006	0.006	0.006			
Calcium (TREC)	mg/L	43.10	43.10	43.10	44.4	44.4	44.4			
Copper (TREC)	mg/L	<MDL	<MDL	<MDL	0.002	0.002	0.002			
Iron (TREC)	mg/L	1.23	1.23	1.23	0.08	0.54	1.24			
Lead (TREC)	mg/L	<MDL	<MDL	<MDL	0.03	0.03	0.03			
Magnesium (TREC)	mg/L	4.30	4.30	4.30	5.12	5.12	5.12			
Manganese (TREC)	mg/L	0.02	0.02	0.02	0.01	0.02	0.03			
Mercury (TREC)	mg/L	<MDL	<MDL	<MDL	0.00008	0.00008	0.00008			
Molyebdenum (TREC)	mg/L	<MDL	<MDL	<MDL	0.007	0.007	0.007			
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL	0.008	0.008	0.008			
Sodium (TREC)	mg/L	12.5	12.5	12.5	17.6	17.6	17.6			
Zinc (TREC)	mg/L	0.03	0.03	0.03	0.006	0.006	0.006			

The monitoring point for S-4a is located along an unmarked road in an un-named gulch leading down from the broad ridge that separates Sheep Corral and Freeman Gulches from Terror Creek. This spring feeds P-4.

Baseline Information for Point S-4a is derived from events beginning on 11/9/95 through 1/15/01.
Point influenced by mining on 1/15/01.

Plot of Flow and Conductivity



S-4a - Terror Creek Spring 4a

Table 20

S-5
Sheep Corral - Spring 5
Elevation - 7800

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	12/1/2001	12/1/2001	12/1/2001
Date	10/22/2019	8/7/2019	5/16/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.27	0.80	0.00	0.20	1.88	0	0	0.95
FieldComment								Dry	Dry	
ph	su	7.2	7.6	8.1	7.1	7.4	8.4			8.38
Conductivity	umhos/cm	190	332	400	310	359	430			384
Temperature	Celsius	4.0	7.2	11.8	5.0	6.6	8.9			5.7
Lab Parameters	UNITS									
Bicarbonate	mg/L	188	191	193	203.5	203.5	203.5			
Chloride	mg/L	2	2	2	32.26	32.26	32.26			
Conductivity	umhos/cm	406	407	407	414	414	414			
Hardness	mg/L	113	118	123	132.93	132.93	132.93			
Nitrate-Nitrite	mg/L	<MDL	0.08	0.15	0.31	0.31	0.31			
Oil and Grease	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
pH	su	6.90	7.00	7.10	7.08	7.08	7.08			
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
ResidueFilterable-TDS	mg/L	220	225	230	268	268	268			
ResidueNonFilterable-TSS	mg/L	<MDL	14	28	6	6	6			
SAR		1.51	1.52	1.53	1.78	1.78	1.78			
Sulfate	mg/L	17	23	29	33.75	33.75	33.75			
Aluminum (TREC)	mg/L	<MDL	0.16	0.32	0.028	0.028	0.028			
Arsenic (TREC)	mg/L	<MDL	0.001	0.001	0.006	0.006	0.006			
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL	0.008	0.008	0.008			
Calcium (TREC)	mg/L	34.00	35.55	37.10	40.9	40.9	40.9			
Copper (TREC)	mg/L	<MDL	<MDL	<MDL	0.002	0.002	0.002			
Iron (TREC)	mg/L	<MDL	0.32	0.64	0.05	0.05	0.05			
Lead (TREC)	mg/L	<MDL	<MDL	<MDL	0.03	0.03	0.03			
Magnesium (TREC)	mg/L	6.70	7.00	7.30	7.48	7.48	7.48			
Manganese (TREC)	mg/L	0.017	0.027	0.037	0.003	0.003	0.003			
Mercury (TREC)	mg/L	<MDL	<MDL	<MDL	0.00006	0.00006	0.00006			
Molyebdenum (TREC)	mg/L	<MDL	<MDL	<MDL	0.011	0.011	0.011			
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL	0.012	0.012	0.012			
Sodium (TREC)	mg/L	36.50	37.45	38.40	47.8	47.8	47.8			
Zinc (TREC)	mg/L	<MDL	0.005	0.010	0.006	0.006	0.006			

The monitoring point location for S-5 is locate along an unmapped road which leads down an un-named gulch which leads into Sheep Corral Gulch. This spring feeds Pond 5.

Baseline Information for Point S-5 is derived from events beginning on 6/12/95 through 12/1/01.
Point influenced by mining on 12/1/01.

S-5a
Sheep Corral - Spring 5A
Elevation - 7860

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	12/1/2001	12/1/2001	12/1/2001
Date	10/4/2019	7/24/2019	5/16/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.13	0.89	4.30	0.00	0.27	3.00	0	0	2.2
FieldComment								Dry	Dry	
ph	su	6.9	7.4	8.0	7.0	7.3	8.3			7.43
Conductivity	umhos/cm	160	301	400	340	386	448			343
Temperature	Celsius	4.0	6.7	9.1	5.1	6.6	7.8			6.3
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	184.00	185.00	186.00						
Chloride	mg/L	2.00	2.00	2.00						
Conductivity	umhos/cm	388	391	393						
Hardness	mg/L	125.00	128.00	131.00						
Nitrate-Nitrite	mg/L	<MDL	0.03	0.05						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	6.90	7.40	7.90						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	190.00	205.00	220.00						
ResidueNonFilterable-TSS	mg/L	<MDL	17.00	34.00						
SAR		1.10	1.11	1.12						
Sulfate	mg/L	21.00	25.00	29.00						
Aluminum	mg/L	<MDL	0.34	0.69						
Arsenic	mg/L	<MDL	<MDL	<MDL						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	37.80	38.70	39.60						
Copper	mg/L	<MDL	<MDL	<MDL						
Iron (Total)	mg/L	0.02	0.48	0.95						
Lead	mg/L	<MDL	<MDL	<MDL						
Magnesium	mg/L	7.50	7.70	7.90						
Manganese (Total)	mg/L	<MDL	0.019	0.037						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	<MDL	<MDL	<MDL						
Sodium	mg/L	28.10	28.60	29.10						
Zinc	mg/L	0.02	0.02	0.02						

The monitoring point location for S-5a is located along an unmapped road which is down an un-named gulch which leads into Sheep Corral Gulch. This spring feeds Pond 5.

Baseline Information for Point S-5a is derived from events beginning on 9/27/95 through 12/1/01.
Point influenced by mining on 12/1/01.

S-5b
Sheep Corral - Spring 5B
Elevation - 7860

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	12/1/2001	12/1/2001	12/1/2001
Date	10/4/2019	7/24/2019	5/16/2019

Summary Information

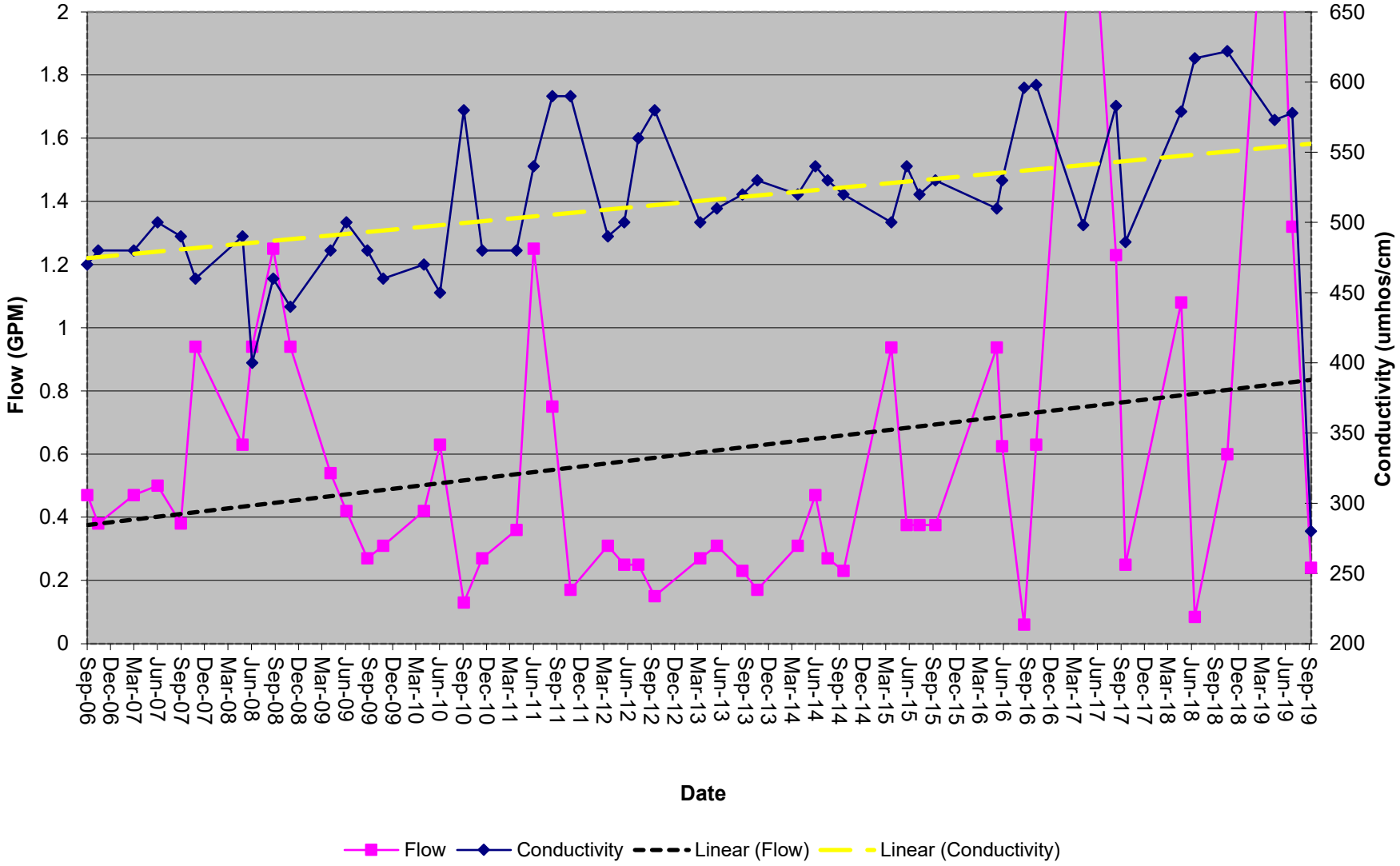
Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM				0.06	0.60	2.90	0.24	1.32	2.9
FieldComment										
ph	su				7.5	7.9	8.9	7.5	7.7	7.5
Conductivity	umhos/cm				400	520	622	580	578	573
Temperature	Celsius				4.6	8.0	12.8	8.4	7.9	6.9
Lab Parameters	UNITS									
Bicarbonate	mg/L				277.8	277.8	277.8			
Chloride	mg/L				22.33	22.33	22.33			
Conductivity	umhos/cm				541	562	580			
Hardness	mg/L				114.78	114.78	114.78			
Nitrate-Nitrite	mg/L				0.32	0.32	0.32			
Oil and Grease	mg/L				<MDL	<MDL	<MDL			
pH	su				7.30	7.54	7.77			
Phosphate	mg/L				<MDL	<MDL	<MDL			
ResidueFilterable-TDS	mg/L				312	353	406			
ResidueNonFilterable-TSS	mg/L				14	30	60			
SAR					3.62	3.62	3.62			
Sulfate	mg/L				41.98	41.98	41.98			
Aluminum (TREC)	mg/L				0.034	0.034	0.034			
Arsenic (TREC)	mg/L				0.055	0.055	0.055			
Cadmium (TREC)	mg/L				0.01	0.01	0.01			
Calcium (TREC)	mg/L				33.4	33.4	33.4			
Copper (TREC)	mg/L				0.01	0.01	0.01			
Iron (TREC)	mg/L				0.24	0.51	0.81			
Lead (TREC)	mg/L				0.02	0.02	0.02			
Magnesium (TREC)	mg/L				7.62	7.62	7.62			
Manganese (TREC)	mg/L				0.083	0.118	0.180			
Mercury (TREC)	mg/L				0.00004	0.00004	0.00004			
Molyebdenum (TREC)	mg/L				0.013	0.013	0.013			
Selenium (TREC)	mg/L				0.004	0.004	0.004			
Sodium (TREC)	mg/L				90.5	90.5	90.5			
Zinc (TREC)	mg/L				0.005	0.005	0.005			

The area of concern for monitoring point S-5b was affected by the mining operation before its establishment. Therefore, all recorded monitoring events are considered Operational.

The monitoring point location for S-5b is located along an unmapped road which is down an un-named gulch which leads into Sheep Corral Gulch. It is located across the draw from Springs 5 and 5a to the west.

There is no baseline information collection possible for points initiated after the influence of mining.

Plot of Flow and Conductivity



S-5b - Sheep Corral Spring 5b

Table 24

S-8
C Gulch - Spring 8
Elevation - 7220

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	11/1/2002	11/1/2002	11/1/2002
Date	10/22/2019	7/23/2019	5/13/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.08	2.50	0.00	0.00	0.00	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	6.90	6.90	6.90						
Conductivity	umhos/cm	1380	1380	1380						
Temperature	Celsius	13.70	13.70	13.70						
Lab Parameters	UNITS									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable-TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

The monitoring point for S-8 is located just above the mine portal road which crosses over the mine portals on the utility bench of the mi

Baseline Information for Point S-8 is derived from events beginning on 6/12/95 through 11/1/02.
Point influenced by mining on 11/1/02.

S-10
Stevens Draw - Spring 10
Elevation - 7550

Initiated	7/12/1995	7/12/1995	7/12/1995
Activated	11/1/2002	11/1/2002	11/1/2002
Date	10/22/2019	7/23/2019	5/13/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.17	2.50	0.00	0.00	0.00	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	8.40	8.50	8.60						
Conductivity	umhos/cm	620	640	660						
Temperature	Celsius	19.80	21.10	22.40						
Lab Parameters	UNITS									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable-TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

The monitoring point for S-10 is located along the Stevens Draw road and is located on the lower side of the road.

Baseline Information for Point S-10 is derived from events beginning on 7/12/95 through 11/1/02.
Point influenced by mining on 11/1/02.

S-11
Stevens Draw - Spring 11
Elevation - 7940

Initiated	7/12/1995	7/12/1995	7/12/1995
Activated	1/15/2001	1/15/2001	1/15/2001
Date	10/22/2019	7/23/2019	5/13/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.00	0.00	0.00	0.07	4.00	0	0	0
FieldComment								Dry	Dry	Dry
ph	su				7.6	7.6	7.6			
Conductivity	umhos/cm				160	160	160			
Temperature	Celsius				7.7	7.7	7.7			
Lab Parameters	UNITS									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable -TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

The monitoring point for S-11 is located along the Stevens Draw road and is located on the lower side of the road.

Baseline Information for Point S-11 is derived from events beginning on 7/12/95 through 1/15/01.
Point influenced by mining on 1/15/01.

S-12
B Gulch - Spring 12
Elevation - 7650

Initiated	7/12/1995	7/12/1995	7/12/1995
Activated	7/1/2004	7/1/2004	7/1/2004
Date	10/22/2019	7/23/2019	5/13/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
FieldComment								Dry	Dry	Dry
ph	su									
Conductivity	umhos/cm									
Temperature	Celsius									
Lab Parameters	**UNITS**									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable-TDS	mg/L									
ResidueNonFilterable -TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

The monitoring point for S-12 is located along a switchback road that ascends the southern facing exposure of the canyon wall of the Nor Fork of the Gunnison River. The road leads to the broad ridge which separates the Hubbard Creek and Terror Creek drainage systems.

Baseline Information for Point S-12 is derived from events beginning on 7/12/95 through 7/1/04.
Point Influenced by mining on 7/1/04.

S-13
Freeman Gulch - Spring 13
Elevation - 7500

Initiated	9/27/1995	9/27/1995	9/27/1995
Activated	11/18/1999	11/18/1999	11/18/1999
Date	10/22/2019	7/23/2019	5/13/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.01	0.27	0.00	0.01	0.94	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	8.2	8.2	8.2						
Conductivity	umhos/cm	300	300	300						
Temperature	Celsius	10.0	10.0	10.0						
Lab Parameters	UNITS									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable-TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

The monitoring point for S-13 is located along an old coal exploration road which eventually reaches Drillhole 13. This spring is located on the northern facing slopes of Freeman Gulch.

Baseline Information for Point S-13 is derived from events beginning on 9/27/95 through 11/18/99.
Point influenced by mining on 11/18/99.

S-14
Stevens Draw - Spring 14
Elevation - 7100

Initiated	9/27/1995	9/27/1995	9/27/1995
Activated			
Date	10/22/2019	7/23/2019	5/14/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.14	1.50				0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.6	8.1	8.6						
Conductivity	umhos/cm	1020	1124	1300						
Temperature	Celsius	3.1	11.2	22.2						
Lab Parameters	UNITS									
Bicarbonate	mg/L	472	472	472						
Chloride	mg/L	16	16	16						
Conductivity	umhos/cm	1220	1220	1220						
Hardness	mg/L	414	414	414						
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	7.2	7.2	7.2						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable -TDS	mg/L	780	780	780						
ResidueNonFilterable-TSS	mg/L	22	22	22						
SAR		2.55	2.55	2.55						
Sulfate	mg/L	209.0	209.0	209.0						
Aluminum	mg/L	0.24	0.24	0.24						
Arsenic	mg/L	0.002	0.002	0.002						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	80.1	80.1	80.1						
Copper	mg/L	<MDL	<MDL	<MDL						
Iron (Total)	mg/L	1.68	1.68	1.68						
Lead	mg/L	<MDL	<MDL	<MDL						
Magnesium	mg/L	51.9	51.9	51.9						
Manganese (Total)	mg/L	0.184	0.184	0.184						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	<MDL	<MDL	<MDL						
Sodium	mg/L	118	118	118						
Zinc	mg/L	<MDL	<MDL	<MDL						

The area of concern for monitoring point S-14 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

The monitoring point for S-14 is located on a fork of the Stevens Draw road just above Pond 1. Spring seeps from the east bank of drainage along about 100' sections. (Hanna, 1995)

Baseline Information Collection initiated on 9/27/95 and not yet considered complete.
Point S-14 has not been influenced by mining.

S-16
Terror Creek - Spring 16
Elevation - 7750

Initiated	10/11/1995	10/11/1995	10/11/1995
Activated	1/15/2001	1/15/2001	1/15/2001
Date	10/1/2019	7/24/2019	5/16/2019

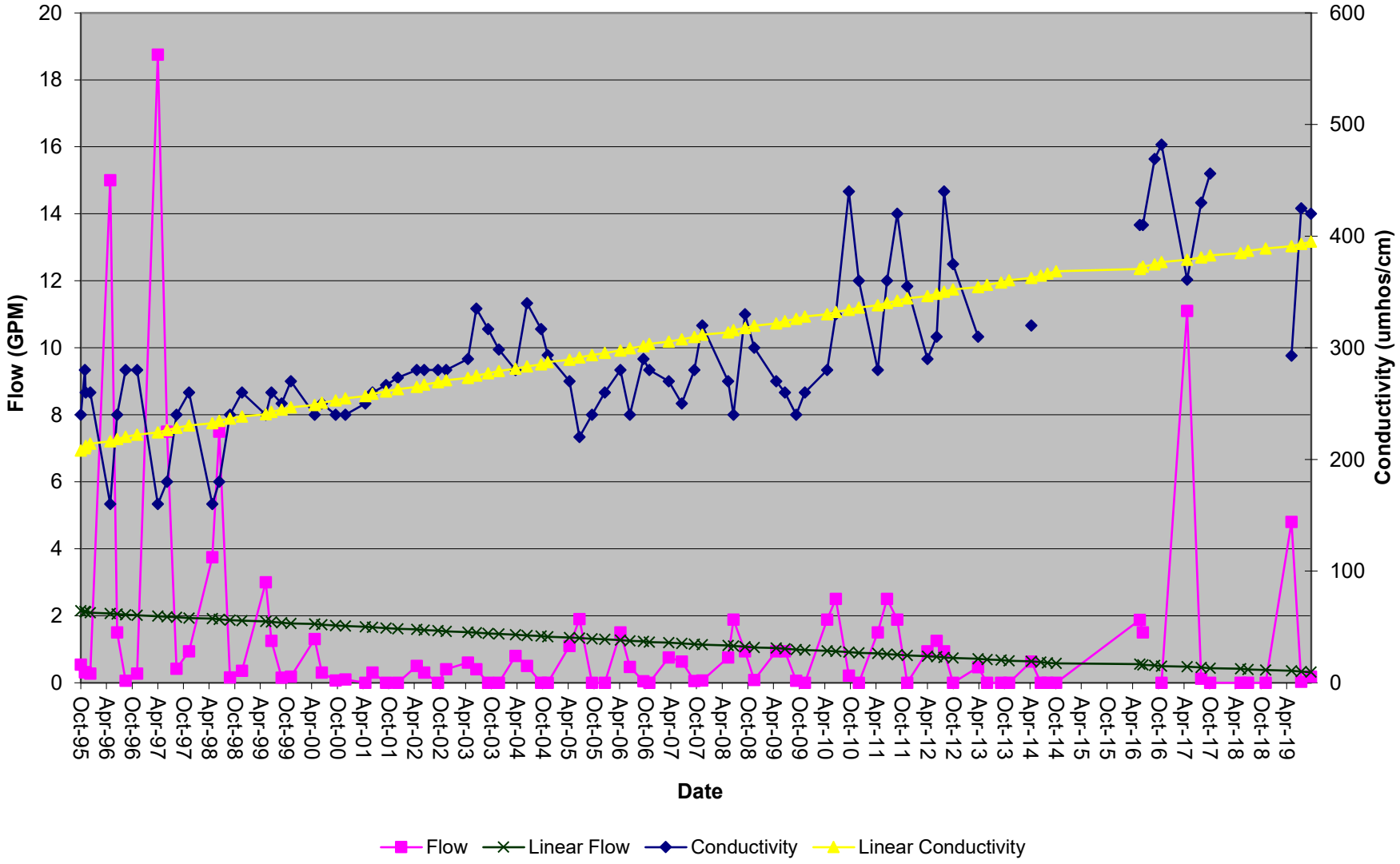
Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.06	2.67	18.75	0.00	0.77	11.10	0.18	0.03	4.8
FieldComment										
ph	su	6.9	7.2	7.6	6.7	7.4	7.9	6.73	7.61	7.44
Conductivity	umhos/cm	160	236	280	220	325	482	420	425	293
Temperature	Celsius	4.5	7.0	12.0	5.2	6.9	9.3	8.6	7.4	5.3
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	107	129	159	140.0	170.6	193.8			140
Chloride	mg/L	<MDL	2	5	1.70	13.57	37.22			1.8
Conductivity	umhos/cm	230	260	296	242	353	449			242
Hardness	mg/L	59	93	114	76.80	103.17	117.72			76.8
Nitrate-Nitrite	mg/L	<MDL	0.10	0.24	<MDL	0.31	0.31			<MDL
Oil and Grease	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			<MDL
pH	su	6.4	6.9	7.5	6.69	7.06	7.63			7.63
Phosphate	mg/L	<MDL	0.07	0.33	<MDL	<MDL	<MDL			0.017
ResidueFilterable-TDS	mg/L	140	164	190	169	223	284			169
ResidueNonFilterable-TSS	mg/L	<MDL	2	8	2	13	31			31
SAR		0.60	0.70	0.75	1.30	1.35	1.42			1.3
Sulfate	mg/L	<MDL	3.4	12.0	18.30	25.53	38.69			18.3
Aluminum (TREC)	mg/L	0.03	0.07	0.17	0.017	0.098	0.179			0.179
Arsenic (TREC)	mg/L	<MDL	<MDL	<MDL	0.005	0.005	0.005			<MDL
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL	0.007	0.007	0.007			<MDL
Calcium (TREC)	mg/L	18.2	28.7	35.1	23.5	31.7	35.9			23.5
Copper (TREC)	mg/L	<MDL	0.002	0.010	<MDL	0.003	0.003			<MDL
Iron (TREC)	mg/L	0.03	0.15	0.49	0.02	0.18	0.42			0.174
Lead (TREC)	mg/L	<MDL	<MDL	<MDL	0.02	0.02	0.02			<MDL
Magnesium (TREC)	mg/L	3.2	5.3	6.5	<MDL	5.81	6.94			4.39
Manganese (TREC)	mg/L	<MDL	0.005	0.017	<MDL	0.013	0.030			0.0094
Mercury (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.0001	0.0001			<MDL
Molyebdenum (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.009	0.009			<MDL
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.002	0.002			<MDL
Sodium (TREC)	mg/L	10.5	15.4	18.2	23.9	31.0	36.1			23.9
Zinc (TREC)	mg/L	<MDL	0.01	0.02	<MDL	0.007	0.007			<MDL

The monitoring point for S-16 is located on an un-mapped road in an un-named gulch which discharges eventually into Terror Creek. The flow from S-16 contributes to Pond 3, which is just below it.

Baseline Information for Point S-16 is derived from events beginning on 10/11/95 through 1/15/02.
Point influenced by mining on 1/15/01.

Plot of Flow and Conductivity



S-16 - Terror Creek Spring 16

Table 32

S-17
Freeman Gulch - Spring 17
Elevation - 7110

Initiated	5/9/1996	5/9/1996	5/9/1996
Activated	12/7/2000	12/7/2000	12/7/2000
Date	10/5/2019	7/23/2019	6/10/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	2.11	20.00	0.00	0.00	0.00	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	8.40	8.61	8.80						
Conductivity	umhos/cm	480.00	532.50	580.00						
Temperature	Celsius	8.40	16.33	25.00						
Lab Parameters	UNITS									
Bicarbonate	mg/L	266.00	280.25	298.00						
Chloride	mg/L	2.00	2.50	3.00						
Conductivity	umhos/cm	511.00	538.25	586.00						
Hardness	mg/L	177.00	200.00	216.00						
Nitrate-Nitrite	mg/L	<MDL	0.02	0.04						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	8.10	8.25	8.40						
Phosphate	mg/L	<MDL	0.01	0.03						
ResidueFilterable-TDS	mg/L	300.00	342.50	380.00						
ResidueNonFilterable-TSS	mg/L	<MDL	72.00	134.00						
SAR		1.15	1.50	2.08						
Sulfate	mg/L	20.00	27.50	30.00						
Aluminum	mg/L	0.10	2.52	5.42						
Arsenic	mg/L	<MDL	0.001	0.005						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	42.00	50.33	55.00						
Copper	mg/L	<MDL	0.003	0.01						
Iron (Total)	mg/L	0.10	2.80	6.08						
Lead	mg/L	<MDL	0.01	0.02						
Magnesium	mg/L	17.50	18.05	19.00						
Manganese (Total)	mg/L	<MDL	0.04	0.09						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	<MDL	0.0003	0.001						
Sodium	mg/L	38.30	47.70	62.70						
Zinc	mg/L	<MDL	0.02	0.04						

Baseline Closed at end of 2000 Monitoring Season

The monitoring point location for S-17 is located on the southern facing slopes of Freeman Gulch and is accessed by foot from trails that originate on the Hubbard Creek Road.

Baseline Information for Point S-17 is derived from events beginning on 5/9/96 through 12/7/00.
Point influenced by mining on 12/7/00.

S-18
Terror Creek - Spring 18
Elevation - 7750

Initiated	6/28/1999	6/28/1999
Activated		
Date	10/1/2019	5/16/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max		
Flow	GPM	0.00	0.73	5.00				0.104	1.26
FieldComment									
ph	su	6.7	8.0	10.2				7.8	7.96
Conductivity	umhos/cm	220	379	670				290	445
Temperature	Celsius	2.9	10.4	17.8				2.9	7.5
Lab Parameters	UNITS								
Bicarbonate	mg/L	167.7	248.2	401.0					
Chloride	mg/L	<MDL	<MDL	<MDL					
Conductivity	umhos/cm	331.1	426.0	600.0					
Hardness	mg/L	115.9	165.6	266.0					
Nitrate-Nitrite	mg/L	<MDL	1.09	2.13					
Oil and Grease	mg/L	<MDL	<MDL	<MDL					
pH	su	6.52	7.72	8.33					
Phosphate	mg/L	<MDL	<MDL	<MDL					
ResidueFilterable-TDS	mg/L	117.5	229.6	377.0					
ResidueNonFilterable-TSS	mg/L	1	22	64					
SAR		1.35	1.49	1.68					
Sulfate	mg/L	14.41	21.34	25.73					
Aluminum	mg/L	<MDL	0.86	1.59					
Arsenic	mg/L	<MDL	0.008	0.010					
Cadmium	mg/L	<MDL	0.002	0.002					
Calcium	mg/L	30.0	43.7	66.8					
Copper	mg/L	<MDL	<MDL	<MDL					
Iron (Total)	mg/L	0.023	0.750	1.800					
Lead	mg/L	<MDL	0.01	0.01					
Magnesium	mg/L	8.92	13.76	24.20					
Manganese (Total)	mg/L	<MDL	0.02	0.02					
Mercury	mg/L	<MDL	0.00004	0.00004					
Molyebdenum	mg/L	<MDL	<MDL	<MDL					
Selenium	mg/L	<MDL	0.070	0.086					
Sodium	mg/L	36.0	44.0	53.8					
Zinc	mg/L	0.01	0.02	0.03					

The area of concern for monitoring point S-18 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

The monitoring point for S-18 is located on an unmapped road in an un-named gulch which discharges eventually into Terro flow from S-18 contributes to Pond 6, which is just below it.

Baseline Information Collection initiated on 6/28/99 and not yet considered complete.
Point S-18 has not been influenced by mining.

S2-2
Hubbard Creek - Spring 2-2
Elevation - 6740

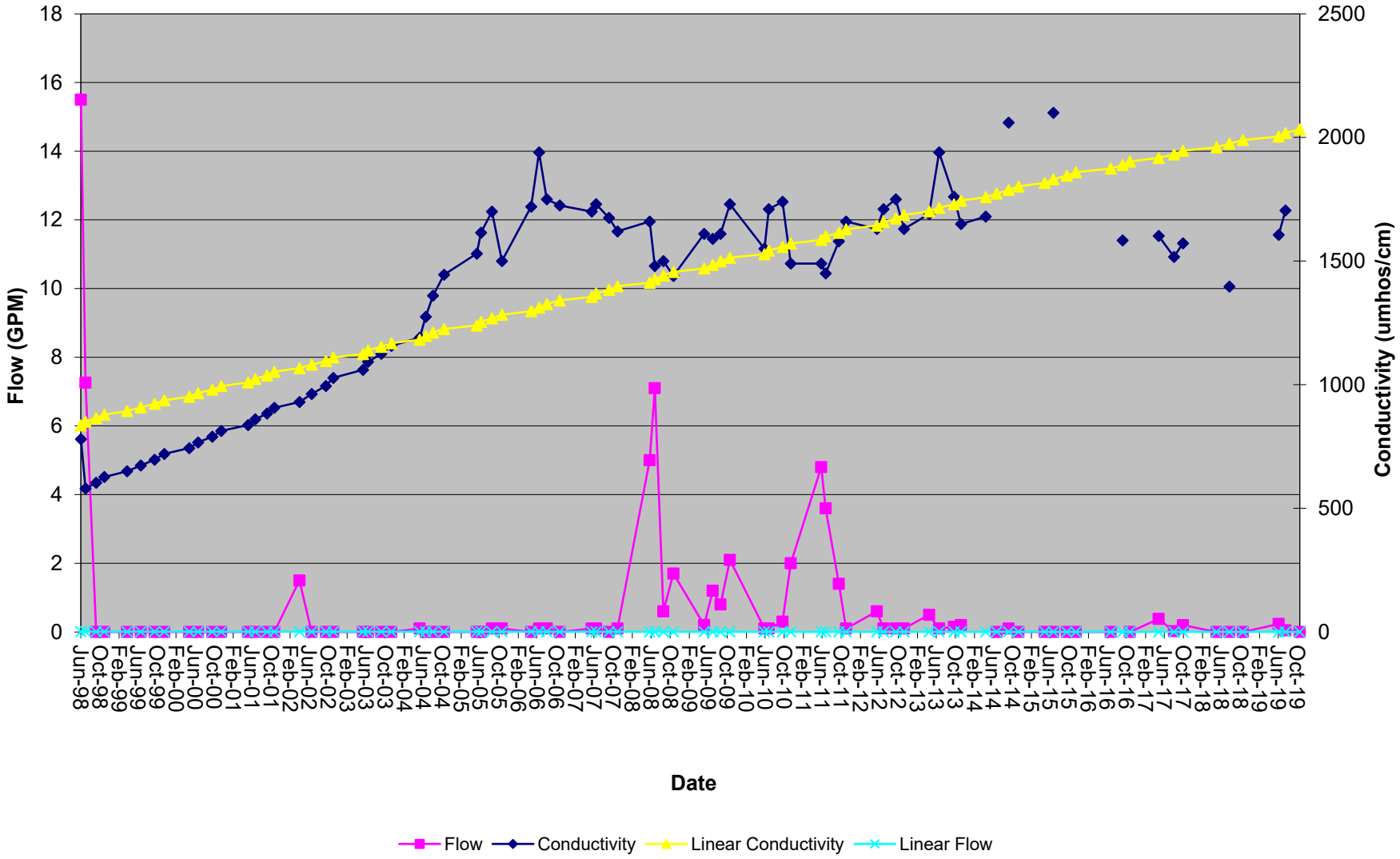
Initiated	6/9/1998	6/9/1998	6/9/1998
Activated	9/15/2001	9/15/2001	9/15/2001
Date	10/23/2019	7/24/2019	6/11/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	1.5	15.5	0.0	0.6	7.1	0	0.048	0.234
FieldComment								Dry	Rocksllide	
ph	su	6.9	7.5	8.0	7.4	8.6	9.3		7.8	7.43
Conductivity	umhos/cm	580	680	780	930	1626	2100		1705	1606
Temperature	Celsius	11.5	12.3	13.2	0.1	14.5	26.3		14.1	10.8
Lab Parameters	UNITS									
Bicarbonate	mg/L	339	350	361	489.6	536.9	584.2			
Carbonate	mg/L	<MDL	<MDL	<MDL	15.6	19.5	23.4			
Chloride	mg/L	2	3	3	<MDL	2.5	2.5			
Conductivity	umhos/cm	685	702	718	1042.2	1142.9	1243.7			
Hardness	mg/L	208	212	215	132.5	144.6	156.7			
Nitrate-Nitrite	mg/L	0.07	0.09	0.12	<MDL	<MDL	<MDL			
Oil and Grease	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
pH	su	7.7	7.8	7.8	8.5	8.7	8.8			
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
ResidueFilterable-TDS	mg/L	390.0	420.0	450.0	941	964	987			
ResidueNonFilterable-TSS	mg/L	38.0	49.0	60.0	130	252	374			
SAR		<MDL	<MDL	<MDL	8.6	10.4	12.3			
Sulfate	mg/L	40.0	40.0	40.0	179.5	199.0	218.6			
Aluminum	mg/L	1.94	2.15	2.36	0.19	0.48	0.77			
Arsenic	mg/L	<MDL	<MDL	<MDL	0.077	0.092	0.107			
Cadmium	mg/L	<MDL	<MDL	<MDL	0.010	0.011	0.012			
Calcium	mg/L	51.5	52.5	53.6	24.70	27.91	31.11			
Copper	mg/L	<MDL	<MDL	<MDL	<MDL	0.013	0.013			
Iron (Total)	mg/L	1.56	1.90	2.25	0.375	1.948	3.520			
Lead	mg/L	<MDL	<MDL	<MDL	<MDL	0.06	0.06			
Magnesium	mg/L	19.4	19.6	19.8	17.19	18.19	19.18			
Manganese (Total)	mg/L	0.017	0.021	0.024	0.012	0.023	0.034			
Mercury	mg/L	<MDL	<MDL	<MDL	0.0001	0.0002	0.0003			
Molyebdenum	mg/L	<MDL	<MDL	<MDL	<MDL	0.005	0.005			
Selenium	mg/L	<MDL	<MDL	<MDL	0.005	0.076	0.146			
Sodium	mg/L	69.4	78.6	87.8	247.8	273.4	299.0			
Zinc	mg/L	0.02	0.02	0.02	0.02	0.03	0.03			

Baseline Information for Point S2-2 is derived from events beginning on 6/9/98 through 9/15/2001.
Point influenced by mining on 9/15/01.

Plot of Flow and Conductivity



S2-2 - Hubbard Creek Spring 2-2

Table 36

S2-3
Hubbard Creek - Spring 2-3
Elevation - 6740

Initiated	6/9/1998	6/9/1998	6/9/1998
Activated	9/24/1999	9/24/1999	9/24/1999
Date	10/29/2019	7/23/2019	6/10/2019

Summary Information

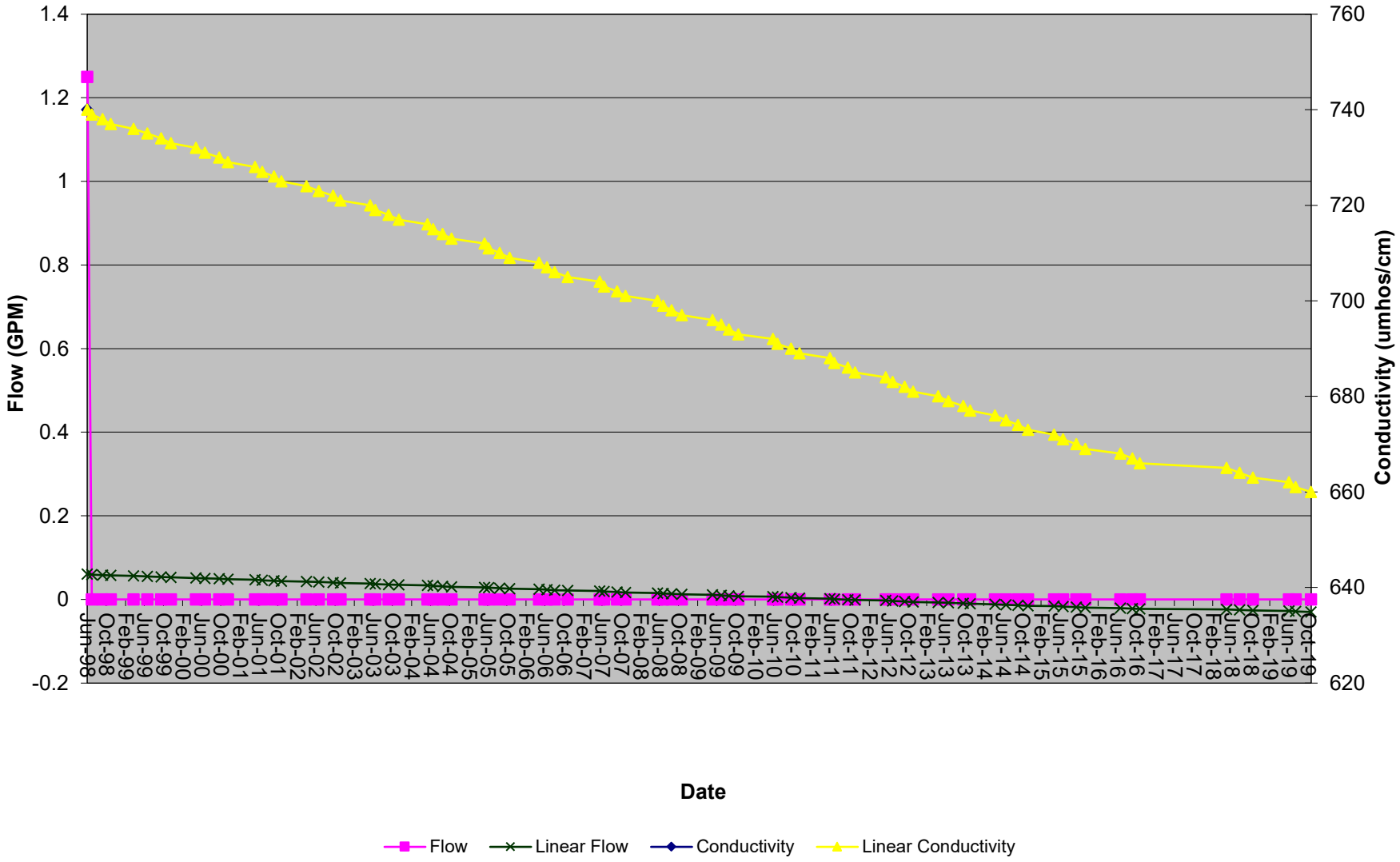
Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	0.2	1.3	0.0	0.00	0.00	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.8	7.8	7.8						
Conductivity	umhos/cm	740	740	740						
Temperature	Celsius	12.1	12.1	12.1						
Lab Parameters	**UNITS**									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable -TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

Influenced by the disturbance of Freeman Gulch

The monitoring point for S2-3 is located along the same old coal exploration road used to access S2-2. It is located near the bottom of Freeman Gulch, along the upper edge of the road.

Baseline Information for Point S2-3 is derived from events beginning on 6/9/98 through 9/24/99.
Point influenced by mining on 9/24/99.

Plot of Flow and Conductivity



S2-3 - Hubbard Creek Spring 2-3

Table 38

S2-9
Hubbard Creek - Spring 2-9
Elevation - 6320'

Initiated	4/1/1999	4/1/1999	4/1/1999
Activated	9/24/1999	9/24/1999	9/24/1999
Date	10/22/2019	7/23/2019	6/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	1.3	3.8	0.0	0.00	0.00	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.5	7.5	7.5						
Conductivity	umhos/cm	1340	1340	1340						
Temperature	Celsius	4.6	4.6	4.6						
Lab Parameters	**UNITS**									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
Residue Filterable-TDS	mg/L									
Residue NonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

The monitoring point for S2-9 is found along the Hubbard Creek road near the mouth of Freeman Gulch. The flow and field parameters are measured at the outlet end of a 24" culvert that directs this runoff from this spring into Hubbard Creek.

Baseline Information for Point S2-9 is derived from events beginning on 4/1/99 through 9/24/99.
Point influenced by mining on 9/24/99.

S2 - 10
Hubbard Creek - Spring 2-10
Elevation - 6320'

Initiated	4/1/1999	4/1/1999	4/1/1999
Activated	9/24/1999	9/24/1999	9/24/1999
Date	10/22/2019	7/23/2019	6/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	0.9	3.6	0.0	0.1	4.2	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.4	7.4	7.4	8.0	8.6	10.2			
Conductivity	umhos/cm	840	840	840	940	1294	1670			
Temperature	Celsius	4.9	4.9	4.9	4.0	17.2	24.6			
Lab Parameters	UNITS									
Bicarbonate	mg/L				570.7	570.7	570.7			
Chloride	mg/L				<MDL	<MDL	<MDL			
Conductivity	umhos/cm				1048.5	1048.5	1048.5			
Hardness	mg/L				375.48	375.48	375.48			
Nitrate-Nitrite	mg/L				<MDL	<MDL	<MDL			
Oil and Grease	mg/L				11.39	11.39	11.39			
pH	su				8.34	8.34	8.34			
Phosphate	mg/L				<MDL	<MDL	<MDL			
Residue Filterable-TDS	mg/L				1052	1052	1052			
Residue NonFilterable-TSS	mg/L				15	15	15			
SAR					0.29	0.29	0.29			
Sulfate	mg/L				205.39	205.39	205.39			
Aluminum	mg/L				0.25	0.25	0.25			
Arsenic	mg/L				0.0066	0.0066	0.0066			
Cadmium	mg/L				<MDL	<MDL	<MDL			
Calcium	mg/L				53.4	53.4	53.4			
Copper	mg/L				0.06	0.06	0.06			
Iron (Total)	mg/L				0.51	0.51	0.51			
Lead	mg/L				0.08	0.08	0.08			
Magnesium	mg/L				58.8	58.8	58.8			
Manganese (Total)	mg/L				0.03	0.03	0.03			
Mercury	mg/L				0.0002	0.0002	0.0002			
Molyebdenum	mg/L				<MDL	<MDL	<MDL			
Selenium	mg/L				0.0068	0.0068	0.0068			
Sodium	mg/L				12.94	12.94	12.94			
Zinc	mg/L				0.055	0.055	0.055			

Influenced by the disturbance of Freeman Gulch.

