FINALPhase III
Bond Release Request
(SL-9)

Yoast Mine

Seneca Property, LLC

Permit No. C-1994-082

October 2024

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INTRODUCTION

The Yoast Mine is located approximately nine miles southeast of the town of Hayden, Colorado. Yoast is a reclaimed surface coal mine. Coal extraction began at Yoast in 1995 and ceased in 2006. During the life of the mine over 12 million tons of coal were produced. Reclamation grading, topsoil replacement and seeding of the mine disturbance areas have been mostly completed. A copy of the complete approved Yoast Mine permit is located at the Twentymile Coal Company office, 29515 RCR 27, Oak Creek, Colorado.

This application is submitted in accordance with the *Colorado Division of Minerals and Geology Guideline Regarding Selected Coal Mine Bond Release Issues* (April 18, 1995), *Rule 3.03 Release of Performance Bonds,* the approved permit and consultations with CDRMS on vegetation sampling, analysis and success evaluations.

BOND RELEASE BACKGROUND INFORMATION

This submittal represents a formal final Phase III bond release request by Seneca Property, LLC (SPL) for the Seneca Yoast Mine (Yoast). The previous entity, Seneca Coal Company, submitted an initial Phase I Bond release request (SL-1) on June 26, 2007. SL-1 resulted in 173.02 acres released and the bond was reduced by $11,862. SL-2 (partial Phase I) bond release became final on July 22, 2010 and resulted in release of 456.7 acres and bond reduction of $790,205. SL-3 (Partial Phase II) bond release became final on March 9, 2012 and resulted in a Phase II release of 592 acres and bond reduction of $1,693,918. SL-4 (Partial Phase I) bond release became final on November 9, 2012 and resulted in a release of 115.5 acres and bond reduction of $452,336. SL-5 (Phase I, II and III bond release) became final in March 2014 and resulted in the release of 6.25 acres and bond reduction of $1,493.63. SL-6 (Partial Phase I& III) became final in March 14th, 2018 and resulted in the release of 372.1 acres and a bond reduction of $522,435.07. SL-7 (Partial Phase II/III) was approved for a release of 39.4 acres phase II and 315 acres for phase III on July 7, 2020. SL-8, 193 acres for phase II, was approved and final on December 9th 2020. All areas remaining and included in this application as received the necessary prior phase releases. All areas included have had topsoil replaced and were revegetated between 1997 and 2013.

GENERAL REQUIREMENTS

Date of Request ---------- October 7, 2024
Permittee ---------- Seneca Property, LLC
Permit Number ---------- C-1994-082
Permit Approval Date ---------- August 5, 1995
Mine Name---------- Yoast Mine

Phase of Bond Release Requested---------- Phase II/ III SL-9
Total Acres within Permit ---------- 2,318.3
Total Acres Disturbed ---------- 850.5
Number of Acres Requested for Release ------ 19.8 (I/II/III), 3.2 (II/III), & 139.7 (III) Acres
Reclamation Liability (Bond Amount)--------- $ 716,941.06
Dollar Amount Requested for Release--------- $716,941.06

LAND CATEGORIES

The affected lands within the Yoast permit area fall within the permanent program (SMCRA and CSCMRA) category and as defined in the regulations of the Colorado Mined Land Reclamation Board for Coal Mining.

IDENTIFICATION OF LANDS

The Yoast Mine is located approximately nine (9) miles southeast of the Town of Hayden, Colorado. The USGS 7.5 Minute Quadrangle Map of Mt. Harris, contains the described permit area. The permitted area is 2,318.3 acres. The permitted disturbed area totals 850.5 acres. Surface ownership is predominately private, with right of entry based on a variety of private leases, subleases and easements. The permit area also includes limited areas of federal and state controlled surface.

The specific areas to which this bond release request applies are included within the Permit Area described as follows:

T6N, R87W

Section 28:	Portions of NW¼, NW¼ SW¼, SW¼NW¼
Section 29:	Portions of SE¼
Section 32:	Portions of NW¼ NE¼, W½E½

T5N, R87W

Section 5:	Portions of W½E½
Section 8:	NW¼, SW¼, W½NE¼ , and W½SE¼
Section 16:	SW¼NW¼, NW¼SW¼, and portions of SW¼SW¼, NW¼NW¼, SE¼NW¼, NE¼SW¼, and NW¼SE¼
Section 17:	All
Section 18:	NE¼SE¼, S½SE¼
Section 19:	E½ and portions of E½W½
Section 20:	SW¼NW¼, N½NW¼, W½SW¼ and portions of N½NE¼

Section 29: NW¼NW¼
Section 30: N½NE¼,

All west of the 6th Principal Meridian; totaling 2,318.3 acres. The exact location of the requested Phase I, II, III (162.7 acres) bond release areas within the permit area are shown on Map 1– Bond Release SL-9 Area Delineation Maps.

