2024 ANNUAL HYDROLOGY REPORT

SAGE CREEK MINE

PERMIT C-2009-087

February 2025

Submitted To: Colorado Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

Prepared By: Peabody Sage Creek Mining
PO Box 670
Hayden, CO 81639

Table of Contents

FIGURES

APPENDICES

1.0 INTRODUCTION

This Annual Hydrology Report (AHR) presents the hydrologic monitoring data collected during the 2024 water year (October 2023 – September 2024) at the Peabody Sage Creek Mining, LLC's Peabody Sage Creek Mine (PSCM). The AHR fulfills the reporting requirements under the Colorado Division of Reclamation, Mining, and Safety (CDRMS) Permit No. C-2009-087.

1.1 BACKGROUND

The PSCM is an underground coal mine located in Routt County, approximately nine miles southeast of Hayden, Colorado. PSCM Permit No. C-2009-087 was approved by CDRMS in May 2010. The PSCM permit area encompasses the majority of the former Seneca II Mine (State Permit No. C-1980-005) which is a reclaimed surface mine that extracted coal from 1968 through 1999. Many of the PSCM hydrologic monitoring sites were previously utilized for the Seneca II Mine. Excavation of the PSCM portal began in June 2011 and underground mining proceeded until the fall of 2012 when it was suspended. The PSCM remains in a care and maintenance state. No coal extraction occurred in 2024.

In 2012 the Water Quality Control Division (WQCD) issued PSCM a violation for elevated selenium in the mine discharges. In response, PSCM completed an extensive monitoring effort to evaluate the source and fate of selenium in these watersheds. In 2014 the Water Quality Control Commission (WQCC) granted a temporary modification of the chronic selenium TVS in both Cow Camp Creek and Grassy Creek to current conditions to allow PSCM to collect additional biologic and water quality data needed to develop site-specific standards. In 2017, the WQCC extended the selenium temporary modification for Grassy Creek to 12/31/2022 and the temporary modification to Cow Camp Creek to 12/31/2023. In 2022, the WQCD decided to move all temporary modification reviews up by 6-months. Because this provided insufficient time for stakeholders to finalize and advance their site-specific standard proposals, the WQCC extended all temporary modifications set to expire in 2022 through 12/31/2023. These temporary modifications expired on 12/31/2023. PSCM continues

to collect the biologic and water quality data for the development of a site-specific selenium standard and has continued to coordinate with the WQCD, Colorado Parks and Wildlife, and EPA on the development of these standards. PSCM intends to propose its site-specific standard during the WQCC Regulation 33 Hearing in June 2025. This AHR will only discuss data relevant to the requirements of the CDRMS permit.

2.0 METEOROLOGICAL

Meteorological data for the 2024 water year is presented in Appendix A. The 2024 data was obtained from the Hayden Weather Station (053867) located in Hayden, Colorado (Colorado Climate Center - Data Access). A total of 20.37 inches of precipitation was measured in 2024, which is 2.12 inches greater than the 1981-2024 average of 18.25 inches. December, January, February, March, and August were wetter than normal, but the remaining months were drier than normal. Potential snowpack runoff, as estimated by totaling November through March precipitation, was 10.96 inches, which was 3.22 inches above the 1981-2024 average of 7.74 inches.

3.0 GROUNDWATER

The PSCM groundwater monitoring program includes seven monitoring wells. The following table includes the wells monitored, the water bearing unit they are screened in, the frequency they are monitored, and their required parameter list. The monitoring well locations are shown on Figure 1. Groundwater monitoring was completed by experienced personnel in accordance with the practices described in Section 2.04.7 of Permit No. C-2009-087. All samples were analyzed by ACZ Laboratories.

Site	Unit	Monitoring Frequency		Parameter List
		Water Level	Water Quality	
SGAL70	Grassy Creek Alluvium	SA	SA	GW Long
SCAL69	Cow Camp Creek Alluvium	SA	SA	GW Short
SSP61	Spoil	SA	SA	GW Short
SSP62	Spoil	SA	SA	GW Short
COV2702	Wadge Overburden	A	A	GW Long
SOV42	Wadge Overburden	A	A	GW Short
CW2701	Wadge Coal	A	A	GW Long

Note
A: Annual
SA: Semi-Annually
GW Long: Field conductivity, field pH, field temperature, dissolved aluminum, dissolved arsenic, bicarbonate, dissolved boron, dissolved cadmium, calcium, carbonate, chloride, dissolved chromium, dissolved copper, fluoride, hardness, dissolved iron, dissolved lead, magnesium, dissolved manganese, dissolved mercury, dissolved nickel, nitrate, nitrite, potassium, dissolved selenium, sodium, Sodium Adsorption Ratio, sulfide, total suspended solids, dissolved zinc, Cation/Anion Balance, total dissolved solids, total dissolved solids calculated
GW Short: Field conductivity, field pH, field temperature, fluoride, dissolved iron, dissolved manganese, nitrate, nitrite, dissolved selenium, sulfate, total dissolved solids

3.1 WATER LEVELS

The static water levels measured during the 2024 water year are included with the groundwater quality data in Appendix B. Water level hydrographs for each of the wells are provided in Appendix C. The static water levels measured at the alluvium, bedrock, and spoil wells were all within their respective historic range this year.

Wadge Overburden Well SOV42 was dry at the time of the 2024 monitoring event. The water level at SOV42 has been fluctuating near the base of well and was previously dry in 2019, 2021, and 2022.

Water levels in most of the water bearing units at PSCM exhibit seasonal fluctuations. The water table in the shallow alluvial and spoil wells fluctuates in response to seasonal precipitation events, with the water table typically at its highest during the spring snowmelt seasons and then declining through late summer/early fall in response to the dry conditions. The water levels in the bedrock overburden and coal seams also fluctuate in response to recharge from seasonal precipitation but are partially influenced by interactions with groundwater in the reclaimed mine spoil. The water level in spoil wells SSP61 and SSP62 indicate only the downslope highwall portions of the spoil are significantly saturated.

3.2 Groundwater Quality

The PSCM Groundwater Point of Compliance (GWPOC) is SGAL70. SGAL70 was previously used as the GWPOC at the Seneca II Mine and has a long historical record of water level and water quality data. SGAL70 is screened within the Grassy Creek alluvium downgradient of the PSCM surface effects. Bedrock GWPOC wells were deemed unnecessary due to the low hydraulic conductivity of the bedrock units, their low yields which are insufficient to support domestic or agricultural use, and because downgradient attenuation and dilution will further limit water quality impacts only to bedrock in close proximity to the mine. See Section 2.04, pg 103 of Permit No. C-2009-087 and Technical Revision 47 (TR-47) of Seneca II Permit No. C-1980-005 for further justification for the GWPOC.

Table B.1 of Appendix B includes the analytical results for the samples collected from GWPOC well SGAL70 during the 2024 water year and provides a comparison to the Grassy Creek Alluvial GWPOC water quality standards. Technical Revision 47 (TR-47) of Seneca II Permit No. C-1980-005 describes how the standards were established. Table B.2 provides the analytical results for the remaining monitoring wells however no comparisons to water quality standards were made as these wells are not GWPOC. Water quality samples were collected from all wells except for SOV42 which was dry

and could not be sampled. Groundwater sampling was taken over by PSCM staff in 2024. During this transition the GW Short parameter list was mistakenly requested for the samples collected at well SGAL70. The GW Long parameter list will be analyzed going forward. The groundwater quality at SGAL70 complies with the TR-47 water quality standards.

4.0 SURFACE WATER

The PSCM lies within the headwaters of Grassy Creek and Fish Creek. The following table lists the PSCM surface water monitoring points from upstream to downstream, the stream they are associated with, the frequency they are monitored, and their required parameter list. See Figure 1 for the location of the surface water monitoring points. Surface water monitoring was completed by experienced personnel in accordance with the practices described in Section 2.04.7 of Permit No. C-2009-087. All samples were analyzed by ACZ Laboratories.

Site	Type	Stream	Monitoring Frequency		Parameter List
			Flow	Water Quality	
NPDES5	NPDES	Fish Creek	SM	SM	NPDES
NPDES6	NPDES	Fish Creek	SM	SM	NPDES
SSC10	Surface Water	Fish Creek	SA	SA	SW Short
YSGF5	Surface Water	Grassy Creek	TA	TA	SW Short
SSG1	Surface Water	Grassy Creek	TA	TA	SW Short
SSLG5	Surface Water	Little Grassy Creek	TA	TA	SW Short
NPDES2	NPDES	Little Grassy Creek	SM	SM	NPDES
NPDES3	NPDES	Grassy Creek	SM	SM	NPDES
NPDES7	NDPES	Grassy Creek	SM	SM	NPDES
SSG2	Surface Water	Grassy Creek	TA	TA	SW Short
YSG5	Surface Water	Grassy Creek	TA	TA	SW Long

Note
TA: Triannually during snowmelt runoff, post runoff, and baseflow (usually April, June, and September)
SA: Semiannually in June and July
SM: Semimonthly
SW Long: Field conductivity, field pH, field temperature, total recoverable arsenic, bicarbonate, dissolved boron, dissolved cadmium, calcium, carbonate, chloride, dissolved chromium, dissolved copper, hardness, total recoverable iron, dissolved lead, magnesium, dissolved manganese, total mercury, dissolved nickel, ammonia, nitrate, nitrite, potassium, dissolved selenium, dissolved silver, sodium, Sodium Adsorption Ratio, sulfate, sulfide, total suspended solids, dissolved zinc, Cation/Anion Balance, total dissolved solids, total dissolved solids calculated
SW Short: Field conductivity, field pH, field temperature, total recoverable iron, dissolved manganese, total mercury, ammonia, nitrate, nitrite, dissolved selenium, sulfate, sulfide, total suspended solids, total dissolved solids
NPDES: See NPDES Permit No. CO-0048275

The Colorado WQCC has established segment specific aquatic life water quality standards for Grassy Creek (Segment 13i and 13j) and Fish Creek (Segment 13g) of the Yampa River. The water quality standards for these segments are included in Colorado Department of Public Health & Environment (CDPHE) Regulation 33. Therefore, the following surface water quality discussion has been organized by drainage basin and then segment. The 2024 Water Year surface water quality data is provided in Appendix D. Samples from this year's stream points are compared to both the CDPHE surface water agricultural use standards (CDPHE, Reg. 31) and the appropriate segment specific aquatic life water quality standards (CDPHE, Reg. 33). Samples from NPDES outfalls are compared to NPDES discharge limits as well as the segment specific aquatic life standards. Additional discussion of the water quality in each stream segment follows.

4.1 Fish Creek

Analytical results for the 2024 surface water monitoring completed at Cow Camp Creek (tributary to Fish Creek) stream point SSC10 is provided in Table D.1 of Appendix D. Analytical results for Outfalls 005 and 006, which report to Cow Camp Creek, are included in Table D.2 and D.3. The analytical results for Pond 004, which is only monitored when cattle are present within the Outfall 005 watershed, is found in Table D.4. The temporary modification of the chronic aquatic life selenium standard to current conditions for Yampa Segment 13g expired on 12/31/2023, which includes Cow Camp Creek down to its confluence with Fish Creek (CDPHE, Reg. 33).

There was one exceedances of the NPDES flow limit at Outfall 006 and two exceedances of the water quality based NPDES permit limits, one at Outfall 005 and one at Outfall 006. The monthly average flow limit of 0.055 MGD was exceeded at Outfall 006 in March. Outfalls 006 is associated with a spoil spring and the flows are the result of natural hydrologic processes which can not be practically controlled. The area had a wet winter and spring (November – March), receiving 3.22 in more precipitation (10.96 in) than the historical average for this period (7.74 in), which contributed to the higher-than-average flow observed at this outfall in March.

Potentially dissolved selenium exceeded the monthly average NPDES limit at Outfall 005 and 006 in April. At both outfalls the selenium concentrations returned to compliance levels in May. Although the dissolved selenium sampled during the May 28, 2024 discharge event at NPDES6 exceeded the Yampa Segment 13g chronic aquatic life standard of 4.6 ug/L, it's important to note that the dissolved selenium in this sample was less than the 7.6 ug/L May NPDES monthly discharge limit for selenium. Monitoring conducted at downstream point SSC10 on May 29, 2024 also indicated the dissolved selenium concentration within Cow Camp Creek was only 2.14 ug/L, which is less than both the monthly NPDES limit and Yampa Segment 13g chronic aquatic life standard.