The monitoring point for S2-10 is found along the Hubbard Creek road near the mouth of Freeman Gulch. The flow and field parameters are measured where the flow crosses the Hubbard Creek road, just before it enters Hubbard Creek.

Baseline information for Point S2-10 is derived from events beginning on 4/1/99 through 11/25/99.
Point influenced by mining on 11/25/99.

S3-1
Sheep Corral - Spring 3-1
Elevation - 6840

Initiated	5/21/2003	5/21/2003	5/21/2003
Activated	5/21/2003	5/21/2003	5/21/2003
Date	10/29/2019	7/14/2019	6/11/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM				0.00	0.66	6.34			1.74
FieldComment								Dry	Dry	
ph	su				6.8	8.0	8.6			6.79
Conductivity	umhos/cm				968	1237	1520			970
Temperature	Celsius				4.1	10.5	19.5			6.7
Lab Parameters	UNITS									
Bicarbonate	mg/L				489.0	489.0	489.0			
Chloride	mg/L				3.0	3.0	3.0			
Conductivity	umhos/cm				845.0	845.0	845.0			
Hardness	mg/L				326.0	326.0	326.0			
Nitrate-Nitrite	mg/L				0.2	0.2	0.2			
Oil and Grease	mg/L				0.0	<MDL	0.0			
pH	su				7.8	7.8	7.8			
Phosphate	mg/L				0.0	<MDL	0.0			
Residue Filterable-TDS	mg/L				557.0	557.0	557.0			
Residue NonFilterable-TSS	mg/L				0.0	<MDL	0.0			
SAR					2.2	2.2	2.2			
Sulfate	mg/L				96.3	96.3	96.3			
Aluminum	mg/L				0.0	<MDL	0.0			
Arsenic	mg/L				0.0	<MDL	0.0			
Cadmium	mg/L				0.0	0.0	0.0			
Calcium	mg/L				83.3	83.3	83.3			
Copper	mg/L				0.0	<MDL	0.0			
Iron (Total)	mg/L				0.0	<MDL	0.0			
Lead	mg/L				0.0	<MDL	0.0			
Magnesium	mg/L				28.6	28.6	28.6			
Manganese (Total)	mg/L				0.0	<MDL	0.0			
Mercury	mg/L				0.0	<MDL	0.0			
Molyebdenum	mg/L				0.0	0.0	0.0			
Selenium	mg/L				0.1	0.1	0.1			
Sodium	mg/L				108.0	108.0	108.0			
Zinc	mg/L				0.0	<MDL	0.0			

The area of concern for monitoring point S3-1 was affected by the mining operation before its establishment. Therefore, all recorded monitoring events are considered Operational.

There is no baseline collection possible for points initiated after the influence of mining.

S5-2
Powerline Seep - Spring 5-2
Elevation - 7200

Initiated	10/29/2012	10/29/2012	10/29/2012
Activated			
Date	10/22/2019	8/7/2019	5/14/2019

Summary Information

Field		Baseline			Operation					
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	GPM	0.34	0.34	0.34				Dry	Dry	Dry
Temperature	Celsius	9.2	9.2	9.2						
Conductivity	umhos/cm	850	850	850						
pH	su	7.6	7.6	7.6						
Field Comments										
Lab										

The area of concern for monitoring point S5-2 has not been affected by the mining operation. Therefore, all record monitoring events are considered Baseline.

S6-6
Terror Creek - Spring 6-6
Elevation - 7860

Initiated	7/19/1983	7/19/1983	7/19/1983
Activated	7/22/2012	7/22/2012	7/22/2012
Date	11/19/2019	8/7/2019	5/14/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.12	3.10				0	0	0
Temperature	Celsius	15.8	18.3	21.1						
Conductivity	umhos/cm	239	298	432						
pH	su	7.8	8.3	8.7						
Field Comments								Dry	Dry	Dry
Lab Parameters	UNITS									
Bicarbonate	mg/L	117.1	117.1	117.1						
Carbonate	mg/L									
Chloride	mg/L	1	1	1						
Conductivity	umhos/cm	235	235	235						
Hardness	mg/L	95	95	95						
pH	su	7.9	7.9	7.9						
Residue Filterable-TDS	mg/L	132	132	132						
ResidueNon Filterable-TSS	mg/L	32	32	32						
SAR		0.71	0.71	0.71						
Sulfate	mg/L	10	10	10						
Calcium (Dissolved)	mg/L	25	25	25						
Magnesium (Total)	mg/L	8	8	8						
Sodium (Dissolved)	mg/L	16	16	16						
Potassium	mg/L									
TDS Ratio (grav./calc.)										

The area of concern for monitoring point S6-6 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Baseline Information Collection initiated on 7/5/83 and not yet considered complete.
Point S6-6 has not been influenced by mining.

S7-4
Steven's Gulch - Spring 7-4
Elevation - 7780

Initiated	7/19/1983	7/19/1983	7/19/1983
Activated			
Date	10/8/2019	8/7/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	1.80	11.13						0.05
Temperature	Celsius	8.1	12.1	24.3						7.81
Conductivity	umhos/cm	250	336	530						420
pH	su	6.6	7.5	8.2						7.3
Field Comments								Dry	Dry	
Lab Parameters	UNITS									
Bicarbonate	mg/L	40.9	155.3	225.7						
Chloride	mg/L	<MDL	7.58	22.33						
Conductivity	umhos/cm	226	286	353						
Hardness	mg/L	124.53	149.11	184.00						
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	6.6	7.4	8.2						
Phosphate	mg/L	<MDL	<MDL	<MDL						
Residue Filterable-TDS	mg/L	172	218	305						
ResidueNon Filterable-TSS	mg/L	11	35	52						
SAR		0.25	0.77	2.63						
Sulfate	mg/L	<MDL	8.71	14.82						
Aluminum (TREC)	mg/L	<MDL	0.024	0.024						
Arsenic (TREC)	mg/L	<MDL	0.026	0.026						
Cadmium (TREC)	mg/L	<MDL	0.02	0.02						
Calcium (TREC)	mg/L	25.30	25.30	25.30						
Copper (TREC)	mg/L	0.01	0.01	0.01						
Iron (TREC)	mg/L	0.35	0.47	0.58						
Lead (TREC)	mg/L	0.04	0.04	0.04						
Magnesium (TREC)	mg/L	13.0	15.0	18.0						
Manganese (TREC)	mg/L	0.01	0.01	0.01						
Mercury (TREC)	mg/L	<MDL	0.00007	0.00007						
Molybdenum (TREC)	mg/L	<MDL	0.002	0.002						
Selenium (TREC)	mg/L	<MDL	0.018	0.018						
Sodium (TREC)	mg/L	12.99	12.99	12.99						
Zinc (TREC)	mg/L	<MDL	0.01	0.01						

The area of concern for monitoring point S7-4 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Baseline Information Collection initiated on 7/1/83 and net yet considered complete.
Point S7-4 has not been influenced by mining.

S7-9
Terror Creek - Spring 7-9
Elevation - 7800

Initiated	7/19/1983	7/19/1983	7/19/1983
Activated	7/22/2012	7/22/2012	7/22/2012
Date	11/19/2019	8/17/2019	5/14/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.01	0.27	0.00	0.00	0.00			
Temperature	Celsius	8.6	11.3	15.2						
Conductivity	umhos/cm	271	614	791						
pH	su	7.0	7.5	8.0						
Field Comments								Dry	Dry	Damp
Lab Parameters	UNITS									
Bicarbonate	mg/L	139.1	326.2	427.0						
Carbonate	mg/L									
Chloride	mg/L	1.0	5.7	11.0						
Conductivity	umhos/cm	259.0	522.3	678.0						
Hardness	mg/L	104.0	264.3	347.0						
pH	su	6.7	7.5	8.0						
Residue Filterable-TDS	mg/L	144.0	327.0	425.0						
ResidueNon Filterable-TSS	mg/L	94.0	129.3	170.0						
SAR		0.1	0.6	0.9						
Sulfate	mg/L	4.0	26.0	43.0						
Calcium (Dissolved)	mg/L	30.0	68.0	88.0						
Magnesium (Total)	mg/L	7.0	23.0	31.0						
Sodium (Dissolved)	mg/L	3.0	24.7	38.0						
Potassium	mg/L									
TDS Ratio (grav./calc.)										

The monitoring point for Spring 7-9 is located on an east facing slope that drains down toward Terror Creek.

Baseline Information is derived from monitoring events beginning on 7/19/83 through 7/22/2012.
Point S7-9 influenced by mining on 7/22/12.

S7-10
Terror Creek - Spring 7-10
Elevation - 7880

Initiated	8/1/1983	8/1/1983	8/1/1983
Activated	12/31/2013	12/31/2013	12/31/2013
Date	11/19/2019	8/7/2019	6/18/2019

		Summary Information								
Field		Baseline			Operation					
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	GPM	0.00	1.56	18.75	0.00	1.34	3.75	0.06	0.13	0.24
Temperature	Celsius	1.6	7.81	21.7	6.40	7.67	10.30	7.2	9.1	7.3
Conductivity	umhos/cm	190	480	660	420.00	593.59	686.00	651	600	590
pH	su	7.0	7.6	8.4	6.58	7.41	7.93	7.15	7.72	6.58
Field Comments										
Lab										
Parameters	UNITS									
Bicarbonate	mg/L	142.00	259.51	384.00	241.77	296.89	352.00			
Chloride	mg/L	<MDL	6.8	54.6	4.6	7.8	10.9			
Conductivity	umhos/cm	292	487	722	542	561	580			
Hardness	mg/L	3.00	203.62	258.00	214.04	220.02	226.00			
Nitrate-Nitrite	mg/L	0.3	0.3	0.31	<MDL					
Oil & Grease	mg/L	<MDL	<MDL	<MDL	<MDL					
pH	su	6.76	7.58	8.59	7.08	7.22	7.35			
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL					
Residue Filterable-TDS	mg/L	190	319	476	358	394	430			
Residue NonFilterable-TSS	mg/L	<MDL	57	272	14	14	14			
SAR		0.470	0.920	3.959	1.610	2.785	3.959			
Sulfate	mg/L	0.4	22.0	49.8	35.9	42.9	49.8			
Aluminum (TREC)	mg/L	0.023	0.023	0.110	0.110	0.110	0.110			
Arsenic (TREC)	mg/L	0.0100	0.0100	0.0100	0.0010	0.0010	0.0010			
Cadmium (TREC)	mg/L	0.020	0.020	0.020	0.002	0.002	0.002			
Calcium (TREC)	mg/L	36.1	36.1	54.9	43.5	49.2	54.90			
Copper (TREC)	mg/L	0.0010	0.0010	0.0120	0.0120	0.0120	0.0120			
Iron (TREC)	mg/L	0.06	0.22	0.49	0.02	0.17	0.31			
Magnesium (TREC)	mg/L	24.70	24.70	25.60	21.50	23.55	25.60			
Manganese (TREC)	mg/L	<MDL	0.0123	0.0260	0.0260	0.0260	0.03			
Mercury (TREC)	mg/L	0.0000	0.0000	0.0000	0.00002	0.00002	0.00002			
Molybdenum (TREC)	mg/L	0.003	0.003	0.003	0.001	0.001	0.001			
Selenium (TREC)	mg/L	0.023	0.023	0.023	0.003	0.003	0.003			
Sodium (TREC)	mg/L	32.3	32.3	133.1	55.8	94.5	133.1			
Zinc (TREC)	mg/L	0.006	0.006	0.011	0.011	0.011	0.011			

This spring consists of a small 2' x 5' area of exposed rocks. Spring water bubbles up through the rocks. (Hanna, 99)

Activated December 31, 2013

Baseline Information Collection initiated on 8/1/83.
Point S7-10 was influenced by mining 12/31/2013.

S8-5
Terror Creek - Spring 8-5
Elevation - 7800

Initiated	7/19/1983	7/19/1983	7/19/1983
Activated	7/15/2012	7/15/2012	7/15/2012
Date	11/19/2019	8/7/2019	5/14/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0	0.50	8.62	0.00	0.00	3.00			
Temperature	Celsius	7.5	13.80	24.4						
Conductivity	umhos/cm	660	746.00	920						
pH	su	7.3	8.01	8.8						
Field Comments								Dry	Damp	Dry
Lab Parameters	UNITS									
Bicarbonate	mg/L	334	397.13	475						
Carbonate	mg/L									
Chloride	mg/L	6	8.50	11						
Conductivity	umhos/cm	606	686.00	774						
Hardness	mg/L	247	315.13	380						
pH	su	7.0	7.89	8.2						
Residue Filterable-TDS	mg/L	355	404.38	460						
Residue NonFilterable-TSS	mg/L	4	146.00	502						
SAR		0.89	0.99	1.24						
Sulfate	mg/L	30	40.13	56						
Calcium (Dissolved)	mg/L	64.1	75.60	96.7						
Magnesium (Total)	mg/L	21.1	30.71	36.0						
Sodium (Dissolved)	mg/L	31.9	40.14	48						
Potassium	mg/L	1.10	1.10	1.10						
TDS Ratio (grav./calc.)		1.11	1.11	1.11						

The monitoring point for Spring 8.5 is located on an east facing slope that drains down toward Terror Creek.

Baseline Information is derived from monitoring events beginning on 7/19/83 through 7/15/2012.
Point S8-5 influenced by mining 7/15/12.

S21
Terror Creek - Spring 21
Elevation - 7100

Initiated	4/15/1983	4/15/1983	4/15/1983
Activated	12/1/2010	12/1/2010	12/1/2010
Date	11/19/2019	8/7/2019	5/14/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0	1.03	7.5	0	0.93	9.11			1.74
Temperature	Celsius	2.5	12.1	20.2	4	9.16	16.2			9.0
Conductivity	umhos/cm	360	687	907	667	1157.11	1592			667
pH	su	7.2	7.9	8.5	7.65	9.12	17.1			7.8
Field Comments					0	#DIV/0!	0	Dry	Damp	
Lab Parameters	UNITS									
Bicarbonate	mg/L	268	388.56	456	93.08	294.04	495			
Carbonate	mg/L	<MDL	0.23	3.5						
Chloride	mg/L	2	8.78	14	10.4	16.10	21.8			
Conductivity	umhos/cm	555	679.72	775	434	636.00	838			
Hardness	mg/L	279	350.00	442	323	335.31	347.625			
Nitrate-Nitrite	mg/L				0.1	0.10	0.1			
Oil/Grease	mg/L				<MDL	<MDL	<MDL			
pH	su	7	7.88	8.4	7.76	7.93	8.09			
ResidueFilterable-TDS	mg/L	330	408.44	535	340	463.50	587			
ResidueNonFilterable-TSS	mg/L	2	24.92	106	6.6	11.80	17			
SAR		0.48	0.65	1	2.259	2.785	3.31			
Sulfate	mg/L	30	50.22	91	89.6	96.66	103.72			
Calcium (Dissolved)	mg/L	58	84.47	108						
Magnesium (Total)	mg/L	25	33.81	42	35.4	43.90	52.4			
Sodium (Dissolved)	mg/L	22	27.92	44						
Potassium	mg/L	2	2.00	2						
TDS Ratio (grav./calc.)		1	1.00	1						
Aluminum, TREC	mg/L				<MDL	0.20	0.2			
Arsenic, TREC	mg/L				<MDL	0.00	0.001			
Cadmium, TREC	mg/L				<MDL	0.00	0.002			
Calcium, TREC	mg/L				52.8	64.00	75.2			
Copper, TREC	mg/L				<MDL	0.01	0.01			
Iron, TREC	mg/L				0.0855	0.18	0.27			
Lead, TREC	mg/L				<MDL	0.06	0.06			
Manganese, TREC	mg/L				0.0108	0.04	0.06			
Mercury, TREC	mg/L				<MDL	3.000E-05	3.000E-05			
Molybdenum, TREC	mg/L				<MDL	0.00	0.001			
Selenium, TREC	mg/L				<MDL	0.01	0.007			
Sodium, TREC	mg/L				96.8	111.90	127			
Zinc, TREC	mg/L				<MDL	0.01	0.01			

Baseline Information for Point S21 is derived from events beginning on 4/15/83 through 12/1/10.
Point influenced by mining on 12/1/10.

S33-4
Sheep Corral - Spring 33-4
Elevation - 7790

Initiated	10/30/1997	10/30/1997	10/30/1997
Activated	12/1/2001	12/1/2001	12/1/2001
Date	10/29/2019	7/23/2019	6/10/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	0.0	0.0	0.0	0.0	0.0			
FieldComment								Dry	Dry	Dry
ph	su									
Conductivity	umhos/cm									
Temperature	Celsius									
Lab Parameters	**UNITS**									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable-TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

This spring was found during the fall of 1997 and was not locatable after 1998.

The monitoring point for S33-4 (Spring 33-4) is located above P33-3 in a roadless fork. Evidence of a dry spring was found in October and has not been relocated.

Baseline Information for Point S33-4 is derived from events beginning on 10/30/97 through 12/1/01.
Point influenced by mining on 12/1/01.

S34-7
Sheep Corral - Spring 34-7
Elevation - 7390

Initiated	10/27/1997	10/27/1997	10/27/1997
Activated	6/1/2002	6/1/2002	6/1/2002
Date	10/29/2019	7/24/2019	6/11/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.30	4.41	0.0	0.03	1.00			
FieldComment								Dry	Dry	Dry
ph	su	6.8	7.5	8.0	7.2	7.9	8.4			
Conductivity	umhos/cm	160	258	300	330	625	1170			
Temperature	Celsius	5.9	11.2	19.8	3.7	13.6	24.5			
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	200	200	200						
Chloride	mg/L	4	4	4						
Conductivity	umhos/cm	420	420	420						
Hardness	mg/L	129	129	129						
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL						
Oil and Grease	mg/L	4	4	4						
pH	su	8.0	8.0	8.0						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	230	230	230						
ResidueNonFilterable-TSS	mg/L	138	138	138						
SAR		<MDL	<MDL	<MDL						
Sulfate	mg/L	30.0	30.0	30.0						
Aluminum	mg/L	3.51	3.51	3.51						
Arsenic	mg/L	0.001	0.001	0.001						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	37.0	37.0	37.0						
Copper	mg/L	<MDL	<MDL	<MDL						
Iron (Total)	mg/L	3.58	3.58	3.58						
Lead	mg/L	<MDL	<MDL	<MDL						
Magnesium	mg/L	8.9	8.9	8.9						
Manganese (Total)	mg/L	0.113	0.113	0.113						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	<MDL	<MDL	<MDL						
Sodium	mg/L	41.0	41.0	41.0						
Zinc	mg/L	0.03	0.03	0.03						

The monitoring point for S34-7 is located just to the south of an old coal exploration road which winds down Sheep Corral Gulch.

Baseline Information for Point S34-7 is derived from events beginning on 10/27/97 through 6/1/02.
Point influenced by mining on 6/1/02.

S34-10
Dove Gulch - Spring 34-10
Elevation - 6640

Initiated	6/2/1998	6/2/1998	6/2/1998
Activated			
Date	10/22/2019	8/12/2019	6/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	0.6	11.0	0.0	0.4	16.4			
FieldComment								Dry	Damp	Damp
ph	su	7.3	7.4	7.4	8.2	8.4	8.7			
Conductivity	umhos/cm	320	435	550	1160	1340	1689			
Temperature	Celsius	8.2	9.1	10.6	6.7	11.6	19.6			
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	325	335	344	284.2	284.2	284.2			
Carbonate	mg/L	<MDL	<MDL	<MDL	3.6	3.6	3.6			
Chloride	mg/L	5	5	5	0.86	0.86	0.86			
Conductivity	umhos/cm	622	681	740	1032.1	1032.1	1032.1			
Hardness	mg/L	170	186	202	236.3	236.3	236.3			
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
Oil and Grease	mg/L	<MDL	<MDL	<MDL	2.43	2.43	2.43			
pH	su	7.8	7.8	7.8	8.43	8.43	8.43			
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
ResidueFilterable-TDS	mg/L	370	400	430	751	751	751			
ResidueNonFilterable-TSS	mg/L	<MDL	31	62	29	29	29			
SAR		<MDL	<MDL	<MDL	3.39	3.39	3.39			
Sulfate	mg/L	40	50	60	194.69	194.69	194.69			
Aluminum	mg/L	0.07	1.96	3.86	0.25	0.25	0.25			
Arsenic	mg/L	<MDL	0.001	0.001	0.064	0.064	0.064			
Cadmium	mg/L	<MDL	<MDL	<MDL	0.015	0.015	0.015			
Calcium	mg/L	40.1	43.4	46.8	55.4	55.4	55.4			
Copper	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
Iron (Total)	mg/L	0.05	1.65	3.26	0.102	0.102	0.102			
Lead	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
Magnesium	mg/L	16.9	18.8	20.7	23.8	23.8	23.8			
Manganese (Total)	mg/L	<MDL	0.027	0.055	<MDL	<MDL	<MDL			
Mercury	mg/L	<MDL	<MDL	<MDL	0.0001	0.0001	0.0001			
Molyebdenum	mg/L	<MDL	<MDL	<MDL	0.01	0.01	0.01			
Selenium	mg/L	0.001	0.001	0.001	0.0036	0.0036	0.0036			
Sodium	mg/L	70.2	77.4	84.6	119.8	119.8	119.8			
Zinc	mg/L	<MDL	0.01	0.03	0.011	0.011	0.011			

The monitoring point for S34-10 is located high on the northern facing slopes that forms the Dove Gulch Canyon. It is accessed on foot remnants of an old coal exploration road in the mouth of Dove Gulch. It is one of three springs found in this location, originating in the s outcrop and discharges via sheet flow into Dove Gulch.

Baseline Information for Point S34-10 is derived from events beginning on 10/31/97 through 12/1/03.
Point influenced by mining on 12/1/03.

S34-19
Hubbard Creek - Spring 34-19
Elevation - 6460

Initiated	6/9/1998	6/9/1998	6/9/1998
Activated			
Date	10/22/2019	8/12/2019	6/19/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	0.2	7.5						
FieldComment								Dry	Dry	Dry
ph	su	7.1	7.9	8.6						
Conductivity	umhos/cm	149	1008	2400						
Temperature	Celsius	3.3	13.5	22.4						
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	434	434	434						
Chloride	mg/L	9	9	9						
Conductivity	umhos/cm	911	911	911						
Hardness	mg/L	197	197	197						
Nitrate-Nitrite	mg/L	0.1	0.1	0.1						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	7.6	7.6	7.6						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	550	550	550						
ResidueNonFilterable-TSS	mg/L	<MDL	<MDL	<MDL						
SAR		<MDL	<MDL	<MDL						
Sulfate	mg/L	290.0	290.0	290.0						
Aluminum	mg/L	0.2	0.2	0.2						
Arsenic	mg/L	<MDL	<MDL	<MDL						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	44.7	44.7	44.7						
Copper	mg/L	<MDL	<MDL	<MDL						
Iron (Total)	mg/L	0.2	0.2	0.2						
Lead	mg/L	<MDL	<MDL	<MDL						
Magnesium	mg/L	20.8	20.8	20.8						
Manganese (Total)	mg/L	0.006	0.006	0.006						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	0.002	0.002	0.002						
Sodium	mg/L	132.0	132.0	132.0						
Zinc	mg/L	<MDL	<MDL	<MDL						

The area of concern for monitoring point S34-19 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

The monitoring point fos S34-19 is found along the Hubbard Creek Trail. It is a diverse flow along the upper edge of the trail.

Baseline Information Collection initiated on 6/9/98 and not yet considered complete.
Point S34-19 has not been influenced by mining.

S34-20
Hubbard Creek - Spring 34-20
Elevation - 6440

Initiated	6/2/1998	6/2/1998	6/2/1998
Activated			
Date	10/22/2019	7/23/2019	6/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	0.0	0.6				0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.6	7.8	8.2						
Conductivity	umhos/cm	860	1140	1320						
Temperature	Celsius	12.5	18.4	24.1						
Lab Parameters	**UNITS**									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable-TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

The area of concern for monitoring point S34-20 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

The monitoring point for S34-20 is found along the Hubbard Creek Trail. It is a diverse flow along the upper edge of the trail.

Baseline Information Collection initiated on 6/2/98 and not yet considered complete.
Point S34-20 has not been influenced by mining.

S34-21
Hubbard Creek - Spring 34-21
Elevation - 6430

Initiated	6/2/1998	6/2/1998	6/2/1998
Activated			
Date	10/22/2019	7/23/2019	6/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	0.5	10.7	0.0	0.1	3.2	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.6	7.6	7.6	7.4	7.8	8.4			
Conductivity	umhos/cm	620	620	620	700	1531	1980			
Temperature	Celsius	18.7	18.7	18.7	15.3	19.7	26.4			
Lab Parameters	UNITS									
Bicarbonate	mg/L	454	454	454						
Chloride	mg/L	6	6	6						
Conductivity	umhos/cm	831	831	831						
Hardness	mg/L	226	226	226						
Nitrate-Nitrite	mg/L	0.2	0.2	0.2						
Oil and Grease	mg/L	3.0	3.0	3.0						
pH	su	8.1	8.1	8.1						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	490	490	490						
ResidueNonFilterable-TSS	mg/L	<MDL	<MDL	<MDL						
SAR		<MDL	<MDL	<MDL						
Sulfate	mg/L	70	70	70						
Aluminum	mg/L	0.18	0.18	0.18						
Arsenic	mg/L	<MDL	<MDL	<MDL						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	52.9	52.9	52.9						
Copper	mg/L	<MDL	<MDL	<MDL						
Iron (Total)	mg/L	0.14	0.14	0.14						
Lead	mg/L	<MDL	<MDL	<MDL						
Magnesium	mg/L	22.9	22.9	22.9						
Manganese (Total)	mg/L	<MDL	<MDL	<MDL						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	<MDL	<MDL	<MDL						
Sodium	mg/L	105.0	105.0	105.0						
Zinc	mg/L	<MDL	<MDL	<MDL						

The monitoring point for S34-21 is found along the Hubbard Creek Trail. It is a diverse flow along the upper edge of the trail.

Baseline Information for Point S34-21 is derived from events beginning on 6/9/98 through 11/10/03.
Point influenced by mining on 11/10/03.

S34-22
Hubbard Creek - Spring 34-22
Elevation - 6700

Initiated	6/2/1998	6/2/1998	6/2/1998
Activated			
Date	10/22/2019	8/12/2019	6/12/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	1.5	35.0	0.0	0.3	13.6	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.2	7.3	7.4	7.8	8.0	8.4			
Conductivity	umhos/cm	230	230	230	1260	1499	1808			
Temperature	Celsius	17.2	17.2	17.2	8.5	9.9	12.1			
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	302	302	302	285.4	285.4	285.4			
Carbonate	mg/L	12	15	18	18.1	18.1	18.1			
Chloride	mg/L	4	4	4	<MDL	<MDL	<MDL			
Conductivity	umhos/cm	602	602	602	1011.5	1011.5	1011.5			
Hardness	mg/L	171	171	171	238.8	238.8	238.8			
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
Oil and Grease	mg/L	<MDL	<MDL	<MDL	2.41	2.41	2.41			
pH	su	8.2	8.2	8.2	8.8	8.8	8.8			
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
ResidueFilterable-TDS	mg/L	380	380	380	854	854	854			
ResidueNonFilterable-TSS	mg/L	<MDL	<MDL	<MDL	40	40	40			
SAR		<MDL	<MDL	<MDL	4.19	4.19	4.19			
Sulfate	mg/L	50	50	50	223.91	223.91	223.91			
Aluminum	mg/L	0.31	0.31	0.31	0.23	0.23	0.23			
Arsenic	mg/L	<MDL	<MDL	<MDL	0.064	0.064	0.064			
Cadmium	mg/L	<MDL	<MDL	<MDL	0.026	0.026	0.026			
Calcium	mg/L	38.3	38.3	38.3	53.9	53.9	53.9			
Copper	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
Iron (Total)	mg/L	0.27	0.27	0.27	0.187	0.187	0.187			
Lead	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
Magnesium	mg/L	18.3	18.3	18.3	25.3	25.3	25.3			
Manganese (Total)	mg/L	<MDL	<MDL	<MDL	0.1	0.1	0.1			
Mercury	mg/L	<MDL	<MDL	<MDL	0.0001	0.0001	0.0001			
Molyebdenum	mg/L	<MDL	<MDL	<MDL	0.01	0.01	0.01			
Selenium	mg/L	<MDL	<MDL	<MDL	0.0048	0.0048	0.0048			
Sodium	mg/L	74.4	74.4	74.4	149	149	149			
Zinc	mg/L	<MDL	<MDL	<MDL	0.006	0.006	0.006			

The monitoring point for S34-22 is located high on the northern facing slopes that forms the Dove Gulch Canyon. It is accessed on foot from the remnants of an old coal exploration road in the mouth of Dove Gulch. It is one of three springs found in this location, originating in the sandstone outcrop and discharges via sheet flow into Dove Gulch.

Baseline Information for Point S34-22 is derived from events beginning on 6/9/98 through 11/20/03.
Point influenced by mining on 11/20/03.

S34-23
Hubbard Creek - Spring 34-23
Elevation - 6650

Initiated	6/2/1998	6/2/1998	6/2/1998
Activated			
Date	10/22/2019	8/12/2019	6/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.0	3.5	75.0	0.0	0.1	4.6	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.6	7.8	8.0	8.5	8.5	8.5			
Conductivity	umhos/cm	320	390	460	900	900	900			
Temperature	Celsius	12.1	14.0	15.9	9.0	9.0	9.0			
Lab Parameters	UNITS									
Bicarbonate	mg/L	249	268	287						
Chloride	mg/L	2	3	4						
Conductivity	umhos/cm	537	545	552						
Hardness	mg/L	169	171	173						
Nitrate-Nitrite	mg/L	<MDL	0.01	0.02						
Oil and Grease	mg/L	<MDL	<MDL	<MDL						
pH	su	8.1	8.3	8.4						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	330	335	340						
ResidueNonFilterable-TSS	mg/L	<MDL	11	22						
SAR		<MDL	<MDL	<MDL						
Sulfate	mg/L	30	40	50						
Aluminum	mg/L	0.32	0.95	1.57						
Arsenic	mg/L	<MDL	<MDL	<MDL						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	40.5	41.8	43.1						
Copper	mg/L	<MDL	<MDL	<MDL						
Iron (Total)	mg/L	0.25	0.77	1.29						
Lead	mg/L	<MDL	<MDL	<MDL						
Magnesium	mg/L	15.9	16.1	16.4						
Manganese (Total)	mg/L	<MDL	0.013	0.026						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	0.001	0.001	0.001						
Sodium	mg/L	59.8	61.1	62.4						
Zinc	mg/L	<MDL	0.005	0.010						

The monitoring point for S34-23 is located high on the northern facing slopes that forms the Dove Gulch Canyon. It is accessed on foot drom the remnants of an old coal exploration road in the mouth of Dove Gulch. It in one of three springs found in this location, orginating in the sandstone outcrops and discharges via sheet flow into Dove Gulch.

Baseline Information for Point S34-23 is derived from events beginning on 6/9/98 through 12/8/03.
Point influenced by mining on 12/8/03.

S34-24
Hubbard Creek - Spring 34-24
Elevation - 6390

Initiated	6/2/1998	6/2/1998	6/2/1998
Activated	4/1/2002	4/1/2002	4/1/2002
Date	10/22/2019	7/23/2019	6/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.06	0.91	0.0	0.00	0.10	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.8	7.8	7.8	7.8	8.0	8.2			
Conductivity	umhos/cm	1010	1010	1010	1210	1740	2400			
Temperature	Celsius	19.0	19.0	19.0	9.0	20.3	24.8			
Lab Parameters	**UNITS**									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable-TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

The monitoring point for S34-24 is found along the Hubbard Creek Trail. It is a diverse flow along the upper edge of the trail.

Baseline Information for Point S34-24 is derived from events beginning on 6/2/98 through 4/1/02.
Point influenced by mining on 4/1/02.

Initiated	6/2/1998	6/2/1998	6/2/1998
Activated	10/30/2008	10/30/2008	10/30/2008
Date	10/22/2019	8/12/2019	6/15/2019

Summary Information

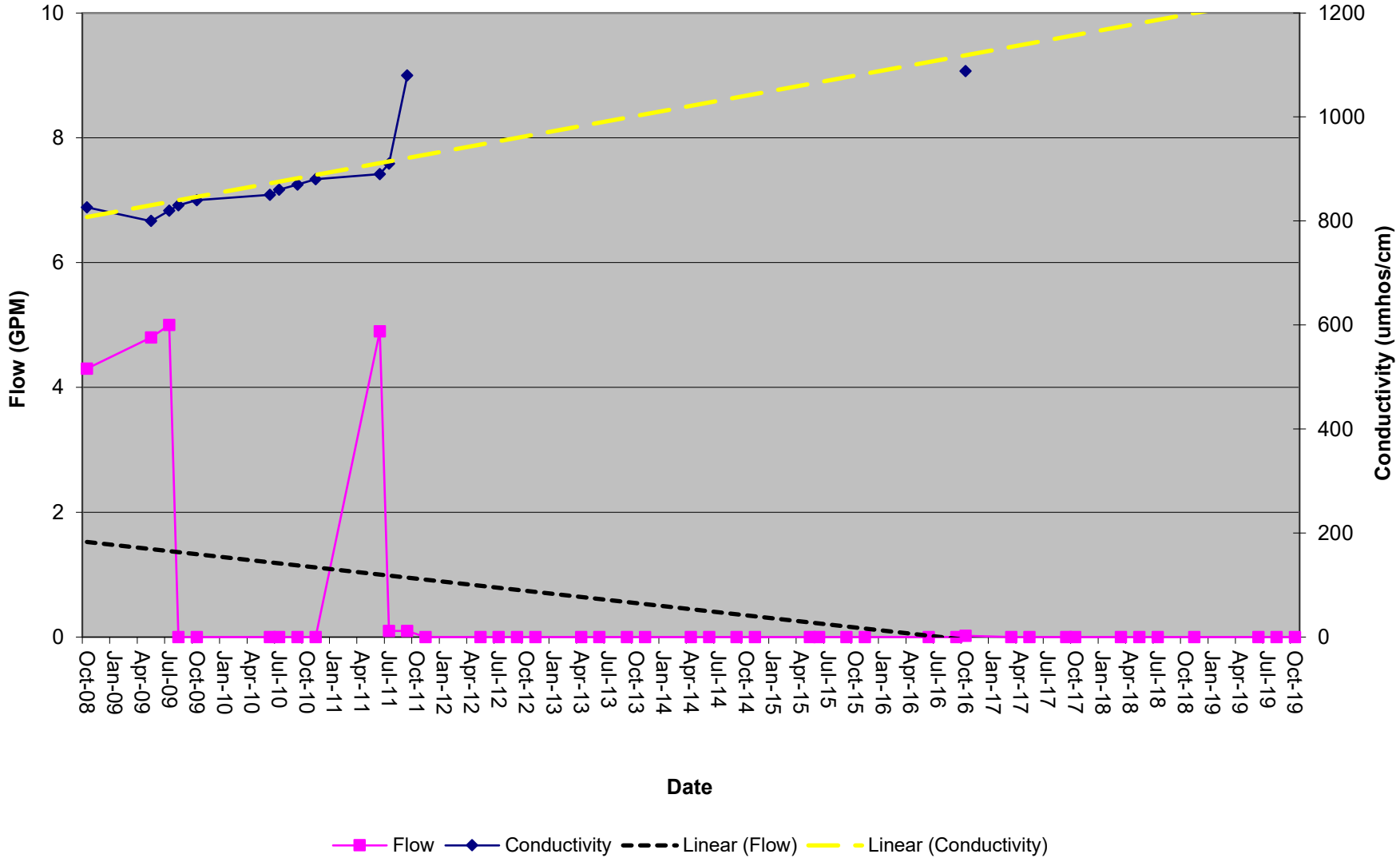
Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM				0.0	0.4	5.0	0	0	0
FieldComment								Dry	Dry	Damp
ph	su				8.1	8.4	8.8			
Conductivity	umhos/cm				800	916	1088			
Temperature	Celsius				5.0	10.5	17.9			
Lab Parameters	UNITS									
Bicarbonate	mg/L				335	335	335			
Carbonate	mg/L				37	37	37			
Chloride	mg/L				3	3	3			
Conductivity	umhos/cm				759	759	759			
Hardness	mg/L				120	120	120			
Nitrate-Nitrite	mg/L				0.03	0.03	0.03			
Oil and Grease	mg/L				<MDL	<MDL	<MDL			
pH	su				8.8	8.8	8.8			
Phosphate	mg/L				<MDL	<MDL	<MDL			
ResidueFilterable-TDS	mg/L				490	490	490			
ResidueNonFilterable-TSS	mg/L				19	19	19			
SAR					5.99	5.99	5.99			
Sulfate	mg/L				67	67	67			
Aluminum	mg/L				0.61	0.61	0.61			
Arsenic	mg/L				<MDL	<MDL	<MDL			
Cadmium	mg/L				<MDL	<MDL	<MDL			
Calcium	mg/L				27.6	27.6	27.6			
Copper	mg/L				<MDL	<MDL	<MDL			
Iron (Total)	mg/L				0.51	0.51	0.51			
Lead	mg/L				0.0004	0.0004	0.0004			
Magnesium	mg/L				12.4	12.4	12.4			
Manganese (Total)	mg/L				<MDL	<MDL	<MDL			
Mercury	mg/L				<MDL	<MDL	<MDL			
Molyebdenum	mg/L				<MDL	<MDL	<MDL			
Selenium	mg/L				0.0016	0.0016	0.0016			
Sodium	mg/L				149	149	149			
Zinc	mg/L				<MDL	<MDL	<MDL			

The area of concern for monitoring point S34-25 was affected by the mining operation before its establishment. Therefore, all recorded monitoring events are considered operational.

The monitoring point for S34-25 is found on drill site GVB-8A-A, 8A & 9D in the Dove Gulch drainage.

There is no baseline collection possible for points initiated after the influence of mining.

Plot of Flow and Conductivity



S34-25 - Dove Gulch Spring and Pond 34-25

D2-1
Sheep Corral - Drainage System
Elevation - 6360

Initiated	11/6/1998	11/6/1998	11/6/1998
Activated	11/1/2003	11/1/2003	11/1/2003
Date	10/22/2019	7/23/2019	6/15/2019

		Summary Information								
Field		Baseline			Operation					
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	GPM	0.00	0.32	4.55	0.00	0.42	13.60	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.1	7.8	8.4	7.4	8.1	8.6			
Conductivity	umhos/cm	940	1210	1640	1140	1499	2000			
Temperature	Celsius	4.1	11.1	19.4	5.0	16.8	25.4			
Lab										
Parameters	UNITS									
Bicarbonate	mg/L	540	540	540	398.95	593.87	772.59			
Chloride	mg/L	11	11	11	<MDL	15.41	20.81			
Conductivity	umhos/cm	1230	1230	1230	1173.0	1508.7	1847.3			
Hardness	mg/L	291	291	291	228.45	325.43	372.55			
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL	<MDL	1.866	2.730			
Oil and Grease	mg/L	<MDL	<MDL	<MDL	<MDL	2.060	4.050			
pH	su	8.2	8.2	8.2	7.8	8.4	8.9			
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
ResidueFilterable-TDS	mg/L	790	790	790	824	1060	1321			
ResidueNonFilterable-TSS	mg/L	<MDL	<MDL	<MDL	1.0	64.9	296.0			
SAR		5.3	5.3	5.3	1.34	5.08	11.30			
Sulfate	mg/L	190	190	190	230.00	275.24	380.32			
Aluminum	mg/L	0.39	0.39	0.39	0.057	0.377	1.23			
Arsenic	mg/L	<MDL	<MDL	<MDL	0.0017	0.054	0.142			
Cadmium	mg/L	<MDL	<MDL	<MDL	<MDL	0.006	0.015			
Calcium	mg/L	49.8	49.8	49.8	36.9	55.3	66.6			
Copper	mg/L	<MDL	<MDL	<MDL	<MDL	0.284	0.552			
Iron (Total)	mg/L	0.3	0.3	0.3	0.10	0.49	1.22			
Lead	mg/L	<MDL	<MDL	<MDL	<MDL	0.03	0.05			
Magnesium	mg/L	40.6	40.6	40.6	33.1	45.5	57.3			
Manganese (Total)	mg/L	0.01	0.01	0.01	<MDL	0.053	0.084			
Mercury	mg/L	<MDL	<MDL	<MDL	<MDL	0.0001	0.0002			
Molyebdenum	mg/L	<MDL	<MDL	<MDL	<MDL	0.003	0.003			
Selenium	mg/L	<MDL	<MDL	<MDL	0.0002	0.0492	0.1680			
Sodium	mg/L	205	205	205	54.8	200.8	393.8			
Zinc	mg/L	<MDL	<MDL	<MDL	<MDL	0.032	0.090			

The D2-1 Monitoring point is at the lower extreme of Sheep Corral Gulch. It is located just below the Hubbard Creek Road, just north of the Blue Ribbon Mine.

Baseline Information for Point D2-1 is derived from events beginning on 10/31/97 through 4/1/02.
Point influenced by mining on 4/1/02.