PERMIT RENEWAL HISTORY

Permit #: C-1994-082
Issued: August 5, 1995
Renewals: RN-1 03/06/2000
RN-2 08/02/2005
RN-3 08/05/2010
RN-4 02/08/2018
RN-5 08/21/2020

The Division's current calculated reclamation liability is $716,941.06. SPL has posted a Financial Warranty Corporate Surety issued by Lexon Insurance Company in the amount of $716,941.06 effective November 6th, 2020.

MAP DESCRIPTION

Map 1 - SL-9 Area Delineation Map. This map shows all requested release areas.
Map 2 – SL-9 General Location Map. This map shows the general location of the Yoast Mine property boundaries relative to other land marks.
Map 3 – Yoast Mine Permanent Features Map. This map shows permanent features documented in the mine permit.

BOND RELEASE DOCUMENTATION

This application represents a formal request for final Phase III Bond Release on 162.7 acres, (BRB-4 and BRB-5) of reclaimed lands at the Yoast Mine (see Map 1). These reclaimed lands comply with applicable success and demonstration criteria set forth in Rule 4 – Performance Standards and the approved Yoast permit.

SUMMARY OF RECLAMATION AND MANAGEMENT HISTORY

FINAL RELEASE AREAS

Map 1 breaks the requested Phase areas down into parcels which are then identified by numbers relating them to the provided table on the map detailing the parcel history. Backfilling and re-grading of the Yoast Mine took place between 1997 and 2007, generally being completed within 180 days following the coal removal. The SL-9 requested areas were seeded between 2007 and 2013. All areas have been reclaimed in accordance to the permitted reclamation plan and approved post-mining land use. Topsoil replacement details can be found within the SL-3 bond release document. While the exact dates of topsoil replacement are not known, it can be logical to assume that topsoil replacement occurred within the same year as revegetation. Revegetation dates are shown on *Exhibit B, Chronological Revegetation* of the approved permit.

RECLAMATION MANAGEMENT

Reclamation management has been a continuing effort that includes:

Rill and Gully Maintenance. Spring rill and gully surveys were conducted through out the reclamation liability period to identify erosional features resulting from spring snowmelt and runoff. The survey results are portrayed on maps and submitted to CDRMS. The survey outcomes have been followed up as necessary by maintenance and repairs to rectify identified areas found in the survey and inspections.

Weed Control. Reclaimed areas and mine related disturbances, such as roadsides and facilities, are monitored for noxious weed infestations. Monitoring is conducted through the formal revegetation monitoring program or as qualitative observations by Yoast Mine reclamation personnel. If noxious weed infestations occur at levels that may interfere with successful reclamation, or are detrimental to reclaimed land quality and management, weed control is implemented. Application of herbicides has been carried out through two primary agents, outside services or Yoast Reclamation Department personnel and complies with applicable regulations and procedures.

Grazing. Livestock grazing (sheep only) has been conducted on Yoast reclaimed lands since 2009. The grazing season has historically been from August through September. Livestock grazing has been conducted annually and livestock numbers have increased as more reclaimed acres have become available and the vegetation communities have continued to mature. Stocking rates have been developed from ongoing vegetation monitoring data and a goal of proper use at 50% forage utilization has been a basis of management, as has pasture development for management and grazing systems. Annual precipitation and the effects on current year's production are factored into annual management. Results of annual grazing are presented in the Yoast Annual Reclamation Reports submitted yearly to CDRMS to demonstrate utility for the post-mine land use.

REVEGETATION SUCCESS (PHASE III)

The SL-9 Phase III bond release includes lands within the BRB-4 and BRB-5 areas. The parcels within the BRB-4 area were revegetated between 2001 and 2013. These lands have established vegetation that meets the minimum ten-year liability period and are able to support the approved post-mining land uses. Phase III revegetation success evaluations have been based on the applicable regulatory success standard requirements and procedures spelled out in Tab 22 "Revegetation Plan" of the approved Yoast permit, Rules 3.03.1(2)(c), 3.03.1(4) and 4.15.8 and the Division's Guideline Regarding Selected Coal Mine Bond Release Issues (April 1995). Revegetation success is demonstrated by meeting the appropriate cover, production, woody density and species diversity success standards based on statistically valid sampling and analysis. Species composition and diversity requirements are assessed through the vegetation cover data and evaluations using a species diversity assessment specifically developed for SPL reclaimed lands as detailed in Tab 22.

Vegetation sampling in the BRB-4 & BRB-5 Phase III bond release blocks and the Yoast reference areas was conducted in 2022 and 2023 by Cedar Creek Associates. The 2022/2023 report of the findings for testing revegetation success for the Yoast BRB-4 & BRB-5 Phase III bond release evaluation is included as ***Attachment D – Revegetation Success Supporting Documentation***. The Phase III bond release blocks, reference areas and random sample point locations are shown on Maps 1 - 4 contained in the 2022/2023 revegetation success evaluation report in Attachment D.

As a result of sampling and analysis, successful revegetation for the parameters of cover, herbaceous production, woody plant density (background and concentration areas) and species diversity was demonstrated in both 2022 and 2023 vegetation sampling years. The results of those demonstrations are summarized in the following sections.