All mine disturbance within the Cow Camp Creek watershed has been reclaimed and received complete Phase III Bond Release. Marine shale deposits, including the Williams Fork and Lewis Shale Formations, that are present in this area are known to be laden with selenium. Selenium is naturally mobilized to surface water and groundwater through weathering processes. Extensive monitoring within this watershed has indicated that the selenium found within these formations causes elevated selenium both instream and at the outfalls, particularly during the spring snowmelt season. PSCM collects biological data within these streams, and the data continues to demonstrate that there is no toxic effect to the downstream aquatic species from these discharges. PSCM is continuing to work with the WQCD towards a site-specific standard that more appropriately reflects the conditions in this stream. No other exceedances of the water quality based NPDES permit limits or Yampa Segment 13g water quality standards occurred at Outfalls 004, 005 or 006 in 2024

During 2024, water was only present at downstream point SSC10 in May. This sample was collected at the same time as the biological monitoring event completed to support the selenium site specific standard proposal. Unfortunately, because this event was specific to the site-specific standard project manganese, mercury, ammonia, nitrate, nitrite, sulfide, and TSS were not analyzed. Since water was not present in the stream channel during the June and July sampling events, samples could not be collected. Cow Camp Creek loses water to the alluvium in its lower reach and the stream is often dry near its outlet even when discharge persists in the upper reaches. There were no exceedances of the Yampa Segment 13g water quality standards in 2024.

4.2 GRASSY CREEK

Analytical results for the monitoring conducted at upper Grassy Creek Segment 13i stream points SSLG5, YSGF5, SSG1, and SSG2 are provided in Tables D.5 through D.8 of Appendix D and the analytical results for monitoring point YSG5 located in lower Grassy Creek Segment 13j are found in Table D.9. Analytical results for PSCM Outfalls 002, 003, and 007, which report to upper Grassy Creek Segment 13.i, are found in Table D.10 through D.12. The PSCM does not have any outfalls that discharge directly to Grassy Creek Segment 13j.

Two exceedances of the NPDES permit limits occurred at Outfall 003 in 2024. In January both the total recoverable iron and total suspended solids exceeded the monthly average limit. This was a result of the sample collected on January 22, 2024, which had an elevated total suspended solids of 66 mg/L and total recoverable iron of 2.81 mg/L. Both the total recoverable iron and total suspended solids returned to compliance levels during the next sample event on February 1, 2024. No mining activity was occurring at this time and the pH remained neutral (8.1 su). Iron is the fourth most abundant element in the earth's crust and the total recoverable iron in the discharge was likely the result of the elevated total suspended solids present in the January 22, 2024 sample. The flow during this event was low (0.002 MGD) and sediment at the outfall may have been disturbed and resuspended during sample collection. No other exceedances of the NPDES limits or Segment 13i standards occurred at any of the other upper Grassy Creek outfalls in 2024.

Total recoverable iron exceeded the chronic aquatic life standard at YSGF5, SSG1, SSG2, and YSG5 during the June 12, 2024 monitoring event. Points YSGF5 and SSG1, located upstream of the Sage Creek outfalls, also receives drainage from Yoast Mine Outfall 011. Yoast has been reclaimed and vegetated for over 10 years and Outfall 011 did not discharge in June. See Tables D.2 and D.4 in Appendix D of the Permit No. C-1994-082 2024 Annual Hydrology Report. Total recoverable iron measured at Outfalls 002, 003, and 007 in June ranged from <0.12 to 0.212 mg/L, well below the 1 mg/L aquatic life standard. Total recoverable iron at the Grassy Creek stream points is strongly correlated with suspended solids (r^2: 0.87) which become naturally elevated during rain and snow melt runoff events (Figure D.1). Total suspended solids in the June samples at all four stream points were elevated (40 - 84 mg/L). This indicates

the elevated iron is unrelated to the runoff from the mine and is the result of natural erosional processes that are occurring within the unmined portions of the watershed.

Stream points SSLG5, YSGF5, SSG1, SSG2, and YSG5 were compliant with all other aquatic life standards and agriculture use standards except for sulfide and mercury. The exceedances for both parameters were related to the laboratories method detection limit being greater than the standard. The method detection limit for the sulfide analysis (MDL: 0.02 mg/L) conducted by PSCM's lab exceeds the water quality standard for un-ionized sulfide (H_2S: 0.002 mg/L) by an order of magnitude. This method detects both dissolved sulfides and acid-soluble metallic sulfides that are present in suspended matter and provides a single cumulative concentration. Dissolved sulfide includes both the ionized (HS^-) and un-ionized forms of hydrogen sulfide (H_2S). The distribution of sulfide between the un-ionized hydrogen sulfide and ionized form is dependent on the temperature and pH. The toxic un-ionized hydrogen sulfide is dominant at low pH however in alkaline waters, like those present at PSCM, most of the dissolved sulfide is present as non-toxic ionized sulfide. Dissolved sulfide is also rarely present in oxygenated surface waters as it typically oxidizes to sulfate very quickly. Therefore, it is unlikely that that the elevated detection limit is censoring a concentration above the water quality standard and this result is an actual exceedance of the standard.

The method detection limit for mercury (0.02 μg/L) used by PSCM's lab is above the 0.01 μg/L aquatic life standard. PSCM's lab follows EPA method 245.1 which utilizes cold vapor atomic adsorption and follows the CDRMS Guidelines for the Collection of Water Quality and Overburden Geochemistry Data. At the time that the PSCM NPDES permit was established the WQCD performed a reasonable potential analysis and determined that there was no potential for the discharges to exceed the mercury standard and the monitoring requirements were removed. There is no reason to believe that the mercury detection limit is censoring a measurable value above the water quality standard.

CDPHE Regulation 31 specifies that the manganese agricultural use standard of 0.2 mg/L standard is only applicable when irrigation water is applied to soils with pH lower than 6.0. The soils at PSCM are alkaline and the 0.2 mg/L standard is therefore not applicable for any of the surface water points. Dissolved manganese is

significantly less than the CDPHE Yampa Segment 13i and 13j acute and chronic aquatic life standards.

There were no other exceedances of the Yampa Segment 13i or 13j water quality standards in 2024.

5.0 SPRINGS

The PSCM monitoring program includes five springs. The following table includes the springs, the frequency they are monitored, and the parameter list. See Figure 1 for the location of the spring points. Spring monitoring was completed by experienced personnel and samples were collected in accordance with the practices described in Section 2.04.7 of Permit No. C-2009-087. All samples were analyzed by ACZ Laboratories.

Site	Type	Unit	Monitoring Frequency		Parameter List
			Discharge	Water Quality	
SSSPG3	Spring	Spoils	A	A	SW Short
SSSPG4	Spring	Spoils	A	A	SW Short
SSSPG5	Spring	Spoils	A	A	SW Short
SSSPG6A	Spring	Spoils	A	A	SW Long
SSSPG10	Spring	Spoils	A	A	SW Short

Note
A: Annual
SW Long: Field conductivity, field pH, field temperature, total recoverable arsenic, bicarbonate, dissolved boron, dissolved cadmium, calcium, carbonate, chloride, dissolved chromium, dissolved copper, hardness, total recoverable iron, dissolved lead, magnesium, dissolved manganese, total mercury, dissolved nickel, ammonia, nitrate, nitrite, potassium, dissolved selenium, dissolved silver, sodium, Sodium Adsorption Ratio, sulfate, sulfide, total suspended solids, dissolved zinc, Cation/Anion Balance, total dissolved solids, total dissolved solids calculated
SW Short: Field conductivity, field pH, field temperature, total recoverable iron, dissolved manganese, total mercury, ammonia, nitrate, nitrite, dissolved selenium, sulfate, sulfide, total suspended solids, total dissolved solids

Table E.1 in Appendix E includes the analytical results for samples collected from the spoil springs in 2024. Samples were collected from all springs except for SSSPG10 and SSSPG6A which were dry. The primary post-mine land use in this area is livestock grazing and wildlife habitat. Therefore, the water quality collected from the spoil springs is compared to the CWQCC agricultural use standards established in CDPHE Regulation 31. There were no exceedances of the agricultural use surface water quality standards at the springs in 2024.

6.0 SUMMARY

No significant hydrologic impacts attributable to activities at PSCM were noted during 2024. Groundwater levels in all alluvium, bedrock, and spoil monitoring wells were within the historic range observed at these locations. The groundwater quality at the GWPOC complied with all TR-47 water quality standards

Although exceedances of the total recoverable iron chronic aquatic life standard occurred within Grassy Creek during the June 12, 2024 monitoring event, they were not associated with discharges from the mine's outfalls. The total recoverable iron exceedances occurred both upstream and downstream of the mine and the total recoverable iron present in the mines June discharge was compliant with the standard. The iron measured in Grassy Creek during this event was the result of natural erosional processes that are occurring within the unmined portions of the watershed. There were no other measured exceedances of the applicable Yampa Segment 13g, 13i, or 13j aquatic life standards or agricultural use standards in Cow Camp Creek or upper and lower Grassy Creek in 2024.

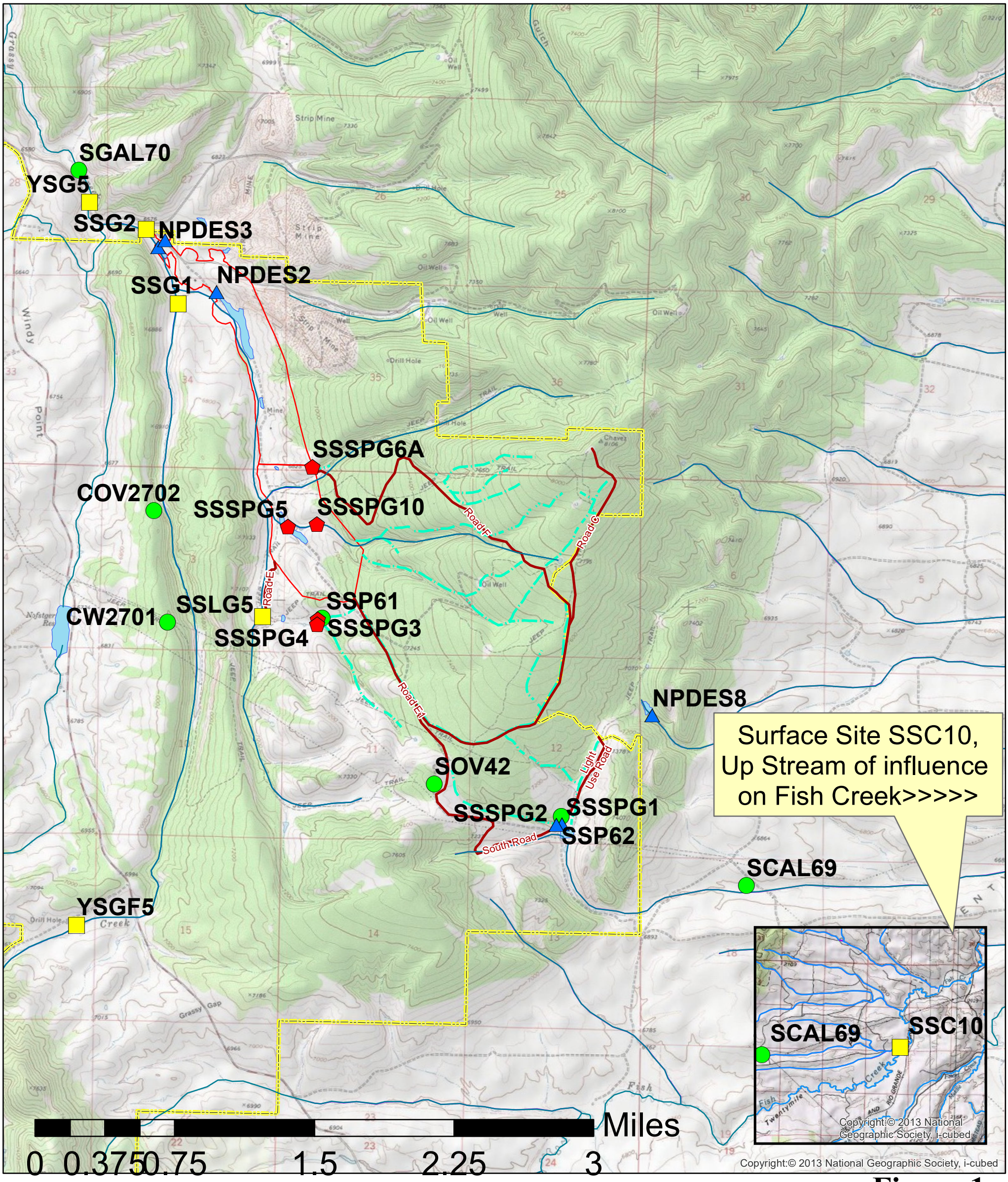


Figure 1

Legend

- NPDES
- Surface Water
- SPRING
- Ground Water
- Segement_13g Bond Creek
- Segement_13i Grassy Creek
- Sage Creek Mine Permit Boundary
- PSCM Current Disturbance

N W E S

Peabody Sage Creek Mine

Peabody

36600 RCR #27
Hayden, CO 81639

Annual Hydrology Report 2021

DESIGNED BY: MLK DRAWN BY: MLK APPROVED BY:	COUNTRY: USA STATE/PROVINCE: COLORADO GSC: 5N 86W, 6N 86W
DATE: 2020-06-24	DRAWING/SHEET: 1 of 1 C.I.: 0'