D21-1
Terror Creek - Confluence w/NFG
Elevation - 5760

Initiated	3/23/2010	3/23/2010	3/23/2010
Activated			
Date	10/22/2019	7/23/2019	6/5/2019

Field Parameters	UNITS	Summary Information Baseline Min	Ave	Max	Operation Min	Ave	Max			
Flow	CFS	0.02	4.76	46.00				0.27	0.58	**
FieldComment										
ph	su	7.9	8.5	9.0				8.36	7.96	8.71
Conductivity	umhos/cm	79	329	820				709	338	78.8
Temperature	Celsius	0.4	10.4	20.6				8.51	15.9	4.9
Lab Parameters	UNITS									
Bicarbonate	mg/L	39.70	135.51	292.00						39.7
Chloride	mg/L	0.6	41.5	188.5						<MDL
Conductivity	umhos/cm	65	321	744						64.7
Hardness	mg/L	31.50	146.70	297.20						31.5
Nitrate-Nitrite	mg/L	<MDL	0.212	0.570						<MDL
Oil and Grease	mg/L	<MDL	<MDL	<MDL						<MDL
pH	su	6.77	7.90	8.53						7.68
Phosphate	mg/L	<MDL	0.060	0.280						0.034
ResidueFilterable-TDS	mg/L	1	240	494						79
ResidueNonFilterable-TSS	mg/L	<MDL	44	302						26.8
SAR		0.25	0.74	1.70						0.247
Sulfate	mg/L	1.23	28.73	72.03						2.3
Aluminum (TREC)	mg/L	0.008	0.583	1.750						1.13
Arsenic (TREC)	mg/L	0.001	0.017	0.060						<MDL
Cadmium (TREC)	mg/L	0.002	0.006	0.020						<MDL
Calcium (TREC)	mg/L	6.05	30.08	67.30						7.73
Copper (TREC)	mg/L	0.002	0.007	0.017						<MDL
Iron (TREC)	mg/L	0.06	0.54	3.34						1.02
Lead (TREC)	mg/L	0.00	0.01	0.05						<MDL
Magnesium (TREC)	mg/L	2.96	16.45	44.40						2.96
Manganese (TREC)	mg/L	<MDL	1.100	23.700						23.7
Mercury (TREC)	mg/L	0.00001	0.00006	0.00012						<MDL
Molyebdenum (TREC)	mg/L	0.000	0.003	0.008						<MDL
Selenium (TREC)	mg/L	<MDL	0.01014	0.03600						<MDL
Sodium (TREC)	mg/L	3.45	20.66	67.50						3.45
Zinc (TREC)	mg/L	0.003	0.025	0.110						<MDL

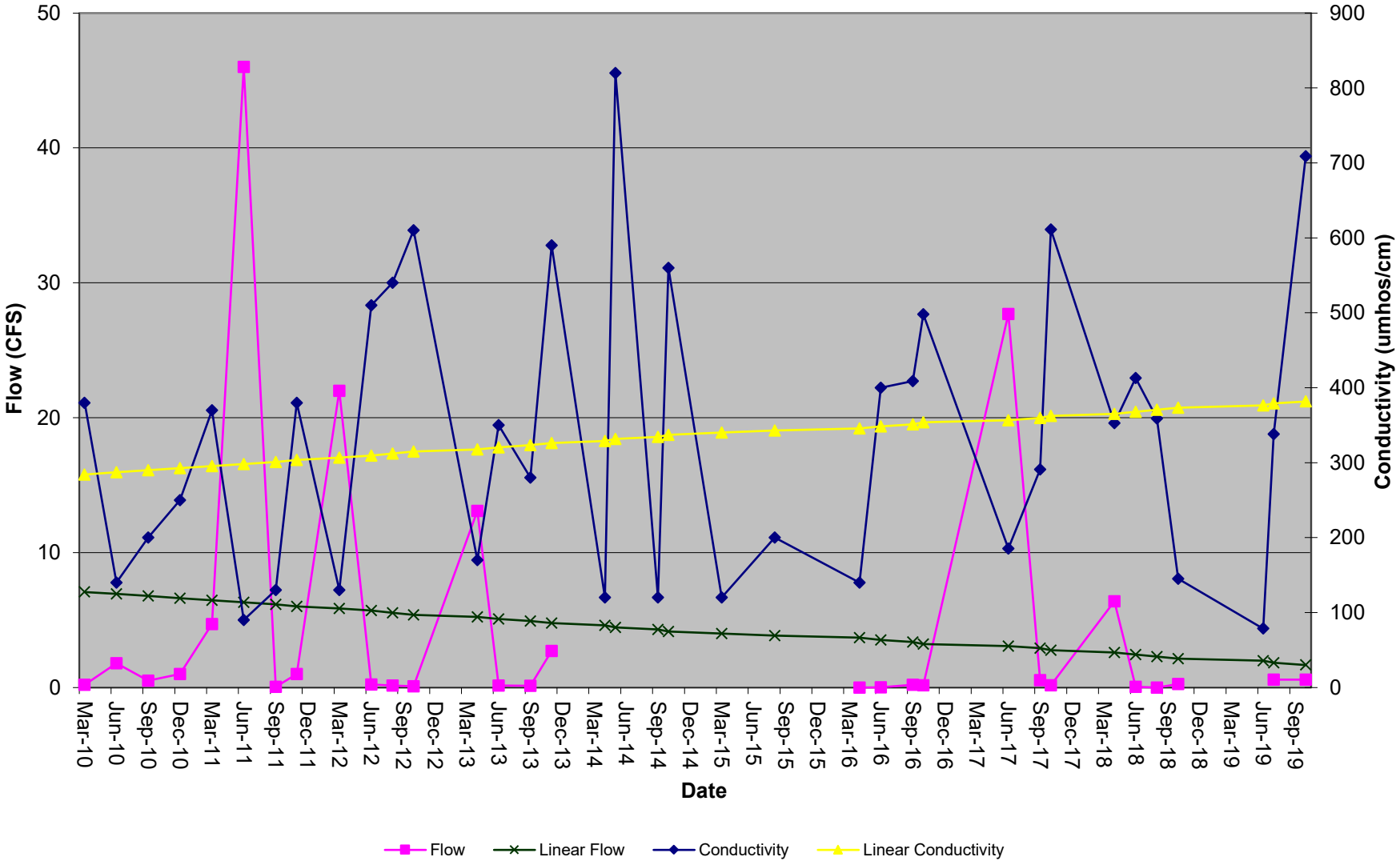
The area of concern for monitoring point D21-1 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

The D21-1 Monitoring point is at downstream Terror Creek-Confluence w/NFG.

** Stream flow too low for measurement*
*** Strem flow too high for measurement*

Baseline Information Collection initiated 3/23/10 and not yet considered complete.
Point D21-1 has not been influence by mining.

Plot of Flow and Conductivity



D21-1 - Terror Creek Drainage System

D32-4
Terror Creek - Drainage System
Elevation - 7480

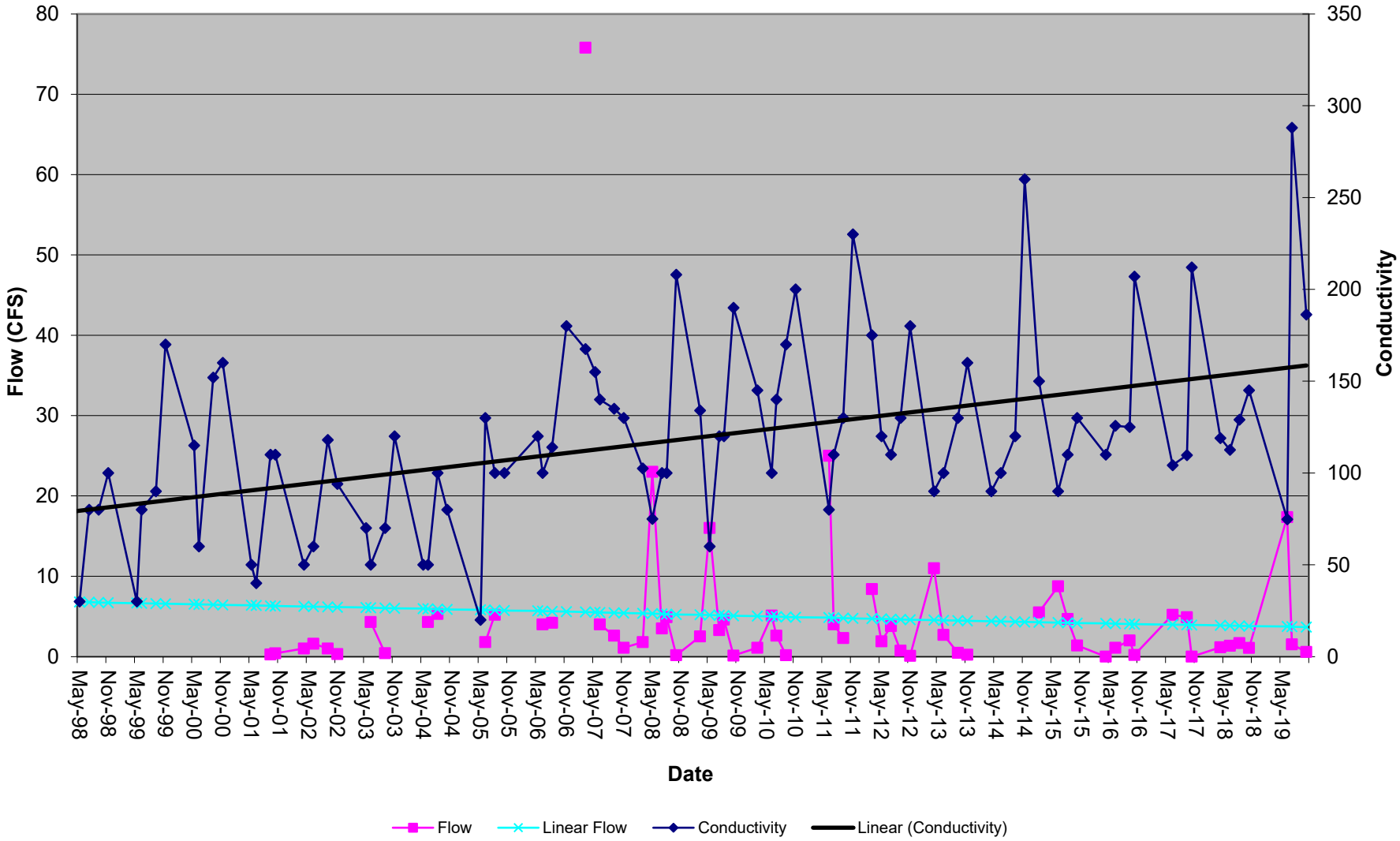
Initiated								3/23/2010	3/23/2010	3/23/2010
Activated										
Date								10/22/2019	7/23/2019	6/5/2019
		Summary Information								
Field		Baseline			Operation					
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	CFS	0.04	5.15	75.80				0.57	1.52	17.36
FieldComment										
ph	su	6.9	8.1	8.8				7.8	8.3	6.9
Conductivity	umhos/cm	20	117	288				186.3	288	74.8
Temperature	Celsius	0.1	9.9	19.0				0.1	14.1	5.7
Lab										
Parameters	UNITS									
Bicarbonate	mg/L	1.7	62.4	144.6						39.4
Chloride	mg/L	<MDL	4.9	76.9						0.5
Conductivity	umhos/cm	60.8	131.4	429.0						62.2
Hardness	mg/L	22.3	57.5	192.3						30.4
Nitrate-Nitrite	mg/L	<MDL	0.7	8.1						<MDL
Oil & Grease	mg/L	<MDL	2.4	6.4						<MDL
pH	su	6.6	7.5	8.3						7.85
Phosphate	mg/L	<MDL	0.15	1.37						0.0310
ResidueFilterable-TDS	mg/L	37	118	342						68
ResidueNonFilterable-TSS	mg/L	<MDL	31	450						13.0000
SAR		<MDL	0.81	28.16						0.1910
Sulfate	mg/L	<MDL	8.3	54.8						1.4
Aluminum (TREC)	mg/L	<MDL	1.29	11.17						0.635
Arsenic (TREC)	mg/L	<MDL	0.0105	0.1680						<MDL
Cadmium (TREC)	mg/L	<MDL	0.0724	2.0700						<MDL
Calcium (TREC)	mg/L	<MDL	13.9	65.4						7.4
Copper (TREC)	mg/L	<MDL	0.005	0.050						<MDL
Iron (Dissolved)	mg/L	<MDL	6.43	165.00						0.205
Iron (TREC)	mg/L	0.020	0.948	5.420						0.482
Lead (TREC)	mg/L	<MDL	0.0087	0.0500						<MDL
Magnesium (TREC)	mg/L	<MDL	5.37	11.10						2.9
Manganese (TREC)	mg/L	<MDL	0.043	0.277						0.0147
Mercury (TREC)	mg/L	<MDL	0.00007	0.00027						0.00011
Molyebdenum (TREC)	mg/L	<MDL	0.037	0.900						<MDL
Selenium (TREC)	mg/L	<MDL	0.005	0.024						<MDL
Sodium (TREC)	mg/L	2.3	5.4	20.3						2.68
Zinc (TREC)	mg/L	<MDL	0.023	0.160						<MDL

The area of concern for monitoring point D32-4 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

The D32-4 Monitoring Point is on upper Terror Creek. It is located at the Cottonwood Stomp ford. This point is used to obtain conductivity, pH and temperature readings. The irregular stream channel found at this location does not provide an adequate method of determining flow values. Flow values are taken by Resource Engineering.

Baseline Information Collection initiated on 10/31/97 and not yet considered complete.
Point D32-4 has not been influenced by mining.

Plot of Flow and Conductivity



D32-4 Terror Creek Drainage System

Table 64

D33-14
Upper Sheep Corral Gulch
Elevation - 7320

Initiated	11/6/1998	11/6/1998	11/6/1998
Activated	11/1/2003	11/1/2003	11/1/2003
Date	10/29/2019	7/24/2019	6/10/2019

		Summary Information								
		Baseline			Operation					
Field Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	GPM	0.00	0.00	0.00	0.00	0.29	6.18	0.24	1.27	3.32
FieldComment										
ph	su				6.5	7.8	8.5	8.3	7.65	6.45
Conductivity	umhos/cm				330	630	782	760	608	543
Temperature	Celsius				2.2	8.7	26.5	2.4	6.6	7.4
Lab Parameters	UNITS									
Bicarbonate	mg/L				124.0	260.7	392.0			294
Chloride	mg/L				1.2	1.8	2.0			2
Conductivity	umhos/cm				192.0	433.1	648.0			492
Hardness	mg/L				82	96	118			88.9
Nitrate-Nitrite	mg/L				<MDL	1.09	2.13			<MDL
Oil and Grease	mg/L				<MDL	0.82	0.82			<MDL
pH	su				6.82	7.74	8.45			7.64
Phosphate	mg/L				<MDL	0.02	0.02			<MDL
ResidueFilterable-TDS	mg/L				126	260	398			326
ResidueNonFilterable-TSS	mg/L				<MDL	3	3			<MDL
SAR					0.71	3.60	7.29			4.33
Sulfate	mg/L				6.50	28.87	42.50			40.6
Aluminum	mg/L				<MDL	<MDL	<MDL			<MDL
Arsenic	mg/L				0.009	0.009	0.009			<MDL
Cadmium	mg/L				<MDL	<MDL	<MDL			<MDL
Calcium	mg/L				21.7	27.0	32.7			27.4
Copper	mg/L				<MDL	<MDL	<MDL			<MDL
Iron (Total)	mg/L				0.02	0.05	0.08			<MDL
Lead	mg/L				<MDL	<MDL	<MDL			<MDL
Magnesium	mg/L				3.42	5.65	8.78			4.97
Manganese (Total)	mg/L				0.01	0.01	0.02			<MDL
Mercury	mg/L				<MDL	<MDL	<MDL			<MDL
Molyebdenum	mg/L				<MDL	<MDL	<MDL			<MDL
Selenium	mg/L				0.035	0.043	0.051			<MDL
Sodium	mg/L				12.1	74.1	138.0			81.3
Zinc	mg/L				<MDL	<MDL	<MDL			<MDL

Note: Site not accesible during 1Q 2018
Not enough water for sample during 2Q 2018

The location for monitoring point D33-14 can be found just to the south of an old coal exploration road winding through Sheep Corral Gulch. It is just above Spring and Pond SP34-11.

Baseline Information for Point D33-14 is derived from events beginning on 11/6/98 through 11/1/03.
Point influenced by mining on 11/1/03.

D34-13
Dove Gulch - Drainage System
Elevation - 6440

Initiated	10/31/1997	10/31/1997	10/31/1997
Activated			
Date	10/22/2019	7/23/2019	6/15/2019

		Summary Information								
Field		Baseline			Operation					
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	GPM	0.00	0.00	0.00				0	0	0
FieldComment								Dry	Dry	Dry
ph	su									
Conductivity	umhos/cm									
Temperature	Celsius									
Lab										
Parameters	UNITS									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable-TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

The area of concern for monitoring point D34-13 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

The location for D34-13 is at the lower extreme of Dove Gulch, along the western edge of Hubbard Creek Trail.

Baseline Information Collection initiated on 10/31/97 and not yet considered complete.
Point D34-13 has not been influenced by mining.

D34-14
Hubbard Creek - Drainage System
Elevation - 6560

Initiated	9/30/1996	9/30/1996	9/30/1996
Activated	4/1/2002	4/1/2002	4/1/2002
Date	10/22/2019	7/23/2019	6/5/2019

		Summary Information								
Field		Baseline			Operation					
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	CFS	0.49	23.73	220.00						
FieldComment										
ph	su	6.8	8.1	8.9				8.1	8.3	6.8
Conductivity	umhos/cm	50	200	347				257	288	99
Temperature	Celsius	0.2	9.6	20.9				0.4	14.1	4.8
Lab										
Parameters	UNITS									
Bicarbonate	mg/L	36.1	101.5	187.0						49.2
Chloride	mg/L	<MDL	4.87	84.89						0.67
Conductivity	umhos/cm	82.1	201.5	439.0						82.1
Hardness	mg/L	<MDL	85.13	150.00						39.7
Nitrate-Nitrite	mg/L	<MDL	1.711	41.530						<MDL
Oil & Grease	mg/L	<MDL	0.973	2.330						<MDL
Phosphate	mg/L	<MDL	0.67	8.33						0.031
ResidueFilterable-TDS	mg/L	33	144	353						82
ResidueNonFilterable-TSS	mg/L	<MDL	19.3	166.0						15.1
SAR		<MDL	1.14	20.50						0.219
Sulfate	mg/L	<MDL	30.96	1234.8						0.447
Aluminum (TREC)	mg/L	<MDL	0.648	9.690						<MDL
Arsenic (TREC)	mg/L	<MDL	0.0077	0.1290						<MDL
Cadmium (TREC)	mg/L	<MDL	0.3268	11.3000						11.3
Calcium (TREC)	mg/L	4.57	23.94	43.60						<MDL
Copper (TREC)	mg/L	<MDL	0.009	0.200						
Iron (Dissolved)	mg/L	<MDL	<MDL	<MDL						4.51
Iron (TREC)	mg/L	0.010	0.522	13.600						<MDL
Lead (TREC)	mg/L	<MDL	0.087	2.800						2.8
Magnesium (TREC)	mg/L	0.42	6.60	16.30						
Manganese (TREC)	mg/L	<MDL	0.105	3.900						<MDL
Mercury (TREC)	mg/L	<MDL	0.00009	0.00079						<MDL
Molyebdenum (TREC)	mg/L	<MDL	0.042	1.130						<MDL
Selenium (TREC)	mg/L	<MDL	0.0843	3.2700						3.27
Sodium (TREC)	mg/L	3.16	12.75	42.00						<MDL
Zinc (TREC)	mg/L	<MDL	0.016	0.116						

The area of concern for monitoring point D34-14 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

The location for the D34-14 monitoring point is on Hubbard creek just below the igneous intrusion noted as Iron Point. The location can be found where a sapling has been painted white. The point where field parameters were taken did not provide an adequate method to determine flow values. Flow values are taken by Resource Engineering.

Baseline Information Collection initiated on 10/31/97 and not yet considered complete.
Point D34-14 has not been influenced by mining.

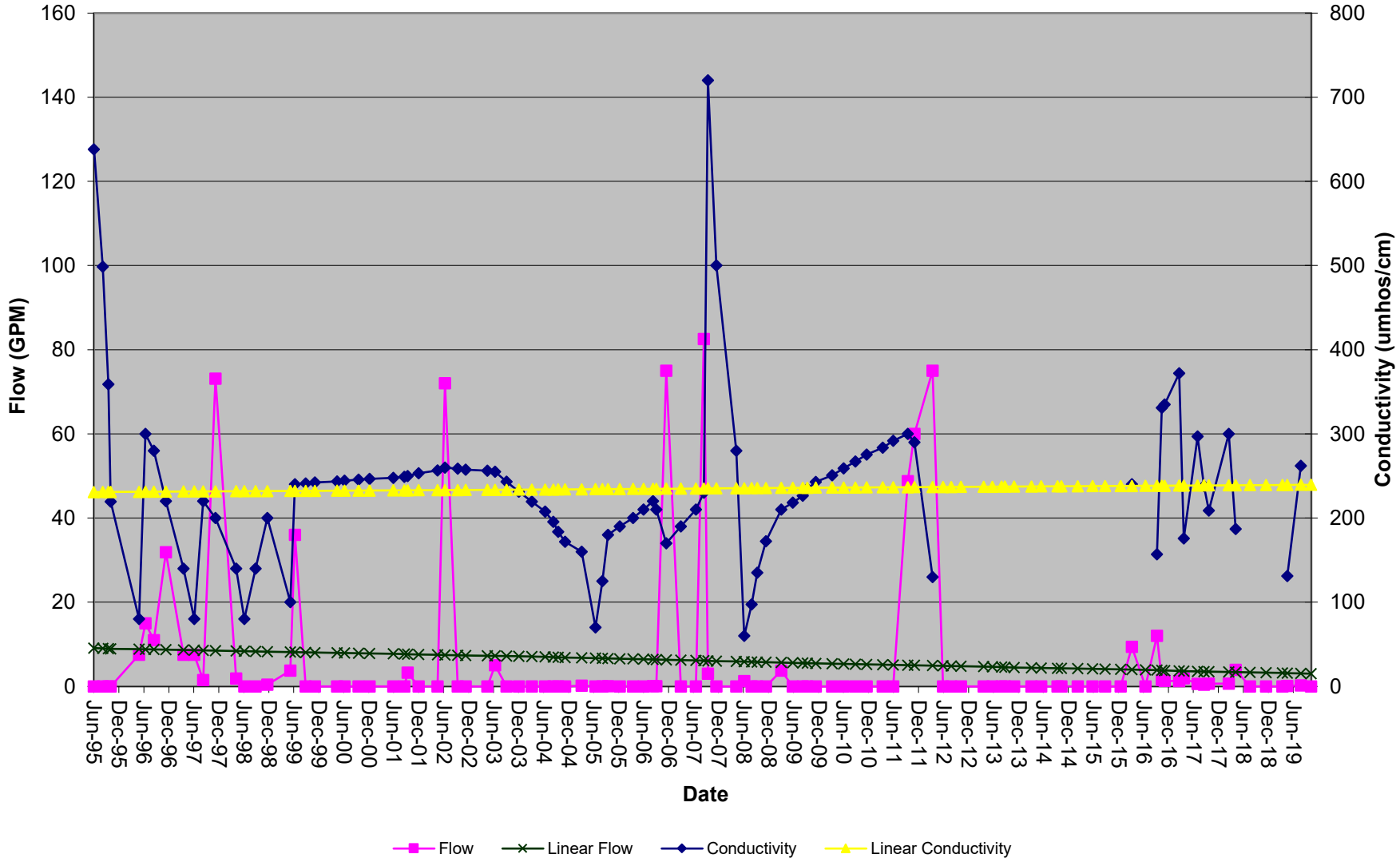
Deer-low
Canal - Deer Trail Ditch
Elevation - 5920

Initiated								6/14/1995	6/14/1995	6/14/1995	6/14/1995
Activated								3/30/1997	3/30/1997	3/30/1997	3/30/1997
Date								10/22/2019	8/8/2019	5/2/2019	3/26/2019
		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Flow	GPM	0	8	32	0	6	83		0.23	0.08	
Water Level in Flume	Feet				0.00	0.12	0.40		0.1	0.05	
FieldComment								Dry			Dry
ph	su	6.8	8.3	9.0	7.1	8.4	9.2		8.4	7.9	
Conductivity	umhos/cm	80	276	638	60	222	720		262	131	
Temperature	Celsius	4.9	13.1	21.2	3.1	11.1	21.5		19.7	7.8	
DO	mg/L	0.0	3.7	10.7	0.0	6.6	12.1				
Lab Parameters	UNITS										
Bicarbonate	mg/L	41	70	118	39	92	127			61.6	
Chloride	mg/L	<MDL	1	2	<MDL	1.7	4.0		0.93	1	
Chromium III CrIII	mg/L				<MDL	<MDL	<MDL		<MDL		
Chromium VI CrIV	mg/L				<MDL	<MDL	<MDL		<MDL		
Cyanide, Total	mg/L				<MDL	<MDL	<MDL		<MDL		
Conductivity	umhos/cm	97	148	238	98	190	308			109	
Hardness	mg/L	48	67	96	33	83	119		113	55.4	
Nitrate-Nitrite	mg/L	<MDL	0.07	0.17	<MDL	0.01	0.04		<MDL	<MDL	
Nitrate	mg/L	<MDL	0.08	0.17	<MDL	0.47	2.69		<MDL	0.1	
Nitrite	mg/L	<MDL	0.01	0.02	<MDL	0.00	0.01		<MDL	<MDL	
Dissolved Oxygen		0	0	0	<MDL	7.93	7.95		7.9	7.95	
Ammonia	mg/L				0.10	0.18	0.25		<MDL		
Oil and Grease	mg/L	<MDL	<MDL	<MDL	<MDL	2	2		<MDL		
pH	su	7.5	7.8	8.0	7.7	8.1	8.6		8.35	7.89	
Phosphate	mg/L	<MDL	0.03	0.08	<MDL	0.03	0.08			0.057	
ResidueFilterable-TDS	mg/L	30	93	150	70	167	302		156	146	
ResidueNonFilterable-TSS	mg/L	6	101	286	<MDL	16	41			16	
SAR		0.21	0.38	0.68	<MDL	0.86	6.50			0.289	
Sulfate	mg/L	<MDL	7	10	<MDL	10	20		8.8	6.2	
Sulfide S	mg/L				<MDL	<MDL	<MDL		<MDL		
Aluminum (TREC)	mg/L	0.25	3.03	7.68	0.14	0.61	1.58			1.58	
Arsenic (TREC)	mg/L	<MDL	0.001	0.002	<MDL	0.0024	0.0150		<MDL	<MDL	
Boron	mg/L				0.78	0.78	0.78		<MDL		
Cadmium (TREC)	mg/L	<MDL	0.001	0.003	<MDL	0.01	0.05		<MDL	<MDL	
Calcium (TREC)	mg/L	13.4	18.8	26.9	9.1	22.9	33.8		32.3	16	
Copper (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.004	0.017		<MDL	<MDL	
Iron (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.06	0.15		0.0537	0.122	
Iron (TREC)	mg/L	0.45	3.83	9.79	0.10	0.80	5.29		5.29	1.69	
Lead (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.0074	0.0400		<MDL	<MDL	
Magnesium (TREC)	mg/L	3.4	4.9	6.9	2.5	6.1	8.6		7.85	3.74	
Manganese (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	1.6	6.2		<MDL		
Manganese (TREC)	mg/L	0.012	0.075	0.193	0.001	0.041	0.166		0.166	0.031	
Mercury (TREC)	mg/L	<MDL	0.00007	0.0002	<MDL	0.00005	0.0002		<MDL	<MDL	
Molyebdenum (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.0003	0.0010			<MDL	
Nickel	mg/L				<MDL	<MDL	<MDL		<MDL		
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.002	0.010		<MDL	<MDL	
Silver	mg/L				<MDL	<MDL	<MDL		<MDL		
Sodium (TREC)	mg/L	3.7	7.6	15.3	3.9	10.9	31.5			5.0	
Zinc (TREC)	mg/L	0.03	0.03	0.04	<MDL	0.02	0.05		0.0337	<MDL	

The lower end of Deer Trail Ditch is monitored at a point where the ditch empties into the Fire Mountain Canal.

Baseline Information for Point Deer-low is derived from events beginning on 6/14/95 through 3/30/97.
Point influenced by mining on 3/30/97.

Plot of Flow and Conductivity



Deer-low - Canal - Deer Trail Ditch

Table 69

Deer-up
Canal - Deer Trail Ditch
Elevation - 5960

Initiated	6/14/1995	6/14/1995	6/14/1995	6/14/1995
Activated	3/30/1997	3/30/1997	3/30/1997	3/30/1997
Date	10/22/2019	8/8/2019	5/2/1919	3/26/2019

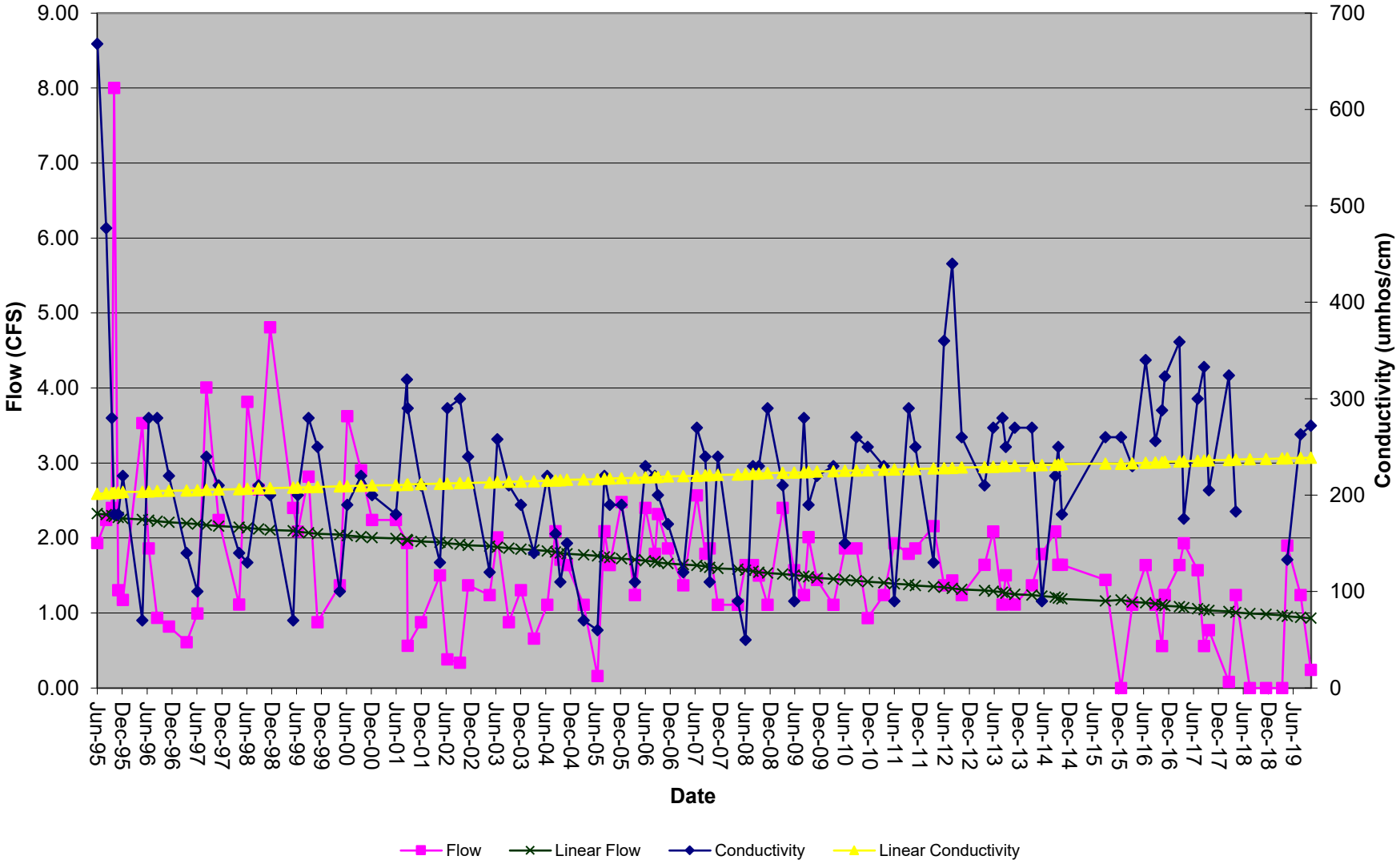
		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Flow	CFS	0.8	1.8	3.5	0.1	1.6	4.8	0.23	1.24	1.93	
Water Level in Flume	Feet	0.23	0.37	0.59	0.05	0.35	0.72	0.1	0.3	0.4	
FieldComment											Dry
ph	su	6.4	8.5	9.1	7.4	8.4	9.1	7.9	8.6	8.0	
Conductivity	umhos/cm	70	286	668	50	213	440	272	263	133	
Temperature	Celsius	0.8	11.4	20.3	0.2	9.6	22.1	1.5	17.4	3.9	
DO	mg/L	0.0	3.5	7.7	0.0	9.1	12.0				
Lab Parameters	UNITS										
Bicarbonate	mg/L	51.0	73.0	117.0	-42.5	104.9	176.0			-42.5	
Hydroxide	mg/L	0	0	0	0	0	0				
Chloride	mg/L	<MDL	1.67	3.00	<MDL	20.73	190.50		1.1	1.1	
Chromium III CrIII	mg/L				<MDL	<MDL	<MDL		<MDL		
Chromium VI CrIV	mg/L				<MDL	0.01	0.01		<MDL		
Cyanide, Total	mg/L				<MDL	<MDL	<MDL		<MDL		
Conductivity	umhos/cm	100	148	235	85	251	573			105	
Hardness	mg/L	42	61	94	<MDL	97	168		106	52.6	
Nitrate-Nitrite	mg/L	<MDL	0.02	0.07	<MDL	0.20	1.25			<MDL	
Nitrate	mg/L	<MDL	0.02	0.07	<MDL	0.33	2.87		0.011	0.1	
Nitrite	mg/L	<MDL	0.01	0.02	<MDL	0.003	0.016		<MDL	<MDL	
Dissolved Oxygen	mg/L	0	0.00	0.00	<MDL	9.375	10.850		7.9	10.85	
Ammonia	mg/L				<MDL	0.149	0.290		<MDL		
Oil and Grease	mg/L				<MDL	4.3	5.5				
pH	su	7.6	7.8	8.1	6.4	8.0	8.7		8.4		
Phosphate	mg/L	<MDL	0.01	0.03	<MDL	7.44	141.00				
ResidueFilterable-TDS	mg/L	50	100	150	60	187	475		160	116	
ResidueNonFilterable-TSS	mg/L	<MDL	25	52	<MDL	12	40			19	
SAR		0.24	0.37	0.62	<MDL	0.74	2.29			0.31	
Sulfate	mg/L	<MDL	10	20	<MDL	12.4	37.5		9.1	5.9	
Sulfide S	mg/L				<MDL	0.13	0.13		<MDL		
Aluminum (TREC)	mg/L	0.24	1.09	1.77	<MDL	0.35	2.03			0.742	
Arsenic (TREC)	mg/L	<MDL	0.0003	0.0010	<MDL	0.0054	0.0300		<MDL	<MDL	
Boron	mg/L				<MDL	0.82	1.40		<MDL		
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.006	0.040		<MDL	<MDL	
Calcium (TREC)	mg/L	11.8	17.2	26.5	8.29	28.92	134.00		30.6	15	
Copper (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.004	0.019		<MDL	<MDL	
Iron (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.07	0.25		0.0493	0.193	
Iron (TREC)	mg/L	0.38	1.19	1.85	0.03	11.62	618.00		<MDL	0.76	
Lead (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.0104	0.1000		<MDL	<MDL	
Magnesium (TREC)	mg/L	3.0	4.4	6.7	2.5	7.8	17.6		7.1	3.9	
Manganese (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.8	6.7		<MDL		
Manganese (TREC)	mg/L	0.02	0.03	0.03	0.002	0.926	26.700		0.0223	0.0281	
Mercury (TREC)	mg/L	<MDL	0.0001	0.0002	<MDL	0.00007	0.0004		<MDL	<MDL	
Molyebdenum (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.003	0.011			<MDL	
Nickel	mg/L				<MDL	0.0088	0.0120		<MDL		
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.0039	0.0230		<MDL	<MDL	
Silver	mg/L				<MDL	0.0030	0.0030		<MDL		
Sodium (TREC)	mg/L	3.6	7.1	13.8	3.8	19.0	66.5			5.4	
Zinc (TREC)	mg/L	0.01	0.02	0.03	<MDL	0.01	0.04		<MDL	<MDL	

The upper end of Deer Trail Ditch is monitored at the headgate located on Hubbard Creek. This monitoring point is fitted with a 2' Parshall Flume.

Negative Acidity value indicates equivalent value of alkalinity

Baseline Information for Point Deer-up is derived from events beginning on 6/14/95 through 3/30/97.
Point influenced by mining on 3/30/97.

Plot of Flow and Conductivity



Deer-up - Canal - Deer Trail Ditch

Table 71

FMC-low
Canal - Fire Mountain Canal
Elevation - 5920'

No water in canal for Septe

Initiated	5/19/1999	5/19/1999
Activated	5/19/1999	5/19/1999
Date	8/8/2019	5/2/2019

Field Parameters	UNITS	Summary Information Baseline Min	Ave	Max	Operation Min	Ave	Max		
Flow	CFS				44	161	182	165	153
FieldComment									
ph	su				6.8	8.2	8.9	8.2	8.4
Conductivity	umhos/cm				40	144	280	132	173
Temperature	Celsius				5.4	12.2	22.1	16.8	5.4
DO	mg/L				0.0	7.7	11.2		
Lab Parameters	UNITS								
Bicarbonate	mg/L				25	80.0	133.8	62.70	73.50
Chloride	mg/L				<MDL	7.6	37.5	1.1	1.5
Conductivity	umhos/cm				71	171	346	106	127
Hardness	mg/L				27.58	80.74	521.00	55.3	75.2
Nitrate-Nitrite	mg/L				<MDL	0.38	2.70	<MDL	<MDL
Oil and Grease	mg/L				<MDL	46.51	68.00	<MDL	<MDL
pH	su				6.4	7.7	8.4	7.95	8.04
Phosphate	mg/L				<MDL	0.06	0.24	0.04	0.11
ResidueFilterable-TDS	mg/L				40	121	300	85	122
ResidueNonFilterable-TSS	mg/L				<MDL	70	474	43	220
SAR					<MDL	0.53	1.55	0.357	0.334
Sulfate	mg/L				<MDL	12.90	51.86	8.0	13.6
Aluminum (TREC)	mg/L				<MDL	1.34	12.70	0.916	4.35
Arsenic (TREC)	mg/L				<MDL	0.0057	0.1000	<MDL	<MDL
Cadmium (TREC)	mg/L				<MDL	0.0068	0.1000	<MDL	<MDL
Calcium (TREC)	mg/L				7.45	20.0	37.1	17.4	21
Copper (TREC)	mg/L				<MDL	0.015	0.149	<MDL	<MDL
Iron (TREC)	mg/L				0.02	1.48	12.30	1.07	4.56
Lead (TREC)	mg/L				<MDL	0.0076	0.0500	<MDL	<MDL
Magnesium (TREC)	mg/L				1.87	4.56	15.20	2.89	5.53
Manganese (TREC)	mg/L				0.007	0.045	0.222	0.0272	0.133
Mercury (TREC)	mg/L				<MDL	0.000186	0.003000	<MDL	<MDL
Molybdenum (TREC)	mg/L				<MDL	0.004	0.02	<MDL	<MDL
Selenium (TREC)	mg/L				<MDL	0.0025	0.0120	<MDL	<MDL
Sodium (TREC)	mg/L				3.2	11.8	41.4	5.24	7.32
Zinc (TREC)	mg/L				<MDL	0.038	0.630	<MDL	<MDL

The area of concern for monitoring point FMC-low was affected by the mining operation before its establishment. Therefore, all recorded monitoring events are considered operational.

The lower monitoring point for the Fire Mountain Canal is located at a point just south of its crossing under old State Hwy 133. Flow data is received from Fire Mountain Canal records (Trey Dennison 970-527-5166 or cell 970-589-2857).

** Flow at full capacity near Somerset from their website. Did not receive a call back with actual values.*
*** Average flow values from last five years*

Note: The Fire Mountain Canal was dry before field parameters could be obtained 3Q (2017)

There is no baseline collection possible for points initiated after the influence of mining.

FMC-up
Canal - Fire Mountain Canal
Elevation - 5960'

								Initiated	5/19/1999	5/19/1999
								Activated	5/19/1999	5/19/1999
								Date	8/8/2019	5/2/2019
		Summary Information								
Field		Baseline			Operation					
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	CFS				13	157	182		165	153
FieldComment										
ph	su				7.0	8.2	8.9		8.2	8.1
Conductivity	umhos/cm				40	142	290		130	150
Temperature	Celsius				4.9	12.1	22.2		15.8	4.9
DO	mg/L				0.0	7.7	11.2			
Lab Parameters	UNITS									
Bicarbonate	mg/L				2.00	76.83	147.00		2	61.6
Chloride	mg/L				<MDL	11.6	103		1.1	1.1
Conductivity	umhos/cm				64	175	402		119	105
Hardness	mg/L				27.78	71.23	172.49			68.8
Nitrate-Nitrite	mg/L				<MDL	0.30	2.15		<MDL	0.1
Oil and Grease	mg/L				<MDL	<MDL	<MDL		<MDL	<MDL
pH	su				6.6	7.8	8.6		8.0	8.0
Phosphate	mg/L				<MDL	0.05	0.24		0.025	0.052
ResidueFilterable-TDS	mg/L				40	119	269		78	116
ResidueNonFilterable-TSS	mg/L				<MDL	70	472		36.1	19
SAR					<MDL	0.50	1.77		0.34	0.33
Sulfate	mg/L				<MDL	12.02	51.86		7.8	5.9
Aluminum (TREC)	mg/L				<MDL	1.36	14.00		1.49	3.32
Arsenic (TREC)	mg/L				<MDL	0.0052	0.0450		<MDL	<MDL
Cadmium (TREC)	mg/L				<MDL	0.0022	0.0100		<MDL	<MDL
Calcium (TREC)	mg/L				2.3	20.2	45.0		17.0	20.1
Copper (TREC)	mg/L				<MDL	0.0150	0.1440		<MDL	<MDL
Iron (TREC)	mg/L				0.03	1.48	13.30		1.88	2.95
Lead (TREC)	mg/L				<MDL	0.0060	0.0300		<MDL	<MDL
Magnesium (TREC)	mg/L				1.8	4.5	14.6		3.0	4.5
Manganese (TREC)	mg/L				0.007	0.047	0.250		0.0519	0.0813
Mercury (TREC)	mg/L				<MDL	0.00004	0.00018		<MDL	<MDL
Molybdenum (TREC)	mg/L				<MDL	0.004	0.030		<MDL	<MDL
Selenium (TREC)	mg/L				<MDL	0.0024	0.0110		<MDL	<MDL
Sodium (TREC)	mg/L				3.0	10.9	36.6		5.2	5.8
Zinc (TREC)	mg/L				<MDL	0.015	0.090		<MDL	<MDL

The area of concern for monitoring point FMC-up was affected by the mining operation before its establishment. Therefore, all recorded monitoring events are considered operational.

The upper monitoring point for the Fire Mountain Canal is located where the ditch crosses Hubbard Creek. Flow data is received from Fire Mountain Canal records (Trey Dennison 970-527-5166 or cell 970-589-2857).

** Flow at full capacity near Somerset from their website. Did not receive a call back with actual values.*
*** Average flow values from last five years*

Note: The Fire Mountain Canal was dry before field parameters could be obtained 3Q (2017)

There is no baseline collection possible for points initiated after the influence of mining.