COVER

The Yoast cover standard and success evaluation procedures are as follows. The cover success standard is based on a weighted average value (based on the relative extent of primary pre-mine vegetation type contributions to total acreage) for allowable all-hit herbaceous cover derived from sampling in the approved extended reference area. The weighting contribution by type is aspen 24.4%, mountain brush 48.9%, sagebrush 24.0% and steep mountain brush 2.7%. Allowable all-hit herbaceous cover is determined from cover sampling in the Phase III reclaimed lands and the native reference area with subtractions made for woody plants, noxious weeds and cover of annual/biennial weeds in excess of 10% relative cover. *The Phase III bond release area sample value will be no less than 90% of the cover success standard at 90% statistical confidence.* In the

following discussion and the bond release vegetation report attached, cover for the reference area derived standard and the Phase III reclaimed area may be variously referred to as allowable all-hit herbaceous cover or as allowable herbaceous cover. The derivation of the allowable all-hit herbaceous cover for the Phase III bond release blocks and the reference area types is included in the discussion and data tables in the 2022 and 2023 revegetation success evaluation report included in ***Attachment D – Revegetation Success Supporting Documentation***.

Table 1a provides a summary of the sample cover attributes for the Phase III bond release block, BRB-4 and the Haul Road reference area for years 2022 and 2023. Table 1a also includes the calculated allowable first hit herbaceous cover values for these communities.

Table 1a. 2022 and 2023 Vegetation Cover Sampling Data Summary for the Yoast BRB-4 Phase III Bond Release and Reference Areas (RA).

Area	Total First Hit Cover (%)	Allowable All-hit Herbaceous Cover (%)	Standing Dead (%)	Litter (%)	Bare Soil (%)	Rock (%)
BRB-4 Area 2022	54.6	44.0	2.3	38.0	7.8	1.2
Haul Road RA **2022**	55.0	44.9	2.5	41.9	6.4	--
BRB-4 Area 2023	61.0	50.8	0.7	31.7	10.0	1.4
Haul Road RA **2023**	55.8	46.8	1.4	40.6	7.1	--

Tables 1b provides a summary of the sample cover attributes for the Phase III bond release block, BRB-5 and the four native types in the extended reference areas for years 2022 and 2023. Table 1b also includes the calculated allowable first hit herbaceous cover values for these communities.

Table 1b. 2022 and 2023 Vegetation Cover Sampling Data Summary for the Yoast BRB-5 Phase III Bond Release and Reference Areas (RA).

Area	Total First Hit Cover (%)	Allowable All-hit Herbaceous Cover (%)	Standing Dead (%)	Litter (%)	Bare Soil (%)	Rock (%)
BRB-5 Area 2022	70.1	56.7	1.1	21.7	13.9	0.8
A[1] RA **2022**	133.0	79.6	0.2	9.7	3.7	--
MB[1] RA **2022**	111.8	[2] 38.7	0.8	13.9	4.2	--
SB[1] RA **2022**	72.5	39.1	3.2	25.9	10.0	0.2
SMB[1] RA **2022**	54.9	23.2	1.3	18.3	23.7	7.9
BRB-5 Area 2023	81.7	68.3	3.3	18.1	7.9	0.7
A[1] RA **2023**	136.6	82.5	1.2	10.6	3.5	--
MB[1] RA **2023**	118.5	46.3	1.0	13.2	5.5	0.3
SB[1] RA **2023**	90.4	51.6	2.4	17.3	5.3	0.1
SMB[1] RA **2023**	65.2	30.2	1.9	16.5	19.1	7.2

[1] Reference Area Types (RA): A = aspen, MB = mountain brush, SB = sagebrush, SMB = steep mountain brush, WW/AS = western wheatgrass/alkali sagebrush

[2]All-hit" ref. area cover standard for 2022 (Means weighted by % of Affected Area) = 48.3% (50.3% with upwards adj.); All-hit" ref. area cover standard for 2023 (Means weighted by % of Affected Area) = 56.0% (59.7% with upwards adj.)

Sample adequacy was calculated during 2022 and 2023 data collection based on allowable all-hit herbaceous cover which is relevant to the cover success criteria. The sampling results and statistics for allowable all-hit herbaceous cover are presented in Table 2 below. In 2022 and 2023, sample adequacy based on allowable all-hit herbaceous cover was achieved in BRB-4 and BRB-5 and each of the reference area types except for 2022 Mountain Brush and 2023 Mountain Brush and Sage Brush (note that sample adequacy was met when all-hit total vegetation cover was assessed). The 2022 and 2023 exceptions to the sample adequacy approach and basis for application to success criteria evaluations is addressed below following Table 2. Please refer to report text and Tables C4, G3 and G8 in the vegetation bond release study report contained in Attachment D for more detail.

Table 2. 2022 and 2023 Data and Sample Adequacy Summary for Allowable All-Hit Herbaceous Cover for the Yoast BRB-4 & BRB-5 Phase III Bond Release and Reference Areas (RA).