APPENDIX A

METEOROLOGICAL DATA

PERIOD OF RECORD PRECIPITATION SUMMARY													
Water Year	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**TOTAL**
2024	1.7	0.73	1.83	2.19	3.34	2.87	1.68	1.49	0.96	0.53	2.14	0.91	20.37
2023	1.23	2.06	4.12	3.79	1.04	3.11	1.37	0.52	1.69	0.29	1.33	0.44	20.99
2022	1.82	0.62	2.79	1.18	0.85	1.43	2.07	3.14	0.61	1.14	0.99	2.1	18.74
2021	0.87	0.74	1.46	1.03	1.59	1.67	0.5	1.02	0.15	0.86	1.09	1.46	12.44
2020	1.90	1.37	2.60	2.53	2.40	1.67	1.75	1.63	0.77	0.71	0.43	0.43	18.19
2019	2.14	1.81	1.62	2.45	1.46	2.89	1.66	1.88	3.57	0.38	0.44	1.53	21.83
2018	2.45	1.31	1.36	1.65	1.92	1.90	2.95	0.85	0.15	0.15	1.33	0.17	16.19
2017	1.29	0.91	2.06	2.70	1.47	0.84	2.06	1.85	0.13	1.68	0.46	1.74	17.19
2016	1.39	1.90	2.55	2.65	1.16	1.40	3.02	1.94	0.40	0.81	0.19	1.02	18.43
2015	1.60	2.10	1.84	0.55	1.02	1.30	1.60	4.36	0.61	2.36	1.53	0.90	19.77
2014	2.69	1.75	1.42	2.02	0.78	1.96	1.19	2.58	0.72	1.50	3.77	0.87	21.25
2013	0.86	0.46	3.21	1.02	0.73	1.29	3.58	1.67	0.06	0.46	1.48	2.76	17.58
2012	1.41	1.65	0.36	0.87	1.97	0.50	1.13	0.22	0.15	2.43	0.55	1.56	12.80
2011	2.18	1.91	2.98	1.59	2.09	2.52	4.50	3.56	0.85	1.82	0.65	1.14	25.79
2010	1.22	0.77	1.24	0.75	0.90	0.73	1.98	2.80	1.34	1.19	1.56	0.62	15.10
2009	0.53	1.16	1.38	2.80	0.60	1.32	1.40	1.89	2.08	0.51	1.04	0.48	15.19
2008	1.41	0.13	3.36	2.51	1.70	1.64	0.94	1.68	0.37	0.57	0.75	0.91	15.97
2007	2.64	0.76	0.86	1.04	1.34	1.46	0.62	0.87	0.33	0.52	1.12	2.72	14.28
2006	2.27	2.04	2.01	1.78	0.58	1.06	0.95	0.93	0.24	1.48	2.71	2.75	18.80
2005	1.34	1.68	0.50	1.49	0.84	0.99	1.97	1.41	3.36	0.57	1.57	1.30	17.02
2004	0.44	2.90	1.58	0.74	1.64	0.40	1.57	1.26	0.86	1.00	1.44	2.76	16.59
2003	1.88	1.09	1.28	0.74	1.95	0.99	2.57	1.15	1.33	0.47	0.62	1.83	15.90
2002	1.14	1.17	0.54	0.88	0.92	1.06	1.39	0.40	0.37	0.78	1.26	1.94	11.85
2001	0.67	1.60	1.16	0.96	1.41	1.07	1.28	1.15	0.85	1.11	2.06	1.66	14.98
2000	0.43	0.61	1.66	1.66	1.68	1.46	1.84	1.94	0.54	0.75	2.38	2.00	16.95
1999	1.85	0.81	1.13	2.13	0.99	0.57	3.21	2.00	1.39	2.10	1.85	0.78	18.81
1998	2.37	1.08	0.95	1.34	1.93	1.77	1.77	0.62	2.51	1.50	0.48	1.50	17.82
1997	1.79	2.39	1.69	2.88	0.97	0.48	3.19	2.75	1.60	1.05	3.57	5.48	27.84
1996	1.32	2.20	1.26	3.60	2.19	0.99	1.34	2.10	1.00	1.33	0.35	1.37	19.05
1995	0.95	2.09	0.68	1.47	0.97	0.82	3.36	4.48	1.54	1.23	0.73	2.69	21.01
1994	3.02	1.61	1.16	0.69	1.13	0.56	1.85	1.07	0.43	0.24	0.98	0.72	13.46
1993	1.46	1.48	1.33	2.28	1.66	1.53	2.55	1.14	1.29	0.65	1.37	1.39	18.13
1992	1.18	2.79	0.85	0.88	1.16	1.20	1.66	3.08	1.15	4.38	0.95	0.98	20.26
1991	3.20	1.71	1.18	1.75	0.86	2.42	1.09	0.96	1.74	1.59	2.00	1.32	19.82
1990	0.77	1.38	2.08	0.65	1.64	1.54	1.36	1.12	1.38	1.14	0.51	1.22	14.79
1989	0.13	2.79	1.13	1.02	2.50	1.38	0.45	1.39	0.53	1.82	1.33	1.52	15.99
1988	1.27	1.22	2.32	2.80	0.70	1.31	0.83	1.85	1.93	0.60	1.03	2.31	18.17
1987	2.65	1.00	0.56	1.28	1.35	1.50	1.60	1.92	0.64	1.78	1.35	0.46	16.09
1986	3.51	4.19	1.34	0.79	3.01	1.59	2.70	0.99	1.00	1.65	1.96	2.12	24.85
1985	2.61	1.68	1.80	2.40	1.01	2.40	3.77	1.40	0.68	1.28	0.64	1.17	20.84
1984	2.16	2.82	5.03	0.59	0.43	2.31	2.68	1.33	2.36	1.84	2.61	1.31	25.47
1983	1.64	1.52	1.03	1.10	1.66	2.17	2.28	1.57	2.76	1.88	1.08	0.79	19.48
1982	3.76	0.78	2.51	1.71	0.62	2.64	1.92	0.97	0.46	1.60	1.19	2.64	20.80
1981	1.09	0.33	0.43	0.53	0.45	2.50	0.69	3.97	1.65	2.24	1.12	1.33	16.33
AVG	1.69	1.53	1.69	1.62	1.38	1.53	1.91	1.75	1.10	1.23	1.32	1.53	18.25

Note

Data from October 1980 to February 1982, and 2011 Water Year and later, from U.S. Department of Commerce - NOAA - Hayden Station. All other data from Seneca II Mine Meteorological Station with Belfort Weighing Bucket Rain Gage. Site relocated to USGS site on August 31, 1991. Precipitation recorded in inches.

Monthly temperature range and preciptation collected at the Hayden Colorado Airport Weather Station 053867
Data accessed from: https://climate.colostate.edu/data_access_new.html

Station Metadata

Station Name: HAYDEN
Station ID: 053867
Longitude: -107.2548 Latitude: 40.4926
Elevation: 6467 ft.
Max Temperature: 1909-01-15 - 2025-02-06
Min Temperature: 1909-01-15 - 2025-02-06
Precipitation: 1909-01-15 - 2025-02-06
Snowfall: 1909-01-17 - 2025-02-06

HAYDEN	mly_mean_maxt (F)	mly_mean_mint (F)	mly_sum_pcpn (in)
2023-10	63.2	32.5	1.7
2023-11	47.9	21.9	0.73
2023-12	35.5	14.3	1.83
2024-01	33.3	13.9	2.19
2024-02	37.6	14.1	3.34
2024-03	45.2	20.1	2.87
2024-04	60.7	29.6	1.68
2024-05	65.9	35.9	1.49
2024-06	83.6	48.8	0.96
2024-07	87.1	49.3	0.53
2024-08	84.8	50.9	2.14
2024-09	80.5	43.9	0.91

APPENDIX B

GROUNDWATER QULITY DATA

Table B.1. Groundwater analytical results for Point of Compliance (POC) well SGAL70 during water year 2024.

Well	Date	Depth to Water ft btoc	SPC, Field N UMHOS/CM	pH, Field N S.U.	Temp., Field N DEG-C	Fluoride N MG/L	Iron D MG/L	Manganese D MG/L	Nitrate N. N MG/L	Nitrite N. N MG/L	Selenium D UG/L	Sulfates N MG/L	TDS, Lab N MG/L
SGAL70	6/6/2024	9.7	3280	6.9	16.9	0.24	< 0.12	0.122	0.04	< 0.01	< 2	2220	3660
SGAL70	9/24/2024	10.53	3150	6.9	14.6	0.29	< 0.12	0.278	0.159	< 0.01	< 2	2190	3510
GWPOC Water Quality Standards*			-	6.5 - 8.5	-	**2**	**14.1**	**2.44**	**10**	**1**	**20**	**2517**	**5038**

Notes

* See Part 2.04 page 103 of Permit C-2009-087 and TR-47 of Permit C-1980-005.

Bold Analyte exceeds GWPOC Standard

Table B.2. Groundwater analytical results for Non-Point of Compliance wells during water year 2024.

Well	Date	Depth to Water ft btoc	SPC, Field N UMHOS/CM	pH, Field N S.U.	Temp., Field N DEG-C	Aluminum D MG/L	Arsenic D UG/L	Boron D UG/L	Cadmium D UG/L	Chloride N MG/L	Chromium D UG/L	Copper D UG/L	Fluoride N MG/L
SCAL69	6/7/2024	5.9	2450	7.1	15.2								0.22
SCAL69	9/24/2024	6.2	2930	7	16.2								0.29
COV2702	6/6/2024	145.9	930	8.8	14.8	< 0.07	0.47	142	< 8	5.39	< 20	< 10	1.67
SOV42*	6/7/2024	-											
CW2701	6/6/2024	160.4	1470	9.2	14	< 0.07	< 0.2	269	< 8	7.61	< 20	< 10	2.3
SSP61	6/7/2024	8.6	3400	6.9	14.4								0.32
SSP61	9/24/2024	12.1	3140	6.8	16.5								0.39
SSP62	6/7/2024	18.1	2530	7.1	13.6								0.17
SSP62	9/24/2024	17.55	2840	7	14.7								0.18

Well	Date	Iron D MG/L	Lead D UG/L	Manganese D MG/L	Mercury D UG/L	Nickel D UG/L	Nitrate N. N MG/L	Nitrite N. N MG/L	Selenium D UG/L	Sulfates N MG/L	Sulfide N MG/L	TDS, Lab N MG/L	Zinc D MG/L
SCAL69	6/7/2024	< 0.12		0.227			0.072	< 0.01	< 2			2390	
SCAL69	9/24/2024	< 0.12		0.126			0.046	< 0.01	< 2	2070		3110	
COV2702	6/6/2024	< 0.06	< 30	< 0.01	< 0.2	< 8	< 0.02	< 0.01	< 2	<20	0.199	600	1.02
SOV42	6/7/2024												
CW2701	6/6/2024	< 0.06	< 30	< 0.01	< 0.2	< 8	0.052	< 0.01	< 2	90	37.1	872	1.66
SSP61	6/7/2024	< 0.3		0.127			7.35	0.06	6.3	2110		3380	
SSP61	9/24/2024	< 0.12		0.469			5.24	0.149	3.2	2190		3500	
SSP62	6/7/2024	0.244		10.9			0.059	0.014	< 2	1450		2390	
SSP62	9/24/2024	1.43		6.91			< 0.02	0.012	< 2	1890		3100	