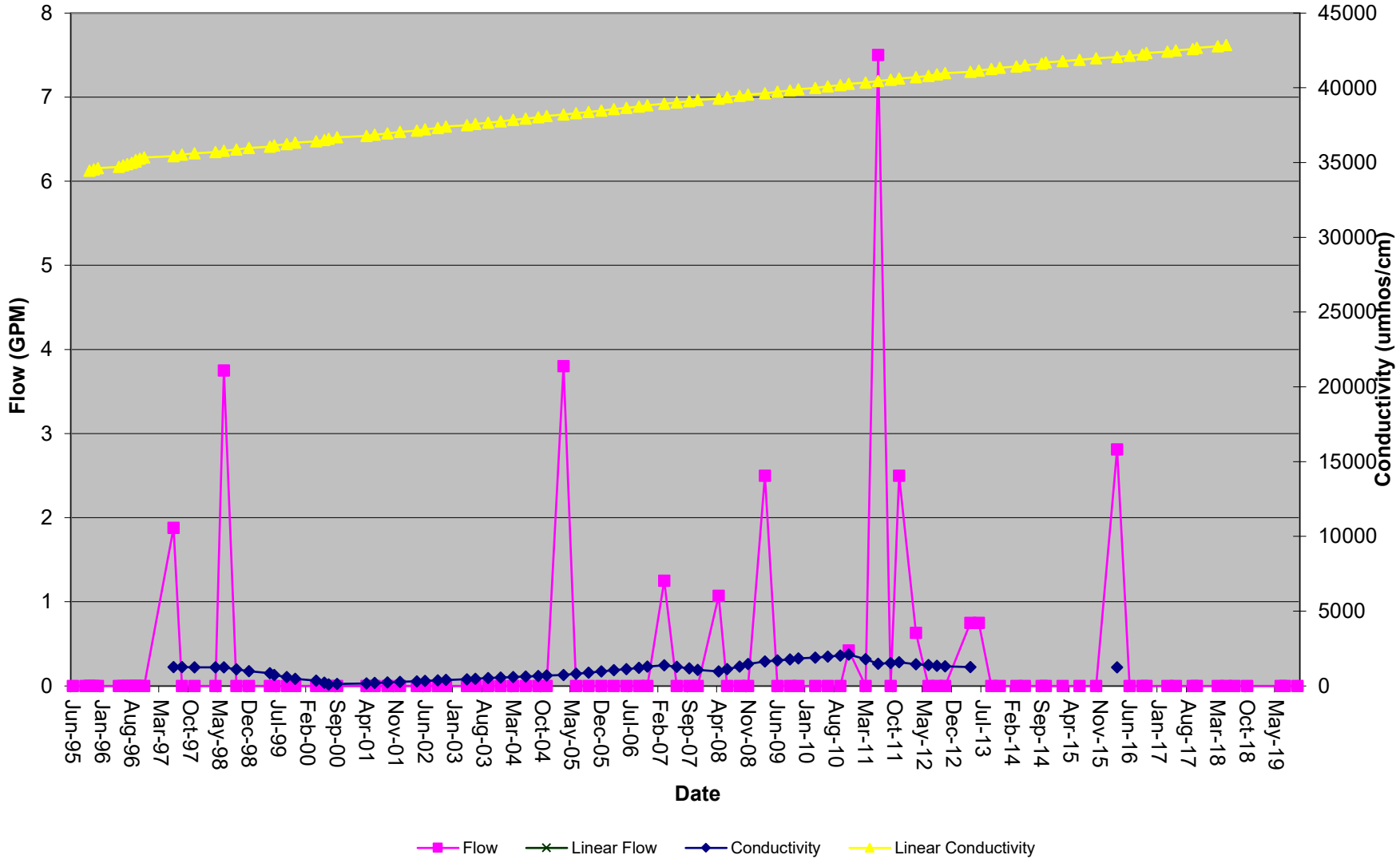
Free-low
Freeman Gulch - Drainage System
Elevation - 7560

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	6/23/1999	6/23/1999	6/23/1999
Date	10/22/2019	7/23/2019	6/15/2019

Field Parameters	UNITS	Summary Information Baseline Min	Ave	Max	Operation Min	Ave	Max			
Flow	GPM	0.00	0.24	3.75	0.00	0.31	7.50	0	0	0
FieldComment								Dry	Dry	Dry
ph	su	8.3	8.5	8.6	7.3	8.2	8.6			
Conductivity	umhos/cm	1240	1250	1260	90	1303	2100			
Temperature	Celsius	18.4	19.8	21.2	0.6	12.3	23.0			
Lab Parameters	UNITS									
Bicarbonate	mg/L	594	604	614	238.6	342.4	543.9			
Chloride	mg/L	16	18	19	3.06	8.13	11.41			
Conductivity	umhos/cm	1170	1190	1210	1321	1754	2470			
Hardness	mg/L	404	430	456	308.0	404.7	578.9			
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL	0.48	0.48	0.48			
Oil and Grease	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
pH	su	8.3	8.3	8.4	7.6	7.7	7.8			
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			
ResidueFilterable-TDS	mg/L	730	765	800	1056	1263	1590			
ResidueNonFilterable-TSS	mg/L	<MDL	3	6	6	36	90			
SAR		2.48	2.63	2.78	2.91	4.45	5.30			
Sulfate	mg/L	130	130	130	316.9	382.4	507.5			
Aluminum (TREC)	mg/L	0.13	0.21	0.29	<MDL	0.40	0.61			
Arsenic (TREC)	mg/L	<MDL	<MDL	<MDL	0.002	0.005	0.006			
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL	0.002	0.005	0.010			
Calcium (TREC)	mg/L	56.4	61.2	65.9	50.80	66.93	98.40			
Copper (TREC)	mg/L	<MDL	0.005	0.01	0.01	0.02	0.02			
Iron (TREC)	mg/L	0.11	0.15	0.19	0.06	0.08	0.10			
Lead (TREC)	mg/L	<MDL	<MDL	<MDL	0.02	0.03	0.03			
Magnesium (TREC)	mg/L	64.1	67.5	70.8	44.0	57.7	80.9			
Manganese (TREC)	mg/L	0.010	0.013	0.016	0.00	0.03	0.06			
Mercury (TREC)	mg/L	<MDL	<MDL	<MDL	0.00001	0.00006	0.00008			
Molyebdenum (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.003	0.005			
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.016	0.018			
Sodium (TREC)	mg/L	120	124	127	163.0	199.3	223.5			
Zinc (TREC)	mg/L	<MDL	0.01	0.03	<MDL	0.03	0.06			

Baseline Information for Point Free-low is derived from events beginning 6/12/95 through 6/23/99.
Point influenced by mining on 6/23/99.

Plot of Flow and Conductivity



Free-low - Freeman Gulch Drainage System

Table 75

Free-up
Freeman Gulch - Drainage System
Elevation - 6360

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	6/28/1999	6/28/1999	6/28/1999
Date	10/29/2019	7/23/2019	6/10/2019

Field Parameters	UNITS	Summary Information Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.00	0.00	0.00	0.28	10.30	0	0	10.3
FieldComment								Dry	Dry	
ph	su				6.68	7.50	8.00			6.7
Conductivity	umhos/cm				710.00	723.50	759.00			715
Temperature	Celsius				7.20	8.65	11.50			8.4
Lab Parameters	UNITS									
Bicarbonate	mg/L				323.00	341.50	360.00			323
Chloride	mg/L				<MDL	<MDL	2.20			2.2
Conductivity	umhos/cm				519.00	587.50	656.00			656
Hardness	mg/L				237.00	241.00	245.00			237
Nitrate-Nitrite	mg/L				0.00	<MDL	0.00			<MDL
Oil and Grease	mg/L				0.00	<MDL	0.00			<MDL
pH	su				7.37	7.37	7.55			7.55
Phosphate	mg/L				0.02	<MDL	0.02			0.022
ResidueFilterable-TDS	mg/L				418.00	429.00	429.00			418
ResidueNonFilterable-TSS	mg/L				7.40	<MDL	7.40			7.4
SAR					1.86	1.86	1.91			1.91
Sulfate	mg/L				96.50	<MDL	96.50			96.5
Aluminum	mg/L				0.00	<MDL	0.00			<MDL
Arsenic	mg/L				0.00	<MDL	0.00			<MDL
Cadmium	mg/L				0.02	0.02	0.02			<MDL
Calcium	mg/L				66.10	67.70	67.70			66.1
Copper	mg/L				0.00	<MDL	0.00			<MDL
Iron (Total)	mg/L				0.03	0.03	0.07			0.0691
Lead	mg/L				0.00	<MDL	0.00			<MDL
Magnesium	mg/L				17.40	18.50	18.50			17.4
Manganese (Total)	mg/L				0.01	0.01	0.01			<MDL
Mercury	mg/L				0.11	<MDL	0.11			0.11
Molyebdenum	mg/L				0.00	<MDL	0.00			<MDL
Selenium	mg/L				0.08	0.08	0.08			<MDL
Sodium	mg/L				57.60	68.20	68.20			57.6
Zinc	mg/L				0.00	<MDL	0.00			<MDL

Upper Freeman Gulch is monitored just below Pond 2 at the upper end of Freeman Gulch, near drill holes DH34-B and DH34-C.

Note: Site was not accessible during 1Q 2018

Baseline Information for Point Free-up is derived from events beginning 6/12/95 through 6/28/99.
Point influenced by mining on 6/28/99.

HUB-low
Hubbard Creek - Drainage System
Elevation - 5880

Initiated	9/30/1996	9/30/1996	9/30/1996
Activated	6/23/1999	6/23/1999	6/23/1999
Date	10/22/2019	7/23/2019	6/5/2019

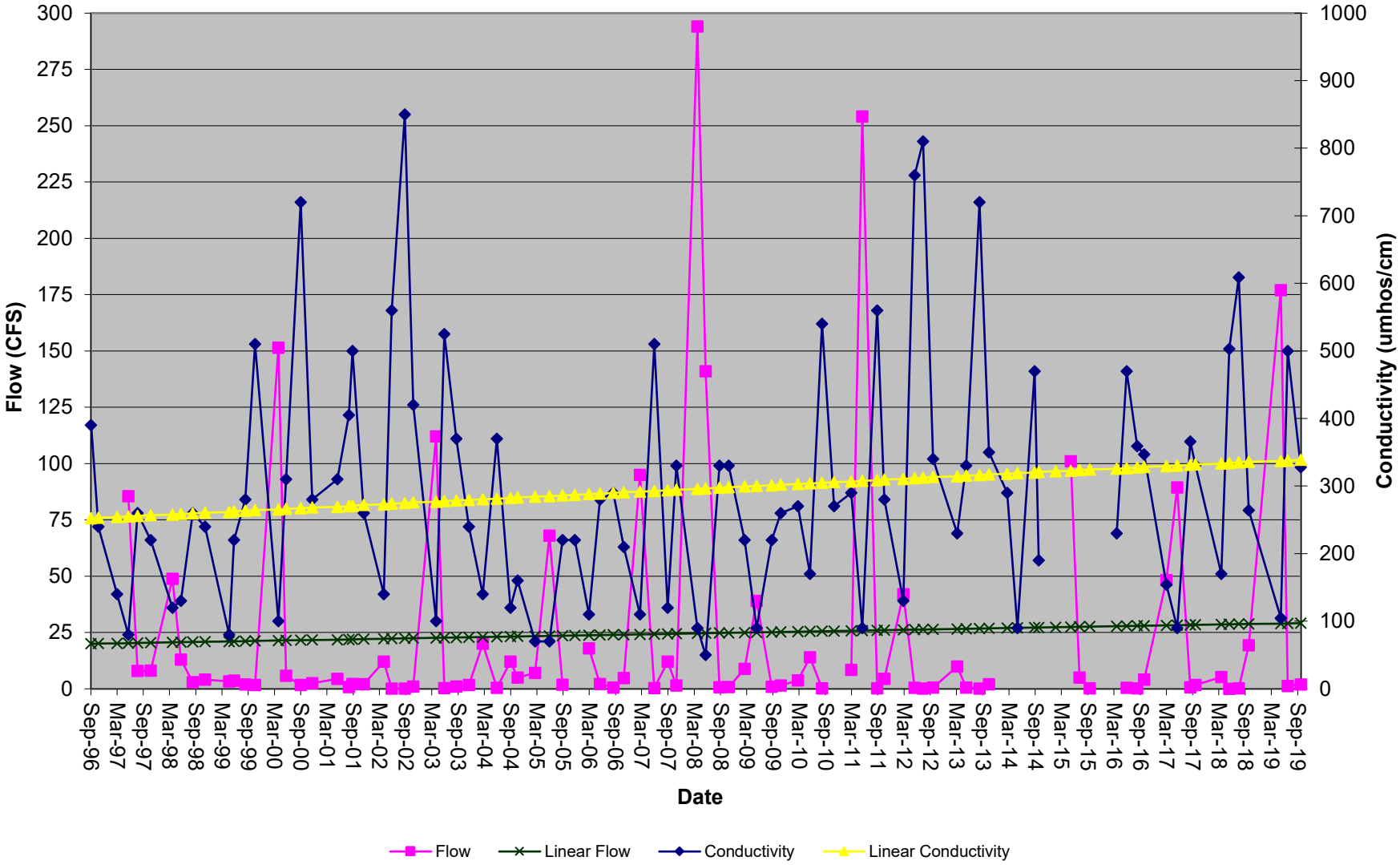
		Summary Information								
Field		Baseline			Operation					
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	CFS	2.90	19.67	85.51	0.04	25.46	294.00	1.85	1.22	176.9
FieldComment										
ph	su	8.0	8.5	9.3	7.1	8.3	9.0	7.7	8.4	7.4
Conductivity	umhos/cm	80	198	390	50	307	850	328	500	105
Temperature	Celsius	2.3	11.1	20.2	0.3	9.6	21.7	1.9	15.7	5.3
Lab										
Parameters	UNITS									
Bicarbonate	mg/L	62	115	155	28	143	690			51.1
Chloride	mg/L	<MDL	1.7	3.0	<MDL	27.9	203.6			0.63
Conductivity	umhos/cm	118	254	406	87	328	711			87.2
Hardness	mg/L	49	96	138	0.06	126.09	315.52			43
Nitrate-Nitrite	mg/L	<MDL	0.05	0.29	<MDL	0.17	1.62			<MDL
Oil and Grease	mg/L	<MDL	3.0	3.0	<MDL	3.0	3.0			<MDL
pH	su	7.5	7.9	8.3	6.9	8.0	8.4			8.0
Phosphate	mg/L	<MDL	0.004	0.030	<MDL	0.04	0.27			0.034
ResidueFilterable-TDS	mg/L	100	163	260	60	237	563			85
ResidueNonFilterable-TSS	mg/L	<MDL	33	170	<MDL	21	200			23.2
SAR		<MDL	0.47	1.04	<MDL	0.88	2.62			0.24
Sulfate	mg/L	<MDL	17	50	<MDL	33	102			3.6
Aluminum (TREC)	mg/L	0.05	0.58	1.91	<MDL	21.85	733.00			733
Arsenic (TREC)	mg/L	<MDL	0.0004	0.0010	<MDL	0.0083	0.0600			<MDL
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.010	0.040			<MDL
Calcium (TREC)	mg/L	13.8	26.2	36.7	8.5	32.3	70.7			12.1
Copper (TREC)	mg/L	<MDL	0.001	0.010	<MDL	0.008	0.060			<MDL
Iron (TREC)	mg/L	0.09	0.54	1.44	0.06	0.31	1.28			0.87
Iron (Dissolved)	mg/L	0.00	#DIV/0!	0.00	0.16	0.16	0.16			0.16
Lead (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.0146	0.0700			<MDL
Magnesium (TREC)	mg/L	3.6	7.4	11.2	2.4	11.3	34.6			3.1
Manganese (TREC)	mg/L	0.009	0.016	0.034	<MDL	0.022	0.080			0.0355
Mercury (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.00007	0.00018			<MDL
Molyebdenum (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.006	0.030			<MDL
Selenium (TREC)	mg/L	<MDL	0.001	0.010	<MDL	0.0046	0.0200			<MDL
Sodium (TREC)	mg/L	5.3	15.9	27.6	3.6	25.7	73.0			3.9
Zinc (TREC)	mg/L	<MDL	0.01	0.04	<MDL	0.009	0.037			<MDL

Note 1: USGS did not collect flow values.
** Streamflow too low for measurement*

The Lower Hubbard Creek monitoring point is located at a concrete box culvert under the Union Pacific railroad track just above the North Fork of the Gunnison. Flow values are taken by Resource Engineering Inc.

Baseline Information for Point Hub-low is derived from events beginning on 9/30/96 through 6/23/99.
Point influenced by mining on 6/23/99.

Plot of Flow and Conductivity



Hub-low - Hubbard Creek Drainage System

Table 78

NFG-low
North Fork - Drainage System
Elevation - 5680

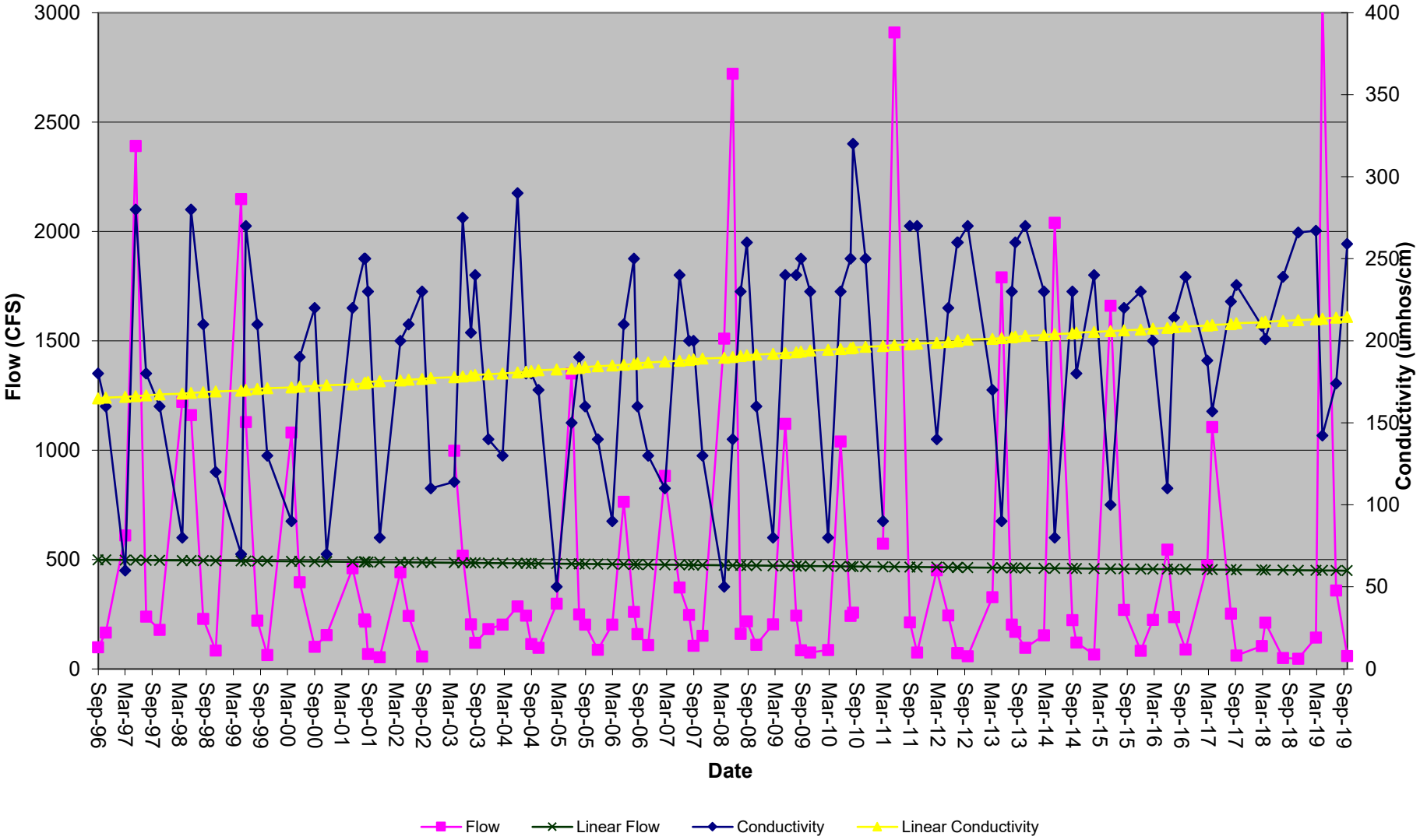
Initiated	9/30/1996	9/30/1996	9/30/1996	9/30/1996
Activated	3/31/1997	3/31/1997	3/31/1997	3/31/1997
Date	10/22/2019	8/8/2019	5/8/2019	3/26/2019

		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Flow	CFS	99	292	610	47	479	3080	59.3	358	3080	143
FieldComment											
ph	su	8.1	8.4	8.7	7.6	8.3	9.1	8.2	8.3	8.2	8.4
Conductivity	umhos/cm	160	180	200	50	190	320	259	174	142	267
Temperature	Celsius	4.0	8.5	14.6	0.3	11.0	22.6	3.7	18.5	7.1	3.6
DO	mg/L				0.0	8.6	11.5				
Lab											
Parameters	UNITS										
Bicarbonate	mg/L	95	100	105	28.1	85.4	148.0				67.3
Chloride	mg/L	2.00	2.50	3.00	<MDL	24.96	288.30		1.6		1.1
Chromium III CrIII	mg/L				<MDL	<MDL	<MDL		<MDL		
Chromium VI CrIV	mg/L				<MDL	<MDL	<MDL		<MDL		
Cyanide, Total	mg/L				<MDL	<MDL	<MDL		<MDL		
Conductivity	umhos/cm	201	222	242	78	215	754				112
Hardness	mg/L	84	85	85	<MDL	84.98	270.40		69.7		57.4
Nitrate	mg/L	<MDL	0.08	0.16	<MDL	0.33	3.90		<MDL		0.047
Nitrate-Nitrite	mg/L	0.00	0.08	0.16	<MDL	<MDL	<MDL		<MDL		<MDL
Nitrite	mg/L	<MDL	<MDL	<MDL	<MDL	0.002	0.010		<MDL		<MDL
Ammonia	mg/L	<MDL	<MDL	<MDL	<MDL	0.06	0.31		<MDL		
Oil & Grease	mg/L	<MDL	<MDL	<MDL	<MDL	4	5		<MDL		<MDL
pH	su	8.0	8.0	8.0	7.0	7.9	8.8		8.22		7.87
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	0.11	1.50				0.062
ResidueFilterable-TDS	mg/L	130	140	150	50	158	692		97		95
ResidueNonFilterable-TSS	mg/L	<MDL	3	6	<MDL	23	141				105
SAR		0.55	0.61	0.66	<MDL	0.63	2.42				0.333
Sulfate	mg/L	10.0	15.0	20.0	<MDL	16.4	82.5		13.5		6.2
Sulfide S	mg/L				<MDL	0.04	0.04		<MDL		
Aluminum (TREC)	mg/L	0.10	0.15	0.21	<MDL	0.37	1.32				0.853
Arsenic (TREC)	mg/L	<MDL	0.001	0.001	<MDL	0.0061	0.0500		<MDL		<MDL
Boron	mg/L				0.02	0.56	1.35		<MDL		
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.0029	0.0180		<MDL		<MDL
Calcium (TREC)	mg/L	24.6	24.8	25.0	6.9	27.2	132.0		20.7		17.2
Copper (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.012	0.198		<MDL		<MDL
Iron, Dissolved	mg/L	<MDL	<MDL	<MDL	<MDL	0.35	12.90		0.029		0.0616
Iron (TREC)	mg/L	0.14	0.21	0.27	<MDL	0.39	4.17		0.134		0.795
Lead (TREC)	mg/L	<MDL	0.010	0.020	<MDL	0.0120	0.1500		<MDL		<MDL
Magnesium (TREC)	mg/L	5.30	5.50	5.70	2.00	6.13	18.80		4.38		3.52
Manganese (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.153	2.900		0.0069		
Manganese (TREC)	mg/L	0.021	0.090	0.160	0.007	0.045	0.802		0.0178		0.0401
Mercury (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.00007	0.00030		<MDL		<MDL
Molyebdenum (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.004	0.030				<MDL
Nickel	mg/L				<MDL	0.010	0.010		<MDL		
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.004	0.034		<MDL		<MDL
Silver	mg/L				<MDL	<MDL	<MDL		<MDL		
Sodium (TREC)	mg/L	11.5	12.2	12.9	3.0	15.2	91.5				5.2
Zinc (TREC)	mg/L	0.02	0.02	0.03	<MDL	0.02	0.16		<MDL		<MDL

Field parameters, except flow, for the Lower North Fork of the Gunnison River are taken on the river approximately 1500' below the confluence of Terror Creek and the North Fork of the Gunnison. Flow data for the North Fork of the Gunnison river is obtained from USGS station #09132500.

Baseline Information for Point NFG-low is derived from events beginning on 9/30/96 through 3/31/97. Point influenced by mining on 3/31/97.

Plot of Flow and Conductivity



NFG-low - North Fork Drainage System

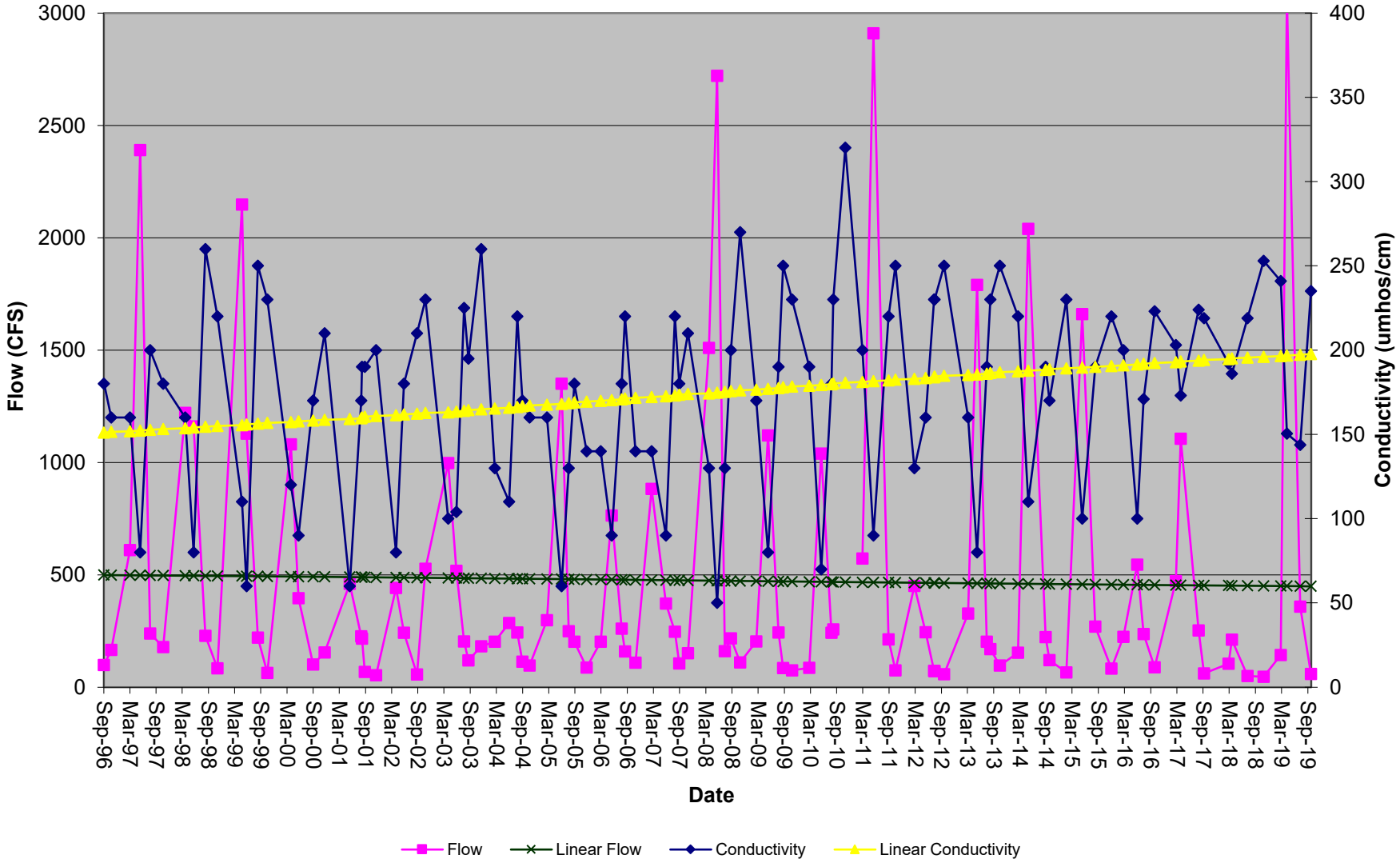
NFG-up
North Fork - Drainage System
Elevation - 5880

Initiated								9/30/1996	9/30/1996	9/30/1996	9/30/1996
Activated								3/31/1997	3/31/1997	3/31/1997	3/31/1997
Date								10/22/2019	8/8/2019	5/8/2019	3/26/2019
		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Flow	CFS	99	292	610	47	479	3080	59.3	358	3080	143
FieldComment											
ph	su	8.1	8.5	8.8	7.1	8.3	9.7	7.1	8.1	8.9	8.4
Conductivity	umhos/cm	160	167	180	50	175	320	235.0	143.7	150.5	241.0
Temperature	Celsius	3.6	7.3	13.7	0.2	10.3	22.6	0.6	15.7	5.7	4.4
DO	mg/L				7.2	9.3	11.8				
Lab											
Parameters	UNITS										
Bicarbonate	mg/L	88	93	98	31	84	203			67.5	
Chloride	mg/L	2.0	2.5	3.0	<MDL	30.8	471.5	1.4		1.3	
Chromium III CrIII	mg/L				<MDL	<MDL	<MDL	<MDL			
Chromium VI CrIV	mg/L				<MDL	0.008	0.008	<MDL			
Cyanide, Total	mg/L				<MDL	0.067	0.081	<MDL			
Conductivity	umhos/cm	185	205	225	7	204	668			123	
Hardness	mg/L	74	77	79	26.5	80.4	253.0				
Nitrate	mg/L	<MDL	0.05	0.09	<MDL	0.36	3.47	0.065		0.045	
Nitrate/Nitrite	mg/L	0.00	0.05	0.09	<MDL	0.3	3	<MDL		<MDL	
Nitrite	mg/L	<MDL	<MDL	<MDL	<MDL	0.004	0.017	<MDL		<MDL	
Ammonia	mg/L	<MDL	<MDL	<MDL	<MDL	0.04	0.23				
Oil & Grease	mg/L	<MDL	<MDL	<MDL	<MDL	7	11	<MDL		<MDL	
pH	su	7.9	8.0	8.0	6.9	7.9	9.0	8.02		8.02	
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	0.13	1.90			0.07	
ResidueFilterable-TDS	mg/L	120	130	140	9	147	522	99		97	
ResidueNonFilterable-TSS	mg/L	10	11	12	<MDL	23	131			75.4	
SAR		0.42	0.60	0.78	<MDL	0.66	2.39			0.415	
Sulfate	mg/L	10	15	20	<MDL	19	80	11.3		6.1	
Sulfide S	mg/L				<MDL	0.05	0.05	<MDL			
Aluminum (TREC)	mg/L	0.08	0.18	0.27	<MDL	17.72	691.00			0.56	
Arsenic (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.0043	0.0350	<MDL		<MDL	
Boron	mg/L				0.02	0.49	1.20	<MDL			
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.007	0.031	<MDL		<MDL	
Calcium (TREC)	mg/L	21.9	22.9	24.0	7.0	24.7	138.0	17.8		17.3	
Copper (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.012	0.197	<MDL		<MDL	
Iron, Dissolved	mg/L				<MDL	0.77	22.80	0.0204			
Iron (TREC)	mg/L	0.09	0.09	0.09	0.03	2.09	81.00	0.977		0.558	
Lead (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.0121	0.1200	<MDL		<MDL	
Magnesium (TREC)	mg/L	4.70	4.70	4.70	1.88	5.56	23.40	3.33		3.5	
Manganese (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.27	2.90	<MDL			
Manganese (TREC)	mg/L	0.011	0.015	0.019	<MDL	0.177	7.600	0.0204		0.0498	
Mercury (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.00006	0.00022	<MDL		<MDL	
Molyebdenum (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.004	0.030			<MDL	
Nickel	mg/L				<MDL	0.01	0.01	<MDL			
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL	<MDL	0.003	0.027	<MDL		<MDL	
Silver	mg/L				<MDL	<MDL	<MDL	<MDL			
Sodium (TREC)	mg/L	8.6	12.0	15.3	3.3	138.1	5420.0			5420.0	
Zinc (TREC)	mg/L	0.020	0.025	0.030	<MDL	0.015	0.143	<MDL		<MDL	

Field parameters, except flow in the Upper North Fork of the Gunnison River monitoring point are taken on the river just above its confluence with Hubbard Creek. Flow data for the North Fork of the Gunnison river is obtained from USGS station #09132500.

Baseline Information for Point NFG-up is derived from events beginning on 9/30/96 through 3/31/97.
Point influenced by mining on 3/31/97.

Plot of Flow and Conductivity



NFG-up - North Fork Drainage System

Table 82

Steph-low
Stevens Draw - Drainage System
Elevation - 7000'

Initiated	7/12/1995	7/12/1995	7/12/1995
Activated	7/1/2002	7/1/2002	7/1/2002
Date	10/22/2019	7/23/2019	5/13/2019

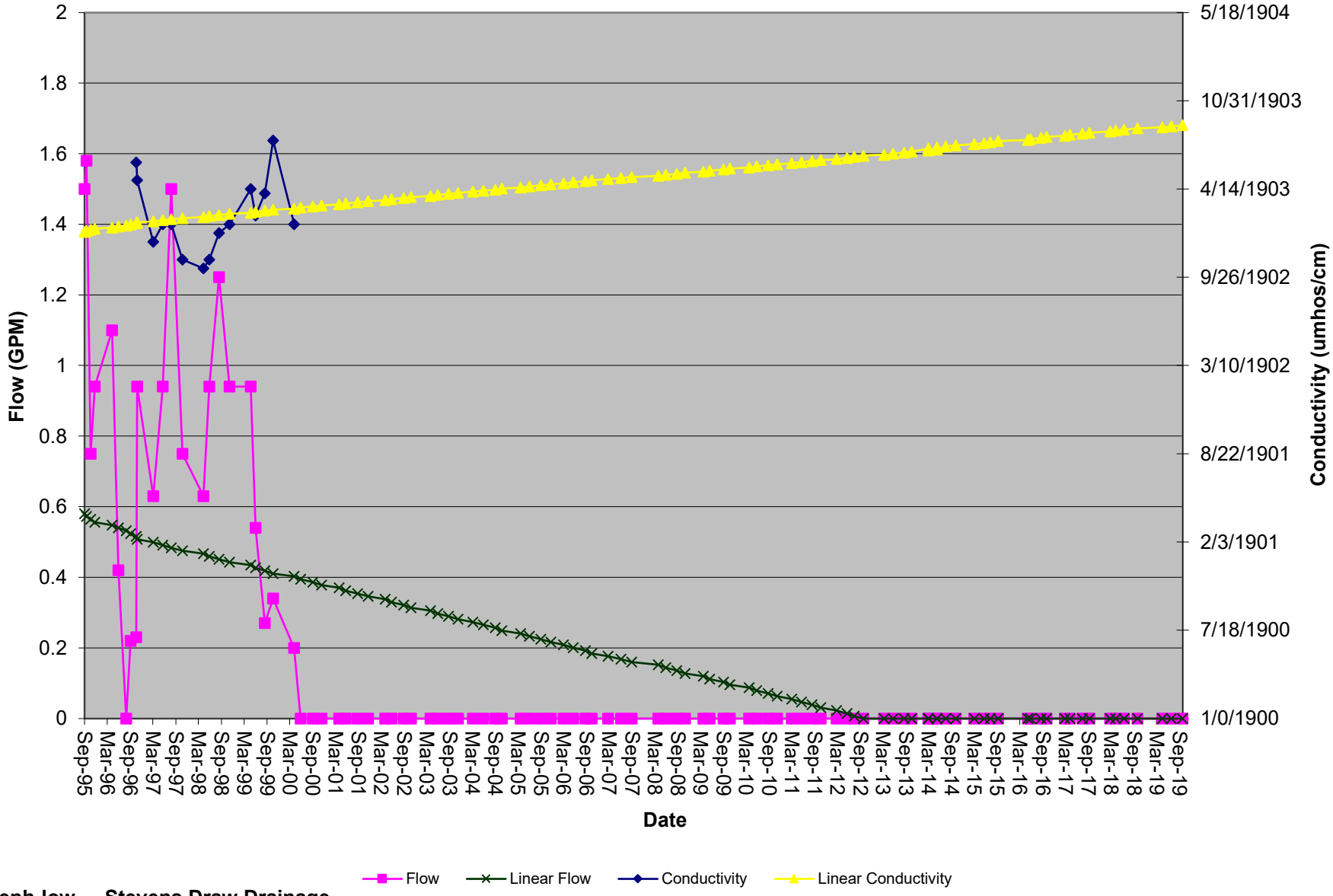
Field Parameters	UNITS	Summary Information Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.17	1.58				0	0	0
FieldComment								Dry	Dry	Dry
ph	su	7.9	8.2	8.4						
Conductivity	umhos/cm	1020	1139	1310						
Temperature	Celsius	3.8	10.8	17.2						
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	452	495	554						
Chloride	mg/L	14	16	20						
Conductivity	umhos/cm	1020	1093	1180						
Hardness	mg/L	343	382	433						
Nitrate-Nitrite	mg/L	0.02	0.20	0.97						
Oil and Grease	mg/L	<MDL	1	4						
pH	su	8.0	8.2	8.3						
Phosphate	mg/L	<MDL	<MDL	<MDL						
ResidueFilterable-TDS	mg/L	660	718	780						
ResidueNonFilterable-TSS	mg/L	<MDL	21	58						
SAR		<MDL	2.28	3.22						
Sulfate	mg/L	150	170	190						
Aluminum	mg/L	0.05	0.53	1.71						
Arsenic	mg/L	<MDL	0.001	0.002						
Cadmium	mg/L	<MDL	<MDL	<MDL						
Calcium	mg/L	49.4	59.6	72.4						
Copper	mg/L	<MDL	0.002	0.010						
Iron (Total)	mg/L	0.27	0.82	2.57						
Lead	mg/L	<MDL	<MDL	<MDL						
Magnesium	mg/L	41.3	55.9	66.2						
Manganese (Total)	mg/L	0.070	0.211	0.566						
Mercury	mg/L	<MDL	<MDL	<MDL						
Molyebdenum	mg/L	<MDL	<MDL	<MDL						
Selenium	mg/L	<MDL	0.0002	0.001						
Sodium	mg/L	99.8	120.0	152.0						
Zinc	mg/L	<MDL	0.01	0.03						

The area of concern for monitoring point Steph-low has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

The monitoring point location for Lower Stevens Draw is located in Stevens Draw, just below Pond 1 and Spring 14. It is accessed by a southern fork of the Stevens Draw road.

Baseline Information Collection initiated on 9/27/95 and not yet considered complete.
Point Steph-low has not been influenced by mining.

Plot of Flow and Conductivity



Steph-low - Stevens Draw Drainage System

Table 84

Steph-up
Stevens Draw - Drainage System
Elevation - 7920'

Initiated	7/12/1995	7/12/1995	7/12/1995
Activated	7/1/2002	7/1/2002	7/1/2002
Date	10/22/2019	7/23/2019	5/14/2019

Field Parameters	UNITS	Summary Information Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	GPM	0.00	0.15	5.00	0.00	0.06	3.75	0	0	0
FieldComment								Dry	Dry	Dry
ph	su				7.7	7.7	7.7			
Conductivity	umhos/cm				200	200	200			
Temperature	Celsius				11.2	11.2	11.2			
Lab Parameters	**UNITS**									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
Nitrate-Nitrite	mg/L									
Oil and Grease	mg/L									
pH	su									
Phosphate	mg/L									
ResidueFilterable-TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Calcium	mg/L									
Copper	mg/L									
Iron (Total)	mg/L									
Lead	mg/L									
Magnesium	mg/L									
Manganese (Total)	mg/L									
Mercury	mg/L									
Molyebdenum	mg/L									
Selenium	mg/L									
Sodium	mg/L									
Zinc	mg/L									

Note: 1Q 2019 site inaccessible

The monitoring point for Upper Stevens Draw is located in Stevens Draw, just below Spring 11. It is accessed by the Stevens Draw road.

Baseline Information for Point Steph-up is derived from events beginning 7/12/95 through 7/1/02.
Point influenced by mining on 7/1/02.

SW-01
West Terror Creek - Downstream
Elevation - 7140

Initiated								10/24/2013	10/24/2013	10/24/2013
Activated										
Date								10/22/2019	8/7/2019	5/14/2019
		Summary Information								
Field		Baseline			Operation					
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	CFS	0.29	4.17	52.00				0.99	2.74	10.62
Water Level in Flume	Feet	0.100	0.632	2.000				0.4	0.78	1.9
Temperature	Celsius	0	6.5	20.2				0.2	17.5	7.0
Conductivity	umhos/cm	81.3	137	190				161.5	111.5	81.3
pH	su	7.56	8.2	8.9				8.15	8.32	8.12
Field Comments										
Lab Parameters	UNITS									
Bicarbonate	mg/L	41.6	73.2	90.6						41.6
Chloride	mg/L	0.56	0.85	1.30						0.58
Conductivity	umhos/cm	65.4	109	139						65.4
Hardness	mg/L	40.3	56.12	69.90						
Acidity	mg/L	-76	-54.44	-25.00						-25
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL						<MDL
Oil and Grease	mg/L	<MDL	<MDL	<MDL						<MDL
Phosphate	mg/L	0.017	0.06	0.23						0.049
ResidueFilterable-TDS	mg/L	86.7	104	144						92
ResidueNonFilterable-TSS	mg/L	<MDL	15	34						23.8
SAR		0.226	0.330	0.505						0.23
Sulfate	mg/L	1.8	3.2	4.7						1.8
Aluminum (TREC)	mg/L	<MDL	9.036	101.000						1.76
Arsenic (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Calcium (TREC)	mg/L	8.6	14.1	18.0						8.57
Calcium (Dissolved)	mg/L	12.0	15.4	18.2						
Copper (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Iron (Dissolved)	mg/L	0.0310	3.8880	41.6000						
Iron (TREC)	mg/L	0.074	0.458	1.430						1.43
Lead (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Magnesium (TREC)	mg/L	2.87	4.68	6.07						2.87
Magnesium (Dissolved)	mg/L	3.59	5.10	6.09						
Manganese (TREC)	mg/L	0.0058	0.0147	0.0334						0.0334
Mercury (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Molybdenum (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Sodium (TREC)	mg/L	3.37	5.69	8.50						3.37
Sodium (Dissolved)	mg/L	3.48	5.78	8.66						
Zinc (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL

The area of concern for monitoring point SW-01 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.
Negative acidity value indicates equivalent value of alkalinity

SW-02
Terror Creek - Mid Stream
Elevation - 7040

Initiated								10/24/2013	10/24/2013	10/24/2013
Activated										
Date								10/22/2019	8/7/2019	5/14/2019
		Summary Information								
Field		Baseline			Operation					
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Flow	CFS	0.00	5.75	81.22				0.423	3.769	13.549
Water Level in Flume	Feet	0.00	0.36	2.80				0.100	0.400	0.900
Temperature	Celsius	-0.7	9.0	20.3				0	13.6	6.2
Conductivity	umhos/cm	2.9	125	320				191.7	95.9	84
pH	su	5.3	8.2	10.2				7.69	8.13	7.76
Field Comments										
Lab										
Parameters	UNITS									
Bicarbonate	mg/L	38	84	148						43.6
Chloride	mg/L	0.57	25.49	198.50						0.57
Conductivity	umhos/cm	65.4	184	548						65.4
Hardness	mg/L	29.02	72.44	157.58						
Nitrate-Nitrite	mg/L	<MDL	0.24	0.61						<MDL
Oil and Grease	mg/L	<MDL	<MDL	<MDL						<MDL
pH	su	6.7	7.7	8.8						7.73
Phosphate	mg/L	<MDL	0.82	7.79						0.049
ResidueFilterable-TDS	mg/L	70	150	430						84
ResidueNonFilterable-TSS	mg/L	<MDL	29	174						33.8
SAR		0.11	0.49	2.22						0.245
Sulfate	mg/L	1.70	10.76	35.00						1.7
Aluminum (TREC)	mg/L	<MDL	24.078	400.000						0.783
Arsenic (TREC)	mg/L	<MDL	0.023	0.075						<MDL
Cadmium (TREC)	mg/L	<MDL	0.008	0.020						<MDL
Calcium (TREC)	mg/L	5.42	18.41	42.00						8.68
Copper (TREC)	mg/L	<MDL	0.004	0.010						<MDL
Iron (TREC)	mg/L	0.033	0.522	1.250						0.637
Lead (TREC)	mg/L	<MDL	0.013	0.050						<MDL
Magnesium (TREC)	mg/L	3.24	8.74	18.10						3.24
Manganese (TREC)	mg/L	0.01	0.03	0.05						0.0306
Mercury (TREC)	mg/L	<MDL	0.00006	0.00016						<MDL
Molybdenum (TREC)	mg/L	<MDL	0.004	0.006						<MDL
Selenium (TREC)	mg/L	<MDL	0.00614	0.02300						<MDL
Sodium (TREC)	mg/L	3.5	14.2	64.0						3.51
Zinc (TREC)	mg/L	<MDL	0.027	0.060						<MDL

The area of concern for monitoring point SW-02 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

SW-02 is located on the East Fork of Terror Creek in the NW1/4 SE1/4 Sec 5, T13S, R91W, of the 6th P.M. A 48" Parshall flume manufactu by the Thompson Pipe and Steel Company of Denver, Colorado was installed at this location.