Area	Allowable All-Hit Herbaceous Cover (x)	s	N	N_{min}	t
BRB-4 Phase III Bond Release Area **2022**	44.0	14.1	32	18	1.309
BRB-5 Phase III Bond Release Area **2022**	56.7	18.2	32	18	1.309
A[1] RA **2022**	79.6	16.6	19	8	1.330
MB[1] RA **2022**	38.7	11.4	15	16	1.345
SB[1] RA **2022**	39.1	11.3	17	15	1.337
SMB[1] RA **2022**	23.2	4.75	16	8	1.341
Haul Road RA 2022	44.9	6.44	20	4	1.328
BRB-4 Phase III Bond Release Area **2023**	50.8	17.3	32	20	1.309
BRB-5 Phase III Bond Release Area **2023**	68.3	17.6	32	12	1.309
A[1] RA **2023**	82.5	21.2	16	12	1.341
MB[1] RA **2023**	46.3	14.4	15	18	1.345
SB[1] RA **2023**	51.6	17.1	18	20	1.333
SMB[1] RA **2023**	30.2	8.35	15	14	1.345
Haul Road RA 2023	46.8	10.4	20	9	1.328

[1] Reference Area Types (RA): A = aspen, MB = mountain brush, SB = sagebrush, SMB = steep mountain brush, WW/AS = western wheatgrass/alkali sagebrush

[2] Sample adequacy (N-min) calculated using individual samples and all-hit herbaceous cover corrected for "excess" annual cover and noxious weeds. If adequacy is not achieved for allowable cover - Upward Adjustment of the ERA mean is used to calculated the area weighted performance criteria (Adequacy must be achieved for total cover).

In 2022, sample adequacy based on all-hit allowable herbaceous cover was not achieved for the 2022 Mountain Brush and 2023 Mountain Brush and Sage Brush type in the Extended Reference Area. All areas achieved sample adequacy based on total all-hit cover. For this reason, upward adjustment was calculated for the Mountain Brush ERA mean in 2022 and for the Mountain Brush ERA and Sagebrush ERA means in 2023. Examples of the detailed calculation used for allowable herbaceous cover (all-hit) in each area are provided in Appendix H as Tables H-1 and H-2 along with the calculations for the upward adjustment. This was calculated in either of two ways below.

1) Confidence Intervals

C.I. = $(s/\sqrt{n})*t = (11.38/\sqrt{15})*1.345 = 3.95$

38.67+3.95 = 42.62

2) Sample Adequacy Expression

$$n_{min} = \frac{(st)^2}{(dx)^2}$$

$d = \sqrt{((st)^2/(x^2N))} = \sqrt{((11.38*1.345)^2)/(38.67^2*15)} = 0.102$

X + d = 38.67 + (38.67 *0.102) = 42.61

42.62% allowable herbaceous cover represents with 90% confidence the highest possible value of the true mean for the Mountain Brush Reference Area in 2022.

Cover Success Evaluations
BRB-4

In 2022, the mean allowable all-hit herbaceous vegetation cover sampled in the BRB-4 was 44.0 percent, exceeding 90 percent of the area weighted cover performance standard (40.4%) (see also Figure D-1a, Table C-1). This direct comparison of reclaimed area mean to standard is allowed under DRMS rules (CDMG 2010 revised rule, 4.15.11 (2)(a)) when sample adequacy has been demonstrated for the reclaimed area.

In 2023, the mean allowable all-hit herbaceous vegetation cover sampled in the BRB-4 was 72.3 percent, exceeding 90 percent of the area weighted cover performance standard (38.8%) (see also Figure D-1a, Table C-1). This direct comparison of reclaimed area mean to standard is allowed under DRMS rules (CDMG 2010 revised rule, 4.15.11 (2)(a)) when sample adequacy has been demonstrated for the reclaimed area.

Thus, successful revegetation with respect to allowable all-hit herbaceous cover is demonstrated in 2022 and 2023 for BRB-4.

BRB-5

Calculation of 90 percent of the cover performance standard determined from 2022 and 2023 sampling is demonstrated below based on the reference area data for BRB-5 that is weight averaged by type. The approximate weighting contribution is aspen 24.4%, mountain brush 48.9%, sagebrush 24.0%, and steep mountain brush 2.7%.

2022

Calculation of the cover performance standard for 2022 sampling data and using the highest possible value for the Mountain Brush Reference Area component as described above, is demonstrated below.

Aspen Reference Area Allowable All-Hit Herbaceous Cover[1] = 79.6%
Mountain Brush Reference Area Allowable All-Hit Herbaceous Cover[1] = 42.6%[2]
Sagebrush Reference Area Allowable All-Hit Herbaceous Cover[1] = 39.1%
Steep Mountain Brush Reference Area Allowable All-Hit Herbaceous Cover[1] = 23.2%

[1] Herbaceous cover adjusted to allowable by subtracting noxious weeds and annual/biennial plant cover in excess of 10% of the remainder.