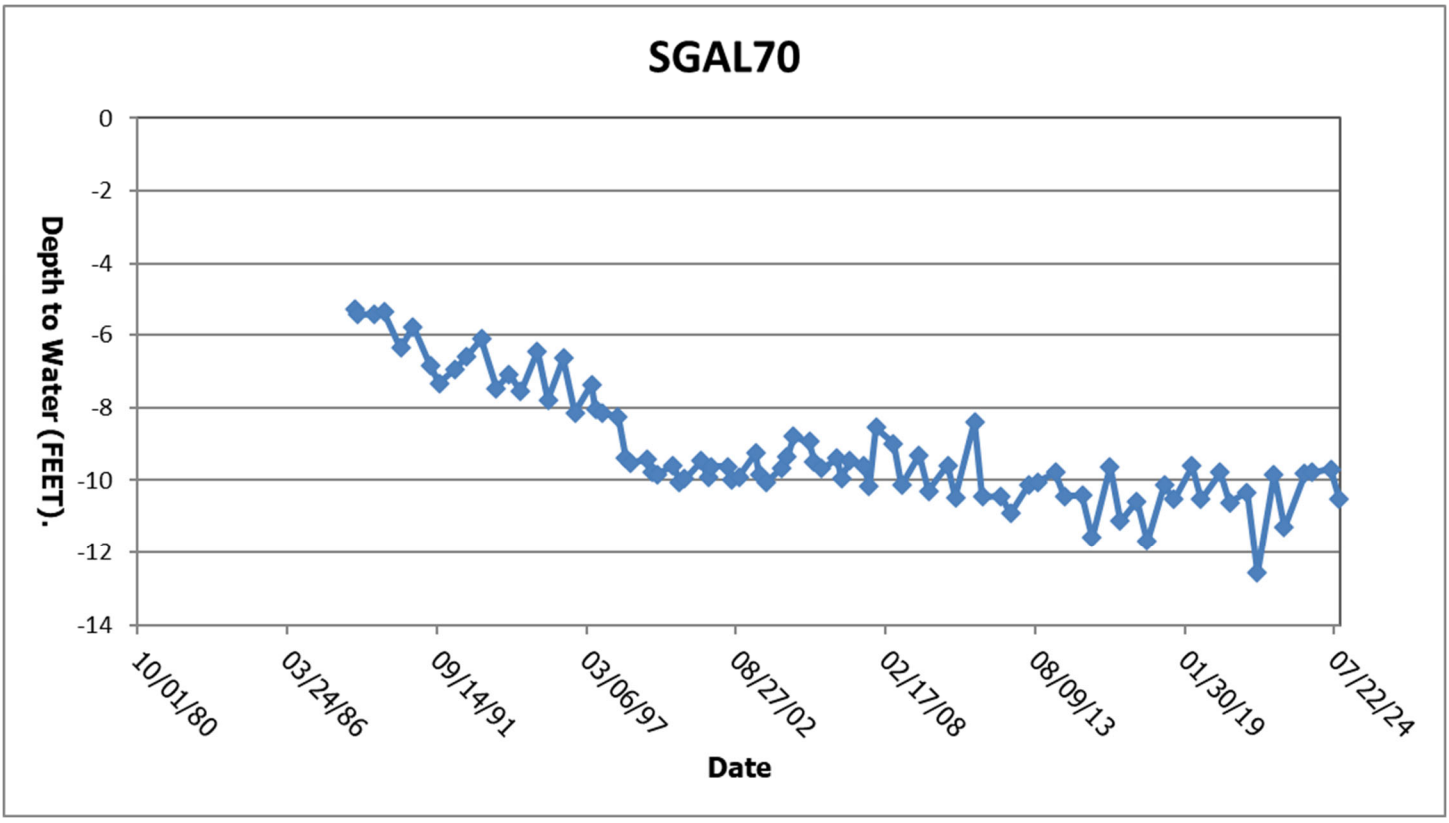
Well	Date	Alkalinity, Bicarbonate N MG/L	Alkalinity, Carbonate D MG/L	Calcium D MG/L	SpC, Lab N UMS/CM	Hardness N MG/L	Magnesium D MG/L	Potassium D MG/L	Sodium D MG/L	SAR N NONE	Cation / Anion %	TDS (Calc) N MG/L	TSS N MG/L
SCAL69	6/7/2024												
SCAL69	9/24/2024												
COV2702	6/6/2024	568		1.08	1040	4.4	0.41	1.69	235	49	-4.3	589	25
SOV42	6/7/2024												
CW2701	6/6/2024	754		0.97	1500	3.9	0.36	2.94	353	79	3.2	824	152
SSP61	6/7/2024												
SSP61	9/24/2024												
SSP62	6/7/2024												
SSP62	9/24/2024												

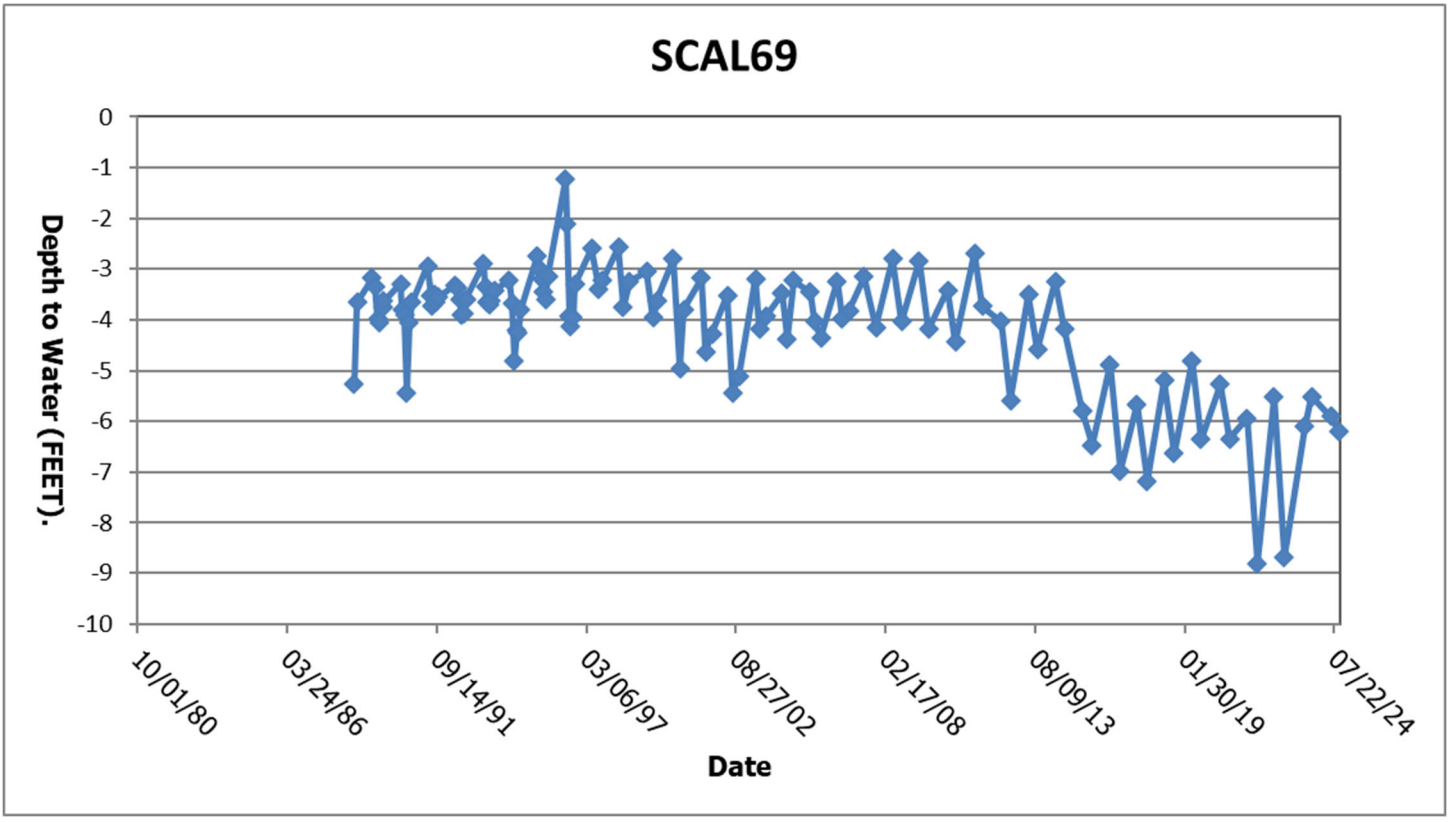
Notes

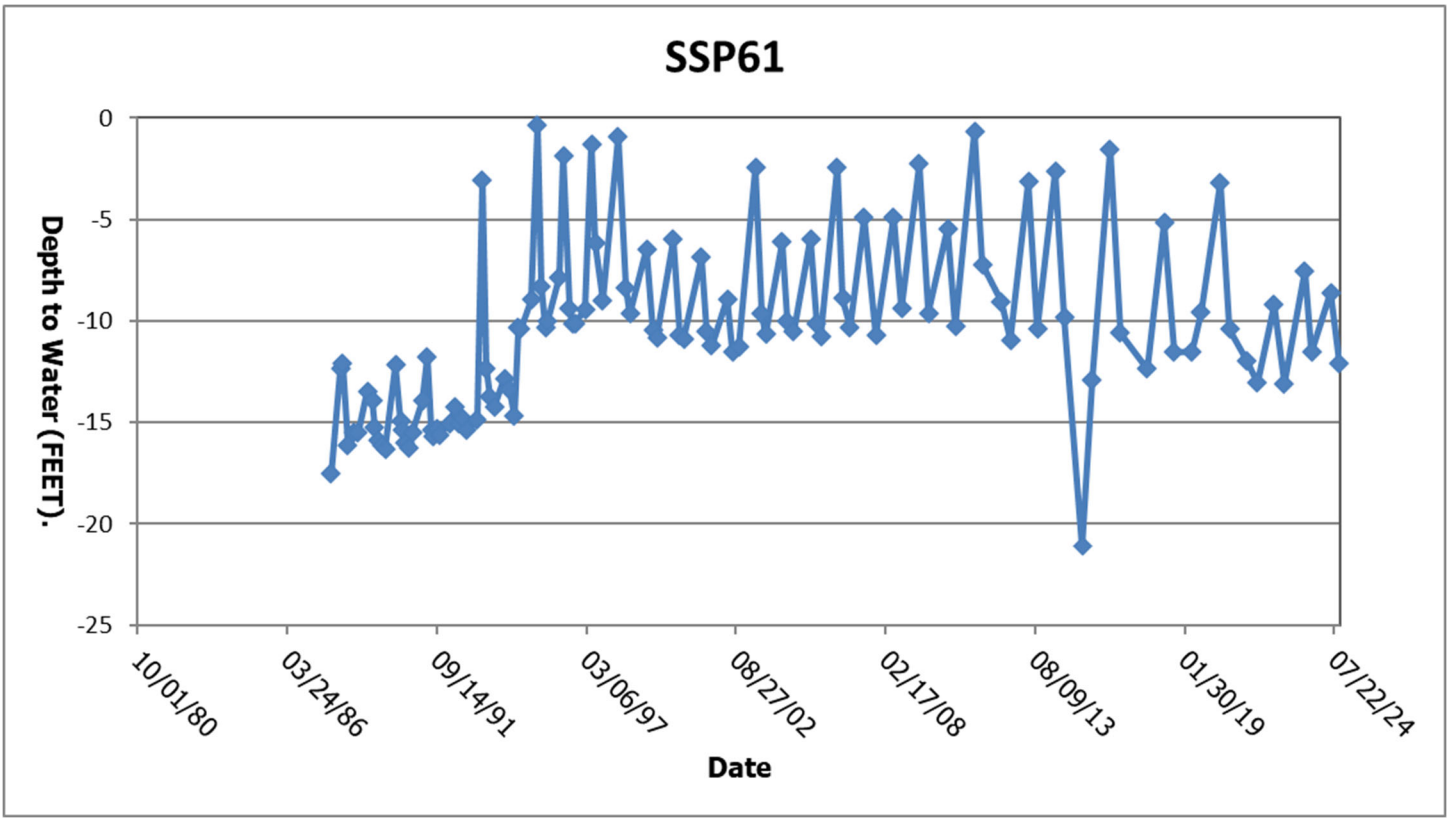
*Well was dry. Sample could not be collected