SW-05
Stevens Gulch - Downstream
Elevation - 6600

Initiated	1/1/1983	1/1/1983	1/1/1983	1/1/1983
Activated				
Date	10/22/2019	8/12/2019	5/8/2019	3/28/2019

Summary Information

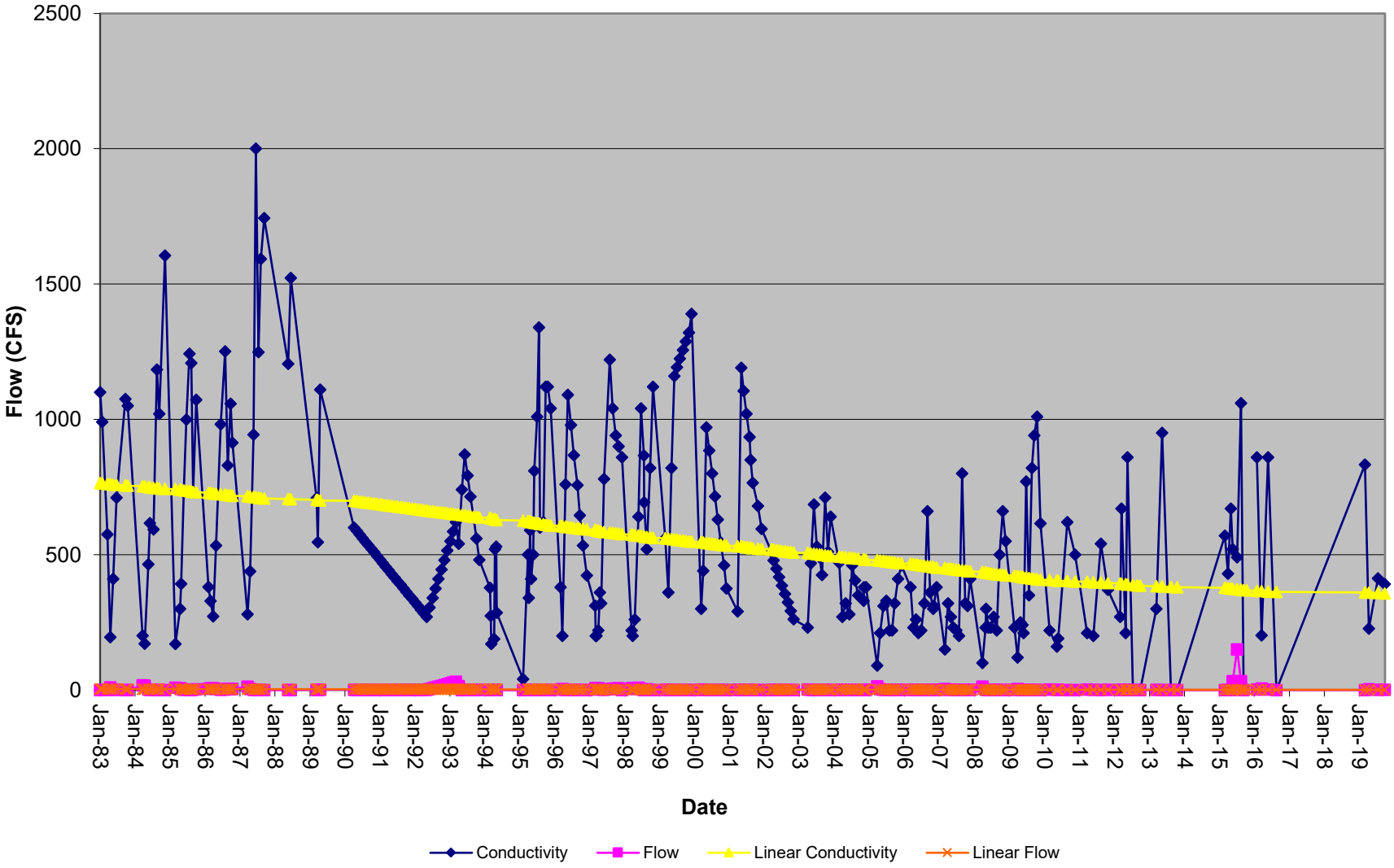
Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max				
Flow	CFS	0.00	1.60	30.13				0.11	0.23	2.32	0.03
Water Level in Flume	Feet	0.00	0.09	1.06				0.05	0.08	0.35	0.02
Temperature	Celsius	-0.5	10.1	23.7				3.8	17.5	8.3	4.8
Conductivity	umhos/cm	0	556	2000				391	412	227	833
pH	su	0.0	8.3	9.9				8.24	8.42	8.1	8.33
Field Comments											
Lab Parameters	UNITS										
Bicarbonate	mg/L	66	223	456							104
Chloride	mg/L	<MDL	20.82	223.41							3.1
Conductivity	umhos/cm	149	587	1560							183
Hardness	mg/L	35.6	251.2	625.7							83.4
Nitrate-Nitrite	mg/L	<MDL	0.34	0.88							<MDL
Oil and Grease	mg/L	<MDL	<MDL	<MDL							<MDL
pH	su	6.8	8.1	8.7							8.17
Phosphate	mg/L	<MDL	0.18	0.47							0.2
ResidueFilterable-TDS	mg/L	106	392	1130							132
ResidueNonFilterable-TSS	mg/L	<MDL	34	438							<MDL
SAR		0.23	1.04	2.06							0.613
Sulfate	mg/L	<MDL	99.2	450.0							13
Aluminum (TREC)	mg/L	0.022	0.284	0.530							0.326
Arsenic (TREC)	mg/L	<MDL	0.020	0.040							<MDL
Cadmium (TREC)	mg/L	<MDL	0.007	0.010							<MDL
Calcium (TREC)	mg/L	8.81	49.06	103.00							21.1
Copper (TREC)	mg/L	<MDL	0.008	0.020							<MDL
Iron (TREC)	mg/L	0.03	0.38	1.46							0.328
Lead (TREC)	mg/L	0.00	0.02	0.04							<MDL
Magnesium (TREC)	mg/L	7.10	26.36	61.20							7.45
Manganese (TREC)	mg/L	0.01	0.52	7.30							0.0077
Mercury (TREC)	mg/L	0.00002	0.00011	0.00027							<MDL
Molybdenum (TREC)	mg/L	0.002	0.006	0.015							<MDL
Selenium (TREC)	mg/L	<MDL	0.007	0.018							<MDL
Sodium (TREC)	mg/L	9.60	32.78	64.00							10.9
Zinc (TREC)	mg/L	0.005	0.009	0.020							<MDL

The area of concern for monitoring point SW-05 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

** Flow not measureable*

The Stevens Gulch stream gauge, SW-05, is located near Bowie No. 1 mine's timber storage area in the NE1/4NW1/4, Sec 25, T13S, R92W, of the 6th P.M. A 36" Parshall flume was installed at this locations.

Plot of Flow and Conductivity



SW-05 Stevens Gulch Drainage

SW-10
Terror Ditch
Elevation - 6480

Initiated	7/1/1983	7/1/1983	7/1/1983
Activated			
Date	11/7/2019	8/7/2019	5/14/2019

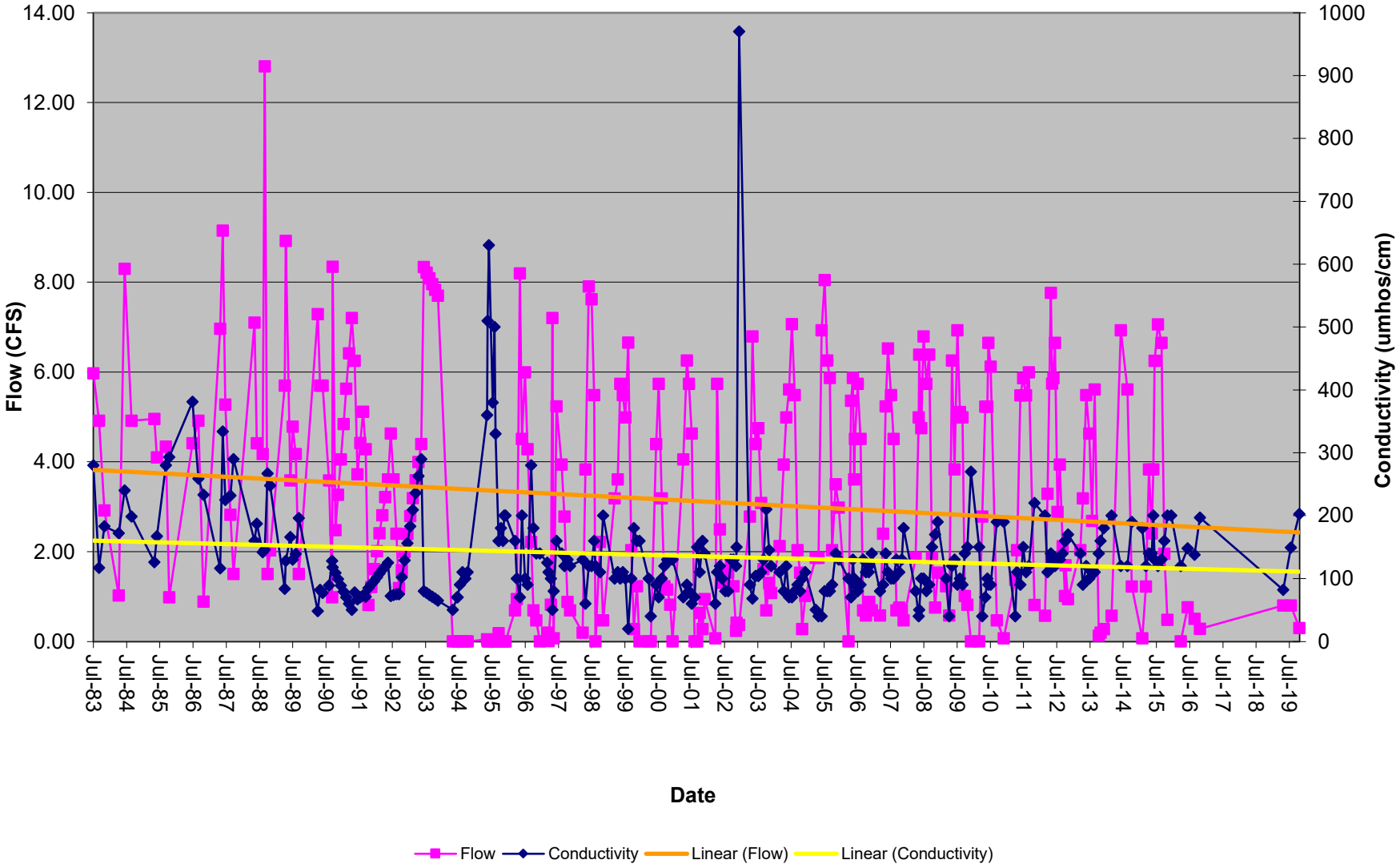
Field Parameters	UNITS	Summary Information Baseline Min	Ave	Max	Operation Min	Ave	Max			
Flow	CFS	0.00	3.15	12.80				0.30	0.80	0.80
Water Level in Flume	Feet	0.00	0.43	0.87				***	***	***
Temperature	Celsius	0.1	9.1	21.3				2.4	13.1	3.7
Conductivity	umhos/cm	20	138	970				202.7	149.1	82
pH	su	5.6	8.2	9.2				8.9	8.47	8.43
Field Comments										c
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	25.3	80.9	188.0						42.1
Chloride	mg/L	<MDL	19.0	186.1						0.52
Conductivity	umhos/cm	53	176	756						65.2
Hardness	mg/L	32	67	141						34
Nitrate-Nitrite	mg/L	<MDL	0.18	0.54						<MDL
Oil and Grease	mg/L	<MDL	<MDL	<MDL						<MDL
pH	su	6.9	7.7	8.5						7.58
Phosphate	mg/L	<MDL	<MDL	<MDL						0.048
ResidueFilterable-TDS	mg/L	50	132	610						89
ResidueNonFilterable-TSS	mg/L	<MDL	25.5	136.0						75.2
SAR		0.11	0.65	6.43						0.226
Sulfate	mg/L	<MDL	11.83	68.50						1.7
Aluminum (TREC)	mg/L	<MDL	21.072	154.000						1.37
Arsenic (TREC)	mg/L	<MDL	0.013	0.030						<MDL
Cadmium (TREC)	mg/L	<MDL	0.010	0.022						<MDL
Copper (TREC)	mg/L	<MDL	0.006	0.010						<MDL
Calcium (TREC)	mg/L	6.07	16.65	22.00						8.65
Iron (TREC)	mg/L	0.014	0.445	1.730						1.14
Lead (TREC)	mg/L	0.002	0.017	0.060						<MDL
Magnesium (TREC)	mg/L	3.00	8.82	21.00						3
Manganese (TREC)	mg/L	0.010	0.023	0.072						0.0347
Mercury (TREC)	mg/L	<MDL	0.00007	0.00020						<MDL
Molybdenum (TREC)	mg/L	<MDL	0.0022	0.0060						<MDL
Selenium (TREC)	mg/L	<MDL	0.005	0.018						<MDL
Sodium (TREC)	mg/L	3.64	21.40	144.00						3.64
Zinc (TREC)	mg/L	<MDL	0.014	0.050						<MDL

The area of concern for monitoring point SW-10 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

A stilling well and recorder were installed on a 30" Parshall flume on the Terror Ditch. This stream gauge is located in the NE1/4NE1/4, Sec 17, T

**** No data in the field notes*

Plot of Flow and Conductivity



SW-10 - Terror Ditch

Table 91

SW-11
Stevens Gulch - Upstream
Elevation - 8084

Initiated	6/6/2010	6/6/2010	6/6/2010
Activated			
Date	10/22/2019	8/12/2019	5/8/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Flow	CFS	0	0.1	3.8						0.312
Water Level in Flume	Feet	0	0.0	0.0						
Temperature	Celsius									9.0
Conductivity	umhos/cm									144.3
pH	su									7.7
Field Comments								Dry	Dry	
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	55.9	63.6	71.3				*		71.3
Carbonate	mg/L	0.0	0.0	0.0						
Chloride	mg/L	<MDL	2.8	3.0						2.6
Conductivity	umhos/cm	98.7	107	116						116
Hardness	mg/L	43.60	48.45	53.30						53.3
Acidity	mg/L	-46.7	-42.35	-38.00						-46.7
Nitrate-Nitrite	mg/L	<MDL	0.00	0.00						<MDL
Oil and Grease	mg/L	<MDL	<MDL	<MDL						<MDL
pH	su	7.2	7.4	7.7						7.67
Phosphate	mg/L	<MDL	0.12	0.13						0.1
ResidueFilterable-TDS	mg/L	117	119	120						117
ResidueNonFilterable-TSS	mg/L	<MDL	22	24						24.2
SAR		0.37	0.39	0.40						0.4
Aluminum (TREC)	mg/L	0.549	0.725	0.900						0.9
Arsenic (TREC)	mg/L	<MDL	<MDL	0.000						<MDL
Cadmium (TREC)	mg/L	<MDL	<MDL	0.00						<MDL
Calcium (TREC)	mg/L	12.6	13.90	15.20						15.2
Calcium (Dissolved)	mg/L	0	0.00	0.00						
Copper (TREC)	mg/L	<MDL	<MDL	0.00						<MDL
Iron (Dissolved)	mg/L	0.24	0.24	0.24						
Iron (TREC)	mg/L	0.42	0.82	1.23						1.23
Lead (TREC)	mg/L	<MDL	<MDL	0.00						<MDL
Magnesium (TREC)	mg/L	2.94	3.34	3.73						3.73
Manganese (TREC)	mg/L	0.03	0.06	0.08						0.084
Mercury (TREC)	mg/L	<MDL	<MDL	0						<MDL
Molybdenum (TREC)	mg/L	<MDL	<MDL	0.000						<MDL
Selenium (TREC)	mg/L	<MDL	<MDL	0.000						<MDL
Sodium (TREC)	mg/L	5.65	5.80	5.94						5.65
Sodium (Dissolved)	mg/L	0	0.00	0.00						
Zinc (TREC)	mg/L	<MDL	<MDL	0.00						<MDL

** Not enough water available for a sample*

SW-12
West Fork Terror Creek - Upstream
Elevation - 7920

Initiated	5/16/1983	5/16/1983	5/16/1983
Activated			
Date	10/22/2019	8/12/2019	5/8/2019

Field Parameters	UNITS	Summary Information Baseline Min	Ave	Max	Operation Min	Ave	Max			
Flow	CFS	0.04	4.27	52.00				0.99	2.53	**
Water Level in Flume	Feet	0.050	0.630	2.000				0.4	0.74	
Temperature	Celsius	0.1	6.3	14.9				0.2	14.6	3
Conductivity	umhos/cm	68.8	117	180				83.4	91.4	68.8
pH	su	7.7	8.2	8.9				8.3	8.1	7.8
Field Comments										
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	34.3	62.0	83.4						34.3
Chloride	mg/L	<MDL	0.74	1.40						<MDL
Conductivity	umhos/cm	53.5	88.5	121.0						53.5
Hardness	mg/L	27.3	46.9	61.9						27.3
Acidity	mg/L	-64.0	-46.4	-20.0						-20
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL						<MDL
Oil and Grease	mg/L	<MDL	<MDL	<MDL						<MDL
Phosphate	mg/L	<MDL	0.04	0.12						0.039
ResidueFilterable-TDS	mg/L	65	88	108						65.0
ResidueNonFilterable-TSS	mg/L	<MDL	17.0	37.0						10.2
SAR		0.174	0.269	0.486						0.265
Sulfate	mg/L	1.2	2.4	3.3						1.2
Aluminum (TREC)	mg/L	0.104	0.592	1.710						0.352
Arsenic (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Cadmium (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Calcium (TREC)	mg/L	7.1	627.8	8630.0						7.07
Calcium (Dissolved)	mg/L	11.2	13.3	14.6						
Copper (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Iron (Dissolved)	mg/L	0.0300	3.1712	######						
Iron (TREC)	mg/L	0.101	0.497	1.370						0.231
Lead (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Magnesium (TREC)	mg/L	2.35	4.15	5.58						2.35
Magnesium (Dissolved)	mg/L	3.38	4.53	5.21						
Manganese (TREC)	mg/L	0.0011	0.0118	0.03						0.0113
Mercury (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Molybdenum (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Selenium (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL
Sodium (TREC)	mg/L	2.70	4.38	7.77						2.7
Sodium (Dissolved)	mg/L	2.69	4.25	5.97						
Zinc (TREC)	mg/L	<MDL	<MDL	<MDL						<MDL

The area of concern for monitoring point SW-12 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Negative acidity value indicates equivalent value of alkalinity
** Data not provided*
*** Flow to high unable to read gauge*

DH-15a
Stevens Draw - Drill Hole
Pipe Elevation - 7143.3
Pipe 1.8' above ground
Depth - 215'

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated			
Date	10/23/2019	9/17/2019	5/6/2019

Field Parameters	UNITS	Summary Information Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Static Water Level	Feet				187.50	193.08	194.80	193.8	194.2	194.7
Water Elevation	Feet				6948.50	6950.22	6955.80	6949.5	6949.1	6948.6
FieldComment										
ph	su				7.28	7.58	8.00	7.3	7.4	7.4
Conductivity	umhos/cm				2880.00	3753.08	4100.00	4100	4070	3990
Temperature	Celsius				7.77	12.86	15.50	13.1	14.0	15.5
Lab Parameters	**UNITS**									
Bicarbonate	mg/L				1080.00	1226.67	1380.00			1080
Carbonate	mg/L				<MDL	<MDL	0.00			<MDL
Chloride	mg/L				34.20	35.20	36.80			34.4
Conductivity	umhos/cm				2740.00	3450.00	3790.00			3790
Hardness	mg/L				323.00	667.67	848.00			848
Nitrate-Nitrite	mg/L				<MDL	<MDL	0.00			<MDL
Ammonia	mg/L				0.29	0.80	1.00			1
pH	su				7.35	7.71	8.03			7.8
Phosphate	mg/L				0.04	0.09	0.13			0.093
ResidueFilterable-TDS	mg/L				1980.00	2646.67	2980.00			2980
Sulfate	mg/L				556.00	1119.50	1430.00			1380
Arsenic (Dissolved)	mg/L				<MDL	<MDL	0.05			<MDL
Cadmium (Dissolved)	mg/L				<MDL	<MDL	0.00			<MDL
Calcium (Dissolved)	mg/L				50.20	113.85	145.00			145.0
Iron (Dissolved)	mg/L				<MDL	<MDL	0.12			0.0225
Iron (TREC)	mg/L				0.39	9.74	53.90			0.74
Magnesium (Dissolved)	mg/L				43.10	92.27	118.00			118.0
Manganese (Dissolved)	mg/L				0.10	0.15	0.17			0.151
Manganese (TREC)	mg/L				0.13	0.17	0.23			0.171
Mercury (Dissolved)	mg/L				<MDL	<MDL	0.00			<MDL
Selenium (Dissolved)	mg/L				<MDL	<MDL	0.00			<MDL
Sodium (Dissolved)	mg/L				547.00	663.17	771.00			657
Zinc (Dissolved)	mg/L				<MDL	<MDL	0.00			<MDL

DH-15a is a replacment well for DH-15. All data is considered operational.

Drill Hole 15a is located on the western edge of the Stevens Draw road.

Baseline Information Collection initiated on 6/12/95 and not yet considered complete.
Point DH-15 has not been influenced by mining.

DH-39
Stevens Draw - Drill Hole
Pipe Elevation - 7142.65
Pipe 1.2' above ground
Depth - 181'

Initiated	6/12/1995	6/12/1995	6/12/1995
Activated			
Date	10/23/2019	9/17/2019	5/6/2019

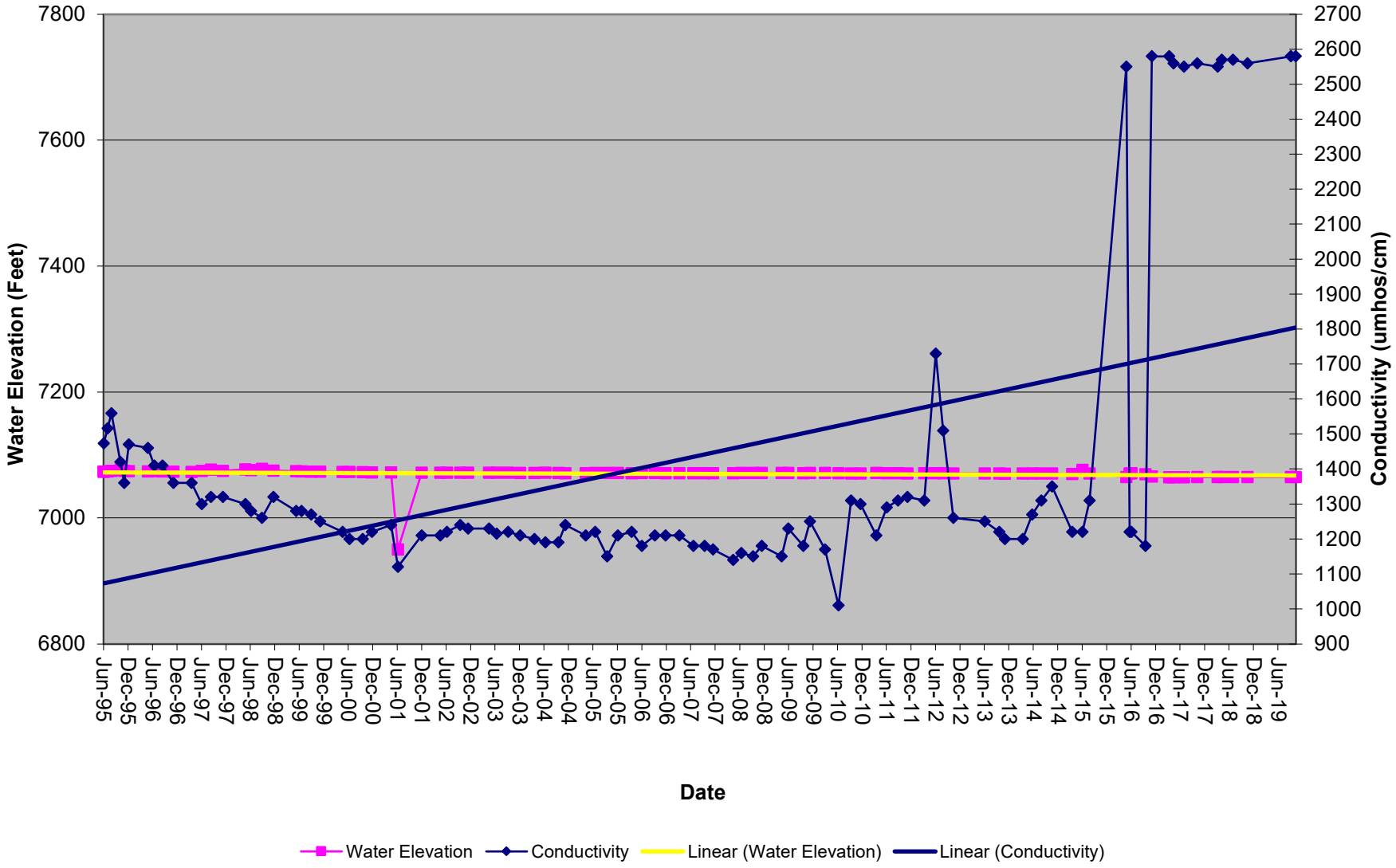
Field Parameters	UNITS	Summary Information Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Static Water Level	Feet	64.55	72.57	192.55				77.6	77.7	77.7
Water Elevation	Feet	6950.1	7070.1	7078.1				7065.05	7064.95	7064.95
FieldComment										
ph	su	6.8	7.3	8.3				7.84	7.83	7.85
Conductivity	umhos/cm	1010	1420	2580				2580	2580	2550
Temperature	Celsius	8.1	10.4	14.3				11	11.2	12.7
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	384.69	555.92	786.00						771
Carbonate	mg/L	<MDL	0.77	10.83						<MDL
Chloride	mg/L	1.36	17.60	47.14						26.1
Conductivity	umhos/cm	1025	1485	3340						2340
Hardness	mg/L	<MDL	425.75	771.50						424
Nitrate-Nitrite	mg/L	<MDL	0.74	7.06						0.65
Ammonia	mg/L	<MDL	0.31	1.00						<MDL
pH	su	7.0	7.6	8.5						8.02
Phosphate	mg/L	<MDL	0.03	0.09						0.068
ResidueFilterable-TDS	mg/L	443	1001	2655						1710
Sulfate	mg/L	101.25	247.57	753.00						707
Arsenic (Dissolved)	mg/L	<MDL	0.0113	0.1730						<MDL
Cadmium (Dissolved)	mg/L	<MDL	0.007	0.035						<MDL
Calcium (Dissolved)	mg/L	6.5	82.5	136.8						87.7
Iron (Dissolved)	mg/L	<MDL	0.70	13.00						<MDL
Iron (TREC)	mg/L	0.01	10.88	43.70						0.047
Magnesium (Dissolved)	mg/L	<MDL	59.5	146.0						49.7
Manganese (Dissolved)	mg/L	<MDL	1.452	60.100						<MDL
Manganese (TREC)	mg/L	0.026	0.418	2.470						0.0337
Mercury (Dissolved)	mg/L	<MDL	0.000264	0.00550						<MDL
Selenium (Dissolved)	mg/L	<MDL	0.006	0.021						<MDL
Sodium (Dissolved)	mg/L	95.8	197.3	460.0						435
Zinc (Dissolved)	mg/L	<MDL	0.01	0.10						<MDL

The area of concern for monitoring point DH-39 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Drill Hole 39 is located in Stevens Draw right next to Drill Hole 15. It is accessed by the Stevens Draw road.

Baseline Information Collection initiated on 6/12/95 and not yet considered complete.
Point DH-39 has not been influenced by mining.

Plot of Conductivity and Water Level



DH-39 - Stevens Draw Drill Hole

Table 96

DH-49
B Gulch - Drill Hole
Pipe Elevation - 7203.4
Pipe 0.7' above ground
Depth - 324'

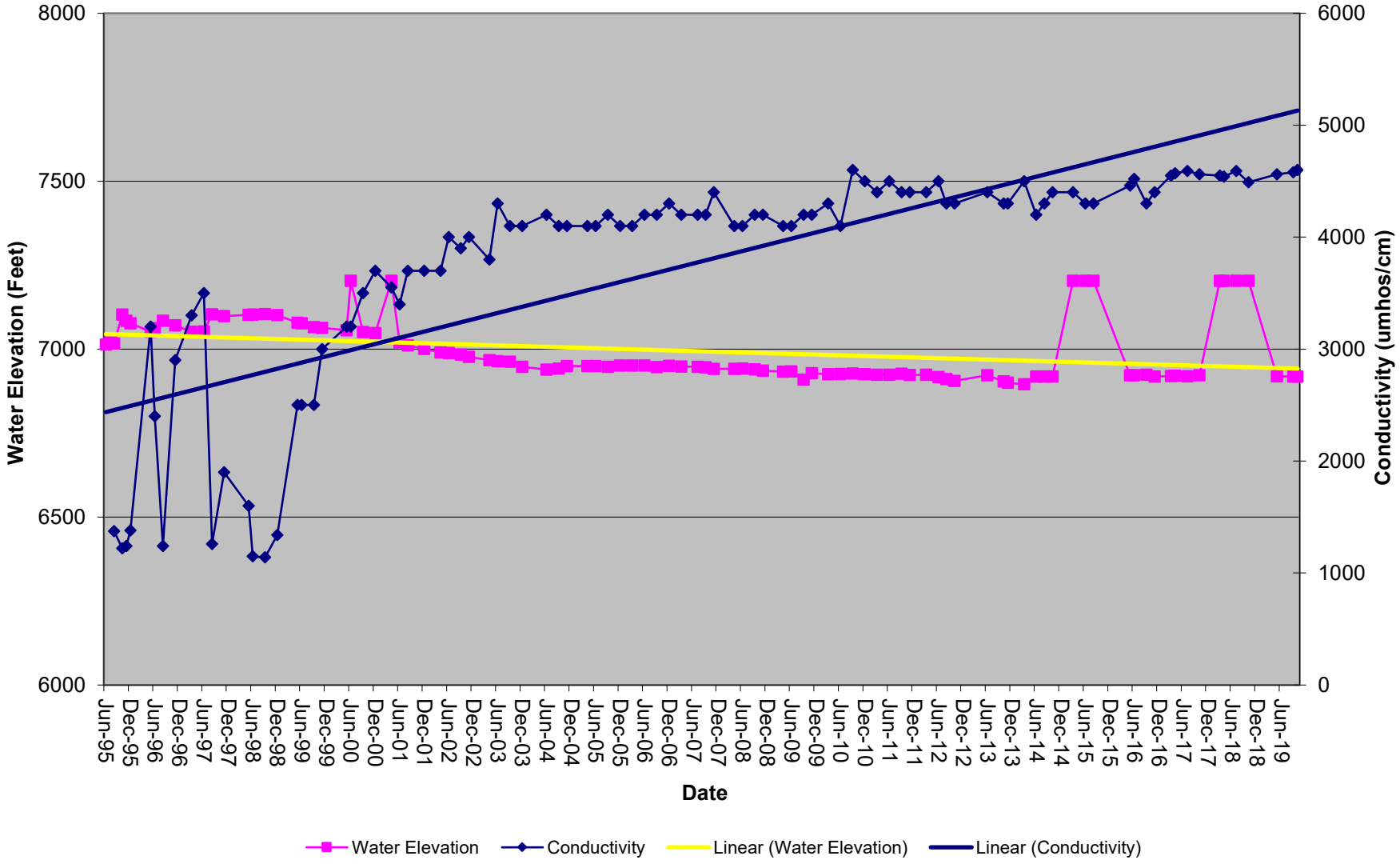
Initiated	6/12/1995	6/12/1995	6/12/1995
Activated	3/30/1997	3/30/1997	3/30/1997
Date	10/23/2019	9/17/2019	5/6/2019

		Summary Information								
		Baseline			Operation					
Field Parameters	UNITS	Min	Ave	Max	Min	Ave	Max			
Static Water Level	Feet	100.84	145.8	189.79	99.57	242.9772	311.46	285.3	285.3	284.2
Water Elevation	Feet	7013.6	7057.6	7102.6	6891.9	6960.4	7103.8	6918.1	6918.1	6919.2
FieldComment										
ph	su	7.1	7.3	7.5	6.9	7.4	8.2	7.58	7.72	7.58
Conductivity	umhos/cm	1220	2028	3300	1140	3937	4600	4600	4580	4560
Temperature	Celsius	10	11.9	13.5	10.8	13.6	17.3	14.7	15	17.3
Lab Parameters	UNITS									
Bicarbonate	mg/L	496	834	1090	313.4	1446.748	2130			2130
Carbonate	mg/L	<MDL	<MDL	<MDL	<MDL	9.66	79.46			<MDL
Chloride	mg/L	14	15	16	<MDL	39.3	344.61			17.1
Conductivity	umhos/cm	1250	2023	2470	1160	3649.595	5920			4330
Hardness	mg/L	34	300	491	<MDL	190	463			172
Nitrate-Nitrite	mg/L	0.63	1.0	1.43	0.028	4.60	8.9			8.4
Ammonia	mg/L	0.14	1.9	3.8	<MDL	1.19	5			<MDL
pH	su	7.1	7.4	7.7	7.2	7.7	8.7			7.91
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	0.11	0.72			0.14
ResidueFilterable (TDS)	mg/L	790	1347	1790	700	2635	3411			3110
Sulfate	mg/L	216	362	470	180	636.19	828			754
Arsenic (Dissolved)	mg/L	<MDL	0.001	0.002	<MDL	0.047	0.560			<MDL
Cadmium (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.011	0.040			<MDL
Calcium (Dissolved)	mg/L	11	62	100	0.55	34.2	98.4			28.5
Iron (Dissolved)	mg/L	0.05	0.4	1.1	<MDL	0.137	1.12			0.0396
Iron (TREC)	mg/L	0.2	12.4	29.4	0.0186	33.80	1310			0.734
Magnesium (Dissolved)	mg/L	1.6	35.1	58.6	18.7	31.1	71.5			24.5
Manganese (Dissolved)	mg/L	<MDL	0.038	0.105	<MDL	0.065	0.35			<MDL
Manganese (TREC)	mg/L	0.007	0.19	0.308	<MDL	2.22	68.7			0.0176
Mercury (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.00008	0.00050			<MDL
Selenium (Dissolved)	mg/L	<MDL	0.003	0.007	<MDL	0.037385	0.283			<MDL
Sodium (Dissolved)	mg/L	5.2	230.7	556	109	903	2070			1060
Zinc (Dissolved)	mg/L	<MDL	0.003	0.01	<MDL	0.018	0.04			<MDL

Drill Hole 49 is located just above Stevens Draw road approximately 1000 feet southwest of the mine portals. It is accessed by the Stevens Draw road.

Baseline Information for Point DH-49 is derived from events beginning on 6/12/95 through 3/30/97.
Point influenced by mining on 3/30/97.

Plot of Conductivity and Water Level



DH-49 - B Gulch Drill Hole

Table 98

DH-67abv
Hubbard Creek - Monitoring Well
Elevation - 6450.5
Depth - 193'

Initiated	6/26/2005	6/26/2005
Activated		
Date	10/23/2019	5/7/2019

		Summary Information							
Field		Baseline			Operation				
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max		
Static Water Level	Feet	29.5	44.3	59.7				41.8	40.7
Water Elevation	Feet	6390.8	6406.3	6421.0				6409.2	6410.3
FieldComment									
ph	su	7.1	7.7	8.3				8.18	8.17
Conductivity	umhos/cm	2000	2668	3700				2400	2380
Temperature	Celsius	5.6	10.3	12.4				10.1	12.4
Lab Parameters	UNITS								
Bicarbonate	mg/L	1.44	2014.34	#######					1430
Carbonate	mg/L	<MDL	58.2	138.5					<MDL
Chloride	mg/L	<MDL	88.8	407.0					34.8
Conductivity	umhos/cm	1370	2823	5850					2120
Hardness	mg/L	8.54	46.31	145.95					38.7
Nitrate-Nitrite	mg/L	<MDL	3.2	32.3					<MDL
Ammonia	mg/L	<MDL	0.9	2.5					0.66
pH	su	7.1	8.0	9.1					8.07
Phosphate	mg/L	<MDL	0.3	1.8					0.31
ResidueFilterable-TDS	mg/L	794	1901	3900					1450
Sulfate	mg/L	<MDL	22.82	288.00					29.4
Arsenic (Dissolved)	mg/L	<MDL	0.055	0.415					<MDL
Cadmium (Dissolved)	mg/L	<MDL	0.02	0.07					<MDL
Calcium (Dissolved)	mg/L	<MDL	20.5	115.0					10.8
Iron (Dissolved)	mg/L	<MDL	0.20	2.97					0.0645
Iron (TREC)	mg/L	0.01	0.56	1.82					0.459
Magnesium (Dissolved)	mg/L	<MDL	4.5	18.1					2.86
Manganese (Dissolved)	mg/L	<MDL	2.918	86.700					0.0589
Manganese (TREC)	mg/L	0.006	0.039	0.132					0.0677
Mercury (Dissolved)	mg/L	<MDL	0.00008	0.00036					<MDL
Selenium (Dissolved)	mg/L	<MDL	0.030	0.149					<MDL
Sodium (Dissolved)	mg/L	218	834	2093					561
Zinc (Dissolved)	mg/L	<MDL	0.022	0.067					<MDL

The area of concern for monitoring point DH-67abv has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Baseline Information Collection initiated on 10/12/00 and not yet considered complete.
Point DH-67abv has not been influenced by mining.

DH-67B
Hubbard Creek - B Seam Monitoring Well
Elevation - 6451
Depth - 594'

Initiated	6/29/2004	6/29/2004
Activated		
Date	10/23/2019	6/26/2019

Field Parameters	UNITS	Summary Information Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max		
Static Water Level	Feet	146.9	265.2	498.4				250.7	254.8
Water Elevation	Feet	5952.6	6189.5	6451.0				6200.3	6196.2
FieldComment								Note 2	
ph	su	6.5	7.7	8.8				8.39	6.77
Conductivity	umhos/cm	2570	6178.5	7500				6920	6470
Temperature	Celsius	13.4	18.8	26.5				17.5	19.4
Lab Parameters	UNITS								
Bicarbonate	mg/L	1486.3	2967.6	3838.0					2870
Carbonate	mg/L	<MDL	161.95	725.4					495
Chloride	mg/L	3.92	335.11	509					390
Conductivity	umhos/cm	497	5381	7810					6380
Hardness	mg/L	3.59	43.06	198					8.9
Nitrate-Nitrite	mg/L	<MDL	1.80	7.4					<MDL
Ammonia	mg/L	0.102	4.16	9.48					5.7
pH	su	7.35	8.09	9.37					9.19
Phosphate	mg/L	<MDL	0.60	5.96					0.3
ResidueFilterable-TDS	mg/L	2186	4015.2	8131					4270
Sulfate	mg/L	<MDL	17.22	91.58					9.9
Arsenic (Dissolved)	mg/L	<MDL	0.119	0.545					<MDL
Cadmium (Dissolved)	mg/L	<MDL	0.029	0.07					<MDL
Calcium (Dissolved)	mg/L	0.24	9.27	53.7					1.97
Iron (Dissolved)	mg/L	0.01	0.24	0.903					0.0726
Iron (TREC)	mg/L	0.011	2.79	31.8					0.165
Magnesium (Dissolved)	mg/L	0.73	4.84	29.9					0.957
Manganese (Dissolved)	mg/L	<MDL	0.023	0.102					0.0062
Manganese (TREC)	mg/L	0.009	0.103	1.129					0.009
Mercury (Dissolved)	mg/L	<MDL	0.00009	0.00044					<MDL
Selenium (Dissolved)	mg/L	0.003	0.152	1.595					<MDL
Sodium (Dissolved)	mg/L	3.885	1403	2291.2					1660
Zinc (Dissolved)	mg/L	<MDL	0.06	0.4					<MDL

The area of concern for monitoring point DH-67B has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Note 1: Sample taken in field apparently lost by laboratory.
Note 2: Special bailer for this well broke, could not get sample.

Baseline Information Collection initiated on 6/29/04 and not yet considered complete.
Point DH-67B has not been influenced by mining.