[2] Highest possible value of the true mean calculation

The calculation of 90 percent of the 2015 Cover Standard =
0.90* [0.244(79.6%) +0.489(42.6%) +0.24(39.1%) +0.027(23.2%)] = 45.2%

The 2022 mean allowable all-hit herbaceous vegetation cover sampled in the BRB-5 area was 56.7 percent, exceeding the cover standard of 45.2 percent (90 percent of the upwardly adjusted cover performance standard) and success is demonstrated. This direct comparison of reclaimed area mean to standard is allowed under DRMS rules (CDMG 2005 revised rule, 4.15.11 (2)(a)).

2023

Calculation of the cover performance standard for 2023 sampling data is demonstrated below.

Aspen Reference Area Allowable All-Hit Herbaceous Cover[1] = 82.5%
Mountain Brush Reference Area Allowable All-Hit Herbaceous Cover[1] = 51.3%[2]
Sagebrush Reference Area Allowable All-Hit Herbaceous Cover[1] = 57.0%[2]
Steep Mountain Brush Reference Area Allowable All-Hit Herbaceous Cover[1] = 30.2%

[1] Herbaceous cover adjusted to allowable by subtracting noxious weeds and annual/biennial plant cover in excess of 10% of the remainder.

[2] Highest possible value of the true mean calculation

The calculation of 90 percent of the 2018 Cover Standard =
0.90* [0.244(82.5%) +0.489(51.3%) +0.24(57.0%) +0.027(30.2%)] = 53.8%

The mean allowable all-hit herbaceous vegetation cover sampled in 2023 BRB-5 was 68.3%, exceeding 53.8%, which is 90% of the upwardly adjusted cover performance standard. (see Table C-1 in Attachment D). This direct comparison of reclaimed area mean to standard is allowed under DRMS rules (CDMG 2005 revised rule, 4.15.11 (2)(a)) when sample adequacy has been demonstrated for the reclaimed area. Thus for 2023, successful revegetation for allowable all-hit herbaceous cover is indicated.

Successful revegetation for the parameter of cover was demonstrated in both 2022 and 2023 for BRB-5.

PRODUCTION

The Yoast herbaceous production standard and success evaluation is based on reference area sampling to derive a weight averaged value (based on the four primary pre-mine vegetation type contributions to total acreage). The current 2022 and 2023 annual herbaceous production was determined from sampling in the approved four vegetation types in the extended reference area. The weighting contribution for each type is as described above under the Cover discussion. Based on the production sampling an allowable herbaceous production value is determined by excluding noxious weeds and allowing no more than 10% relative production of annual/biennial weeds. The allowable herbaceous production values for the four vegetation types in the reference area are used in the weight averaged calculations to determine the production standard.

Table 3a. 2022 and 2023 Data and Sample Adequacy Summary for Total and Allowable Herbaceous Production (pounds/acre) for the Yoast BRB-4 Phase III Bond Release Area.

Vegetation Type	Total Herbaceous Production	Allowable Herbaceous Production	s	N	N_{min}	t
BRB-4 Phase III Bond Release Area **2022**	1850.5	1769.4	31.5	32	17	1.309
BRB-4 Phase III Bond Release Area **2023**	1297.2	1138.7	39.4	32	66	1.309

Table 3b. 2022 and 2023 Data and Sample Adequacy Summary for Total and Allowable Herbaceous Production (pounds/acre) for the Yoast BRB-5 Phase III Bond Release Area.

Vegetation Type	Total Herbaceous Production	Allowable Herbaceous Production	s	N	N_{min}	t
BRB-5 Phase III Bond Release Area **2022**	2350.2	2241.8	91.0	32	91	1.309
BRB-5 Phase III Bond Release Area **2023**	2384.6	2331.0	154.5	32	240	1.309

Table 4. 2022 and 2023 Data and Sample Adequacy Summary for Total and Allowable Herbaceous Production (pounds/acre) in the Reference Area Vegetation Types for the Yoast BRB-4 & BRB-5 Phase III Bond Release Herbaceous Production Performance Standard.

Vegetation Type	Total Herbaceous Production	Allowable Herbaceous Production	s	N	N_{min}	t
A[1] RA **2022**	908.0	903.7	27.8	32	52	1.309
MB[1] RA **2022**	625.6	619.5	37.2	32	197	1.309
SB[1] RA **2022**	733.2	720.9	31.8	32	107	1.309
SMB[1] RA **2022**	410.6	329.8	12.0	32	73	1.309
Haul Road RA 2022	1284.3	1278.6	40.0	32	54	1.309
A[1] RA **2023**	686.5	684.4	20.1	32	47	1.309
MB[1] RA **2023**	575.1	569.8	17.5	32	52	1.309
SB[1] RA **2023**	843.1	832.2	36.9	32	108	1.309
SMB[1] RA **2023**	399.0	395.0	13.7	32	66	1.309
Haul Road RA 2023	891.7	858.5	29.5	32	65	1.309

[1] Reference Area Types (RA): A = aspen, MB = mountain brush, SB = sagebrush, SMB = steep mountain brush, WW/AS = western wheatgrass/alkali sagebrush

2022 Production Success Evaluation

BRB-4

In 2022, the mean allowable herbaceous production sampled in the BRB-4 was 1,796.4 pounds per acre, exceeding 90 percent of the production performance standard (1,150.8 pounds per acre) (see also Figure D-2, Table C-1). This direct comparison of reclaimed area mean to standard is

allowed under DRMS rules (CDMG 2010 revised rule, 4.15.11 (2)(a)) when sample adequacy has been demonstrated for the reclaimed area.