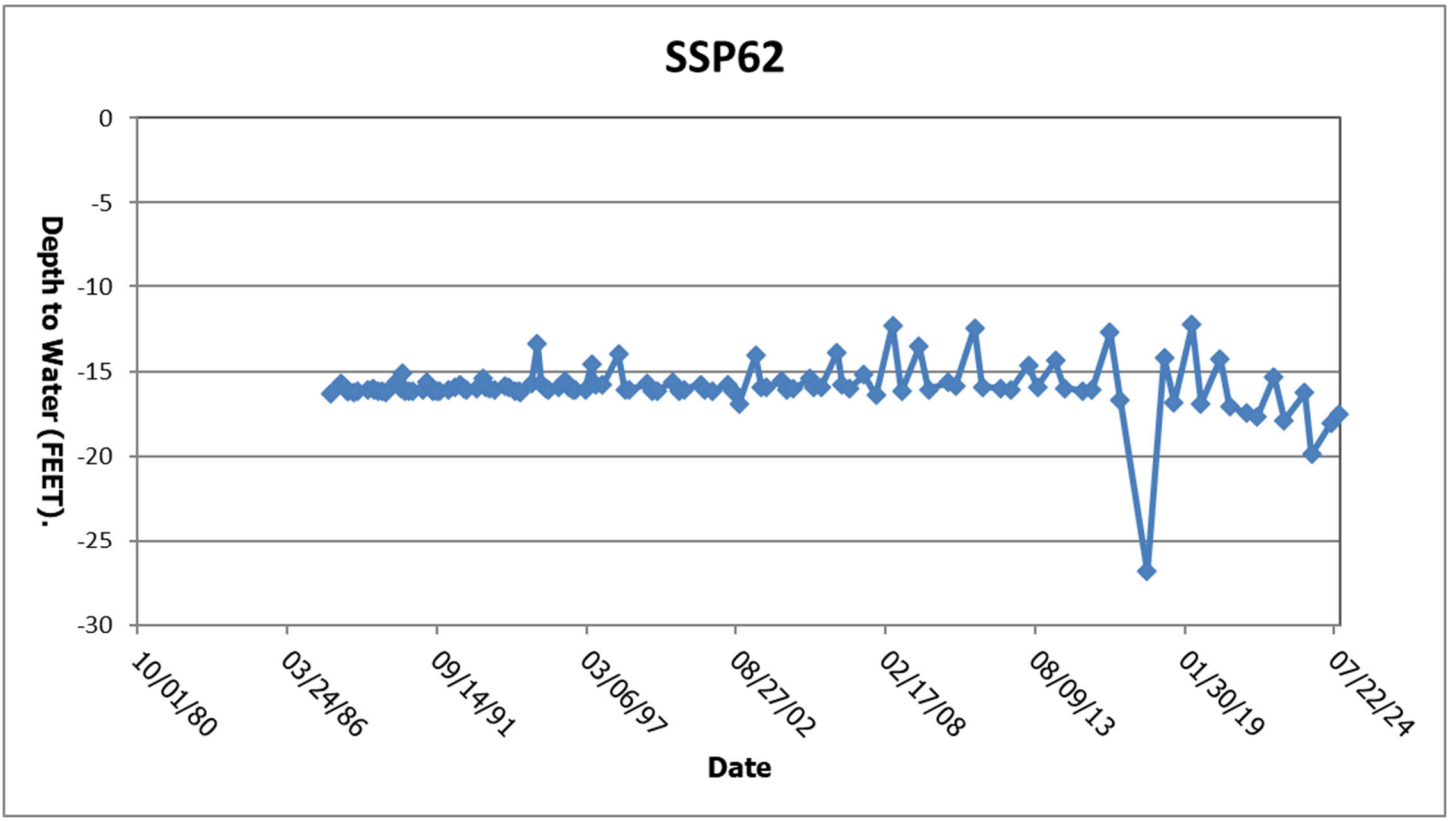
APPENDIX C

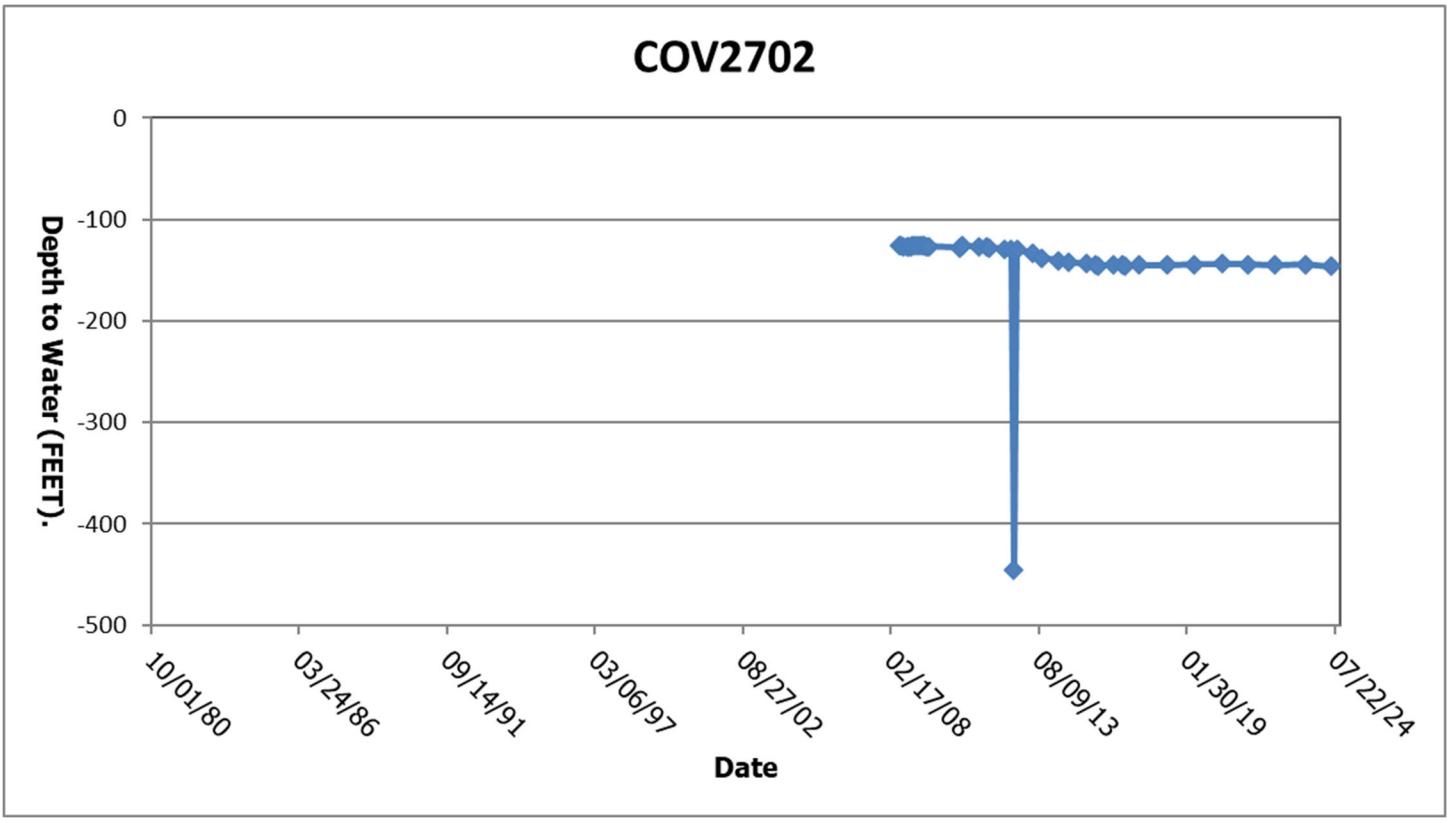
GROUNDWATER HYDROGRAPHS

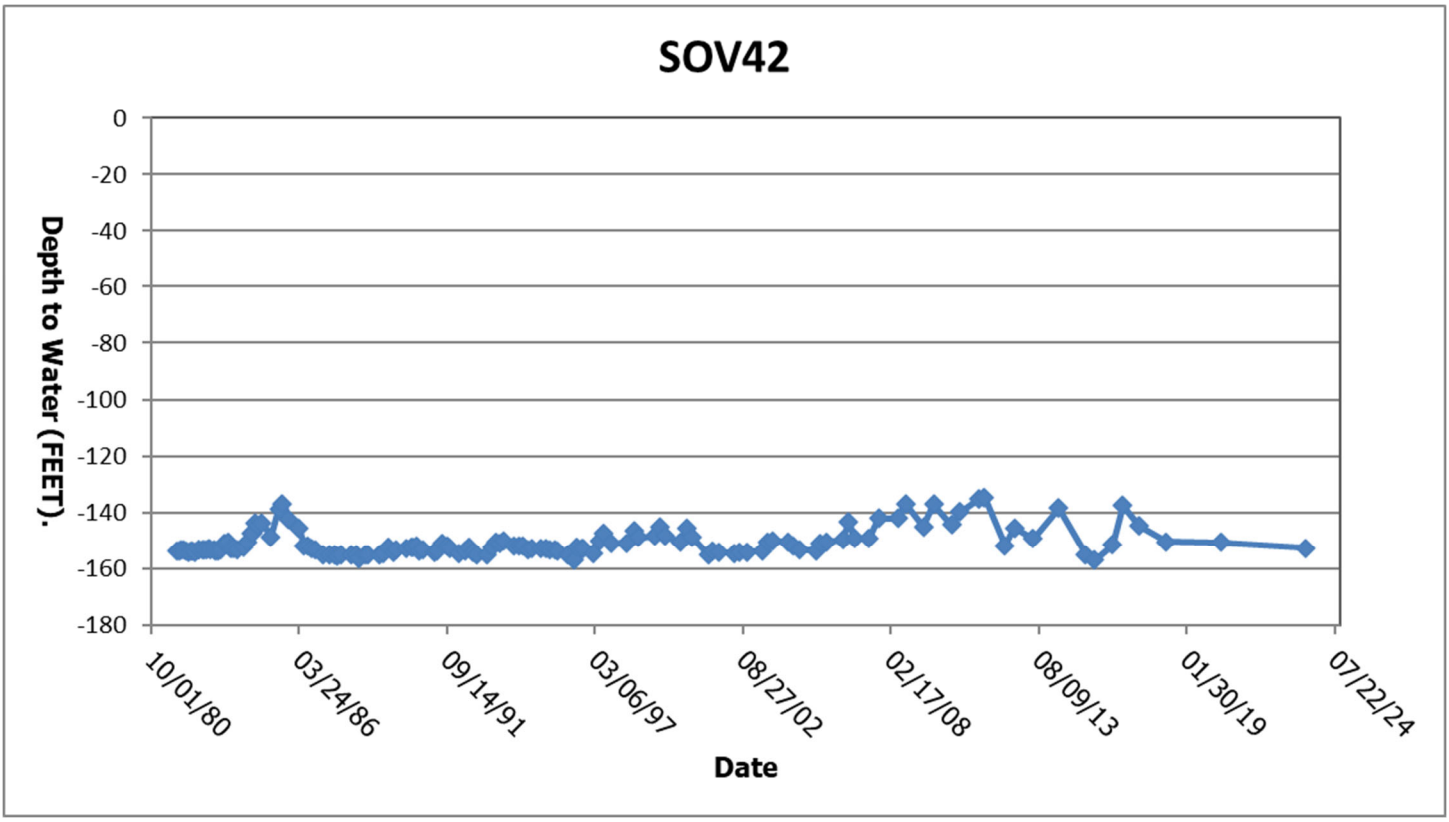

SGAL70
Depth to Water (FEET).
0
-2
-4
-6
-8
-10
-12
-14
10/01/80
03/24/86
09/14/91
03/06/97
08/27/02
02/17/08
08/09/13
01/30/19
07/22/24
Date

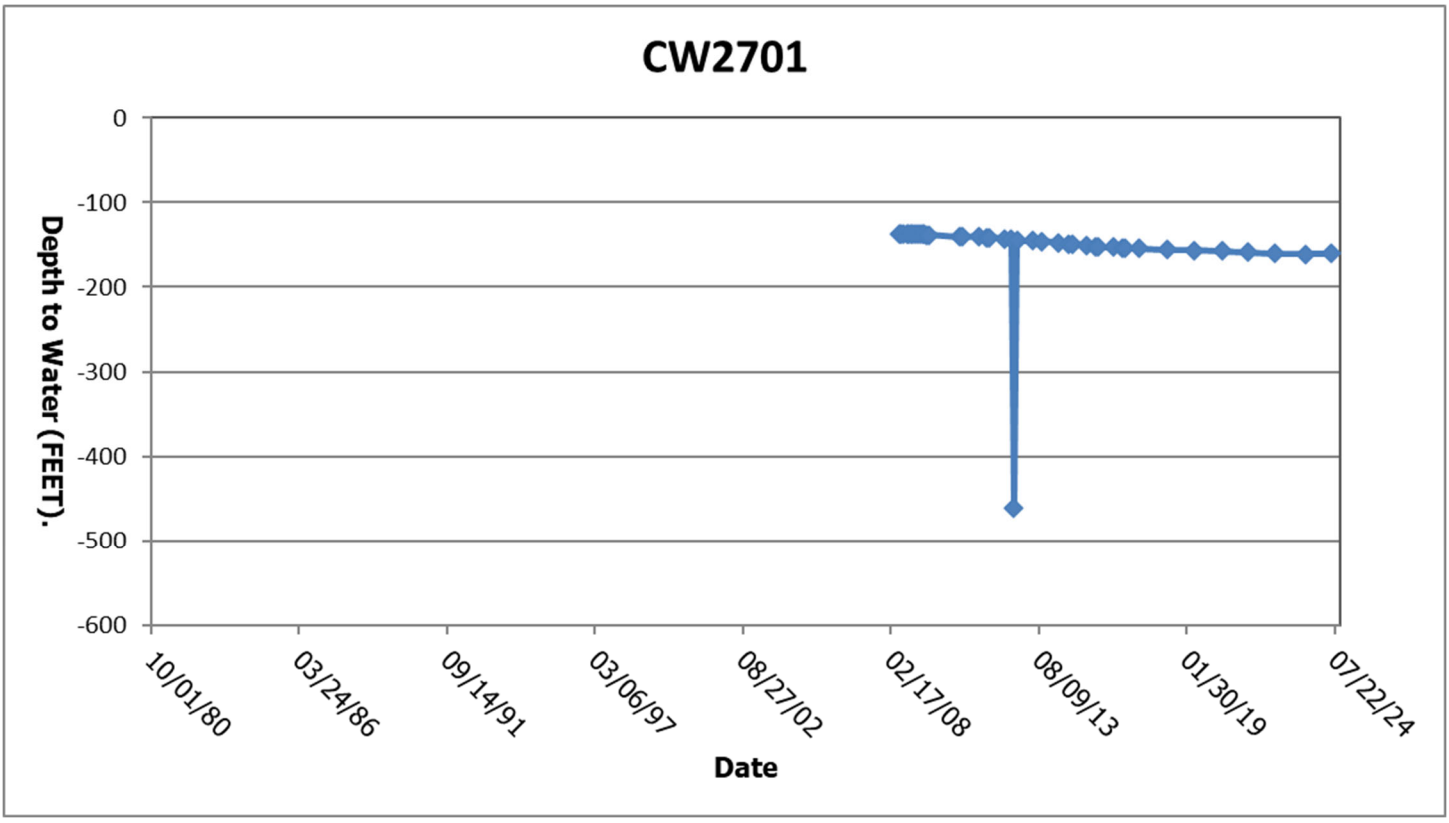

SCAL69
Depth to Water (FEET).
0
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10
10/01/80
03/24/86
09/14/91
03/06/97
08/27/02
02/17/08
08/09/13
01/30/19
07/22/24
Date


SSP61
0
-5
-10
-15
-20
-25
Depth to Water (FEET).
10/01/80
03/24/86
09/14/91
03/06/97
08/27/02
02/17/08
08/09/13
01/30/19
07/22/24
Date


SSP62
0
-5
-10
-15
-20
-25
-30
Depth to Water (FEET).
10/01/80
03/24/86
09/14/91
03/06/97
08/27/02
02/17/08
08/09/13
01/30/19
07/22/24
Date


COV2702
0
-100
-200
-300
-400
-500
Depth to Water (FEET).
10/01/80
03/24/86
09/14/91
03/06/97
08/27/02
02/17/08
08/09/13
01/30/19
07/22/24
Date


SOV42
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Depth to Water (FEET).
10/01/80
03/24/86
09/14/91
03/06/97
08/27/02
02/17/08
08/09/13
01/30/19
07/22/24
Date


CW2701
0
-100
-200
-300
-400
-500
-600
Depth to Water (FEET).
10/01/80
03/24/86
09/14/91
03/06/97
08/27/02
02/17/08
08/09/13
01/30/19
07/22/24
Date

APPENDIX D

SURFACE WATER QUALITY DATA

Table D.1 Fish Creek Yampa Segment 13g stream point analytical data for water year 2024.