Bowie Resources, LLC
Bowie No. 2 Mine
2019 Baseline

Ground Water

DH-67blw
Hubbard Creek - Monitoring Well
Elevation - 6466
Depth - 357'
Replacement Well 9/26/14

					9/26/2014	9/26/2014
					10/23/2019	5/7/2019
		Summary Information				
Field		Baseline				
Parameters	UNITS	Min	Ave	Max		
Static Water Level	Feet	244	260.355	318.55	250.7	250.9
Water Elevation	Feet	6147.5	6205.6	6222.0	6215.3	6215.1
FieldComment						
ph	su	7.9	8.4	8.5	8.39	8.3
Conductivity	umhos/cm	4800	6340	6920	6920	6900
Temperature	Celsius	16.1	17.685	21.1	17.5	19.2
Lab						
Parameters	UNITS					
Bicarbonate	mg/L	1460	3503	4150		4080
Carbonate	mg/L	<MDL	<MDL	<MDL		<MDL
Chloride	mg/L	0.414	304	435		403
Conductivity	umhos/cm	2020	5312.73	6470		6460
Hardness	mg/L	20.4	36.5625	55.1		
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL		<MDL
Ammonia	mg/L	0.39	2.3	7.1		2.5
pH	su	7.92	8.39	9.35		8.32
Phosphate	mg/L	0.12	0.19818	0.36		0.16
Residue Filterable-TDS	mg/L	1380	3820.91	4840		4490
Sulfate	mg/L	<MDL	18.2	26.9		<MDL
Arsenic	mg/L	<MDL	<MDL	<MDL		<MDL
Cadmium	mg/L	<MDL	<MDL	<MDL		<MDL
Calcium	mg/L	2.1	8.83	15.60		7.27
Iron (Dissolved)	mg/L	0.0358	0.08838	0.167		0.167
Iron (Total)	mg/L	0.104	0.76255	1.37		0.681
Magnesium	mg/L	0.009	2.44311	3.920		2.42
Manganese (Dissolved)	mg/L	0.0089	0.02998	0.0899		0.0106
Manganese (Total)	mg/L	0.0014	61.3079	674		0.0125
Mercury	mg/L	<MDL	<MDL	<MDL		<MDL
Selenium	mg/L	<MDL	<MDL	<MDL		<MDL
Sodium (Dissolved)	mg/L	514	1564	1830		1810
Zinc	mg/L	<MDL	0.0826	0.0826		<MDL

The area of concern for monitoring point DH-67blw has not been affected by the mining operation monitoring events are considered Baseline.

Replacement well constructed September 2014

Baseline Information collection re-initiated on 9/26/2014 and not yet considered complete.
Point DH-67blw has not been influenced by mining.

Revised 11/17

DH-67D (Reb)
Hubbard Creek - D - Seam Monitoring Well
Elevation - 6450'
Depth - 324.8'

Initiated	11/30/2000	11/30/2000
Activated		
Date	10/23/2019	5/7/2019

		Summary Information							
Field		Baseline			Operation				
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max		
Static Water Level	Feet	123.4	220.685	253.85				247.5	246.7
Water Elevation	Feet	6196.2	6229.3	6326.6				6202.5	6203.3
FieldComment									
ph	su	7.9	9.4	10.6				9.33	9.22
Conductivity	umhos/cm	668	6249	7200				6750	6690
Temperature	Celsius	11.2	16.2	19.3				16.7	19.3
Lab Parameters	UNITS								
Bicarbonate	mg/L	<MDL	2744.16	4080					4080
Carbonate	mg/L	<MDL	372.19	1160					<MDL
Chloride	mg/L	6.76	394.129	610					403
Conductivity	umhos/cm	2908	5781.86	13132					6460
Hardness	mg/L	<MDL	18.78	51.55					28.1
Nitrate-Nitrite	mg/L	<MDL	5.449	60.03					<MDL
Ammonia	mg/L	0.188	5.018	30.5					2.5
pH	su	7.61	8.94	9.63					8.32
Phosphate	mg/L	<MDL	2.300	48.2					0.16
ResidueFilterable-TDS	mg/L	1886	4004	5188					4490
Sulfate	mg/L	<MDL	31.19	300					<MDL
Arsenic (Dissolved)	mg/L	<MDL	0.1735	0.915					<MDL
Cadmium (Dissolved)	mg/L	<MDL	0.779	16.6					<MDL
Calcium (Dissolved)	mg/L	<MDL	4.50	36.7					<MDL
Iron (Dissolved)	mg/L	0.01	0.39	7.27					7.27
Iron (TREC)	mg/L	0.0251	3.48	99.3					0.681
Magnesium (Dissolved)	mg/L	<MDL	2.40	10.2					2.42
Manganese (Dissolved)	mg/L	<MDL	0.035	0.417					0.0106
Manganese (TREC)	mg/L	<MDL	0.866	22.7					0.0125
Mercury (Dissolved)	mg/L	<MDL	0.00009	0.00042					<MDL
Selenium (Dissolved)	mg/L	<MDL	0.15096	1.064					<MDL
Sodium (Dissolved)	mg/L	784	1612.01	3576.25					1810
Zinc (Dissolved)	mg/L	0.006	0.043	0.206					<MDL

The area of concern for monitoring point DH-67D has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Note 1: Unable to retrieve sample

Baseline Information Collection initiated on 11/30/00 and not yet considered complete.
Point DH-67D has not been influenced by mining.

CWI-DH-58A
Upper B Seam
Elevation -7442.2
Depth - 575'

					3/17/2015	3/17/2015	3/17/2015
					10/23/2019	8/7/2019	5/15/2019
		Summary Information					
Field Parameters	UNITS	Baseline Min	Ave	Max			
Static Water Level	Feet	512.6	533.2	536.1	534.3	534.4	534.4
Water Elevation	Feet	6906.1	6909.0	6929.6	6907.9	6907.8	6907.8
FieldComment							
ph	su	7.6	8.5	17.7	7.8	7.85	7.76
Conductivity	umhos/cm	1050	1600	2050	1943	2050	2050
Temperature	Celsius	17.7	19.9	26.2	19.9	20.1	20.3
Lab Parameters	UNITS						
Bicarbonate	mg/L	635	915	1320			1070
Carbonate	mg/L	<MDL	19.6	29.9			<MDL
Chloride	mg/L	16.4	19.7	22.7			20.6
Conductivity	umhos/cm	866	1326	1840			1840
Hardness	mg/L	8.2	26.5	65.7			
Nitrate-Nitrite	mg/L	<MDL	0.08	0.08			<MDL
Ammonia	mg/L	0.03	0.96	1.70			1.7
pH	su	7.59	8.22	9.03			8.16
Phosphate	mg/L	1.70	2.74	5.00			2.3
ResidueFilterable-TDS	mg/L	744	1005	1330			1250
Sulfate	mg/L	<MDL	1.9	3.5			<MDL
Arsenic	mg/L	<MDL	0.00670	0.00670			<MDL
Cadmium	mg/L	<MDL	<MDL	<MDL			<MDL
Calcium	mg/L	<MDL	8.2	10.9			10.9
Iron (Dissolved)	mg/L	0.012	0.152	1.750			0.0279
Iron (Total)	mg/L	0.573	2.508	9.270			2.72
Magnesium (Dissolved)	mg/L	0.052	0.818	1.260			1.26
Manganese (Dissolved)	mg/L	0.0133	0.2684	2.3300			0.251
Manganese (Total)	mg/L	0.0699	0.2448	0.6240			0.322
Mercury	mg/L	<MDL	<MDL	<MDL			<MDL
Selenium	mg/L	<MDL	<MDL	<MDL			<MDL
Sodium	mg/L	141	351	521			466
Zinc	mg/L	<MDL	0.0219	0.0219			<MDL

The area of concern for monitoring point CWI-DH-58A has not been affected by the mining operation. Therefore monitoring events are considered Baseline.

New Well beginning in December 2014.

Baseline information collection initiated on March 17, 2015.
Point CWI-DH-58A has not and will not be influenced by mining.

Bowie Resources, LLC
Bowie No. 2 Mine
2019 Baseline

Ground Water

CWI-DH-60
Upper B Seam
Elevation - 7921
Depth - 1085'

					10/20/2014	10/20/2014	10/20/2014
					10/23/2019	8/7/2019	5/15/2019
		Summary Information					
Field Parameters	UNITS	Baseline Min	Ave	Max			
Static Water Level	Feet	943.7	947.0	952.1	945.8	945.7	952.1
Water Elevation	Feet	6968.9	6974.0	6977.3	6975.2	6975.3	6968.9
FieldComment							
ph	su	8.0	8.2	8.4	8.24	8.23	8.12
Conductivity	umhos/cm	1062	5514	10980	1101	1113	1112
Temperature	Celsius	18.5	21.2	22.7	22.3	22.5	22.3
Lab Parameters	UNITS						
Bicarbonate	mg/L	5620	7406	8330			6740
Carbonate	mg/L	<MDL	<MDL	<MDL			<MDL
Chloride	mg/L	240	295	337			313
Conductivity	umhos/cm	7820	9341	10500			10500
Hardness	mg/L	65.7	76.0	86.2			66.6
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL			<MDL
Ammonia	mg/L	0.84	1.49	2.40			1.60
pH	su	7.96	8.12	8.34			8.25
Phosphate	mg/L	0.05	0.17	0.31			0.089
ResidueFilterable-TDS	mg/L	6070	7448	8110			7850
Sulfate	mg/L	<MDL	20.7	23.2			<MDL
Arsenic	mg/L	<MDL	0.00045	0.00045			<MDL
Cadmium	mg/L	<MDL	0.0018	0.0018			<MDL
Calcium	mg/L	14.9	16.9	21.2			15.3
Iron (Dissolved)	mg/L	0.216	33.677	532.000			0.592
Iron (Total)	mg/L	0.83	2.07	3.73			0.982
Magnesium (Dissolved)	mg/L	6.89	8.19	9.57			6.89
Manganese (Dissolved)	mg/L	0.0103	0.0145	0.0186			0.0186
Manganese (Total)	mg/L	0.0131	0.0275	0.0548			0.0249
Mercury	mg/L	<MDL	<MDL	<MDL			<MDL
Selenium	mg/L	<MDL	<MDL	<MDL			<MDL
Sodium	mg/L	315	2854	3760			3760
Zinc	mg/L	<MDL	<MDL	<MDL			<MDL

The area of concern for monitoring point CWI-DH-60 has not been affected by the mining operation. Therefore, a monitoring events are considered Baseline.

CWI-DH-60 is located southwest of projected mining. It will not be impacted by Bowie No. 2 Mine workings.

CWI-DH-60 was cemented to the bottom of the upper B-Seam during September 2010.

CWI-DH-60 was worked over and cleaned during August 2014.

Baseline Information collection re-initiated on 03/18/15.
Point CWI-DH-60 has not and will not be influenced by mining.

Bowie Resources, LLC
Bowie No. 2 Mine
2019 Baseline

Ground Water

DH-2010-1SS
Sanstone Above B-Seam
Elevation - 7544.4
Depth - 1140'

					3/18/2015	3/18/2015	3/18/2015
					10/23/2019	8/7/2019	5/15/2019
		Summary Information					
Field Parameters	UNITS	Baseline Min	Ave	Max			
Static Water Level	Feet	1088.3	1095.5	1099.6	1097.1	1099.6	1099
Water Elevation	Feet	6447.4	6451.5	6458.7	6449.9	6447.4	6448
FieldComment							
ph	su	7.0	7.9	11.5	11.5	11.4	11.3
Conductivity	umhos/cm	1330	1650	2520	2450	2510	2520
Temperature	Celsius	7.3	25.0	26.9	25.3	26.3	25.1
Lab Parameters	UNITS						
Bicarbonate	mg/L	536	670	809			809
Carbonate	mg/L	<MDL	<MDL	<MDL			<MDL
Chloride	mg/L	110	149	416			141
Conductivity	umhos/cm	1110	1325	1660			1580
Hardness	mg/L	34.0	40.8	49.6			44.2
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL			0.078
Ammonia	mg/L	5.0	6.5	7.6			6.6
pH	su	7.10	7.27	7.71			7.5
Phosphate	mg/L	1.4	1.6	1.8			1.4
ResidueFilterable-TDS	mg/L	780	958	1120			1060
Sulfate	mg/L	<MDL	4.05	5.40			<MDL
Arsenic (Dissolved)	mg/L	0.17	0.22	0.29			0.215
Cadmium (Dissolved)	mg/L	<MDL	<MDL	<MDL			<MDL
Calcium (Dissolved)	mg/L	0.1	13.3	17.2			15.3
Iron (Dissolved)	mg/L	0.096	0.145	0.323			0.112
Iron (Total)	mg/L	0.75	2.91	4.94			2.84
Magnesium (Dissolved)	mg/L	0.971	1.293	1.610			1.45
Manganese (Dissolved)	mg/L	0.0832	0.1020	0.1300			0.109
Manganese (Total)	mg/L	0.095	0.123	0.145			0.123
Mercury (Dissolved)	mg/L	<MDL	0.001	0.001			0.0011
Selenium (Dissolved)	mg/L	<MDL	0.0044	0.0044			<MDL
Sodium (Dissolved)	mg/L	274	308	372			372
Zinc (Dissolved)	mg/L	<MDL	0.0631	0.0631			<MDL

The area of concern for monitoring point DH-2010-1SS has not been affected by the mining operation. Therefore monitoring events are considered Baseline.

DH-2010-1SS is located in Section 5. It will be impacted by future Bowie No. 2 Mine workings.

Lab analysis is required semi-annually

Baseline Information collection re-initiated on 03/18/15 and not yet considered complete.
Point DH-2010-1B has not been influenced by mining.

Bowie Resources, LLC
Bowie No. 2 Mine
2019 Baseline

Ground Water

DH-2010-1B
B Seam
Elevation - 7544.6
Depth - 1220'

						10/16/2014	10/16/2014	10/16/2014
						10/23/2019	8/7/2019	5/15/2019
		Summary Information						
Field		Baseline						
Parameters	UNITS	Min	Ave	Max				
Static Water Level	Feet	1092.4	1173.9	1998.1		1998.1	1099.4	1098.8
Water Elevation	Feet	5549	6373	6455		5548.9	6447.6	6448.2
FieldComment								
ph	su	7.4	11.1	23.3		11.3	7.5	7.4
Conductivity	umhos/cm	378	1677	2440		2420	1801	1766
Temperature	Celsius	11.6	24.3	26.8		23.2	26.8	25.3
Lab								
Parameters	UNITS							
Bicarbonate	mg/L	<MDL	162.9	1040.0				0
Carbonate	mg/L	45	233	441				277
Chloride	mg/L	6.30	92.94	169.00				157
Conductivity	umhos/cm	336	1324	2200				2200
Hardness	mg/L	0.0	7.7	15.4				6.2
Nitrate-Nitrite	mg/L	<MDL	0.62	1.60				<MDL
Ammonia	mg/L	0.5	15.7	26.5				25.2
pH	su	9.48	10.56	11.58				11.45
Phosphate	mg/L	0.05	0.14	0.27				0.15
ResidueFilterable-TDS	mg/L	253	958	1420				1390
Sulfate	mg/L	10.0	77.5	128.0				116
Arsenic (Dissolved)	mg/L	<MDL	0.0052	0.0052				<MDL
Cadmium (Dissolved)	mg/L	<MDL	<MDL	<MDL				<MDL
Calcium (Dissolved)	mg/L	1.54	3.05	6.00				2.5
Iron (Dissolved)	mg/L	0.0570	0.1153	0.1940				0.057
Iron (Total)	mg/L	0.20	1.48	4.31				0.381
Magnesium (Dissolved)	mg/L	<MDL	<MDL	<MDL				<MDL
Manganese (Dissolved)	mg/L	<MDL	0.0055	0.0071				<MDL
Manganese (Total)	mg/L	0.0068	0.0293	0.0766				0.007
Mercury (Dissolved)	mg/L	<MDL	<MDL	<MDL				<MDL
Selenium (Dissolved)	mg/L	<MDL	<MDL	<MDL				<MDL
Sodium (Dissolved)	mg/L	74	288	501				438
Zinc (Dissolved)	mg/L	<MDL	<MDL	<MDL				<MDL

The area of concern for monitoring point DH-2010-1B has not been affected by the mining operation. Therefore, monitoring events are considered Baseline.

DH-2010-1B is located in Section 5 It will be impacted by future Bowie No. 2 Mine workings.
DH-2010-1B was rehabilitated in 2014. Baseline inforamtion is collected beginning October 2014.

Baseline Information collection re-initiated on 10/16/14 and not yet considered complete.
Point DH-2010-1B has not been influenced by mining.

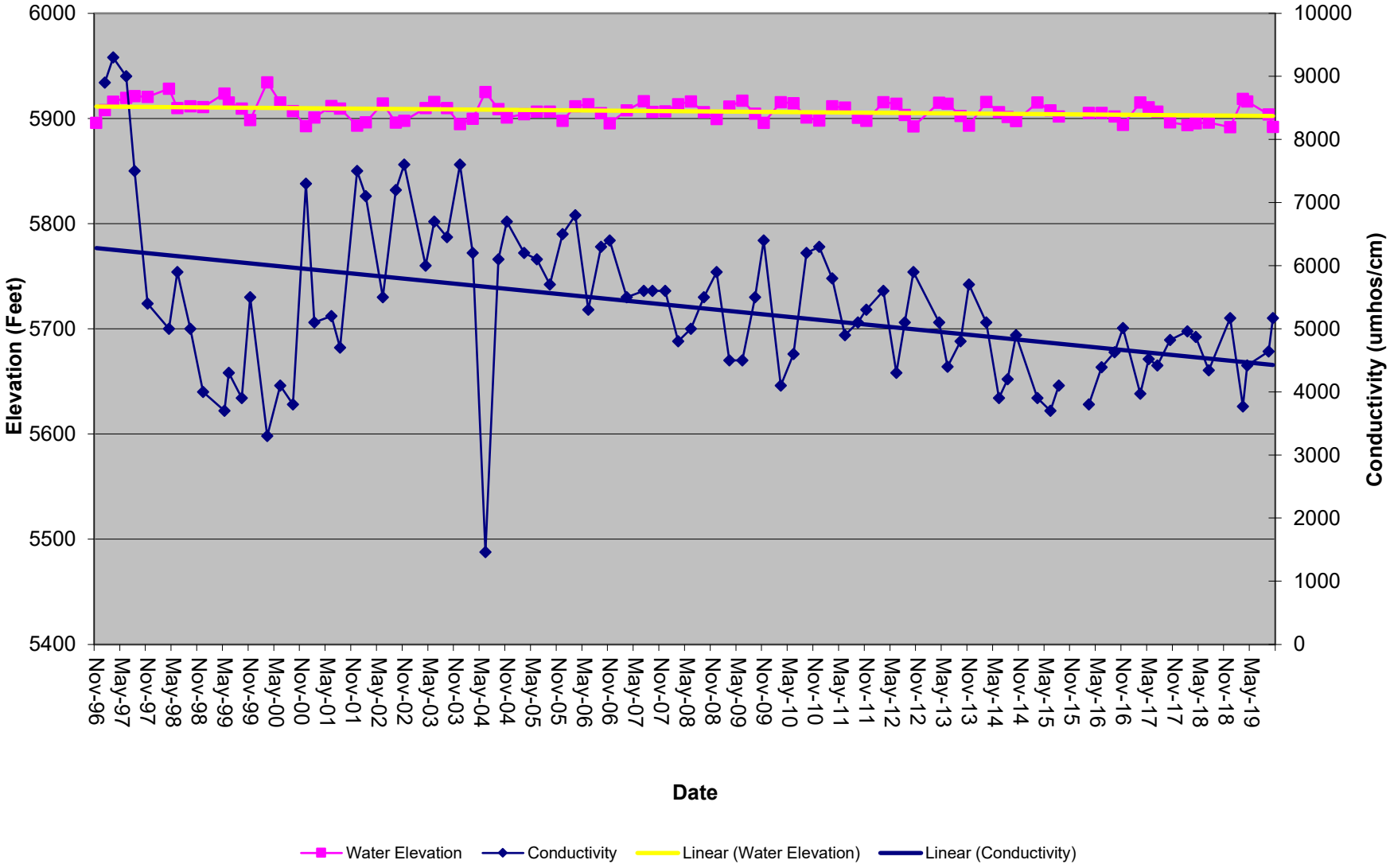
AW-1
Alluvial Well
Top of Pipe Elevation - 5977.76'
Depth - 120'
Pipe 1.06' Above Ground

Initiated								11/23/1996	11/23/1996	11/23/1996	11/23/1996
Activated								3/27/1997	3/27/1997	3/27/1997	3/27/1997
Date								10/28/2019	9/17/2019	4/29/2019	3/25/2019
		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	61.92	71.25	82.01	43.44	70.79	86.05	85.9	74	61.7	59.2
Water Elevation	Feet	5895.7	5906.5	5915.8	5891.7	5907.0	5934.3	5891.86	5903.76	5916.06	5918.56
FieldComment											
ph	su	7.1	7.2	7.3	7.0	7.4	12.9	7.45	7.62	7.26	7.45
Conductivity	umhos/cm	8900	9100	9300	1460	5271	9000	5170	4640	4420	3770
Temperature	Celsius	10.2	11.3	12.4	8.7	12.9	15.5	13.6	13.4	12.8	12.3
Lab											
Parameters	UNITS										
Bicarbonate	mg/L	641	649	657	214.0	605.5	1165.2			801	
Carbonate	mg/L	<MDL	<MDL	<MDL	<MDL	0.83	10.76			<MDL	
Chloride	mg/L	77	78	79	8.5	154.6	318.5			178	
Conductivity	umhos/cm	6480	7230	7980	894	5158	8610			4010	
Hardness	mg/L	2750	2895	3040	<MDL	1455	4511			1260	
Nitrate-Nitrite	mg/L	5.7	6.5	7.3	<MDL	3.74	11.20			<MDL	
Ammonia	mg/L	0.07	0.11	0.14	<MDL	0.24	1.09			<MDL	
pH	su	7.4	7.6	7.8	6.8	7.6	8.5			7.8	
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	0.03	0.22			0.013	
ResidueFilterable-TDS	mg/L	7990	8200	8410	787	4494	8710			3240	
Sulfate	mg/L	5140	5220	5300	135	2425	8330			1620	
Arsenic (Dissolved)	mg/L	<MDL	0.001	0.001	<MDL	0.090	0.553			0.0549	
Cadmium (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.016	0.050			<MDL	
Calcium (Dissolved)	mg/L	316	327	338	23.4	173.8	360.0			150	
Iron (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.10	1.75			<MDL	
Iron (TREC)	mg/L	0.13	0.41	0.70	0.01	0.58	2.37			0.0531	
Magnesium (Dissolved)	mg/L	476	505	533	53.8	285.5	961.5			215	
Manganese (Dissolved)	mg/L	<MDL	0.03	0.05	<MDL	0.032	0.490			<MDL	
Manganese (TREC)	mg/L	0.01	0.03	0.06	<MDL	1.524	7.440			0.0199	
Mercury (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.00005	0.00024			<MDL	
Selenium (Dissolved)	mg/L	0.026	0.031	0.035	0.001	0.236	7.400			<MDL	
Sodium (Dissolved)	mg/L	1550	1625	1700	253.0	909.3	1867.5			590	
Zinc (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.02	0.11			<MDL	

Alluvial Wells AW-1 through AW-6 are located north of Old State Highway 133, near the entrance to the mine.

There is no Baseline Collection possible for points initiated after the influence of mining.

Plot of Conductivity and Water Level



AW-1 - Alluvial Well

AW-2
Alluvial Well
Top of Pipe Elevation - 5966.2'
Depth - 50.4'
Pipe 1.32' Above Ground

Initiated								11/23/1996	11/23/1996	11/23/1996	11/23/1996
Activated								3/27/1997	3/27/1997	3/27/1997	3/27/1997
Date								10/28/2019	9/17/2019	4/29/2019	3/25/2019
		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	50.35	50.65	50.81	35.55	47.45	54.90	46.1	46.8	46.5	46.5
Water Elevation	Feet	5915.8	5916.0	5916.3	5911.7	5919.2	5931.1	5920.52	5919.82	5920.12	5920.12
FieldComment			Damp								
ph	su				6.8	7.1	7.5	7.31	7.16	6.84	7.24
Conductivity	umhos/cm				10	7079	10200	1020	10.49	1040	1024
Temperature	Celsius				11.8	14.7	18.4	13.3	14	14.5	13.5
Lab											
Parameters	UNITS										
Bicarbonate	mg/L				345.18	787.00	1080.00			1020	
Carbonate	mg/L				<MDL	11.29	26.98			<MDL	
Chloride	mg/L				54.50	172.25	370.63			208	
Conductivity	umhos/cm				3770	7848	12510			9870	
Hardness	mg/L				241.87	2746.98	4540.00			4540	
Nitrate-Nitrite	mg/L				<MDL	3.26	9.65			<MDL	
Ammonia	mg/L				<MDL	1.47	4.60			0.07	
pH	su				6.7	7.4	8.4			7.2	
Phosphate	mg/L				<MDL	0.07	0.25			0.12	
ResidueFilterable-TDS	mg/L				319	7250	11000			11000	
Sulfate	mg/L				235	3730	6540			6330	
Arsenic (Dissolved)	mg/L				<MDL	0.179	1.795			0.108	
Cadmium (Dissolved)	mg/L				<MDL	0.0345	0.1100			<MDL	
Calcium (Dissolved)	mg/L				33	320	518			443	
Iron (Dissolved)	mg/L				0.02	0.09	0.26			0.0182	
Iron (TREC)	mg/L				0.04	0.82	3.39			1.3	
Magnesium (Dissolved)	mg/L				170	533	970			833	
Manganese (Dissolved)	mg/L				<MDL	0.15	0.89			0.0761	
Manganese (TREC)	mg/L				0.01	0.38	3.90			0.209	
Mercury (Dissolved)	mg/L				<MDL	0.04060	0.77000			<MDL	
Selenium (Dissolved)	mg/L				0.00	0.06	0.54			<MDL	
Sodium (Dissolved)	mg/L				21.0	1133.1	2212.5			1770	
Zinc (Dissolved)	mg/L				<MDL	0.04	0.08			0.0374	

Alluvial Wells AW-1 through AW-6 are located north of Old State Highway 133, near the entrance to the mine.

There is no Baseline Collection possible for points initiated after the influence of mining.

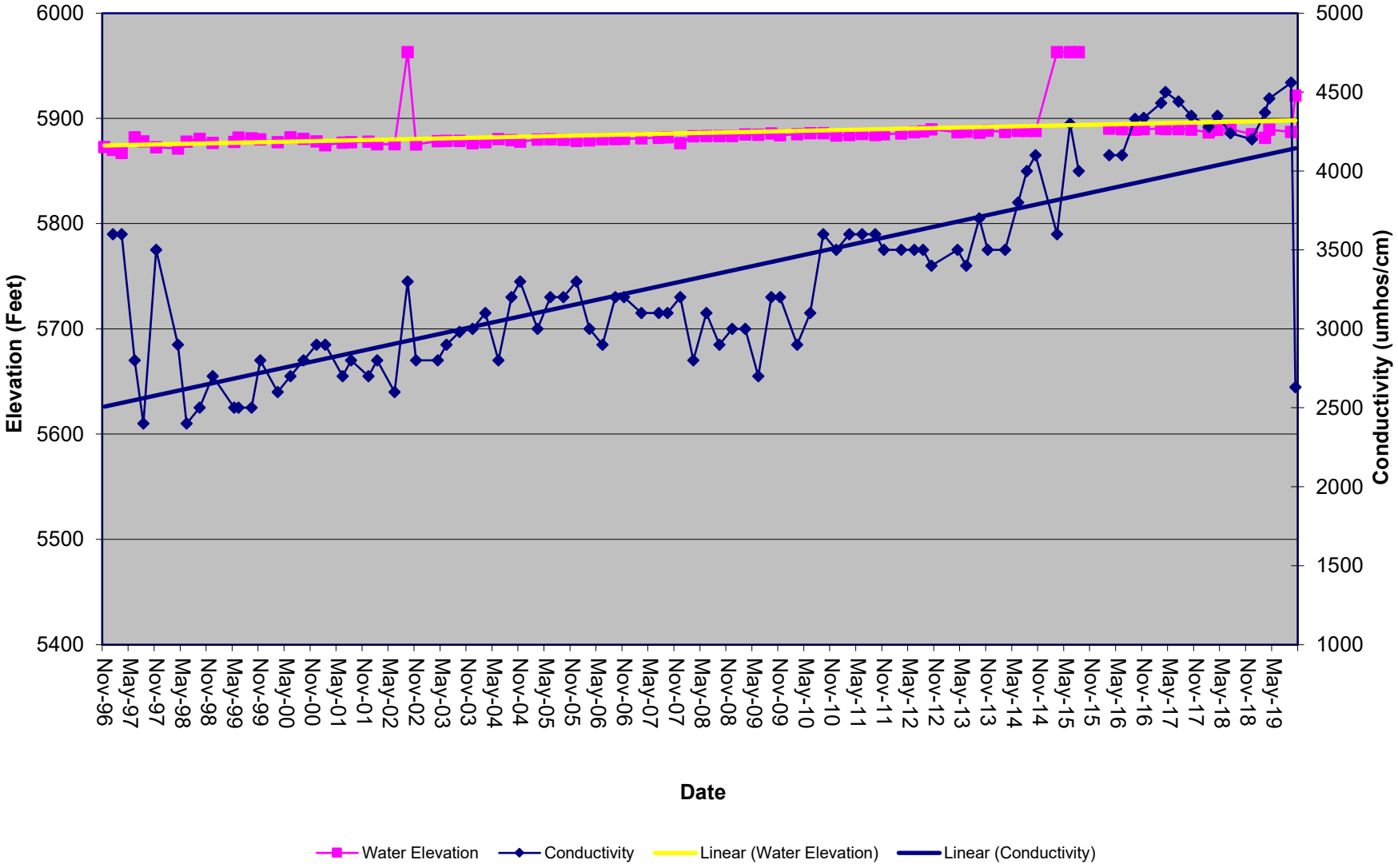
AW-3
Alluvial Well
Top of Pipe Elevation - 5962.96'
Depth - 150'
Pipe 1.16' Above Ground

Initiated								11/23/1996	11/23/1996	11/23/1996	11/23/1996
Activated								3/27/1997	3/27/1997	3/27/1997	3/27/1997
Date								10/28/2019	9/17/2019	4/29/2019	3/25/2019
		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	90.23	92.97	95.82	0.00	78.82	91.54	41.3	75.9	73.7	81.3
Water Elevation	Feet	5867.1	5870.0	5872.7	5871.4	5884.1	5963.0	5921.66	5887.06	5889.26	5881.66
FieldComment											
ph	su	6.9	7.0	7.1	6.8	8.0	77.1	7.89	7.12	7.22	7.3
Conductivity	umhos/cm	3600	3600	3600	2400	3322	4560	2630	4560	4460	4370
Temperature	Celsius	11.2	12.8	14.4	11.0	13.7	15.8	11.9	13.1	13.4	11.8
Lab											
Parameters	UNITS										
Bicarbonate	mg/L	851	976	1100	40	603	1080			770	
Carbonate	mg/L	<MDL	<MDL	<MDL	<MDL	0.83	10.76			<MDL	
Chloride	mg/L	119	128	136	33.77	139.27	345.00			302	
Conductivity	umhos/cm	2800	2975	3150	1817	3224	4580			4280	
Hardness	mg/L	1280	1325	1370	<MDL	1660	3354			2200	
Nitrate-Nitrite	mg/L	<MDL	<MDL	<MDL	0.03	2.75	10.20			<MDL	
Ammonia	mg/L	1.66	1.90	2.13	<MDL	0.37	2.00			<MDL	
pH	su	7.2	7.3	7.5	6.9	7.5	8.5			7.3	
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	0.02	0.08			0.011	
ResidueFilterable-TDS	mg/L	2390	2415	2440	1750	2738	4130			3590	
Sulfate	mg/L	870	875	880	760	1287	2030			1710	
Arsenic (Dissolved)	mg/L	<MDL	0.001	0.001	<MDL	0.976	28.900			0.0389	
Cadmium (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.010	0.040			<MDL	
Calcium (Dissolved)	mg/L	201	206	210	90.5	252.8	505.0			337	
Iron (Dissolved)	mg/L	0.19	0.33	0.46	<MDL	0.53	8.22			<MDL	
Iron (TREC)	mg/L	8.00	8.23	8.46	0.03	2.68	27.50			0.0854	
Magnesium (Dissolved)	mg/L	189	197	205	136	268	661			330	
Manganese (Dissolved)	mg/L	0.10	0.11	0.13	<MDL	0.113	0.855			0.41	
Manganese (TREC)	mg/L	0.12	0.12	0.12	0.008	3.555	111.000			2.87	
Mercury (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.00007	0.00035			<MDL	
Selenium (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.017	0.134			<MDL	
Sodium (Dissolved)	mg/L	421	433	445	105	233	682			278	
Zinc (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.02	0.10			<MDL	

Alluvial Wells AW-1 through AW-6 are located north of Old State Highway 133, near the entrance to the mine.

There is no Baseline Collection possible for points initiated after the influence of mining.

Plot of Conductivity and Water Level



AW-3 - Alluvial Well

Table 111

AW-4
Alluvial Well
Top of Pipe Elevation - 5977.2'
Depth - 60'
Pipe 1.12' Above Ground

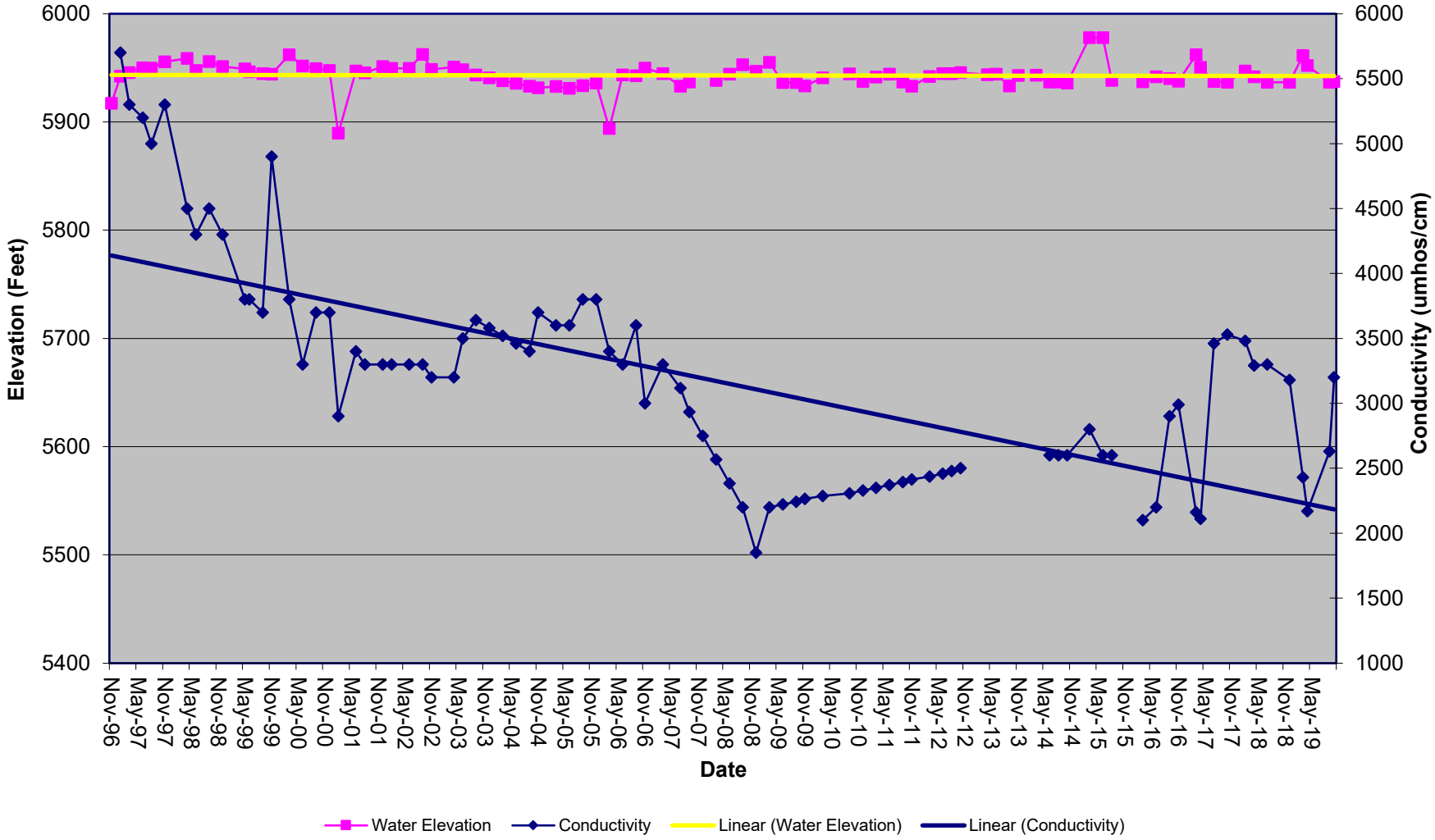
Initiated								11/23/1996	11/23/1996	11/23/1996	11/23/1996
Activated								3/27/1997	3/27/1997	3/27/1997	3/27/1997
Date								10/28/2019	9/17/2019	4/29/2019	3/26/2019
		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	32.42	42.94	60.78	15.54	35.19	88.38	40.6	41.3	25.7	16.6
Water Elevation	Feet	5917.1	5935.0	5945.5	5889.5	5942.7	5962.4	5937.32	5936.62	5952.22	5961.32
FieldComment											
ph	su	6.8	6.9	7.0	6.7	7.3	8.0	7.82	7.89	7.52	7.9
Conductivity	umhos/cm	5300	5500	5700	1850	3291	5300	3200	2630	2170	2430
Temperature	Celsius	11.2	11.9	12.6	8.0	12.3	15.5	8.6	11.9	12.5	13.4
Lab											
Parameters	UNITS										
Bicarbonate	mg/L	624	707	790	316.1	545.7	758.0			443	
Carbonate	mg/L	<MDL	<MDL	<MDL	<MDL	0.37	4.49			<MDL	
Chloride	mg/L	57	60	63	31	139	227			77.2	
Conductivity	umhos/cm	3880	4495	5110	1723	3412	9490			1990	
Hardness	mg/L	2650	2670	2690	<MDL	1051	2730			589	
Nitrate-Nitrite	mg/L	0.10	0.21	0.32	<MDL	0.58	6.75			<MDL	
Ammonia	mg/L	0.09	0.22	0.34	<MDL	0.65	6.60			6.6	
pH	su	7.1	7.3	7.5	7.1	7.6	8.3			7.8	
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	0.08	0.77			0.77	
ResidueFilterable-TDS	mg/L	4830	5080	5330	1372	2765	4990			1470	
Sulfate	mg/L	2620	2920	3220	448	1317	2760			673	
Arsenic	mg/L	<MDL	<MDL	<MDL	<MDL	0.006	0.042			0.0364	
Cadmium	mg/L	<MDL	<MDL	<MDL	<MDL	0.00469	0.03000			<MDL	
Calcium	mg/L	465	481	496	19.8	215.6	496.0			113	
Iron (Dissolved)	mg/L	<MDL	0.04	0.07	<MDL	0.10	0.73			0.0244	
Iron (TREC)	mg/L	0.10	0.14	0.17	0.07	2.97	69.20			0.207	
Magnesium (Dissolved)	mg/L	353	357	361	71	163	362			74.5	
Manganese (Dissolved)	mg/L	0.22	0.43	0.64	<MDL	0.61	1.52			0.565	
Manganese (TREC)	mg/L	0.18	0.40	0.62	0.15	66.55	1270.00			0.777	
Mercury	mg/L	<MDL	<MDL	<MDL	<MDL	0.00006	0.00030			<MDL	
Selenium	mg/L	<MDL	0.0005	0.0010	<MDL	0.0019	0.0100			<MDL	
Sodium	mg/L	590	646	702	199	373	684			231	
Zinc	mg/L	<MDL	<MDL	<MDL	<MDL	0.02	0.07			<MDL	

**Small bailer won't reach water, casing pinched*

Alluvial Wells AW-1 through AW-6 are located north of Old State Highway 133, near the entrance to the mine.

There is no Baseline Collection possible for points initiated after the influence of mining.

Plot of Conductivity and Water Level



AW-4 - Alluvial Well

Table 113

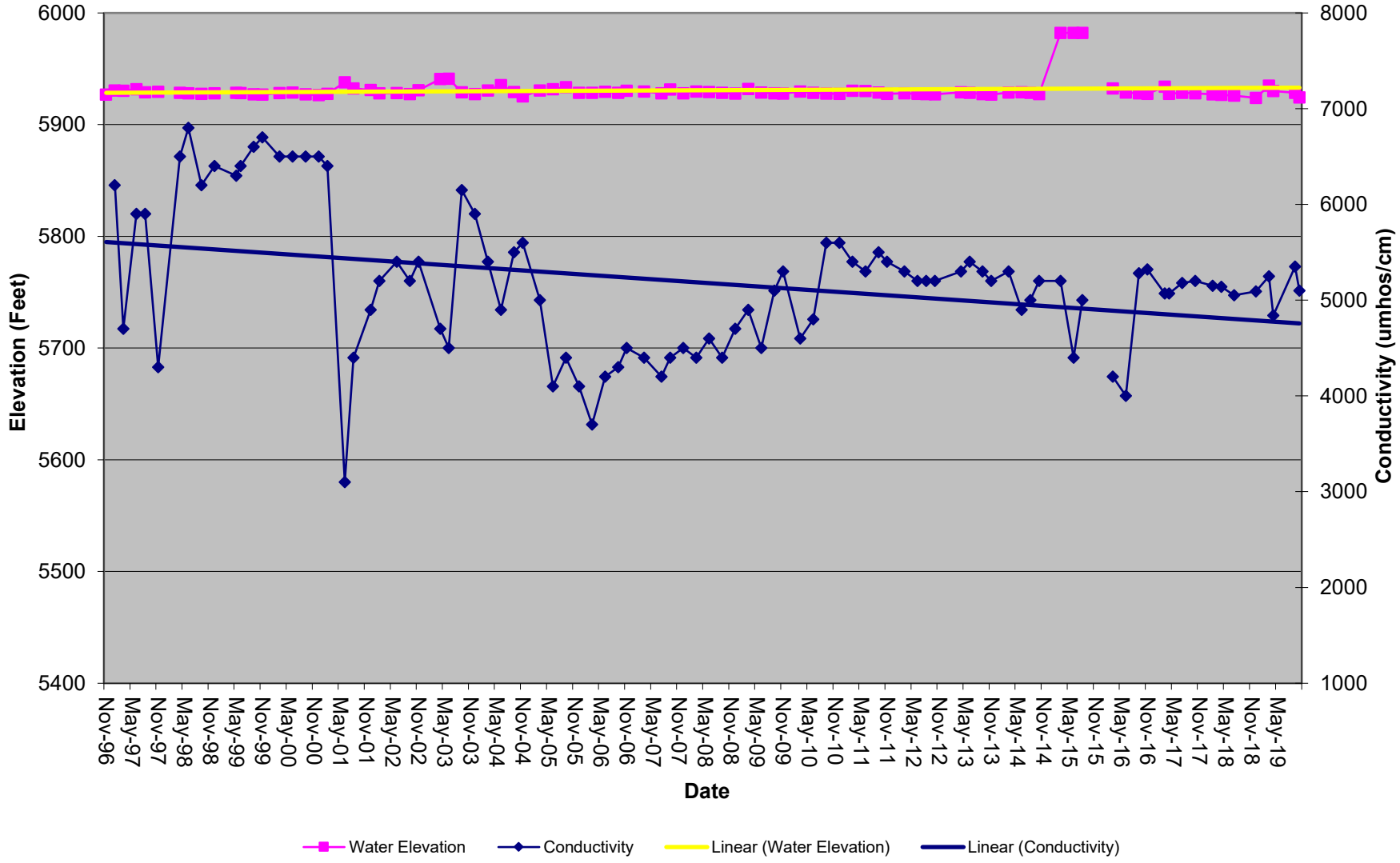
AW-5 Alluvial Well
Top of Pipe Elevation - 5982.14'
Depth - 100'
Pipe 1.14' Above Ground

Initiated								11/23/1996	11/23/1996	11/23/1996	11/23/1996
Activated								3/27/1997	3/27/1997	3/27/1997	3/27/1997
Date								10/28/2019	9/17/2019	4/29/2019	3/26/2019
		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	51.65	52.95	55.26	41.03	52.91	58.20	57.9	53.6	52.1	47.3
Water Elevation	Feet	5926.9	5929.2	5930.5	5923.9	5929.2	5941.1	5924.24	5928.54	5930.04	5934.84
FieldComment											
ph	su	7.1	7.2	7.3	6.6	7.6	51.8	7.4	7.3	7.1	7.2
Conductivity	umhos/cm	4700	5450	6200	3100	5177	6800	5100	5350	4840	5250
Temperature	Celsius	12.8	13.7	14.6	11.0	14.3	16.9	13.8	14.1	14	15.5
Lab											
Parameters	UNITS										
Bicarbonate	mg/L	566	658	750	99.05	736.02	1100.00			925	
Carbonate	mg/L	<MDL	<MDL	<MDL	<MDL	0.98	10.76			<MDL	
Chloride	mg/L	49	51	52	29.0	244.8	636.5			492	
Conductivity	umhos/cm	4270	4890	5510	378	5014	6650			4590	
Hardness	mg/L	3330	3380	3430	<MDL	2545	5318			1940	
Nitrate-Nitrite	mg/L	34.4	35.2	36.0	<MDL	14.98	46.70			<MDL	
Ammonia	mg/L	0.10	0.11	0.13	<MDL	0.57	2.03			0.05	
pH	su	7.2	7.4	7.6	6.7	7.4	8.4			7.2	
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	0.145	3.240			0.024	
ResidueFilterable-TDS	mg/L	5390	5580	5770	3270	4772	6760			3480	
Sulfate	mg/L	3140	3385	3630	977	2360	4550			1380	
Arsenic (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.067	0.552			0.0546	
Cadmium (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.01522	0.0690			<MDL	
Calcium (Dissolved)	mg/L	291	298	305	27.6	253.5	451.0			249	
Iron (Dissolved)	mg/L	<MDL	0.03	0.06	<MDL	0.038	0.106			<MDL	
Iron (TREC)	mg/L	0.10	0.11	0.12	<MDL	9.69	385.00			0.0557	
Magnesium (Dissolved)	mg/L	633	642	650	253	523	1158			319	
Manganese (Dissolved)	mg/L	<MDL	0.01	0.02	<MDL	0.011	0.044			0.0064	
Manganese (TREC)	mg/L	0.01	0.01	0.02	<MDL	0.022	0.220			0.0118	
Mercury (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.00005	0.00035			<MDL	
Selenium (Dissolved)	mg/L	0.03	0.03	0.03	0.002	0.032	0.250			<MDL	
Sodium (Dissolved)	mg/L	523	531	539	204	424	825			433	
Zinc (Dissolved)	mg/L	<MDL	0.01	0.03	<MDL	0.025	0.070			<MDL	

Alluvial Wells AW-1 through AW-6 are located north of Old State Highway 133, near the entrance to the mine.