In 2023, the mean allowable herbaceous production sampled in the BRB-4 was 1,138.7 pounds per acre, exceeding 90 percent of the production performance standard (772.7 pounds per acre) (see also Figure D-2, Table C-1). Since the performance standard has been exceeded and a minimum of 30 samples were collected without sample adequacy (Table C-4), reclamation success for BRB-4 has been demonstrated by passing a one sample t-test of the "reverse null" hypothesis (CDMG 2010 revised rule, 4.15.11 (2)(c)).

The BRB-4 production data were first evaluated for normality using the Shapiro-Francia test. Based on the allowable herbaceous production data; the normality test was passed.

A one-sample t-test of the "reverse null" hypothesis of the assertion that the 2023 BRB-4 total allowable herbaceous production (pounds per acre) is indistinguishable from 90% of the area-weighted standard derived from the Extended Reference Areas (see formula in section 4.3.1 above).

Since critical tt = 0.853 (one-tailed table value, alpha = 0.2, 32-1 df) is exceeded by tcalc (2.942), the hypothesis of no difference is rejected and reclamation success for 2022 BRB-4 production under Phase III is demonstrated.

Thus, successful revegetation with respect to allowable herbaceous production is demonstrated in 2022 and 2023.

BRB-5

Calculation of 90 percent of the production performance standard relative to 2022 sample data is demonstrated below.

Aspen Reference Area Allowable Herbaceous Production[1] = 903.7 lbs/acre
Mountain Brush Reference Area Allowable Herbaceous Production[1] = 619.5 lbs/acre
Sagebrush Reference Area Allowable Herbaceous Production[1] = 720.9 lbs/acre
Steep Mountain Brush Reference Area Allowable Herbaceous Production[1] = 329.8 lbs/acre
[1] Herbaceous production adjusted by subtracting annual/biennial plant production in excess of 10% of the remainder. Production by noxious weed species is not collected.

90 percent of the production standard for 2022 =

$$0.90\ [0.244(903.7) + 0.489(619.5) + 0.240(720.9) + 0.027(329.8) = 634.8 \text{ lbs/acre}$$

The 2022 BRB-5 reclaimed area mean allowable herbaceous production of 2241.8 pounds per acre (Table 7) far exceeded 90 percent of the production performance standard of 634.8 pounds per acre.

The 2022 BRB-5 allowable herbaceous production exceeded 90 percent of the production performance standard. The performance standard was exceeded and a minimum of 30 samples were collected. Therefore reclamation success for Phase III is demonstrated by passing a one sample t-test of the "reverse null" hypothesis (CDMG 2005 revised rule, 4.15.11 (2)(c)). The 2022 BRB-5 production data were first evaluated for normality of distribution using the Shapiro-Francia test (Table 3 and accompanying discussion, Page 39 of the Vegetation Report contained in Attachment D). The normality test was passed.

A one-sample t-test of the "reverse null" hypothesis asserting that the 2022 BRB-5 total allowable herbaceous production (transformed data) is indistinguishable from the weighted average Reference Area allowable herbaceous production (transformed data) is as follows (transformed data are square roots of oven-dry gm/0.5sq.m. data):

$$t_{calc} = \frac{\bar{x} - 0.9(technical\ standard)}{\frac{s}{\sqrt{n}}} = 5.95$$

Since critical t_{table} = 0.853 (one-tailed, alpha = 0.2, 32-1 df) is exceeded by t_{calc} (5.595), the hypothesis of no difference is rejected and reclamation success for 2022 BRB-5 Phase III production is demonstrated.

2023 Production Success Evaluation

Calculation of 90 percent of the production performance standard relative to 2023 sample data is demonstrated below.

Aspen Reference Area Allowable Herbaceous Production[1] = 684.4 lbs/acre
Mountain Brush Reference Area Allowable Herbaceous Production[1] = 569.8 lbs/acre
Sagebrush Reference Area Allowable Herbaceous Production[1] = 832.2 lbs/acre
Steep Mountain Brush Reference Area Allowable Herbaceous Production[1] = 395.0 lbs/acre
[1] Herbaceous production adjusted by subtracting annual/biennial plant production in excess of 10% of the remainder. Production by noxious weed species is not collected.