Location	Date	Flow N MGD	SpC, Field N UMHOS/CM	pH, Field N S.U.	Temp., Field N C	Iron D MG/L	Iron PD MG/L	Iron TR MG/L	Manganese D MG/L	Mercury T UG/L	Ammonia N N MG/L	Nitrate N N MG/L	Nitrite N N MG/L	Selenium D UG/L
SSC10	5/29/2024	0.213	2390	8.1	17			0.535						2.14
SSC10	6/12/2024	0												
SSC10	7/8/2024	0												
Yampa Segment 13g Standards - Acute		-	-	6.5 - 9.0	-	-	-	-	4.738	0.01***	0.5	100	0.05	18.4
Yampa Segment 13g Standards - Chronic		-	-	-	-	-	-	1	2.618	-	-	-	-	4.6*
Agricultural Use Standards		-	-	-	-	-	-	-	0.2**	-	-	100	10	20

Location	Date	Selenium PD UG/L	Selenium TR UG/L	Sulfates N MG/L	Sulfide N MG/L	TDS, Lab N MG/L	TSS N MG/L
SSC10	5/29/2024	1.94	2.02	2500		3410	
SSC10	6/12/2024						
SSC10	7/8/2024						
Yampa Segment 13g Standards - Acute		-	-	-	0.002***	-	-
Yampa Segment 13g Standards - Chronic		-	-	-	-	-	-
Agricultural Use Standards		-	-	-	-	-	-

Notes

* The current conditions temporary modification for the Segment 13g chronic selenium standard expired on 12/31/2023.

** The manganese agricultural use standard is only applicable for areas with acidic soils. This areas soils are alkaline.

*** The standard is an order of magnitude less than the laboratories detection limit.

Bold Analyte exceeds the Yampa Segment 13g or Agricultural Use Standards

Table D.2 Fish Creek Yampa Segment 13g NPDES Outfall 005 analytical data for water year 2024.

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron TR MG/L	Selenium* D UG/L	Selenium PD UG/L	Selenium* TR UG/L	TDS, Lab N MG/L	Manganese PD MG/L
SSSPG2 (NPDES5)	10/10/2023	0		N						
SSSPG2 (NPDES5)	10/27/2023	0		N						
SSSPG2 (NPDES5)	11/6/2023	0		N						
SSSPG2 (NPDES5)	11/20/2023	0		N						
SSSPG2 (NPDES5)	12/6/2023	0		N						
SSSPG2 (NPDES5)	12/19/2023	0		N						
SSSPG2 (NPDES5)	1/10/2024	0		N						
SSSPG2 (NPDES5)	1/22/2024	0		N						
SSSPG2 (NPDES5)	2/1/2024	0		N						
SSSPG2 (NPDES5)	2/13/2024	0		N						
SSSPG2 (NPDES5)	3/7/2024	0		N						
SSSPG2 (NPDES5)	3/27/2024	0		N						
SSSPG2 (NPDES5)	4/11/2024	0.021	7.7	N	< 0.06		**5.68**	5.28	3380	0.00444
SSSPG2 (NPDES5)	4/23/2024	0.07	8	N	0.121		**6.28**	6.4	3010	
SSSPG2 (NPDES5)	5/2/2024	0.062	8	N	< 0.12		3.9	4.71	3140	
SSSPG2 (NPDES5)	5/28/2024	0.013	8	N	< 0.12	1.47	1.37	2.5	3860	
SSSPG2 (NPDES5)	6/10/2024	0.002	7.9	N	0.203		0.68	0.86	4090	
SSSPG2 (NPDES5)	6/28/2024	0.001	7.9	N	< 0.3		0.65	0.65	4030	
SSSPG2 (NPDES5)	7/8/2024	0		N						
SSSPG2 (NPDES5)	7/22/2024	0		N						
SSSPG2 (NPDES5)	8/1/2024	0		N						
SSSPG2 (NPDES5)	8/19/2024	0		N						
SSSPG2 (NPDES5)	9/3/2024	0		N						
SSSPG2 (NPDES5)	9/19/2024	0		N						
NPDES Limit	Daily Max	Report	6.5 - 9.0	Report	-	-	18.4	-	-	Report
	Monthly Avg.	Varies**	-	-	1	-	Varies**	-	Varies**	Report
Yampa Segment 13g Standards - Acute		-	6.5 - 9.0	-	-	18.4	-	-	-	4.738
Yampa Segment 13g Standards - Chronic		-	-	-	1	4.6***	-	-	-	2.618
Agricultural Use Standards		-	-	-	-	20	-	-	-	0.2****

Notes

An NPDES permit renewal application sample was collected on 6/11/2020 for an extended list of paramaters that are not required for the permits standard discharge monitoring requirements. See Table D.12 for the analytical results from this sample.

* Outfall 005 does not have a dissolved selenium or total recoverable selenium monitoring requirement.

** See permit CO0048275 for variable monthly average flow, PD selenium, and TDS limits. Note that the TDS limits are only applicable when cattle are present.

*** The current conditions chronic selenium temporary modification for Segment 13g expired on 12/31/2023.

**** The manganese agricultural use standard is only applicable to areas with acidic soils. These are not present at Sage Creek Mine.

Bold Analyte exceeds the NPDES Daily Max limit, Segment 13g aquatic life standard, or Agricultural Use standard

Bold Analyte exceeds the NPDES Monthly Average limit

Table D.3 Fish Creek Yampa Segment 13g NPDES Outfall 006 analytical data for water year 2024.

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron TR MG/L	Selenium* D UG/L	Selenium PD UG/L	Selenium* TR UG/L	TDS, Lab N MG/L	TSS* N MG/L	Manganese* D MG/L
SSSPG1 (NPDES6)	10/10/2023	0.061	7.3	N	< 0.12		2.25	2.46	3710		
SSSPG1 (NPDES6)	10/27/2023	0.062	7.3	N	< 0.12		2.25	2.26	3680		
SSSPG1 (NPDES6)	11/6/2023	0.057	7.3	N	< 0.06		2.15	2.17	3700		
SSSPG1 (NPDES6)	11/20/2023	0.056	7.3	N	< 0.12		2.03	2.02	3670		
SSSPG1 (NPDES6)	12/5/2023	0.054	7.3	N	< 0.06		2.27	1.93	3730		
SSSPG1 (NPDES6)	12/19/2023	0.052	7.4	N	< 0.06		2.22	2.17	3700		
SSSPG1 (NPDES6)	1/10/2024	0.048	7.4	N	< 0.06		1.94	2.05	3790		
SSSPG1 (NPDES6)	1/22/2024	0.048	7.4	N	< 0.12		2.05	2.18	3790		
SSSPG1 (NPDES6)	2/1/2024	0.048	7.3	N	< 0.06		2.22	2.05	3750		
SSSPG1 (NPDES6)	2/13/2024	0.047	7.3	N	< 0.12		2.2	2.04	3830		
SSSPG1 (NPDES6)	3/7/2024	**0.043**	7.4	N	< 0.12		2.06	1.89	3830		
SSSPG1 (NPDES6)	3/27/2024	**0.097**	7.1	N	< 0.12		2.42	2.68	3640		
SSSPG1 (NPDES6)	4/11/2024	0.142	7	N	< 0.06		**6.63**	5.83	3420		
SSSPG1 (NPDES6)	4/23/2024	0.219	7.1	N	< 0.12		**11.4**	11.6	2960		
SSSPG1 (NPDES6)	5/2/2024	0.191	7.1	N	< 0.12		9.6	10.9	2960		
SSSPG1 (NPDES6)	5/28/2024	0.129	7.2	N	< 0.12	**5.22**	5.02	5.69	3440		
SSSPG1 (NPDES6)	6/10/2024	0.118	7.2	N	< 0.06		3.99	4.53	3460		
SSSPG1 (NPDES6)	6/28/2024	0.105	7.3	N	0.149		4.04	3.4	3480		
SSSPG1 (NPDES6)	7/8/2024	0.093	7.3	N	< 0.12	3.82	3.13	3.43	3530		
SSSPG1 (NPDES6)	7/22/2024	0.089	7.3	N	< 0.12		3.25	3.38	3710		
SSSPG1 (NPDES6)	8/1/2024	0.073	7.3	N	< 0.12		3.48	3.35	3570		
SSSPG1 (NPDES6)	8/19/2024	0.073	7.3	N	< 0.12		3.07	2.93	3690		
SSSPG1 (NPDES6)	9/3/2024	0.07	7.3	N	< 0.06		3	2.84	3540		
SSSPG1 (NPDES6)	9/19/2024	0.069	7.2	N	< 0.06		2.45	2.48	3620		
NPDES Limit	Daily Max	Report	6.5 - 9.0	Report	-	-	18.4	-	-	-	-
	Monthly Avg.	Varies**	-	-	1	-	Varies**	-	5000**	-	-
Yampa Segment 13g Standards - Acute		-	6.5 - 9.0	-	-	18.4	-	-	-	-	4.738
Yampa Segment 13g Standards - Chronic		-	-	-	1	4.6***	-	-	-	-	2.618
Agricultural Use Standards		-	-	-	-	20	-	-	-	-	0.2****

Notes

An NPDES permit renewal application sample was collected on 6/11/2020 for an extended list of paramaters that are not required for the permits standard discharge monitoring requirements. See Table D.12 for the analytical results from this sample.

* Outfall 006 does not have a dissolved selenium, total recoverable selenium, TSS, or mangenese monitoring requirement

** See permit CO0048275 for variable monthly average flow, PD selenium, and TDS limits. Note that the TDS limits are only applicable when cattle are present.

*** The current conditions chronic selenium temporary modification for Segment 13g expired on 12/31/2023.

**** The manganese agricultural use standard is only applicable to areas with acidic soils. These are not present at Sage Creek Mine.

Bold Analyte exceeds the NPDES Daily Max limit, Segment 13g aquatic life standard, or Agricultural Use standard

Bold Analyte exceeds the NPDES Monthly Average limit

Table D.4 Fish Creek Yampa Segment 13g NPDES Monitoring Point Pond 004 analytical data for water year 2024.

Location	Date	Flow* N MGD	pH, Field* N S.U.	TDS, Lab N MG/L
NPDES4	8/1/2024	0.07	8	3810
NPDES4	8/19/2024	0.07	8	3700
NPDES4	9/3/2024	0.069	7.9	3640
NPDES4	9/19/2024	0		
NPDES Limit	Daily Max	-	-	-
	Monthly Avg.	-	-	5000**
Yampa Segment 13g Standards - Acute		-	6.5 - 9.0	-
Yampa Segment 13g Standards - Chronic		-	-	-
Agricultural Use Standards		-	-	-

Notes

* Outfall 004 does not have a flow or pH monitoring requirement
Samples only required to be collected when cattle are present from August through October

** TDS monthly average limit only applicable from August through October when calttle are present.

Bold Analyte exceeds the NPDES Daily Max limit, Segment 13g aquatic life standard, or Agricultural Use standard

Bold Analyte exceeds the NPDES Monthly Average limit

Table D.5 Upper Grassy Creek Yampa Segment 13i stream point SSLG5 analytical data for water year 2024.