There is no Baseline Collection possible for points initiated after the influence of mining.

Plot of Conductivity and Water Level



AW-5 - Alluvial Well

Table 115

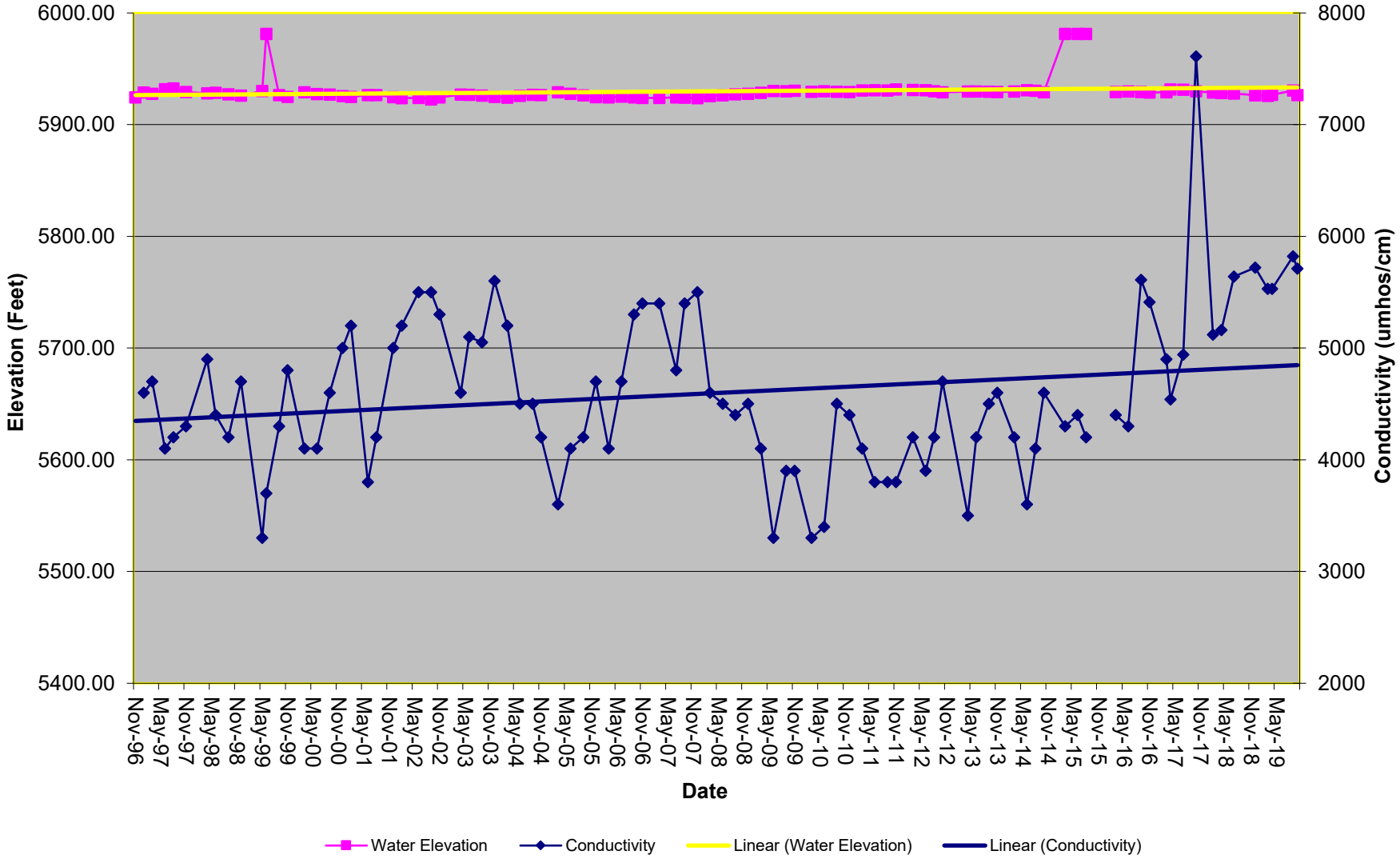
AW-6
Alluvial Well
Top of Pipe Elevation - 5981.18'
Depth - 112'
Pipe 1.38' Above Ground

Initiated								11/23/1996	11/23/1996	11/23/1996	11/23/1996
Activated								3/27/1997	3/27/1997	3/27/1997	3/27/1997
Date								10/28/2019	9/17/2019	4/29/2019	3/26/2019
		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	52.62	54.37	56.82	0.00	52.91	58.61	54.9	50.7	54.6	55.5
Water Elevation	Feet	5924.4	5926.8	5928.6	5922.6	5928.3	5981.2	5926.28	5930.48	5926.58	5925.68
FieldComment											
ph	su	7.3	7.4	7.4	7.0	7.3	7.7	7.52	7.36	7.35	7.41
Conductivity	umhos/cm	4600	4650	4700	3300	4598	7610	5710	5820	5530	5530
Temperature	Celsius	12.4	13.5	14.6	11.7	14.1	17.8	13.3	14.1	14.1	16.1
Lab											
Parameters	UNITS										
Bicarbonate	mg/L	278	317	355	217.4	391.2	521.0			485	
Carbonate	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			<MDL	
Chloride	mg/L	107	114	120	54.5	137.6	577.8			144	
Conductivity	umhos/cm	2580	3305	4030	3125	4479	7450			5450	
Hardness	mg/L	1880	1925	1970	<MDL	1772	4787			2330	
Nitrate-Nitrite	mg/L	7.3	8.1	8.8	0.0	5.1	9.0			<MDL	
Ammonia	mg/L	0.07	0.07	0.07	<MDL	0.37	1.56			<MDL	
pH	su	7.5	7.6	7.7	7.0	7.6	8.3			7.2	
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	0.02	0.06			0.021	
ResidueFilterable-TDS	mg/L	3910	3995	4080	2440	4140	5770			5190	
Sulfate	mg/L	2300	2300	2300	968	2217	3150			2890	
Arsenic (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.093	0.650			0.0511	
Cadmium (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.011	0.040			<MDL	
Calcium (Dissolved)	mg/L	248	254	260	37	231	327			291	
Iron (Dissolved)	mg/L	<MDL	0.14	0.27	<MDL	0.06	0.26			<MDL	
Iron (TREC)	mg/L	0.26	0.31	0.37	0.06	0.50	4.74			0.147	
Magnesium (Dissolved)	mg/L	307	315	322	0.0	311.8	1015.6			389	
Manganese (Dissolved)	mg/L	0.07	0.18	0.29	<MDL	0.514	15.500			0.0096	
Manganese (TREC)	mg/L	0.11	0.20	0.29	<MDL	0.102	0.350			0.0325	
Mercury (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.00008	0.00070			<MDL	
Selenium (Dissolved)	mg/L	0.05	0.06	0.06	0.001	0.062	0.380			<MDL	
Sodium (Dissolved)	mg/L	501	514	526	306.9	536.1	965.0			602	
Zinc (Dissolved)	mg/L	<MDL	0.05	0.11	<MDL	0.02	0.07			<MDL	

Alluvial Wells AW-1 through AW-6 are located north of Old State Highway 133, near the entrance to the mine.

There is no Baseline Collection possible for points initiated after the influence of mining.

Plot of Conductivity and Water Level



AW-6 - Alluvial Well

AW-7
Alluvial Well
Top of Pipe Elevation - 5950'
Depth - 188'
Pipe 2.17' Above Ground

Initiated	9/9/1999	9/9/1999	9/9/1999	9/9/1999
Activated	9/9/1999	9/9/1999	9/9/1999	9/9/1999
Date	10/28/2019	9/17/2019	5/6/2019	3/25/2019

		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet				50.59	75.21	100.90	96.1	72.3	73.2	77.2
Water Elevation	Feet				5849.1	5874.8	5899.4	5853.9	5877.7	5876.8	5872.8
FieldComment											
ph	su				7.1	7.8	8.4	8.21	7.91	7.93	7.81
Conductivity	umhos/cm				300	1927	3100	2500	2240	2260	2230
Temperature	Celsius				10.3	12.3	14.5	11.6	11.5	12.3	13.3
Lab											
Parameters	UNITS										
Bicarbonate	mg/L				<MDL	344.5	511.2			463	
Carbonate	mg/L				<MDL	41.6	341.5			<MDL	
Chloride	mg/L				13.0	133.0	539.0			142	
Conductivity	umhos/cm				359	1948	3645			2110	
Hardness	mg/L				<MDL	460.21	1093.20				
Nitrate-Nitrite	mg/L				<MDL	1.55	7.92			0.85	
Ammonia	mg/L				<MDL	0.199	1.200			1.2	
pH	su				7.1	7.8	8.6			7.8	
Phosphate	mg/L				<MDL	0.05	0.31			0.049	
ResidueFilterable-TDS	mg/L				200	1417	2254			1440	
Sulfate	mg/L				40.00	588.17	1110.00			588	
Arsenic (Dissolved)	mg/L				<MDL	0.033	0.255			<MDL	
Cadmium (Dissolved)	mg/L				<MDL	0.007	0.023			<MDL	
Calcium (Dissolved)	mg/L				12.8	98.3	687.0			611	
Iron (Dissolved)	mg/L				<MDL	0.04	0.28			<MDL	
Iron (TREC)	mg/L				<MDL	0.26	1.01			0.198	
Magnesium (Dissolved)	mg/L				6.3	85.0	619.0			58.9	
Manganese (Dissolved)	mg/L				<MDL	0.013	0.060			0.0218	
Manganese (TREC)	mg/L				<MDL	0.383	4.740			0.0456	
Mercury (Dissolved)	mg/L				<MDL	0.00006	0.00031			<MDL	
Selenium (Dissolved)	mg/L				<MDL	0.072	1.500			<MDL	
Sodium (Dissolved)	mg/L				46.7	351.6	1705.0			342	
Zinc (Dissolved)	mg/L				<MDL	0.020	0.040			<MDL	

The area of concern for monitoring point AW-7 was affected by the mining operation before its establishment. Therefore, all recorded monitoring events are considered Operational.

Alluvial Wells AW-7 through AW-9 are located south of Old State Highway 133, near the entrance to the mine. They were installed in 1999 as the result of PR-03.

*** Lab. data not provided*

There is no Baseline Collection possible for points initiated after the influence of mining.

Bowie Resources, LLC
Bowie No. 2 Mine
2018 Annual Hydrology Report

Ground Water

AW-8
Alluvial Well
Top of Pipe Elevation - 5950'
Depth - 60'
Pipe 1.97' Above Ground

Initiated	9/9/1999	9/9/1999	9/9/1999	9/9/1999
Activated	9/9/1999	9/9/1999	9/9/1999	9/9/1999
Date	10/28/2019	9/17/2019	5/6/2019	3/25/2019

		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet				11.84	20.49	73.23	19.8	19.8	19.8	20.4
Water Elevation	Feet				5876.8	5929.5	5938.2	5930.2	5930.2	5930.2	5929.6
FieldComment								Dry	Dry	Dry	Dry
ph	su				8.2	9.0	9.8				
Conductivity	umhos/cm				260	360	460				
Temperature	Celsius				13.2	13.9	14.7				
Lab Parameters	UNITS										
Bicarbonate	mg/L				<MDL	444.0	444.0				
Carbonate	mg/L				<MDL	0.0	0.0				
Chloride	mg/L				<MDL	213.0	213.0				
Conductivity	umhos/cm				<MDL	2020.0	2020.0				
Hardness	mg/L				<MDL	448.0	448.0				
Nitrate-Nitrite	mg/L				<MDL	0.0	0.0				
Ammonia	mg/L				<MDL	0.0	0.0				
pH	su				<MDL	7.9	7.9				
Phosphate	mg/L				<MDL	0.0	0.0				
ResidueFilterable (TDS)	mg/L				<MDL	1580.0	1580.0				
Sulfate	mg/L				<MDL	638.0	638.0				
Arsenic	mg/L				<MDL	0.0	0.0				
Cadmium	mg/L				<MDL	0.0	0.0				
Calcium	mg/L				<MDL	710.0	710.0				
Iron (Dissolved)	mg/L				<MDL	0.0	0.0				
Iron (TREC)	mg/L				<MDL	0.1	0.1				
Magnesium	mg/L				<MDL	65.8	65.8				
Manganese (Dissolved)	mg/L				<MDL	0.0	0.0				
Manganese (Total)	mg/L				<MDL	0.0	0.0				
Mercury	mg/L				<MDL	0.0	0.0				
Selenium	mg/L				<MDL	0.0	0.0				
Sodium	mg/L				<MDL	367.0	367.0				
Zinc	mg/L				<MDL	0.0	0.0				

The area of concern for monitoring point AW-8 was affected by the mining operation before its establishment. Therefore, all recorded monitoring events are considered Operational.

Alluvial Wells AW-7 through AW-9 are located south of Old State Highway 133, near the entrance to the mine. They were installed in 1999 as the result of PR-03.

** Lab. data not provided*

There is no Baseline Collection possible for points initiated after the influence of mining.

AW-9
Alluvial Well
Top of Pipe Elevation - 5946
Depth - 80'
Pipe 1.15' Above Ground

Initiated	10/1/1999	10/1/1999	10/1/1999	10/1/1999
Activated	10/1/1999	10/1/1999	10/1/1999	10/1/1999
Date	10/28/2019	9/17/2019	5/6/2019	3/25/2019

Field Parameters	UNITS	Summary Information Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max				
Static Water Level	Feet				32.42	54.70	80.29	79.8	49.8	43.3	43.5
Water Elevation	Feet				51.1	5818.5	5913.6	5866.2	5896.2	5902.7	5902.5
FieldComment								Dry			
ph	su				7.3	7.8	8.3		7.85	8.01	7.84
Conductivity	umhos/cm				260	1707	4400		1100	1255	1554
Temperature	Celsius				7.6	11.6	14.9		11	12.3	13
Lab Parameters	**UNITS**										
Bicarbonate	mg/L				39.6	299.9	479.0			361	
Carbonate	mg/L				<MDL	5.00	10.88			<MDL	
Chloride	mg/L				3.0	130.8	544.5			53.5	
Conductivity	umhos/cm				519	1746	4350			1160	
Hardness	mg/L				<MDL	492.7	1530.0			266	
Nitrate-Nitrite	mg/L				<MDL	2.09	7.92			0.92	
Ammonia	mg/L				<MDL	0.16	1.10			0.05	
pH	su				7.4	7.9	8.5			8.1	
Phosphate	mg/L				<MDL	0.17	1.70			0.019	
ResidueFilterable-TDS	mg/L				330	1253	3800			752	
Sulfate	mg/L				21.8	475.6	2100.0			261	
Arsenic (Dissolved)	mg/L				<MDL	0.0419	0.2880			<MDL	
Cadmium (Dissolved)	mg/L				<MDL	0.00671	0.0220			<MDL	
Calcium (Dissolved)	mg/L				29.0	70.2	230.0			43.9	
Iron (Dissolved)	mg/L				<MDL	0.19	3.59			<MDL	
Iron (TREC)	mg/L				<MDL	4.60	122.00			0.106	
Magnesium (Dissolved)	mg/L				29.1	80.3	280.0			38	
Manganese (Dissolved)	mg/L				<MDL	0.018	0.155			<MDL	
Manganese (TREC)	mg/L				<MDL	0.483	11.400			0.0078	
Mercury (Dissolved)	mg/L				<MDL	0.00007	0.00036			<MDL	
Selenium (Dissolved)	mg/L				<MDL	0.128	3.100			<MDL	
Sodium (Dissolved)	mg/L				22.1	313.9	1998.0			159	
Zinc (Dissolved)	mg/L				<MDL	0.02	0.11			<MDL	

The area of concern for monitoring point AW-9 was affected by the mining operation before its establishment. Therefore, all recorded monitoring events are considered Operational.

Alluvial Wells AW-7 through AW-9 are located south of Old State Highway 133, near the entrance to the mine. They were installed in 1999 as the result of PR-03.

*** Lab. data not provided*

There is no Baseline Collection possible for points initiated after the influence of mining.

AW-11
Alluvial Well
Elevation - 5884
Depth - 60.86'

Initiated	12/20/2000	12/20/2000	12/20/2000	12/20/2000
Activated	2/28/2002	2/28/2002	2/28/2002	2/28/2002
Date	10/28/2019	9/17/2019	5/6/2019	3/25/2019

		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	11.92	38.20	50.31	19.13	43.61	57.60	52.3	32.6	57.6	56.8
Water Elevation	Feet	5833.7	5845.8	5872.1	5826.4	5840.4	5864.9	5831.7	5851.4	5826.4	5827.2
FieldComment										Not enough water	
ph	su	6.7	7.3	7.5	6.9	7.6	8.0	7.72	7.88		7.67
Conductivity	umhos/cm	390	760	1060	480	1038	1719	1300	1187		1292
Temperature	Celsius	11.2	13.4	15.7	10.0	12.8	15.3	10.3	12.2		12.7
Lab											
Parameters	UNITS										
Bicarbonate	mg/L	350	367	384	177.3	313.3	536.0				
Carbonate	mg/L	<MDL	<MDL	<MDL	<MDL	4.59	6.88				
Chloride	mg/L	2	3	3	<MDL	39.4	255.2				
Conductivity	umhos/cm	671	850	1030	661	1105	2870				
Hardness	mg/L	587	587	587	265.0	543.8	911.7				
Nitrate-Nitrite	mg/L	0.10	0.28	0.56	<MDL	0.65	2.70				
Ammonia	mg/L	<MDL	0.05	0.08	<MDL	0.13	0.43				
pH	su	7.2	7.5	7.8	7.1	7.7	8.5				
Phosphate	mg/L	<MDL	0.14	0.39	<MDL	0.08	0.21				
ResidueFilterable-TDS	mg/L	360	553	690	350	761	2150				
Sulfate	mg/L	20	150	250	4.94	213.32	510.00				
Arsenic (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.022	0.280				
Cadmium (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.010	0.030				
Calcium (Dissolved)	mg/L	70.6	92.9	110.0	30.8	132.2	765.0				
Iron (Dissolved)	mg/L	0.02	0.04	0.05	<MDL	0.19	2.46				
Iron (TREC)	mg/L	0.07	4.93	9.97	<MDL	2.52	24.30				
Magnesium (Dissolved)	mg/L	46.2	64.6	75.8	37.5	114.2	748.0				
Manganese (Dissolved)	mg/L	<MDL	0.02	0.03	<MDL	0.403	5.400				
Manganese (TREC)	mg/L	<MDL	0.34	0.57	<MDL	0.397	2.540				
Mercury (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.00008	0.00027				
Selenium (Dissolved)	mg/L	<MDL	0.001	0.002	<MDL	0.012	0.116				
Sodium (Dissolved)	mg/L	12.70	19.37	22.9	11.0	43.6	125.0				
Zinc (Dissolved)	mg/L	<MDL	0.01	0.02	<MDL	0.02	0.07				

** Could not access site*

Alluvial Wells AW-11 through AW-13 are located north of the Union Pacific Railroad. They were installed in 2000 to develop baseline data for a new train loadout.

Baseline Information for AW-11 is derived from events beginning on 12/20/00 through 2/28/02.
Point influenced by mining on 2/28/02.

AW-12
Alluvial Well
Elevation - 5878
Depth - 45.38'

Initiated	12/20/2000	12/20/2000	12/20/2000	12/20/2000
Activated	2/28/2002	2/28/2002	2/28/2002	2/28/2002
Date	10/28/2019	9/17/2019	5/6/2019	3/25/2019

		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	6.49	26.717	37.03	5.31	25.29	40.00	34.3	33.5	34.2	39.1
Water Elevation	Feet	5841.0	5851.3	5871.5	5838.0	5852.7	5872.7	5843.7	5844.5	5843.8	5838.9
FieldComment											
ph	su	7.1	7.5	7.7	6.7	7.5	7.8	7.4	7.7	7.8	7.69
Conductivity	umhos/cm	490	567	610	485	688	1640	698.0	688.0	688.0	746
Temperature	Celsius	10.4	13.0	16.1	10.7	12.9	16.3	10.8	14.2	14.6	12.4
Lab											
Parameters	UNITS										
Bicarbonate	mg/L	297	336.33	371	265.95	369.58	471.43			421	
Carbonate	mg/L	<MDL	<MDL	<MDL	<MDL	5.69	8.99			<MDL	
Chloride	mg/L	2	2	2	<MDL	13.9	119.0			1.6	
Conductivity	umhos/cm	548	571	609	473	766	3170			612	
Hardness	mg/L	318	318	318	237.0	360.0	674.3			313	
Nitrate-Nitrite	mg/L	0.45	0.4733	0.51	<MDL	0.68	2.15			<MDL	
Ammonia	mg/L	<MDL	0.09	0.27	<MDL	0.12	0.52			<MDL	
pH	su	7.4	7.6333	7.9	7.1	7.7	8.5			8.03	
Phosphate	mg/L	<MDL	0.0167	0.05	<MDL	0.18	1.04			0.03	
ResidueFilterable-TDS	mg/L	310	330	340	221	479	2450			379	
Sulfate	mg/L	10	13.333	20	<MDL	20.6	42.4			14.2	
Arsenic (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.011	0.140			<MDL	
Cadmium (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.011	0.040			<MDL	
Calcium (Dissolved)	mg/L	51.9	54.8	57.4	3.8	171.5	677.0			677	
Iron (Dissolved)	mg/L	0.02	8.3167	24.9	<MDL	0.63	10.28			0.591	
Iron (TREC)	mg/L	0.05	42.55	83.7	0.01	29.01	806.00			0.606	
Magnesium (Dissolved)	mg/L	<MDL	25.433	42.4	<MDL	82.2	368.0			35	
Manganese (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.075	0.621			0.0167	
Manganese (TREC)	mg/L	<MDL	0.864	2.050	<MDL	4.495	119.000			0.0167	
Mercury (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.00008	0.00028			<MDL	
Selenium (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.007	0.060			<MDL	
Sodium (Dissolved)	mg/L	19.5	20.633	21.2	13.8	46.1	202.0			18.5	
Zinc (Dissolved)	mg/L	<MDL	0.0033	0.01	<MDL	0.02	0.08			<MDL	

** Could not access site*

*** Not enough water for sample/parameters*

Alluvial Wells AW-11 through AW-13 are located north of the Union Pacific Railroad. They were installed in 2000 to develop baseline data for a new train loadout.

Baseline Information for AW-12 is derived from events beginning on 12/20/00 through 2/28/02.
Point influenced by mining on 2/28/02.

AW-14
Alluvial Well
Depth - 30'
Elevation - 5822
Pipe 0.78' Above Ground

Initiated	7/24/2003	7/24/2003	7/24/2003	7/24/2003		
Activated	7/24/2003	7/24/2003	7/24/2003	7/24/2003		
Date	10/28/2019	9/17/2019	5/6/2019	3/25/2019		

Field Parameters	UNITS	Summary Information Baseline Min	Ave	Max	Operation Min	Ave	Max				
Static Water Level	Feet				4.98	7.56	12.10	7.5	6.5	6.4	8.3
Water Elevation	Feet				5809.9	5814.4	5817.0	5814.5	5815.5	5815.6	5813.7
FieldComment											
ph	su				7.0	7.5	8.0	7.25	7.58	7.66	7.56
Conductivity	umhos/cm				875	1660	2400	1191	1729	1767	1671
Temperature	Celsius				7.6	12.0	15.7	12.5	14	11.7	10.3
Lab Parameters	UNITS										
Bicarbonate	mg/L				238.2	370.1	552.3			424	
Carbonate	mg/L				<MDL	12.4	20.0			<MDL	
Chloride	mg/L				2.0	134.0	397.0			91.6	
Conductivity	umhos/cm				650	1576	2860			1160	
Hardness	mg/L				237.0	794.0	1770.2			690	
Nitrate-Nitrite	mg/L				<MDL	0.9	2.7			<MDL	
Ammonia	mg/L				<MDL	0.66	7.61			0.05	
pH	su				6.9	7.6	8.5			7.56	
Phosphate	mg/L				<MDL	0.10	0.21			0.046	
ResidueFilterable-TDS	mg/L				610	1195	1910			1230	
Sulfate	mg/L				67.6	393.5	661.0			505	
Arsenic (Dissolved)	mg/L				0.0003	0.046	0.922			<MDL	
Cadmium (Dissolved)	mg/L				<MDL	0.012	0.030			<MDL	
Calcium (Dissolved)	mg/L				41.6	126.3	241.0			122	
Iron (Dissolved)	mg/L				0.01	0.91	7.80			0.0502	
Iron (TREC)	mg/L				0.27	9.44	28.10			4.81	
Magnesium-Dissolved	mg/L				7.7	144.7	914.0			93.7	
Manganese-Dissolved	mg/L				0.004	0.563	2.160			0.193	
Manganese (TREC)	mg/L				0.004	1.672	6.780			2.09	
Mercury (Dissolved)	mg/L				<MDL	0.00010	0.00052			<MDL	
Selenium (Dissolved)	mg/L				<MDL	0.021	0.116			<MDL	
Sodium (Dissolved)	mg/L				40.7	134.6	991.0			112	
Zinc (Dissolved)	mg/L				<MDL	0.07	0.99			<MDL	

The area of concern for monitoring point AW-14 was affected by the mining operation before its establishment. Therefore all recorded monitoring events are considered operational.

** Dry*

Alluvial Well AW-14 is located southwest of Pond K.

There is no baseline collection possible for points initiated after the influence of mining.

AW-15
Alluvial Well
Top of Pipe Elevation - 5972.52
Depth - 86
Pipe 0.3' Above Ground

Initiated								12/29/2003	12/29/2003	12/29/2003	12/29/2003
Activated								9/27/2004	9/27/2004	9/27/2004	9/27/2004
Date								10/28/2019	9/17/2019	5/6/2019	3/25/2019
		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	84.86	85.27	86.00	75.10	84.36	93.70		84.1	83.9	93.7
Water Elevation	Feet	5886.5	5887.3	5887.7	5878.8	5888.2	5897.4		5888.42	5888.62	5878.82
FieldComment		Dry & Damp						Dry			
ph	su				7.0	7.3	7.7				7.38
Conductivity	umhos/cm				3800	4600	5300				4900
Temperature	Celsius				8.4	14.4	19.1				12.5
Lab Parameters	UNITS										
Bicarbonate	mg/L				507.3	595.5	750.0		*	*	
Carbonate	mg/L				<MDL	5.61	6.88				
Chloride	mg/L				119.91	223.90	418.00				
Conductivity	umhos/cm				4416	4776	5412				
Hardness	mg/L				292.0	1037.0	1486.4				
Nitrate-Nitrite	mg/L				<MDL	6.26	11.30				
Ammonia	mg/L				0.269	0.458	0.647				
pH	su				7.11	7.82	8.36				
Phosphate	mg/L				0.08	0.11	0.14				
ResidueFilterable-TDS	mg/L				3388.0	3990.4	4793.3				
Sulfate	mg/L				1563.7	2050.03	2786.42				
Arsenic	mg/L				<MDL	0.019	0.019				
Cadmium	mg/L				<MDL	0.030	0.030				
Calcium	mg/L				46.50	160.27	231.80				
Iron (Dissolved)	mg/L				0.07	1.20	2.84				
Iron (TREC)	mg/L				1.56	2.20	3.12				
Magnesium (Dissolved)	mg/L				42.7	154.7	220.4				
Manganese (Dissolved)	mg/L				0.007	0.237	0.664				
Manganese (TREC)	mg/L				0.060	0.294	0.701				
Mercury	mg/L				0.00003	0.00006	0.00010				
Selenium	mg/L				0.039	0.058	0.077				
Sodium	mg/L				428.25	853.75	1510.00				
Zinc	mg/L				0.018	0.048	0.070				

**Not enough water for field or lab parameters*
*** Not enough water for lab sample*

Alluvial Wells AW-15 through AW-17 are located north of Old State Highway 133, below the GOB Pile.

Baseline Information for AW-15 is derived from events beginning on 12/29/03 through 9/27/04.
Point influenced by mining on 9/27/04.

AW-16
Alluvial Well
Top of Pipe Elevation - 5964.67
Depth - 75
Pipe 0.8' Above Ground

Initiated	12/29/2003	12/29/2003	12/29/2003	12/29/2003
Activated	9/27/2004	9/27/2004	9/27/2004	9/27/2004
Date	10/28/2019	9/17/2019	5/6/2019	3/25/2019

		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	68.00	69.23	70.48	61.65	71.93	83.40	82.9	71.3	83.4	70
Water Elevation	Feet	5894.2	5895.4	5896.7	5881.3	5892.7	5903.0	5881.77	5893.37	5881.27	5894.67
FieldComment								Dry		Dry	
ph	su	7.9	7.9	7.9	7.0	7.4	8.6		7.8		8.48
Conductivity	umhos/cm	740	740	740	750	4081	8510		8510		8510
Temperature	Celsius	13.7	13.7	13.7	10.2	13.7	16.9		13.3		14.4
Lab											
Parameters	UNITS										
Bicarbonate	mg/L				558.0	610.0	661.9				
Carbonate	mg/L				<MDL	<MDL	<MDL				
Chloride	mg/L				43.6	49.1	54.5				
Conductivity	umhos/cm				5313.4	5876.3	6439.2				
Hardness	mg/L				2304.4	2531.6	2758.8				
Nitrate-Nitrite	mg/L				<MDL	1.49	1.49				
Ammonia	mg/L				<MDL	4.0	4.0				
pH	su				7.7	7.8	8.0				
Phosphate	mg/L				0.60	1.72	2.84				
ResidueFilterable-TDS	mg/L				5604	5770	5935				
Sulfate	mg/L				2903.8	2949.7	2995.6				
Arsenic	mg/L				0.021	0.084	0.146				
Cadmium	mg/L				0.034	0.042	0.050				
Calcium	mg/L				328.8	343.9	359.0				
Iron (Dissolved)	mg/L				0.08	0.08	0.08				
Iron (TREC)	mg/L				0.12	10.08	20.04				
Magnesium (Dissolved)	mg/L				380.3	416.3	452.3				
Manganese (Dissolved)	mg/L				0.0	0.258	0.510				
Manganese (Total)	mg/L				0.0	1.126	2.240				
Mercury	mg/L				0.00005	0.00006	0.00007				
Selenium	mg/L				0.009	0.025	0.040				
Sodium	mg/L				181.8	769.1	1356.5				
Zinc	mg/L				0.02	0.30	0.57				

Alluvial Wells AW-15 through AW-17 are located north of Old State Highway 133, below the GOB Pile.

**Just enough water for field parameters*
***Not enough water for parameters*

Baseline Information for AW-16 is derived from events beginning on 12/29/03 through 9/27/04.
Point influenced by mining on 9/27/04.

AW-17
Alluvial Well
Top of Pipe Elevation - 5950.81
Depth - 62
Pipe Flush with Ground

Initiated	12/29/2003	12/29/2003	12/29/2003	12/29/2003
Activated	9/27/2004	9/27/2004	9/27/2004	9/27/2004
Date	10/28/2019	9/17/2019	5/6/2019	3/25/2019

		Summary Information									
Field		Baseline			Operation						
Parameters	UNITS	Min	Ave	Max	Min	Ave	Max				
Static Water Level	Feet	38.40	46.51	59.00	26.40	56.01	61.74	52.1	44.3	47.1	38.1
Water Elevation	Feet	5891.8	5904.3	5912.4	5889.1	5894.8	5924.4	5898.71	5906.51	5903.71	5912.71
FieldComment											
ph	su	8.5	8.9	9.7	7.1	7.6	8.1	7.68	7.91	7.81	7.91
Conductivity	umhos/cm	200	264	320	870	3361	5000	3820	2540	2610	2420
Temperature	Celsius	1.9	7.1	12.2	9.2	12.1	19.8	11.2	11.3	11.1	11.8
Lab											
Parameters	UNITS										
Bicarbonate	mg/L	114.6	114.6	114.6	162.54	355.69	641.70			337	
Carbonate	mg/L	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			<MDL	
Chloride	mg/L	2.57	2.57	2.57	43.6	145.8	224.7			56.8	
Conductivity	umhos/cm	271.7	271.7	271.7	827	3347	5230			2460	
Hardness	mg/L	76	76	76	462	1158	1836			651	
Nitrate-Nitrite	mg/L	3.05	3.05	3.05	<MDL	1.94	4.07			1.3	
Ammonia	mg/L	2.78	2.78	2.78	<MDL	0.45	0.83			<MDL	
pH	su	8.5	8.5	8.5	6.9	7.5	8.2			7.85	
Phosphate	mg/L	<MDL	<MDL	<MDL	<MDL	0.044	0.100			0.011	
ResidueFilterable-TDS	mg/L	185	185	185	503	2730	4046			1930	
Sulfate	mg/L	2.1	2.1	2.1	126.36	1390.66	2230.00			1060	
Arsenic (Dissovled)	mg/L	0.016	0.016	0.016	<MDL	0.014	0.032			<MDL	
Cadmium (Dissolved)	mg/L	0.0003	0.0003	0.0003	<MDL	0.023	0.060			<MDL	
Calcium (Dissolved)	mg/L	17.26	17.26	17.26	91.1	224.0	358.8			153	
Iron (Dissolved)	mg/L	0.029	0.029	0.029	0.016	0.160	0.832			<MDL	
Iron (TREC)	mg/L	0.117	0.117	0.117	0.090	75.927	823.000			0.134	
Magnesium (Dissolved)	mg/L	8.09	8.09	8.09	56.90	144.21	228.25			65.4	
Manganese (Dissolved)	mg/L	<MDL	<MDL	<MDL	<MDL	0.011	0.023			<MDL	
Manganese (TREC)	mg/L	0.041	0.041	0.041	0.007	21.524	236.000			0.0073	
Mercury (Dissolved)	mg/L	<MDL	<MDL	<MDL	0.00002	0.00006	0.00013			<MDL	
Selenium (Dissolved)	mg/L	0.014	0.014	0.014	0.004	0.016	0.046			<MDL	
Sodium (Dissolved)	mg/L	12	12	12	40.60	304.40	565.00			354	
Zinc (Dissolved)	mg/L	0.005	0.005	0.005	0.010	0.020	0.036			<MDL	

Alluvial Wells AW-15 through AW-17 are located north of Old State Highway 133, below the GOB Pile.

** Not enough water for field or lab parameters*
***Not enough water for lab sample*

Baseline Information for AW-17 is derived from events beginning on 12/29/03 through 9/27/04.
Point influenced by mining on 9/27/04.

P-1
Stevens Draw - Pond 1
Depth - 5'
Elevation - 7080

	Date	10/22/2019	7/26/2019	5/14/2019
Field Parameters	UNITS			
Pond Inflow	GPM	0	0	0
Pond Outflow	GPM	0	0	0
Freeboard	FT	0	0	0
Water Depth	FT	0	0	0
Water Level	%	0	0	0
Field Comments		Dry	Dry	Dry

Pond 1 (P-1) results from the discharge of Spring 14 (S-14) and is located in Stevens Drav location of DH-15, DH-39 and the Lower Stevens Draw monitoring point.

Point P-1 has not been influenced by mining.

P-2
Freeman Gulch - Pond 2
Depth - 3'
Elevation - 7600

Date		10/29/2019	7/23/2019	5/16/2019
Field Parameters	UNITS			
Pond Inflow	GPM	0	0	0
Pond Outflow	GPM	0	0	0
Freeboard	FT	3	3	0.5
Water Depth	FT	0	0	2.5
Water Level	%	0	0	0
Field Comments		No discharge	No discharge	No discharge

Pond 2 (P-2) is located in Freeman Gulch, near the Upper Freeman Gulch monitoring point and is fed by the discharge of Spring 3 (S-3).

Baseline Information for Point P-2 is derived from events beginning on 11/14/95 through 9/19/99.
Point influenced by mining on 9/19/99.

P-3
Terror Creek - Pond 3
Depth - 6.5'
Elevation - 7730

Date	10/1/2019	7/24/2019	5/16/2019

Field Parameters	UNITS			
Pond Inflow	GPM	0	0	0
Pond Outflow	GPM	0	0	0
Freeboard	FT	4	6.25	5
Water Depth	FT	2.5	0.25	1.5
Water Level	%	36	4	21
Field Comments		No outflow	No flow	No flow

Pond 3 (P-3) is located in an un-named gulch which leads to Terror Creek. This pond is fed by Spring 16 (S-16) and is accessible by a road that passes Pond 4 (P-4). This road is not shown on the map.

Point influenced by mining on 1/15/01.

P-4
Terror Creek - Pond 4
Depth - 3.5'
Elevation - 7880

Date		10/22/2019	7/24/2019	5/16/2019
Field Parameters	UNITS			
Pond Inflow	GPM	0	0	0
Pond Outflow	GPM	0	0.8	0.55
Freeboard	FT	0.1	0	0
Water Depth	FT	3.4	3.5	3.5
Water Level	%	97	100	100
Field Comments				

Pond 4 (P-4) is located in an un-named gulch which leads to Terror Creek. This pond receives water from Springs 4 (S-4) and 4a (S-4a). It is accessible by an old exploration road.

Baseline Information for Point P-4 is derived from events beginning on 9/27/95 through 1/15/01.
Point influenced by mining on 1/15/01.

P-5
Sheep Corral - Pond 5
Depth - 8'
Elevation - 7800

	Date	10/4/2019	7/24/2019	5/16/2019
Field Parameters	UNITS			
Pond Inflow	GPM	0	0	0
Pond Outflow	GPM	0	0	0
Freeboard	FT	2.2	1.8	3.2
Water Depth	FT	5.8	6.2	4.8
Water Level	%	73	78	60
Field Comments		No flow	No flow	No flow

Pond 5 (P-5) is located in an un-named gulch which feeds into Sheep Corral Gulch. This pond is fed by Springs 5 (S-5), 5a (S-5a) and 5b (S-5b) and is accessible by an old coal exploration road.

Point influenced by mining on 11/15/01.

P-6
Terror Creek - Pond 6
Depth - 3'
Elevation - 7880

	Date	10/1/2019	5/16/2019
Field Parameters	UNITS		
Pond Inflow	GPM	0	0
Pond Outflow	GPM	0.0	0.0
Freeboard	FT	3.0	3.0
Water Depth	FT	0	0
Water Level	%	0.00	0.00
Field Comments		Dry	Dry

Pond 6 (P-6) is located in an un-named gulch which leads to Terror Cree water from Spring 18 (S-18).

Point P-6 was influenced by mining in 2007.

P6-5
W. Fork of Terror Creek - Pond 6-5
Elevation - 8020

Initiated	7/19/1985	7/19/1985	7/19/1985
Activated			
Date	11/19/2019	8/7/2019	5/14/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation					
Outflow	GPM	0.00	0.13	2.56				0.0	0.0	0.0
Inflow	GPM	0.00	0.00	0.00				0.0	0.0	0.0
Freeboard	Feet								4.5	0.2
Temperature	Celsius	12.7	15.6	24.7						
Conductivity	umhos/cm	280	452	791						
pH	su	6.2	7.8	8.5						
Field Comments								Dry		Dry
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	164.7	290.7	420.9						
Carbonate	mg/L									
Chloride	mg/L	1	6	11						
Conductivity	umhos/cm	285	446	629						
Hardness	mg/L	127	199	320						
pH	su	7.3	7.5	7.9						
ResidueFilterable-TDS	mg/L	22	240	432						
ResidueNonFilterable-TSS	mg/L	10	185	830						
SAR		0.43	0.56	0.9						
Sulfate	mg/L	<MDL	7.7	14.0						
Calcium (Dissolved)	mg/L	31	50	74						
Magnesium (Total)	mg/L	12	22	33						
Sodium (Dissolved)	mg/L	13	19	29						
Potassium	mg/L									
TDS Ratio (grav./calc.)										

The area of concern for monitoring point P6-5 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Baseline Information Collection initiated on 7/19/85 and not yet considered complete.
Point P6-5 has not been influenced by mining.