90 percent of the 2023 production standard =

0.90 [0.244(684.4)+0.489(569.8)+0.240(832.2)+0.027(395.0) = 590.4 lbs/acre

As can be seen, the 2023 BRB-5 mean allowable herbaceous production of 2331.0 pounds per acre (Table 7) far exceeded 90 percent of the production performance standard of 590.4 lbs/acre.

The 2023 BRB-5 allowable herbaceous production exceeded 90 percent of the production performance standard. The performance standard was exceeded with a minimum of 30 samples collected. Therefore reclamation success for Phase III is demonstrated by passing a one sample t-test of the "reverse null" hypothesis (CDMG 2005 revised rule, 4.15.11 (2)(c)). The 2023 BRB-5 production data were first evaluated for normality of distribution using the Shapiro-Francia test (see Table 7 and accompanying discussion on page 40 of the Vegetation report in Attachment D). This normality test was passed. It should be noted that the greatest producing sample (sample #23) was excluded from the normality testing as it was an anomaly. By removing the greatest production point (rather than the least productive point) and having a sample size greater than 30, the State's interests are protected in this instance.

A one-sample t-test of the "reverse null" hypothesis of the assertion that the 2023 BRB-5 allowable herbaceous production is indistinguishable from the weighted average Reference Area allowable herbaceous production is as follows (transformed data are square roots of oven-dry gm/0.5sq.m. data):

$$t_{calc} = \frac{\bar{x} - 0.9(technical\ standard)}{\frac{s}{\sqrt{n}}} = 3.571$$

Since critical t = 0.853 (one-tailed, alpha = 0.2, 32-1 df) is exceeded by t_{calc} (3.571), the hypothesis of no difference is rejected and reclamation success for 2023 BRB-5 production under Phase III is demonstrated.

***Successful revegetation for the parameter of production was demonstrated in both* 2022 and 2023.**

WOODY PLANT DENSITY (BRB-5)

Woody plant density sampling was undertaken in the reclaimed BRB-5 but not in the reference areas or BRB-4. The criterion for determining woody plant density success at the Yoast mine site is based on standards categorized as primary and secondary. The primary standards are as follows: (P1) background average woody density will be ≥ 200 stems per acre in upland areas and (P2) at least 10% of the bond release block will be ≥ 1000 stems per acre of concentrated woody density outside of fenced upland sites. Phase III Revegetation success for woody plant density will be demonstrated by one of the statistical approaches used to assess cover and production (see above),

or a non-parametric rank-order "L" test (minimum of 30 samples, technical standards not subject to adequacy) as set forth in CDRMS/CDMG 2010 revised rule, 4.15.11 (3)(a).

Table 5. 2022 and 2023 Data and Sample Adequacy Summary for Background and Concentrated Area Woody Plant Density, Yoast BRB-5 Phase III Bond Release Area.

Woody Density Area and Sampling Year	Woody Density (stems/acre)	s	N	N_{min}	t
Background Density BRB-5 Phase III Bond Release Area **2022**	824.6	1090.6	32	128	1.282
Volunteer Density Concentration Area 2022	1661.4	874.1	37	21	1.282
Fenced Riparian Concentration Area 2022	2624.2	1729.5	32	32	1.282
Background Density BRB-5 Phase III Bond Release Area **2023**	804.3	1577.1	32	115	1.282
Volunteer Density Concentration Area 2023	2381.2	1497.3	50	29	1.228
Fenced Riparian Concentration Area 2023	1631.5	1023.8	35	29	1.282

2022 Woody Plant Density Success Evaluation

Woody plant density data are presented in the 2022/2023 report of the findings of testing for revegetation success for the Yoast BRB-5 Phase III bond release area. This is included here as ***Attachment D – Revegetation Success Supporting Documentation***. As can be seen in Table 5, the 824.6 stems per acre observed in the background area greatly exceeds the 180 stems per acre (90 percent of the 200 stems per acre background standard) performance standard for 2022.

Statistical testing for 2022 background area data is as follows.

Reclamation success for the BRB-5 has been demonstrated by passing a non-parametric rank-order "L" test (CDMG 2010 revised rule, Rule 4.15.11(2)(a)).

The L-order statistic (lower 80% confidence interval) = 14.118

L-value (Lower 80% confidence limit for BRB-5 median) = rank value 14+11.8% of Rank 15-Rank 14 =257.1 stems per acre.

70% of the performance standard = 140 stems per acre

Since L-value (257.1 stems per acre) exceeds 70% of the standard (140 stems per acre), the test has passed and reclamation success for 2022 BRB-5 Background WPD under Phase III is demonstrated.

In 2022, the mean WPD sampled in the BRB-5 Volunteer Concentration Area was 1,661.4 stems per acre, exceeding 900 stems per acre (90 percent of the 1,000 stems per acre mandatory performance standard 2) (see also Figure D-3a, Table C-1). This direct comparison of reclaimed area mean to standard is allowed under DRMS rules (CDMG 2010 revised rule, 4.15.11 (2)(a)) when sample adequacy has been demonstrated for the reclaimed area.