Location	Date	Flow N MGD	SpC, Field N UMHOS/CM	pH, Field N S.U.	Temp., Field N C	Iron D MG/L	Iron PD MG/L	Iron TR MG/L	Manganese D MG/L	Mercury T UG/L	Ammonia N. N MG/L	Nitrate N. N MG/L	Nitrite N. N MG/L	Selenium D UG/L
SSLG5	5/20/2024	0.015	1776	8.3	14.1	0.0755	0.081	0.249	0.0186	< 0.2	< 0.1	0.716	< 0.01	3.17
SSLG5	7/8/2024	0												
SSLG5	9/3/2024	0												
Yampa Segment 13i Standards - Acute		-	-	6.5 - 9.0	-	-	-	-	4.738	0.01***	0.5	100	0.05	18.4
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	-	1	2.618	-	-	-	-	4.6*
Agricultural Use Standards		-	-	-	-	-	-	-	0.2**	-	-	100	10	20

Location	Date	Selenium PD UG/L	Selenium TR UG/L	Sulfates N MG/L	Sulfide N MG/L	TDS, Lab N MG/L	TSS N MG/L
SSLG5	5/20/2024	3.14	2.94	759	< 0.02	1490	9
SSLG5	7/8/2024						
SSLG5	9/3/2024						
Yampa Segment 13i Standards - Acute		-	-	-	0.002***	-	-
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	-
Agricultural Use Standards		-	-	-	-	-	-

Notes

* The current conditions temporary modification for the Segment 13i chronic iselenium standard expired on 12/31/2023.

** The manganese agricultural use standard is only applicable for areas with acidic soils. This areas soils are alkaline.

*** The standard is an order of magnitude less than the laboratories detection limit.

Bold Analyte exceeds the Yampa Segment 13i or Agricultural Use Standards

Table D.6 Upper Grassy Creek Yampa Segment 13i stream point YSGF5 analytical data for water year 2024.

Location	Date	Flow N MGD	SpC, Field N UMHOS/CM	pH, Field N S.U.	Temp., Field N C	Iron D MG/L	Iron PD MG/L	Iron TR MG/L	Manganese D MG/L	Mercury T UG/L	Ammonia N. N MG/L	Nitrate N. N MG/L	Nitrite N. N MG/L	Selenium D UG/L
YSGF5	5/20/2024	2.701	973	8.3	16.2									0.53
YSGF5	6/12/2024	0.069	1150	8.3	11	0.0577	0.876	**2.03**	0.0477	< 0.2	< 0.1	< 0.02	< 0.01	0.34
YSGF5	7/8/2024	0.014	1384	8.1	21.4	0.068	0.491	0.939						
YSGF5	9/3/2024	0												
Yampa Segment 13i Standards - Acute		-	-	6.5 - 9.0	-	-	-	-	4.738	0.01***	0.5	100	0.05	18.4
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	-	1	2.618	-	-	-	-	4.6*
Agricultural Use Standards		-	-	-	-	-	-	-	0.2**	-	-	100	10	20

Location	Date	Selenium PD UG/L	Selenium TR UG/L	Sulfates N MG/L	Sulfide N MG/L	TDS, Lab N MG/L	TSS N MG/L
YSGF5	5/20/2024	0.5	0.51	371		778	
YSGF5	6/12/2024	0.26	0.33	433	< 0.02	840	84
YSGF5	7/8/2024					920	35
YSGF5	9/3/2024						
Yampa Segment 13i Standards - Acute		-	-	-	0.002***	-	-
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	-
Agricultural Use Standards		-	-	-	-	-	-

Notes

* The current conditions temporary modification for the Segment 13i chronic iselenium standard expired on 12/31/2023.

** The manganese agricultural use standard is only applicable for areas with acidic soils. This areas soils are alkaline.

*** The standard is an order of magnitude less than the laboratories detection limit.

Bold Analyte exceeds the Yampa Segment 13i or Agricultural Use Standards

Table D.7 Upper Grassy Creek Yampa Segment 13i stream point SSG1 analytical data for water year 2024.

Location	Date	Flow N MGD	SpC, Field N UMHOS/CM	pH, Field N S.U.	Temp., Field N C	Iron D MG/L	Iron PD MG/L	Iron TR MG/L	Manganese D MG/L	Mercury T UG/L	Ammonia N. N MG/L	Nitrate N. N MG/L	Nitrite N. N MG/L	Selenium D UG/L
SSG1	5/20/2024	2.903	1263	8.1	13.2	0.0959	0.251	0.395	0.0835	< 0.2	< 0.1	< 0.02	< 0.01	0.48
SSG1	6/12/2024	0.067	1762	8.4	20.2			**1.51**	0.039	< 0.2	< 0.1	< 0.02	< 0.01	0.35
SSG1	7/8/2024	0												
SSG1	9/3/2024	0												
Yampa Segment 13i Standards - Acute		-	-	6.5 - 9.0	-	-	-	-	4.738	0.01***	0.5	100	0.05	18.4
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	-	1	2.618	-	-	-	-	4.6*
Agricultural Use Standards		-	-	-	-	-	-	-	0.2**	-	-	100	10	20

Location	Date	Selenium PD UG/L	Selenium TR UG/L	Sulfates N MG/L	Sulfide N MG/L	TDS, Lab N MG/L	TSS N MG/L
SSG1	5/20/2024	0.49	0.6	411	< 0.02	834	14
SSG1	6/12/2024	0.37	0.48	416	< 0.02	892	71
SSG1	7/8/2024						
SSG1	9/3/2024						
Yampa Segment 13i Standards - Acute		-	-	-	0.002***	-	-
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	-
Agricultural Use Standards		-	-	-	-	-	-

Notes

* The current conditions temporary modification for the Segment 13i chronic iselenium standard expired on 12/31/2023.

** The manganese agricultural use standard is only applicable for areas with acidic soils. This areas soils are alkaline.

*** The standard is an order of magnitude less than the laboratories detection limit.

Bold Analyte exceeds the Yampa Segment 13i or Agricultural Use Standards

Table D.8 Upper Grassy Creek Yampa Segment 13i stream point SSG2 analytical data for water year 2024.

Location	Date	Flow N MGD	SpC, Field N UMHOS/CM	pH, Field N S.U.	Temp., Field N C	Iron D MG/L	Iron PD MG/L	Iron TR MG/L	Manganese D MG/L	Mercury T UG/L	Ammonia N. N MG/L	Nitrate N. N MG/L	Nitrite N. N MG/L	Selenium D UG/L
SSG2	5/20/2024	2.845	2547	8.3	16.7	0.0385	0.266	0.616	0.00799	< 0.2	< 0.1	0.248	< 0.01	0.24
SSG2	6/12/2024	0.074	3218	8.2	20.8			**1.86**	0.043	< 0.2	< 0.1	0.096	< 0.01	1.04
SSG2	7/8/2024	0.017	3742	8.2	24.3	< 0.12	0.437	0.835						0.94
SSG2	9/3/2024	0.004	3043	8.2	18.9			0.236	0.104	< 0.2	< 0.1	0.031	< 0.01	0.75
Yampa Segment 13i Standards - Acute		-	-	6.5 - 9.0	-	-	-	-	4.738	0.01***	0.5	100	0.05	18.4
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	-	1	2.618	-	-	-	-	4.6*
Agricultural Use Standards		-	-	-	-	-	-	-	0.2**	-	-	100	10	20

Location	Date	Selenium PD UG/L	Selenium TR UG/L	Sulfates N MG/L	Sulfide N MG/L	TDS, Lab N MG/L	TSS N MG/L
SSG2	5/20/2024	1.23	1.53	1220	< 0.02	2070	18
SSG2	6/12/2024	0.86	1.11	1240	< 0.02	2160	76
SSG2	7/8/2024		0.92	1510		2400	28
SSG2	9/3/2024	0.76	0.73	2050	< 0.02	2980	< 5
Yampa Segment 13i Standards - Acute		-	-	-	0.002***	-	-
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	-
Agricultural Use Standards		-	-	-	-	-	-

Notes

* The current conditions temporary modification for the Segment 13i chronic iselenium standard expired on 12/31/2023.

** The manganese agricultural use standard is only applicable for areas with acidic soils. This areas soils are alkaline.

*** The standard is an order of magnitude less than the laboratories detection limit.

Bold Analyte exceeds the Yampa Segment 13i or Agricultural Use Standards

Table D.9 Lower Grassy Creek Yampa Segment 13j stream point YSG5 analytical data for water year 2024.

Location	Date	Flow N MGD	SpC, Field N UMHOS/CM	pH, Field N S.U.	Temp., Field N C	Arsenic TR UG/L	Alkalinity, Bicarbonate N MG/L	Boron D UG/L	Cadmium D UG/L	Calcium D MG/L	Carbonate as CO3 N MG/L	Chloride N MG/L	Chromium D UG/L	Copper D UG/L
YSG5	5/20/2024	3.136	2362	8.3	16.6	0.76	441	169	< 0.1	246	< 2	13	< 1	< 1.6
YSG5	6/12/2024	0.393	3017	8	17.8	1.32	394	151	< 0.1	259	< 2	12.4	< 1	< 1.6
YSG5	7/8/2024	0.006	3192	8	21.6									
YSG5	9/3/2024	0.021	2613	8.1	15.2	1.05	448	269	< 0.1	263	< 2	18.9	< 1	< 1.6
Yampa Segment 13j Standards - Acute		-	-	6.5 - 9.0	-	340	-	750	9.2	-	-	-	1773	50
Yampa Segment 13j Standards - Chronic		-	-	-	-	7.6	-		1.2	-	-	-	231	29
Agricultural Use Standards		-	-	-	-	100	-	750	10	-	-	-	100	200

Location	Date	Hardness N MG/L	Iron TR MG/L	Lead D UG/L	Magnesium D MG/L	Manganese D MG/L	Mercury T UG/L	Nickel D UG/L	Ammonia N. N MG/L	Nitrate N. N MG/L	Nitrite N. N MG/L	Potassium D MG/L	Selenium D UG/L	Selenium TR UG/L
YSG5	5/20/2024	1490	0.454	< 0.2	212	0.141	< 0.2	< 8	< 0.1	0.205	< 0.01	6.64	1.67	1.79
YSG5	6/12/2024	1540	**1.01**	< 0.2	216	0.062	< 0.2	< 16	< 0.1	0.098	< 0.01	7.05	1.05	1.26
YSG5	7/8/2024												0.67	0.69
YSG5	9/3/2024	1650	0.484	< 0.2	240	0.08	< 0.2	< 16	< 0.1		< 0.02	7.77	0.51	0.56
Yampa Segment 13j Standards - Acute		-	-	281	-	4.738	0.01***	1513	0.5	100	0.05	-	18.4	-
Yampa Segment 13j Standards - Chronic		-	1	11	-	2.618	-	168	-	-	-	-	4.6*	-
Agricultural Use Standards		-	-	100	-	0.2**	-	200	-	100	10	-	20	-

Location	Date	Silver D UG/L	Sodium D MG/L	SAR N RATIO	Sulfates N MG/L	Sulfide N MG/L	Zinc D MG/L	Cation / Anion Balance N %	TDS, Lab N MG/L	TDS Calc. N MG/L	TSS N MG/L
YSG5	5/20/2024	< 0.2	84.8	0.97	1280	< 0.02	< 0.02	-1.4	2160	2060	< 5
YSG5	6/12/2024	< 0.2	75.7	0.85	1340	< 0.02	< 0.04	-1.4	2230	2110	40
YSG5	7/8/2024				1250				2100		
YSG5	9/3/2024	< 0.2	89.4	0.97	1420	< 0.02	< 0.04	-1.3	2430	2260	13
Yampa Segment 13j Standards - Acute		22	-	-	-	0.002***	0.565	-	-	-	-
Yampa Segment 13j Standards - Chronic		3.5	-	-	-	-	0.428	-	-	-	-
Agricultural Use Standards		-	-	-	-	-	2	-	-	-	-

Notes

* The current conditions temporary modification for the Segment 13i chronic iselenium standard expired on 12/31/2023.

** The manganese agricultural use standard is only applicable for areas with acidic soils. This areas soils are alkaline.

*** The standard is an order of magnitude less than the laboratories detection limit.

Bold Analyte exceeds the Yampa Segment 13i or Agricultural Use Standards

Table D.10. Upper Grassy Creek Segment 13i NPDES Outfall 002 analytical data for water year 2024.