P7-2
Steven's Gulch - Pond 7-2
Elevation - 8190

Initiated	7/29/1985	7/29/1985	7/29/1985
Activated	6/10/2014	6/10/2014	6/10/2014
Date	10/5/2019	8/7/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation					
Outflow	GPM	0	0.67	15.39	11.25		11.25			0
Inflow	GPM	0	0.27	3.75	0.00		0.00			0
Freeboard	Feet	0	1.32	3.42	4.50		4.50	4.2		1
Temperature	Celsius	10	16.71	27.80	15.10		15.10			
Conductivity	umhos/cm	160	248.77	321.00	170.00		170.00			
pH	su	7.2	8.46	9.70	7.7		7.7			
Field Comments								No flow		No flow
Lab Parameters	UNITS									
Bicarbonate	mg/L	119.6	158.9	223.0						
Carbonate	mg/L									
Chloride	mg/L	<MDL	2.7	5.0						
Conductivity	umhos/cm	204.0	251.3	320.0						
Hardness	mg/L	92.0	117.0	142.0						
pH	su	6.8	7.5	8.3						
ResidueFilterable-TDS	mg/L	118.0	169.7	234.0						
ResidueNonFilterable-TSS	mg/L	10.0	100.0	538.0						
SAR		0.20	0.41	1.00						
Sulfate	mg/L	<MDL	11.3	49.0						
Calcium (Dissolved)	mg/L	22.0	27.9	35.0						
Magnesium (Total)	mg/L	9.0	11.5	15.0						
Sodium (Dissolved)	mg/L	5.0	10.0	22.0						
Potassium	mg/L									
TDS Ratio (grav./calc.)										

Activated 6/10/14

Baseline Information Collection initiated on 7/29/85.
Point P7-2 was influenced by mining June 10, 2014.

P7-7
Steven's Gulch - Pond 7-7
Elevation - 8380

Initiated	7/25/1985	7/25/1985	7/25/1985
Activated			
Date	10/1/2019	8/7/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation					
Inflow	GPM	0.0	0.0	0.0						
Outflow	GPM	0.0	0.0	0.4				0	0	0
Freeboard	Feet	0.00	1.60	4.80					3.8	0.3
Temperature	Celsius	3.1	14.6	27.1						
Conductivity	umhos/cm	227.0	381.2	829.0						
pH	su	6.4	7.6	8.1						
Field Comments								Dry	No flow	No flow
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	126.9	190.5	244.0						
Carbonate	mg/L									
Chloride	mg/L	<MDL	1.6	3.0						
Conductivity	umhos/cm	219.0	303.1	460.0						
Hardness	mg/L	117.0	151.2	183.0						
pH	su	6.4	7.3	7.9						
ResidueFilterable-TDS	mg/L	142.0	204.8	276.0						
ResidueNonFilterable-TSS	mg/L	2.0	65.1	252.0						
SAR		0.2	0.4	1.0						
Sulfate	mg/L	<MDL	6.8	10.0						
Calcium (Dissolved)	mg/L	24.0	34.8	42.0						
Magnesium (Total)	mg/L	11.0	15.6	19.0						
Sodium (Dissolved)	mg/L	4.0	10.8	29.0						
TDS Ratio (grav./calc.)										

The area of concern for monitoring point P7-7 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

**Dam Gone*
*** Data not provided in field notes*

Baseline Information Collection initiated on 7/25/85 and not yet considered complete.
Point P7-7 has not been influenced by mining.

P7-11
Steven's Gulch - Pond 7-11
Elevation - 8400

Initiated	7/25/1985	7/25/1985	7/25/1985
Activated			
Date	10/1/2019	8/7/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max				Operation		
Outflow	GPM	0.00	0.19	7.99				0	0	0
Inflow	GPM	0.00	0.25	7.99				0	0	0
Freeboard	Feet	0.00	1.32	2.61						
Temperature	Celsius	3.6	15.9	29.9						
Conductivity	umhos/cm	138	288	495						
pH	su	6.4	7.6	9.2						
Field Comments								Dry	Dry	Dry
Lab Parameters	UNITS									
Bicarbonate	mg/L	105	320	2116						
Carbonate	mg/L	<MDL	<MDL	<MDL						
Chloride	mg/L	<MDL	3	4						
Conductivity	umhos/cm	202	262	346						
Hardness	mg/L	79	122	172						
pH	su	6.3	7.4	8.3						
ResidueFilterable-TDS	mg/L	144	190	260						
ResidueNonFilterable-TSS	mg/L	2	277	3033						
SAR		0.34	0.54	1.78						
Sulfate	mg/L	<MDL	18	121						
Calcium (Dissolved)	mg/L	3.66	26.50	41.00						
Magnesium (Total)	mg/L	7.0	12.4	19.7						
Sodium (Dissolved)	mg/L	8	13	42						
TDS Ratio (grav./calc.)		1.01	1.04	1.07						

The area of concern for monitoring point P7-11 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Baseline Information Collection initiated on 7/25/85 and not yet considered complete.
Point P7-11 has not been influenced by mining.

P8-4
Terror Creek - Pond 8-4
Elevation - 6980

Initiated	1987	1988	1989
Activated			
Date	11/19/2019	8/7/2019	5/14/2019

Field Parameters	UNITS	Summary Information Baseline Min	Ave	Max						
Outflow	GPM	0.0	0.0	0.0				0	0	0
Inflow	GPM	0.0	0.12	0.94				0	0	0
Freeboard	Feet	0.35	0.38	0.41						
Temperature	Celsius	6.8	10.8	18.3						
Conductivity	umhos/cm	1140	1188	1220						
pH	su	8.4	8.5	8.6						
Field Comments								Dry	Dry	Dry
Lab Parameters	**UNITS**									
Bicarbonate	mg/L									
Chloride	mg/L									
Conductivity	umhos/cm									
Hardness	mg/L									
pH	su									
ResidueFilterable-TDS	mg/L									
ResidueNonFilterable-TSS	mg/L									
SAR										
Sulfate	mg/L									
Calcium (Dissolved)	mg/L									
Magnesium (Total)	mg/L									
Sodium (Dissolved)	mg/L									
Potassium	mg/L									
TDS Ratio (grav./calc.)										

The area of concern for monitoring point P8-4 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Baseline Information Collection initiated in 1987 and not yet considered complete.
Point P8-4 has not been influenced by mining.

P12-1
Steven's Gulch - Pond 12-1
Elevation -7950

Initiated	7/30/1985	7/30/1985	7/30/1985
Activated	4/1/2014	4/1/2014	4/1/2014
Date	10/22/2019	8/12/2019	6/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation					
Outflow	GPM	0.00	0.29	3.75	9.375	0.625	9.375	0	0	0
Inflow	GPM	0.00	0.00	0.00	3.75	0.2679	3.75	0	0	0
Freeboard	Feet	0.00	1.58	3.35	6.00	2.05	6.00	0	6	1
Temperature	Celsius	5.9	17.7	28.8	15.2		15.2			
Conductivity	umhos/cm	283	360	493	260		260			
pH	su	6.6	8.2	10.8	7.9		7.9			
Field Comments								Dry	No discharge	No discharge
Lab Parameters	UNITS									
Bicarbonate	mg/L	88.0	168.4	269.6						
Carbonate	mg/L	12.4	12.4	12.4						
Chloride	mg/L	<MDL	4.5	7.0						
Conductivity	umhos/cm	256	341	487						
Hardness	mg/L	86.0	122.9	159.0						
pH	su	7.1	7.8	8.9						
ResidueFilterable-TDS	mg/L	154	215	288						
ResidueNonFilterable-TSS	mg/L	<MDL	38	160						
SAR		0.600	0.943	1.550						
Sulfate	mg/L	4.0	36.5	109.0						
Calcium (Dissolved)	mg/L	28.0	35.8	49.0						
Magnesium (Total)	mg/L	4.0	10.3	14.0						
Sodium (Dissolved)	mg/L	16.0	24.8	41.0						
TDS Ratio (grav./calc.)										

Activated 4/1/14

Baseline Information Collection initiated on 7/30/85.
Point P12-1 was influenced by mining 4/1/14.

P12-2
Steven's Gulch - Pond 12-2
Elevation - 8030

Initiated	7/6/1983	7/6/1983	7/6/1983
Activated	5/15/2014	5/15/2014	5/15/2014
Date	10/30/2019	8/7/2019	6/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Outflow	GPM	0	0.31	4.94	1.25		1.25			0
Inflow	GPM	0	0.19	0.38	0.00		0.00			0
Freeboard	Feet	0	0.10	0.56	1.80		1.80		0.5	0.8
Temperature	Celsius	5.4	16.33	26.30	17.20		17.20			
Conductivity	umhos/cm	239	380.35	520.00	350.00		350.00			
pH	su	6.4	8.03	9.40	7.7		7.7			
Field Comments								Dry	No Discharge	No Discharge
Lab Parameters	UNITS									
Bicarbonate	mg/L	200.0	253.6	336.0						
Carbonate	mg/L	5.9	8.85	11.80						
Chloride	mg/L	2.0	4.1	9.0						
Conductivity	umhos/cm	317	395	456						
Hardness	mg/L	144.00	192.08	238.00						
Acidity	mg/L	16.0	16.0	16.0						
pH	su	7.3	7.9	8.6						
ResidueFilterable-TDS	mg/L	168	244	292						
ResidueNonFilterable-TSS	mg/L	2	330	3332						
SAR		0.330	0.613	1.260						
Sulfate	mg/L	<MDL	19.57	113.00						
Calcium (Dissolved)	mg/L	20.0	41.7	54.0						
Iron (Total)	mg/L	1.42	1.42	1.42						
Iron (Dissolved)	mg/L	0.04	0.04	0.04						
Magnesium (Total)	mg/L	16.0	21.4	29.0						
Manganese (Total)	mg/L	0.320	0.320	0.320						
Sodium (Dissolved)	mg/L	10	19.17	36.00						
TDS Ratio (grav./calc.)	%									

Activated May 15, 2014

**Large Seep Area - Unmeasurable*

Baseline Information Collection initiated on 7/6/83.
Point P12-2 was influenced by mining 05/15/2014.

P12-10
Steven's Gulch - Pond 12-10
Elevation - 7820

Initiated	7/30/1985	7/30/1985	7/30/1985
Activated			
Date	10/22/2019	8/12/2019	6/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Outflow	GPM	0.0	2.2	48.066				0	0	0
Inflow	GPM	0.0	0.4	15.00				0	0	0
Freeboard	Feet									2.5
Temperature	Celsius	4.4	16.8	25.5						
Conductivity	umhos/cm	270	347	466						
pH	su	6.7	8.2	10.4						
Field Comments								Dry	Dry	
Lab Parameters	UNITS									
Bicarbonate	mg/L	122	188.8	309						
Carbonate	mg/L	6	9	12						
Chloride	mg/L	<MDL	6.3	17						
Conductivity	umhos/cm	217	333	463						
Hardness	mg/L	98	146	209						
pH	su	7.6	8.2	9.8						
ResidueFilterable-TDS	mg/L	146	208	288						
ResidueNonFilterable-TSS	mg/L	<MDL	26.6	120						
SAR		<MDL	0.73	1.07						
Sulfate	mg/L	4	19	41						
Calcium (Dissolved)	mg/L	28	37	48						
Magnesium (Total)	mg/L	6	13	29						
Sodium (Dissolved)	mg/L	9	20	32						
TDS Ratio (grav./calc.)										

The area of concern for monitoring point P12-10 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Corrected monitoring information from 4/28/10 to 11/29/11.
Contractor has been monitoring Pond 12-9 as 12-10, but realized his error during 4/10/12 monitoring.
Found remnants of Pond 12-10 on 4/10/12 - has been washed out for a long time. No evidence of flow.

Baseline Information Collection initiated on 7/30/85 and not yet considered complete.
Point P12-10 has not been influenced by mining.

P17-1
Coal Gulch - Pond 17-1
Elevation - 7340

Initiated	12/22/2004	12/22/2004	12/22/2004
Activated			
Dated	10/1/2019	8/7/2019	5/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max				Operation	Operation	Operation
Outflow	GPM	0.0	2.0	30				0	0	0
Inflow	GPM	0.0	0.0	0.0				0	0	0
Freeboard	Feet	0.0	0.7	5.5						5.5
Temperature	Celsius	0.5	9.0	17.5						
Conductivity	umhos/cm	40.0	151.7	570						
pH	su	7.6	8.0	8.4						
Field Comments								Dry	Dry	No Flow
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	40.5	56	84						
Carbonate	mg/L	<MDL	<MDL	<MDL						
Chloride	mg/L	1	3	4						
Conductivity	umhos/cm	77.8	104	146						
Hardness	mg/L	26.8	47	75						
pH	su	7.5	7.7	7.9						
ResidueFilterable-TDS	mg/L	61	80	100						
ResidueNonFilterable-TSS	mg/L	16	25	36						
SAR		0.16	0.17	0.19						
Sulfate	mg/L	<MDL	5.35	5.35						
Calcium (Dissolved)	mg/L	5.83	11.98	19.80						
Magnesium (Total)	mg/L	2.98	4.26	6.30						
Sodium (Dissolved)	mg/L	2.21	2.64	3.40						
TDS Ratio (grav./calc.)		1.07	1.36	1.82						

The area of concern for monitoring point P17-1 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Baseline Information Collection initiated on 12/22/04 and not yet considered complete.
Point P17-1 has not been influenced by mining.

P18-1
Coal Gulch - Pond 18-1
Elevation - 7760

Initiated	7/19/1985	7/19/1985	7/19/1985
Activated	6/6/2012	6/6/2012	6/6/2012
Date	11/19/2019	8/7/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation Min	Operation Ave	Operation Max			
Outflow	GPM	0.00	0.20	2.11	0.00	0.07	0.94	0	0	0
Inflow	GPM	0.00	0.31	1.88	0.00	0.35	4.10	0	0	0
Freeboard	Feet	0.00	2.07	2.91	0.00	0.72	2.88		0.5	0.5
Temperature	Celsius	9.8	16.2	26.7	11.20	17.85	23.10			
Conductivity	umhos/cm	115	211	378	557.00	600.00	620.00			
pH	su	6.3	7.8	9.2	8.10	8.43	8.68			
Field Comments								Dry	No flow	No flow
Lab Parameters	UNITS									
Bicarbonate	mg/L	49.0	125.4	201.3						
Carbonate	mg/L	0.6	0.6	0.6						
Chloride	mg/L	<MDL	7	11						
Conductivity	umhos/cm	120	244	398						
Hardness	mg/L	54	94	153						
pH	su	6.2	7.0	7.6						
ResidueFilterable-TDS	mg/L	86	169	280						
ResidueNonFilterable-TSS	mg/L	12	178	552						
SAR		<MDL	0.21	0.47						
Sulfate	mg/L	<MDL	15	39						
Calcium (Dissolved)	mg/L	15	25	40						
Magnesium (Total)	mg/L	4	7	13						
Sodium (Dissolved)	mg/L	<MDL	5	10						
TDS Ratio (grav./calc.)										

The monitoring point for Pond 18-1 is located on a south facing slope that drains down toward the North Fork of the Gunnison River.

Baseline Information is derived from monitoring events beginning on 7/19/85 through 6/6/2012.
Point P18-1 influenced by mining 6/6/12.

Initiate	7/6/1983	7/6/1983	7/6/1983
Activate			
Date	10/1/2019	8/7/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max				Operation		
Inflow	GPM	0.00	0.32	15.708				0	0	0
Outflow	GPM	0.00	0.00	0.00				0	0	0
Freeboard	Feet	0.48	2.15	5.4				3.20	5.40	3.20
Temperature	Celsius	2.2	16.0	29						
Conductivity	umhos/cm	206	329	500						
pH	su	5.9	7.4	8.8						
Field Comments								Dry	Dry	Damp
Lab Parameters	UNITS									
Bicarbonate	mg/L	109.8	187.5	268						
Carbonate	mg/L	<MDL	<MDL	<MDL						
Chloride	mg/L	<MDL	6.45	30						
Conductivity	umhos/cm	197	324	581						
Hardness	mg/L	11	128	210						
pH	su	6.8	7.3	8.3						
ResidueFilterable-TDS	mg/L	126	211	402						
ResidueNonFilterable-TSS	mg/L	6	59	158						
SAR		0.34	0.65	1.58						
Sulfate	mg/L	<MDL	18.12	119						
Calcium (Dissolved)	mg/L	23	35	56						
Magnesium (Total)	mg/L	8	12	17						
Sodium (Dissolved)	mg/L	8	18	39						
TDS Ratio (grav./calc.)		1.05	1.05	1.05						

The area of concern for monitoring point P18-4 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

Baseline Information Collection initiated on 7/6/83 and not yet considered complete.
Point P18-4 has not been influenced by mining.

P33-3
Sheep Corral - Pond 33-3
Depth - 5.5'
Elevation - 7760

Date		10/29/2019	7/23/2019	6/10/2019
Field Parameters	UNITS			
Pond Inflow	GPM	0	0	0
Freeboard	FT	6.5	6.5	6.5
Water Depth	FT	0	0	0
Water Level	%	0	0	0
Field Comments		Dry	Dry	Dry

Pond 33-3 (P33-3) is located in an un-named drainage which discharges into Sheep Corra
This pond apparently has no spring, and catches only run-off water in the early spring.

Baseline Information for Point P33-3 is derived from events beginning on 10/30/97 through 12/1/01.
Point influenced by mining on 12/1/01.

Initiated	6/14/1983	6/14/1983	6/14/1983
Activated			
Date	10/1/2019	8/7/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max				Operation	Operation	Operation
Inflow	GPM	0.0	0.0	0				0	0	0
Outflow	GPM	0.0	0.1	4.488				0	0	0
Freeboard	Feet	0.18	1.06	2.55				*		1.1
Temperature	Celsius	4.2	16.9	29						
Conductivity	umhos/cm	62.0	247.1	968						
pH	su	7.0	8.3	9.8						
Field Comments								Empty/Dry	Empty/Dry	No Flow
Lab Parameters	**UNITS**									
Bicarbonate	mg/L	53.7	140.7	478.2						
Carbonate	mg/L									
Chloride	mg/L	<MDL	20.0	120						
Conductivity	umhos/cm	95.0	271.8	885						
Hardness	mg/L	44.0	103.3	331						
pH	su	6.3	7.2	8						
ResidueFilterable-TDS	mg/L	90.0	200.5	372						
ResidueNonFilterable-TSS	mg/L	14.0	125.0	624						
SAR		0.1	0.4	1.74						
Sulfate	mg/L	<MDL	19.6	62						
Calcium (Dissolved)	mg/L	11.0	25.3	83						
Magnesium (Total)	mg/L	3.0	9.7	30						
Sodium (Dissolved)	mg/L	1.0	10.8	50						
Potassium	mg/L									
TDS Ratio (grav./calc.)										

The area of concern for monitoring point P81 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

** Data not provided in field notes*

Baseline Information Collection initiated on 6/14/83 and not yet considered complete.
Point P81 has not been influenced by mining.

P82
Steven's Gulch - Pond 82
Elevation - 7580

Initiated	7/18/1990	7/18/1990	7/18/1990
Activated			
Date	11/19/2019	8/7/2019	5/15/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max				Operation		
Outflow	GPM	0.00	0.11	4.90				0	0	0
Inflow	GPM	0.00	0.00	0.00				0	0	0
Freeboard	Feet	0.00	1.48	5.50					5.5	0.9
Temperature	Celsius	7.8	17.9	28.0						
Conductivity	umhos/cm	91	237	569						
pH	su	6.4	8.5	10.0						
Field Comments								Dry		No flow
Lab Parameters	UNITS									
Bicarbonate	mg/L	51.2	134	290						
Carbonate	mg/L	1	1	1						
Chloride	mg/L	<MDL	8	25						
Conductivity	umhos/cm	104	258	623						
Hardness	mg/L	36	89	158						
pH	su	6.4	7.1	8.4						
ResidueFilterable-TDS	mg/L	75	225	566						
ResidueNonFilterable-TSS	mg/L	28	155	450						
SAR		<MDL	0.22	0.49						
Sulfate	mg/L	4	22	78						
Calcium (Dissolved)	mg/L	11	24	45						
Magnesium (Total)	mg/L	2	7	13						
Sodium (Dissolved)	mg/L	<MDL	5	14						
Potassium	mg/L									
TDS Ratio (grav./calc.)										

The area of concern for monitoring point P82 has not been affected by the mining operation. Therefore, all recorded monitoring events are considered Baseline.

** Data not provided in field notes*

Baseline Information Collection initiated on 7/18/90 and not yet considered complete.
Point P82 has not been influenced by mining.

P83
Coal Gulch - Pond 83
Depth - 2.5'
Elevation -7820

Initiated	7/18/1983	7/18/1983
Activated	7/15/2013	7/15/2013
Date	11/19/2019	6/18/2019

Summary Information

Field Parameters	UNITS	Baseline Min	Baseline Ave	Baseline Max	Operation				
Outflow	GPM	0.00	0.22	6.24	0.00	0.00	0.00	0	0
Inflow	GPM	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Freeboard	Feet	0.57	2.30	2.54	1.25	2.32	2.54		
Temperature	Celsius	9.4	18.6	27.8					
Conductivity	umhos/cm	148	354	485					
pH	su	6.9	74.7	803.0					
Field Comments								Dry	Dry
Lab Parameters	UNITS								
Bicarbonate	mg/L	75.6	203.8	280.6					
Carbonate	mg/L	39.5	39.5	39.5					
Chloride	mg/L	<MDL	7	14					
Conductivity	umhos/cm	160	357	499					
Hardness	mg/L	70	162	234					
pH	su	6.9	7.8	9.4					
ResidueFilterable-TDS	mg/L	95	202	270					
ResidueNonFilterable-TSS	mg/L	4	77	536					
SAR		0.21	0.42	0.71					
Sulfate	mg/L	<MDL	14	29					
Calcium (Dissolved)	mg/L	13	30	54					
Magnesium (Total)	mg/L	6	21	29					
Sodium (Dissolved)	mg/L	4	13	21					
Potassium	mg/L								
TDS Ratio (grav./calc.)									

** No data provided in field notes*

Baseline Information Collection initiated on 7/18/83 .
Point P83 was influenced by mining on or about July 15, 2013.

2019
MAPS

BOWIE RESOURCES, LLC

BOWIE RESOURCES, LLC
BOWIE NO. 2 MINE
P.O. BOX 483
PAONIA, COLORADO 81428
PERMIT C-1996-083

PREPARED BY:

J. E. STOVER & ASSOCIATES
2352 N. 7th St., Unit B
Grand Jct., CO 81501

DRILL HOLE ROAD DISTURBANCE					
ACTION/SEGMENT	ROAD NAME	DIST. TYPE	YEAR	ACRES	MILES
TR-17					
015	EAST RIDGE - NORTHEAST	NEW	2000	0.1	0.1
019	FREEMAN GULCH - SOUTH EXT.	NEW	2001	0.1	0
030	FREEMAN GULCH - SOUTH EXT.	NEW	2000	0.3	0.2
025 & 028	FREEMAN GULCH	REPLISHED	2000	0.9	0.6
027	FREEMAN GULCH - SOUTHEAST	NEW	2000	0.6	0.4
029 & 073	FREEMAN GULCH	REPLISHED	2000	1.0	0.3
030	FREEMAN GULCH	NEW	2000	0.1	0.1
099	EAST RIDGE - NORTHEAST	NEW	2000	0.3	0.2
	TOTAL			3.4	2.9
TR-20					
001,002	STEVENS DRAW	UPGRADED	2001	0.9	0.7
002,004	NORTH RIDGE	UPGRADED	2001	0.6	0.4
005,006	STEVENS DRAW	UPGRADED	2001	0.8	0.4
06,07,09	NORTH RIDGE	UPGRADED	2001	0.8	0.7
003	NORTH RIDGE	UPGRADED	2001	0.4	0.1
010	WEST RIDGE	NEW	2001	0.7	0.5
011	EAST RIDGE	UPGRADED	1999	1.1	0.7
012	EAST RIDGE - SOUTHEXT	UPGRADED	1999	0.1	0.0
013	EAST RIDGE - NORTHEXT	UPGRADED	1999	0.1	0.1
014	EAST RIDGE - NORTHEXT	UPGRADED	2000	0.3	0.2
008	NORTH RIDGE	UPGRADED	2001	0.4	0.3
017,018	FREEMAN GULCH	UPGRADED	2000	0.2	0.4
021	FREEMAN GULCH - EAST EXT	NEW	2001	0.1	0.1
022	FREEMAN GULCH - EAST EXT	NEW	2001	0.4	0.2
023	FREEMAN GULCH - NORTH EXT	NEW	2001	0.2	0.2
026	FREEMAN GULCH - NORTH EXT	NEW	2001	0.3	0.1
028	FREEMAN GULCH - NORTHEAST	REPLISHED	2001	0.4	0.3
031	FREEMAN GULCH -	UPGRADED	2000	0.5	0.4
033&034	SHEEP CORRAL	REPLISHED	2001	0.6	0.4
035&036	SHEEP CORRAL	New	2001	0.7	0.5
037&038	SHEEP CORRAL	REPLISHED	2001	1.1	0.7
039	SHEEP CORRAL	REPLISHED	2001	0.0	0.0
040	SHEEP CORRAL - SOUTH EXT	NEW	2001	1.0	0.7
067,068	NORTH RIDGE	UPGRADED	2001	0.4	0.1
074	POND FIVE	REPLISHED	2001	0.3	0.2
	TOTAL			12.3	8.3

DRILL HOLE ROAD DISTURBANCE-CONTINUED					
ACTION/SEGMENT	ROAD NAME	DIST TYPE	YEAR	ACRES	MILES
TR-25					
076	FREEMAN GULCH - NORTHEAST	NEW	2001	0.7	0.3
079	WEST RIDGE - SOUTH EXT	NEW	2001	1.6	0.6
	TOTAL			2.3	0.9
PR-05					
001,092	WEST RIDGE	NEW	2003	0.9	0.4
TR-22					
066,088	SHEEP CORRAL	UPGRADED	2003	1.0	0.7
089	PLANTATION	UPGRADED	2002	0.6	0.4
091,093	PLANTATION - EAST EXT	NEW	2002	0.8	1.2
095	BULL RUB	NEW	2003	0.0	0.0
096	DOVE GULCH - DELETED	UPGRADED	2003	0.0	0.0
100	NORTH RIDGE	UPGRADED	2002	0.5	0.4
101	TERROR CREEK DESCENT	UPGRADED	2002	0.2	0.1
	TOTAL			3.1	2.8
MR-22					
104	STORAGE ROAD	NEW	2002	0.2	0.1
118	B EXPLORATION MAIN	UPGRADED	2002	0.2	0.3
119	B EXPLORATION NORTH EXT	NEW	2002	0.1	0.1
120,126	B EXPLORATION SOUTH AJR	NEW	2002	0.6	0.5
	TOTAL			1.1	1.0
MR-24,25	EAST RIDGE SOUTH EXT	UPGRADED	2002	0.6	0.6
126,128	TERROR CRK EAST PARALLEL	UPGRADED	2003	0.0	0.5
127	TERROR CRK EAST PARALLEL	NEW	2003	1.5	0.5
	TOTAL			1.5	1.0
MR-29,140	GOB PILE GEOTECH	NEW	2003	1.3	0.9
MR-29,146	WEST RIDGE - NO EXT	NEW	2005	1.4	0.5
TR-41,150	WEST RIDGE - NO EXT-1	NEW	2005	0.9	0.3
MR-65,154	VENT SPUR	NEW	2006	0.1	0.1
MR-07					
156	EAST RIDGE NORTHEAST EXT.	NEW	2006	0.5	0.2
157	PO SP	NEW	2006	0.1	0.1
	Total			0.6	0.3
MR-75,160	HUBBARD CREEK STUB	NEW	2006	0.1	0.1

DRILL HOLE ROAD DISTURBANCE - CONTINUED					
ACTION/SEGMENT	ROAD NAME	DIST TYPE	YEAR	ACRES	MILES
MR-78,79					
160	WYE BRANCH (MR-79)	NEW	2006	0.2	0.1
169	NRVW EXT	DELETED	2007	0.0	0.5
170	FG E EXT	NEW	2006	0.3	0.2
171	FG N EXT	NEW	2006	0.1	0.1
172	NRVW EXT	NEW	2006	0.3	0.2
TOTAL				0.9	0.6
TR-32					
210	NORTH DOVE GULCH	NEW	2008	14.0	2.7
193	PLANTATION EXTENSIONS	NEW	2008	0.9	0.3
194	DOVE GULCH EAST	UPGRADED	2008	0.9	0.6
TOTAL				15.8	3.6
MR-82					
198	WEST GOB PILE GEOTECH	NEW	2014	2.7	1.1
MR-134					
192	SG POINT	NEW	2009	0.5	0.2
MR-46					
205	Road 7-1 Road	UPGRADED	2008	0.21	0.12
209	RH-69 Road	UPGRADED	2008	0.49	0.34
TOTAL				0.70	0.46
MR-116					
203	Terror Creek Access	NEW	2010	6.0	1.0
MR-125	B-1				
207	GVB-10A Road	NEW	2010	0.40	0.14
208	GVB-10B Road	NEW	2010	0.62	0.22
TOTAL				1.02	0.36
MR-123	B-2				
215	TC Ridge Road	UPGRADED	2011	1.3	0.88
216	120 Road	UPGRADED	2011	0.35	0.12
217	13A Road	UPGRADED	2011	0.08	0.10
217	13A Road	NEW	2011	0.22	0.15
TOTAL				1.96	1.25

DRILL HOLE ROAD DISTURBANCE - CONTINUED					
ACTION/SEGMENT	ROAD NAME	DIST TYPE	YEAR	ACRES	MILES
TR-73					
232	12E RD	NEW	2012	0.59	0.30
233	13B RD	NEW	2012	0.14	0.11
133A	13C RD	NEW	2012	0.13	0.05
234	14A RD	NEW	2012	0.75	0.30
235	14B RD	NEW	2012	0.13	0.15
236	14C RD	NEW	2012	0.39	0.13
236	14C RD	UPGRADED	2013	0.66	0.48
237	14D RD	NEW	2013	0.37	0.13
238	14E RD	NEW	2013	0.22	0.13
239	5S-7RD	NEW	2012	1.47	0.64
240	5S-8 RD	NEW	2013	0.25	0.59
241	12-1 RD	NEW	2012	0.29	0.19
TOTAL				5.30	3.20
MR-131					
244	17F Road	New	2012	0.15	0.05
MR-126					
247	GVB-B13C-1 Road	New	2013	0.45	0.16
TR-78 & MR-152					
248	14F RD	NEW	2013	0.91	0.17
249	16A Road (MR-152)	New	2014	0.37	0.13
250	15 B,C,D RD	Upgraded	2014	0.96	0.65
252	15D RD	New	2014	0.43	0.15
253	SS-8 RD	New	2013	1.00	0.08
TOTAL				3.83	1.30
MR-146					
261	Ellison Mesa Pipeline	New	2014	4.0	0.81
TR-86 & MR-152					
263	16E RD (MR-152)	New	2014	0.42	0.15
263	16C RD (MR-152)	New	2014	0.37	0.13
264	16D RD (Deleted MR-152)	New	2014	0.08	0.03
265	17A RD (MR-152)	New	2014	0.63	0.22
265	17A RD	Upgraded	2014	0.53	0.37
266	17F RD (TR-89)	New	2014	0.51	0.18
267	17C RD (MR-152)	New	2014	0.33	0.12
268	17D RD (MR-152)	New	2014	0.79	0.28
269	17E RD (MR-152)	New	2014	0.29	0.10
270	19A RD (MR-152)	New	2015	0.19	0.07
271	19B RD (MR-152)	Upgraded	2015	0.30	0.20
271	19B RD (MR-152)	New	2015	0.25	0.09
TOTAL				4.69	1.94
TR-90					
282	15A RD		2014	0.30	0.10
282	19C RD	New	2015	0.45	0.15
Total				0.75	0.25
MR-164					
290	58A Road	New	2014	0.46	0.16
MR-165					
291	Section 5 Road	New		1.20	0.34

DRILL HOLE PAD DISTURBANCE					
ACTION/SEGMENT	DRILL PAD NAME	DIST. TYPE	YEAR	ACRES	
TR-17					
043	GVB-D-4A	NEW	2000	0.4	
045,46	GVB-D-3B,2C	NEW	1999	0.4	
47,48,49	GOB-1,2,3	NEW	1999	0.6	
057,58	GVB-D-3C,2A	NEW	2000	0.4	
TOTAL				1.8	
TR-20					
063,41	GVB-D-2B, 7A	NEW	2000	0.8	
42,044	GVB-D-5A, 4B	NEW	2001	1.0	
055	GVB-NM2-3C	NEW	2001	0.5	
053,052	GVB-NM2-2B,3B	NEW	2001	1.0	
054,056	GVB-NM2-3A,3A	NEW	2001	1.0	
059,060	GVB-D-4C-5B	NEW	2001	1.0	
061,062	GVB-D-5C,6C	NEW	2001	1.0	
064,065	GVB-D-6A,6B	NEW	2001	1.0	
066,75	GVB-D-7B,7C	NEW	2001	1.0	
068,070	DH-57,58	NEW	1999	1.0	
TOTAL				9.3	
TR-21					
077,076	GVB-D-5D,WD-1A	NEW	2001	1.0	
MR-19					
83,84,85	GEO-TECH-01,02,03	NEW	2001	0.0	
PR-05					
050,80	GVB-NM2-2C-1B	NEW	2003	1.0	
TR-23					
87,90,92	GVB-D-6C & 8B & 9B	NEW	2003	1.5	
096	GVB-D-6A, GVB-D-4A	NEW	2002	0.5	
096	IP99-16	NEW	2003	0.5	
097,98	IP99-14,17-DELETED	DELETED	2002	0.0	
100	IP99-11	NEW	2002	0.0	
MR-23					
105-117	B-BURN-DH-8,-20	NEW	2002	0.0	
103	B-BURN-DH-21	NEW	2002	0.0	
MR-24					
120	MM-3	NEW	2002	0.5	
TR-25					
129,130	P-B-BURN-22,8,23	NEW	2003	1.0	
131,33,32	P-TC-03-01 & 02 & 3	NEW	2003	1.5	
TOTAL				2.5	

DRILL HOLE PAD DISTURBANCE					
ACTION/SEGMENT	DRILL PAD NAME	DIST. TYPE	YEAR	ACRES	
TR-26					
1,36	P-TC-03-9R	DELETED TR-96			
4,34,35,37	P-TC-03-04,05 & 07	DELETED	2003	0.0	
MR-29					
107	HC-08-02 (MM-02)	NEW	2006	0.0	
MR-65					
159	14 GEOTECH HOLES	NEW	2003	0.0	
TOTAL				1.8	
MR-30					
139	3 ALLUVIAL WELLS	NEW	2003	0.0	
TR-32					
143	TC-08-04	NEW	2004	0.0	
MR-53					
142	B-BURN-24	NEW	2005	0.0	
143	TC-08-04	NEW	2005	0.0	
MR-55					
144	VB-B2-A, BSC, B3- A3	NEW	2005	0.0	
MR-58					
145	GVB-B1I--A1	NEW	2005	0.5	
MR-59					
147	GVB-B2-A1	NEW	2005	0.5	
148,149	GVB-B2-A2,A1	NEW	2005	1.0	
TOTAL				1.5	
MR-61					
159	GVB-B2-B	NEW	2005	0.5	
MR-62					
152	GVB-B2-A2	NEW	2005	0.5	
MR-65					
153	GVB-8A, 6B & 6C	NEW	2006	1.5	
MR-67					
155	GVB-4A & 5A	NEW	2006	1.0	
MR-72					
159	GO-1 THROUGH GO-6	NEW	2006	0.0	
MR-75					
159	GEO-TECH-04	NEW	2006	0.5	
MR-76					
161,162	GVB-9D,9E	NEW	2006	1.0	
TOTAL				0.0	
164,165	GVB-7A, 7B	NEW	2006	1.0	
166,167	GVB-7C,7D	NEW	2006	1.0	
TOTAL				3.0	
TR-82					
174	GVB-9C	NEW	2008	1.0	

DRILL HOLE PAD DISTURBANCE - CONTINUED					
ACTION/SEGMENT	DRILL PAD NAME	DIST. TYPE	YEAR	ACRES	
TR-53					
196	HC-08-01	NEW	2009	0.5	
MR-86					
197	HC-08-02 (MM-02)	NEW	2009	0.0	
MR-95					
189	11 GEOTECH HOLES	DELETED TR-96			
MR-92					
190	GVB-8A-A	NEW	2009	0.0	
MR-100					
191	GVB-8A-B	NEW	2009	0.0	
MR-105					
196	GVB-8-TG	NEW	2009	1.0	
TR-65					
199	Geotech Hole	NEW	2010	1.0	
MR-115					
196	Geo-1, 2, 3	New	2010	0.0	
TR-41					
197	BRL-1-03-01	New	2003	0.5	
MR-118					
198	BRL-1-08-03	DELETED TR-96			
199	BRL-1-08-04	New	2008	0.5	
TOTAL				0.5	
MR-126	B-1				
204	2010-2	New	2008	0.5	
MR-135	B-1				
206	GVB-10A	NEW	2010	1.0	
206	GVB-10B	NEW	2010	1.0	
Total				2.0	
MR-122	B-2				
209	GVB-11A	NEW	2011	1.3	
210	GVB-11A Road	NEW	2011	1.3	
211	GVB-12A	NEW	2011	1.0	
TR-86					
212	GVB-12B & Road	NEW	2011	1.7	
213	GVB-12C	NEW	2011	1.0	
214	GVB-13A	NEW	2011	1.0	
Total				7.0	
MR-124	B-2				
218	GVB-B11C	NEW	2011	1.0	
219	GVB-B12D	NEW	2011	1.0	
Total				2.0	

DRILL HOLE PAD DISTURBANCE - CONTINUED					
ACTION/SEGMENT	DRILL PAD NAME	DIST. TYPE	YEAR	ACRES	
TR-73					
223	GVB-B12E	NEW	2012	1.0	
224	GVB-B13C	NEW	2012	1.0	
222	GVB-B13C	NEW	2012	1.0	
223	GVB-B13D	NEW	2012	1.0	
196	GVB-B11E	NEW	2012	1.0	
224	GVB-B14A	NEW	2012	1.0	
226	GVB-B14B	NEW	2013	1.0	
226	GVB-B14C	NEW	2013	1.0	
227	GVB-B14D	NEW	2013	1.0	
228	GVB-B14E	NEW	2013	1.0	
229	SS-7	NEW	2012	1.0	
230	SS-6	NEW	2013	1.0	
231	2012-1	NEW	2012	1.0	
Total				13.0	
MR-133					
242-4	Utility Holes	New	2012	0.0	
243	GVB-13F	New	2012	1.0	
MR-134					
245	BH13 Vent	New	2013	1.0	
MR-136					
246	GVB-B13C-1	New	2013	1.0	
TR-78					
254	GVB-B14F	New	2013	1.0	
255	GVB-B15A	New	2013	1.0	
256	GVB-B15B	New	2014	1.0	
257	GVB-B15C	New	2014	1.0	
258	GVB-B15D	New	2014	1.0	
259	GVB-B16A	New	2014	1.0	
260	SS-8	New	2013	1.0	
TOTAL				7.0	
TR-86					
272	GVB-16B	New	2014	1.0	
273	GVB-16C	New	2014	1.0	
274	GVB-16D	New	2014	1.0	
275	GVB-17A	New	2014	1.0	
276	GVB-17B	New	2014	1.0	
277	GVB-17C	New	2014	1.0	
278	GVB-17D	New	2014	1.0	
279	GVB-17E	New	2014	1.0	
280	GVB-19A	New	2014	1.0	
281	GVB-19B	New	2014	1.0	
282	2014-SS-A	DELETED TR-96			
283	2014-SS-B	New	2014	1.0	
284	2014-SS-C	New	2014	1.0	
TOTAL				12.0	
TR-90					
285	GVB-L7F	New	2014	1.0	
286	GVB-19C	New	2015	1.0	
TOTAL				2.0	
MR-164					
289	GV4-DH-58A	New	2014	1.0	

REVISIONS			
No.	Description	BY	DATE
82	TR-107 Suspend Monitoring at Some Sites, Show outline of mining to date and new extent of subsidence.	J.E.S.	04/15/16
81	TR-103 Suspend Monitoring at Some Sites	J.E.S.	08/18/15
80	TR-100 Mine Plan Update and Sequence	J.E.S.	05/06/15
79	TR-99 Delete 2015-18 and 2015-155	J.E.S.	02/18/15
78	MR-174 Update Drill Road Locations and Acreage	J.E.S.	01/30/15
77	TR-96 Delete Drill Holes P-TC-03-06, BRL-1-08-03, 2014-SS-A and 11 Geotech Holes	J.E.S.	11/21/14
76	MR-165 Section 5 Road	J.E.S.	11/04/14
75	MR-164 Replace CWI-DH-58 with new DH-58A	J.E.S.	10/02/14
74	PR-14 Federal Coal Lease COC-75916, Point of compliance wells, Stream buffer zones.	J.E.S.	10/03/14
73	TR-90 Two New GWs	J.E.S.	06/13/14
72	MR-152 Move 11 Gob Vent Holes	J.E.S.	06/18/14

REFERENCES

ENGINEER'S CERTIFICATION

I hereby certify that this drawing was done by me or under my direct supervision and that all of the information presented on this drawing is true and correct to the best of my knowledge and belief.

James E. Stover — *Date*

Colorado P.E. 19230

Hydrologic Key

SW-1	Active Surface Water Monitoring Point
SW-1	Inactive Surface Water Monitoring Point
AW-7	Active Bedrock or Alluvial Monitoring Point
AW-7	Inactive Bedrock or Alluvial Monitoring Point
AW-7	Sealed or Destroyed Bedrock or Alluvial Monitoring Point
SP-3	Active Spring Monitoring Point S-3 or SP-3
SP-3	Inactive Spring Monitoring Point S-3 or SP-3
P-1	Active Stock Pond Monitoring Location
P-1	Inactive Stock Pond Monitoring Location
EPH-1	Ephemeral Channel-Monitor Where Flow is Available
GVB-XX	Mehtane Drainage Well

Legend:

- Paved Road
- Unpaved Road
- Unpaved Road-New
- Unpaved Road - Refurbished
- Jeep Trail
- Stream
- River
- Fence
- Railroad
- Canal
- WAPA Transmission Line
- Permit Boundary
- Fed Coal Lease Boundary
- Extent of Subsidence Based on Mine Plan
- Aqueduct
- Mine Plan Outline
- Bowie No. 1 Mine Workings
- TR/MR Revision Cloud
- Stream Buffer Zone

Eliminated by 1997 Construction Project
Spring S-6
Spring S-7
Spring S-9
Spring S-15
Drill Hole DH-42
Drill Hole DH-52
Drill Hole DH-54
Drill Hole DH-55

Eliminated by Mining
Drill Hole DH-13
Drill Hole DH-34B
Drill Hole DH-57A

Eliminated by 2002 Construction Project
Alluvial Well 1

PREPARED FOR: BRL BOWIE RESOURCES, LLC — BOWIE RESOURCES, LLC, BOWIE NO. 2 MINE, P.O. BOX 483, PAONIA, COLORADO 81428

PREPARED BY: J. E. STOVER & ASSOCIATES, 2352 N. 7th Street, Unit B, Grand Jct., CO 81501

DESIGNED: T.K.B. 11/09
DRAWN:
CHECKED:

ONE INCH

PROJECT: BOWIE NO. 2 MINE

TITLE: HYDROLOGICAL MONITORING LOCATION MAP

DRMS I.D. No. C - 1996 - 083

SCALE: 1" = 1000'

DWG. NAME: Map 09