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron* D MG/L	Iron* PD MG/L	Iron TR MG/L	Selenium* D UG/L	Selenium PD UG/L	Selenium* TR UG/L	TDS, Lab N MG/L	TSS N MG/L	Copper PD UG/L
NPDES2	10/10/2023	0.056	8.2	N			< 0.12		1.17	1.37		< 5	
NPDES2	10/27/2023	0.057	8.2	N					1.15	1.2	4090	< 5	< 50
NPDES2	11/6/2023	0.056	8.1	N			0.068		1.11	0.99		< 5	
NPDES2	11/20/2023	0.057	8.1	N					0.93	0.9		< 5	
NPDES2	12/5/2023	0.056	8.1	N					0.95	0.83		< 5	
NPDES2	12/19/2023	0.057	8.1	N			0.064		0.99	1.07		5	
NPDES2	1/10/2024	0.054	8.1	N			< 0.06		0.94	1.56	4020	< 5	< 4
NPDES2	1/22/2024	0.055	8.1	N					0.99	4.11		11	
NPDES2	2/1/2024	0.056	8.1	N			< 0.06		1.17	1.04		5	
NPDES2	2/13/2024	0.052	8.1	N					1.22	1.03		8	
NPDES2	3/6/2024	0.054	8.1	N			0.063		1.21	1.15		< 5	
NPDES2	3/26/2024	0.163	8.1	N			0.09		2.24	2.11	2820	< 5	< 0.8
NPDES2	4/11/2024	0.357	8.1	N			0.152		2.02	1.42	2270	< 5	< 0.8
NPDES2	4/23/2024	2.125	8.1	N					3.88	3.77		< 5	
NPDES2	5/2/2024	2.285	8.1	N			< 0.12		3.29	4.47		< 5	
NPDES2	5/20/2024	2.264	8.2	N	0.0496	0.0444	< 0.12	2.8	2.63	3.15	3660	< 5	
NPDES2	6/10/2024	0.355	8.2	N			< 0.12		1.93	2.28		6	
NPDES2	6/28/2024	0.351	8.2	N					1.8	1.5		< 5	
NPDES2	7/8/2024	0.099	8.2	N	< 0.12	< 0.12	< 0.12	1.5	1.26	1.51	3820	< 5	< 1.6
NPDES2	7/22/2024	0.1	8.2	N			0.25		1.12	1.2		13	
NPDES2	8/1/2024	0.099	8.1	N			0.147		1.07	1.09		16	
NPDES2	8/19/2024	0.1	8.2	N					1.1	1.1		16	
NPDES2	9/3/2024	0.081	8.2	N			0.066		1.09	1.1		< 5	
NPDES2	9/19/2024	0.074	8.1	N					0.97	1.02		< 5	
NPDES Limit	Daily Max	Report	6.5 - 9.0	Report	-	-	6	-	18.4	-	Report	70	Report
	Monthly Avg.	Varies**	-	-	-	-	1	-	Varies**	-	Report	35	Report
Yampa Segment 13i Standards - Acute		-	6.5 - 9.0	-	-	-	-	18.4	-	-	-	-	50
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	1	4.6***	-	-	-	-	29
Agricultural Use Standards		-	-	-	-	-	-	20	-	-	-	-	200

Notes

* Outfall 002 does not have a dissolved iron, potentially dissolved iron, dissolved selenium, or total recoverable selenium monitoring requiremer

** See permit CO0048275 for variable monthly average flow and selenium limits.

*** The current conditions chronic selenium temporary modification for Segment 13i expired on 12/31/2023.

Bold Analyte exceeds the NPDES Daily Max limit, Segment 13i aquatic life standard, or Agricultural Use standarc

Bold Analyte exceeds the NPDES Monthly Average limit

Table D.11. Upper Grassy Creek Segment 13i NPDES Outfall 003 analytical data for water year 2024.

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron* D MG/L	Iron* PD MG/L	Iron TR MG/L	Selenium* D UG/L	Selenium PD UG/L	Selenium* TR UG/L	TDS, Lab* N MG/L	TSS N MG/L	Manganese PD MG/L
NPDES3	10/10/2023	0.003	8.3	N			0.279		0.49	0.5		12	
NPDES3	10/27/2023	0.003	8.1	N			0.162		0.54	0.47		7	
NPDES3	11/6/2023	0.002	8.1	N			0.255		0.38	1.04		7	
NPDES3	11/20/2023	0.003	8.1	N			0.164		0.38	0.42		< 5	
NPDES3	12/5/2023	0.002	8.1	N			0.278		0.36	0.34		5	
NPDES3	12/19/2023	0.002	8.1	N			0.238		0.48	0.46		6	
NPDES3	1/10/2024	0.002	8.1	N			**0.264**		0.65	0.75		**< 5**	0.776
NPDES3	1/22/2024	0.002	8.1	N			**2.81**		1.43	1.53		**66**	
NPDES3	2/1/2024	0.002	8.2	N			0.353		1.3	1.12		5	
NPDES3	2/13/2024	0.002	8.2	N			0.298		1.3	1.2		6	
NPDES3	3/6/2024	0.002	8.1	N			0.347		1.17	1.27		< 5	
NPDES3	3/26/2024	0.004	8.1	N			0.215		1.28	1.17	1460	< 5	
NPDES3	4/11/2024	0.018	7.9	N			0.153		0.64	< 0.5		5	
NPDES3	4/23/2024	0.018	8.2	N			0.171		0.79	0.7		5	
NPDES3	5/2/2024	0.012	8.3	N			0.142		0.64	0.75		< 5	
NPDES3	5/20/2024	0.01	8.3	N	0.0975	0.084	0.113	0.62	0.63	0.66	1800	< 5	
NPDES3	6/10/2024	0.002	8.2	N			0.151		0.5	0.58		8	
NPDES3	6/28/2024	0.003	8.2	N			0.212		0.56	0.2		19	
NPDES3	7/8/2024	0.003	8.1	N	< 0.06	0.14	0.225	0.6	0.36	0.47	1610	21	0.419
NPDES3	7/22/2024	0.003	8.2	N			0.193		0.48	0.59		24	
NPDES3	8/1/2024	0.003	8.4	N			0.091		0.39	0.53		29	
NPDES3	8/19/2024	0.003	8.4	N			0.288		0.41	0.64		17	
NPDES3	9/3/2024	0.003	8.3	N			0.229		0.35	0.47		28	
NPDES3	9/19/2024	0.003	8.1	N			0.153		0.36	0.38		11	
NPDES Limit	Daily Max	Report	6.5 - 9.0	Report	-	-	6	-	18.4	-	-	70	Report
	Monthly Avg.	0.1195	-	-	-	-	1	-	4.6	-	-	35	Report
Yampa Segment 13i Standards - Acute		-	6.5 - 9.0	-	-	-	-	18.4	-	-	-	-	4.738
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	1	4.6**	-	-	-	-	2.618
Agricultural Use Standards		-	-	-	-	-	-	20	-	-	-	-	0.2***

Notes

* Outfall 003 does not have a dissolved iron, potentially dissolved iron, dissolved selenium, total recoverable selenium, or TDS monitoring requiremer

** The current conditions chronic selenium temporary modification for Segment 13i expired on 12/31/2023.

*** The manganese agricultural use standard is only applicable to areas with acidic soils. These are not present at Sage Creek Mine.

Bold Analyte exceeds the NPDES Daily Max limit, Segment 13i aquatic life standard, or Agricultural Use standarc

Bold Analyte exceeds the NPDES Monthly Average limit

Table D.12. Upper Grassy Creek Segment 13i NPDES Outfall 007 analytical data for water year 2024.

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron TR MG/L	Selenium PD UG/L	Selenium* TR UG/L	TSS N MG/L	Manganese PD MG/L
NPDES7	10/10/2023	0.003	8.1	N	0.13	0.27	0.23	< 5	
NPDES7	10/27/2023	0.007		N					
NPDES7	11/6/2023	0		N					
NPDES7	11/20/2023	0		N					
NPDES7	12/6/2023	0		N					
NPDES7	12/19/2023	0		N					
NPDES7	1/10/2024	0		N					
NPDES7	1/22/2024	0		N					
NPDES7	2/1/2024	0		N					
NPDES7	2/13/2024	0		N					
NPDES7	3/6/2024	0		N					
NPDES7	3/26/2024	0		N					
NPDES7	4/11/2024	0.013	8.3	N	< 0.06	0.37	< 0.5	< 5	0.0154
NPDES7	4/23/2024	0.014	8.1	N	< 0.06	0.32	0.37	< 5	
NPDES7	5/2/2024	0.013	8.1	N	< 0.06	0.24	0.25	< 5	
NPDES7	5/20/2024	0.053	8.4	N	< 0.06	0.21	0.25	< 5	
NPDES7	6/10/2024	0.003	7.9	N	0.066	0.24	0.27	< 5	
NPDES7	6/28/2024	0.006	7.9	N	0.186	0.44	0.46	< 5	
NPDES7	7/8/2024	0.006	8.4	N	0.096	0.3	0.41	< 5	0.115
NPDES7	7/22/2024	0.006	8.4	N	0.394	0.31	0.34	6	
NPDES7	8/1/2024	0.006	8.1	N	0.414	0.26	0.3	13	
NPDES7	8/19/2024	0.018	8.4	N	0.119	0.25	0.78	5	
NPDES7	9/3/2024	0.017	8	N	0.11	0.25	0.23	< 5	
NPDES7	9/19/2024	0.016	8	N	0.492	0.19	0.24	12	
NPDES Limit	Daily Max	Report	6.5 - 9.0	Report	6	Report	-	70	Report
	Monthly Avg.	Report	-	-	1	Report	-	35	Report
Yampa Segment 13i Standards - Acute		-	6.5 - 9.0	-	-	18.4	-	-	4.738
Yampa Segment 13i Standards - Chronic		-	-	-	1	4.6**	-	-	2.618
Agricultural Use Standards		-	-	-	-	20	-	-	0.2***

Notes

* Outfall 007 does not have a total recoverable selenium monitoring requirement

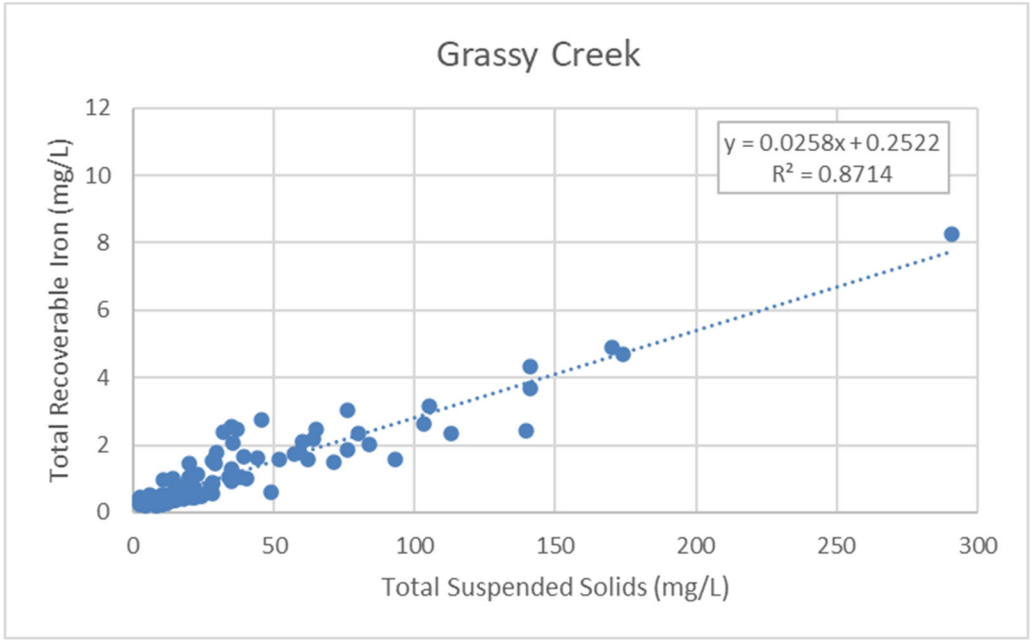
** The current conditions chronic selenium temporary modification for Segment 13i expired on 12/31/2023.

*** The manganese agricultural use standard is only applicable to areas with acidic soils. These are not present at Sage Creek Mine.

Bold Analyte exceeds the NPDES Daily Max limit, Segment 13i aquatic life standard, or Agricultural Use standard

Bold Analyte exceeds the NPDES Monthly Average limit

Figure D.1. Suspended solids vs total recoverable iron at Grassy Creek stream points YSGF5, SSG1, SSG2 and YSG5 for samples collected from October 1, 2015 through September 30, 2024.



APPENDIX E

SPRING WATER QUALITY DATA

Table E.1. Analytical data for spoil springs sampled during the 2024 water year.

Location	Date	Flow N MGD	SPC, Field N UMHOS/CM	pH, Field N S.U.	Temp., Field N C	Iron TR MG/L	Manganese D MG/L	Mercury T UG/L	Ammonia N. N MG/L	Nitrate N. N MG/L	Nitrite N. N MG/L
SSSPG5	6/12/2024	0.148	3996	7.5	21.7	2.05	0.0172	< 0.2	< 0.1	0.071	< 0.01
SSSPG3	6/13/2024	0.095	4216	7.5	9.9	0.224	0.364	< 0.2	< 0.1	3.42	0.018
SSSPG4	6/13/2024	0.048	4322	7.5	9.3	0.884	0.0938	< 0.2	< 0.1	5.61	< 0.01
SSSPG6A	6/12/2024	0									
SSSPG10	6/12/2024	0									
Agricultural Use Standards		-	-	-	-	-	0.2*	-	-	100	10

Location	Date	Selenium D UG/L	Selenium PD UG/L	Selenium TR UG/L	Sulfates N MG/L	Sulfide N MG/L	TDS, Lab N MG/L	TSS N MG/L
SSSPG5	6/12/2024	1.39	1.01	1.49	2560	< 0.02	3880	108
SSSPG3	6/13/2024	3.78	3.67	4.58	2210	< 0.02	3640	6
SSSPG4	6/13/2024	11.3	10.6	12.9	2390	< 0.02	3930	32
SSSPG6A	6/12/2024							
SSSPG10	6/12/2024							
Agricultural Use Standards		20	-	-	-	-	-	-

Notes

* The manganese agricultural use standard is only applicable for areas with acidic soils. This areas soils are alkaline.

Bold Analyte exceeds the Agricultural Use Standards