In 2022, the mean WPD sampled in the BRB-5 Riparian Concentration Area was 2,624.2 stems per acre, exceeding 850.5 stems per acre (90 percent of the 945 stems per acre secondary performance standard 2) (see also Figure D-3b, Table C-1). Trees and tall shrub species consisted of 2,400.3 stems per acre, exceeding the 150 stems per acre standard. This direct comparison of reclaimed area mean to standard is allowed under DRMS rules (CDMG 2010 revised rule, 4.15.11 (2)(a)) when sample adequacy has been demonstrated for the reclaimed area.

2023 Woody Plant Density Success Evaluation

Woody plant density data are presented in the 2022/2023 report of the findings of testing for revegetation success for the Yoast BRB-5 Phase IIIbond release area. These data tables are included here as ***Attachment D – Revegetation Success Supporting Documentation***. As can be seen in Table 5, the 804.3 stems per acre observed in the background area far exceeds the 180 stems per acre (90 percent of the 200 stems per acre background standard) performance standard for 2023.

Statistical testing for 2023 background area data is as follows.

Background woody plant density (Standard P1)**.** The 2016 BRB-2 woody plant density were first evaluated for normality using the Shapiro-Francia test. Based on the raw 2023 BRB-5 WPD data the normality test was passed. Use of a reverse-null t-test of the assertion that the 2023 BRB-5 background woody plant density exceeds 90% of the standard is shown as follows:

$$t_{calc} = \frac{\bar{x} - 0.9(technical\ standard)}{\frac{s}{\sqrt{n}}} = 2.240$$

Since critical t_{table} = 0.852 (one-tailed, alpha = 0.2, 32-1 df) and t_{calc} (2.240) is greater than this critical value, reclamation success for background woody plant density for Phase III in 2023 is

demonstrated. It should be noted that the t-test was conducted for both total density and transformed data, with the same results. Hence the **WPD Mandatory standard 1** that there would be at least 200 woody stems per acre in the background area has been met for 2023.

In 2023, the mean WPD sampled in the BRB-5 Volunteer Concentration Area was 2,381.2 stems per acre, exceeding 900 stems per acre (90 percent of the 1,000 stems per acre mandatory performance standard 2) (see also Figure D-3a, Table C-1). This direct comparison of reclaimed area mean to standard is allowed under DRMS rules (CDMG 2010 revised rule, 4.15.11 (2)(a)) when sample adequacy has been demonstrated for the reclaimed area.

In 2023, the mean WPD sampled in the BRB-5 Riparian Concentration Area was 1,631.5 stems per acre, exceeding 850.5 stems per acre (90 percent of the 945 stems per acre mandatory performance standard 1) (see also Figure D-3b, Table C-1). Trees and tall shrub species consisted of 1,473.1 stems per acre, exceeding the 150 stems per acre standard. This direct comparison of reclaimed area mean to standard is allowed under DRMS rules (CDMG 2010 revised rule, 4.15.11 (2)(a)) when sample adequacy has been demonstrated for the reclaimed area.

Successful revegetation for the parameter of background woody plant density was demonstrated in both 2022 and 2023. Successful revegetation of volunteer concentration areas was demonstrated 2022 and 2023 Successful revegetation of fenced riparian woody plant concentration areas was demonstrated in planted area sampling in 2022 and 2023.

SPECIES DIVERSITY

Successful revegetation for species diversity is evaluated through a series of tests, one of which is a mandatory test and three are alternative tests. At least two of the alternative tests must be met. The mandatory test (Test A) is based on the cover sampling data and requires that no single plant exceeds 60 percent relative cover. Alternative test B (or Alternative Test 1) is a comparison for total species density between the reference and reclaimed areas. Alternative Test C (or Alternative Test 2) is an assessment of the distribution of species abundance among lifeforms in the reclaimed areas compared to the reference. Alternative Test D (or Alternative Test 3) is an assessment of the presence of native species in the reclaimed areas compared to the reference areas. Details of the means for evaluating success with supporting information on calculation methods is detailed in the text and appendix tables of the 2022/2023 vegetation monitoring report contained in ***Attachment D – Revegetation Success Supporting Documentation***.

BRB-4
2022/ 2023 Species Diversity Success Evaluations

Success for Mandatory Test **A** requires that no single species comprise greater than 60% relative cover in the 2022/2023 reclaimed BRB-4 Phase III bond release area. Table J-1a of the revegetation monitoring report (***Attachment D – Revegetation Success Supporting Documentation***) shows that the most abundant single species Western wheatgrass was 22.2% relative first-hit cover and 20.1 relative all-hit cover in 2023, both well below the 60% threshold of concern.

Thus, **Mandatory Test A is passed** based on assessment of 2022/2023 BRB-4 cover data.

With regard to Alternative Test **B**, Total Species Density Test, the standard is the point at which the central 75 percent of the distribution of overall species density in the Reference Areas begins. Mathematically this would be the Mean Reference Area species density (# of species per 100 sq. m.) – 1.15s where s is the standard deviation. The following is calculated for the 2022/2023 BRB-4 Phase III release area (see Table J-2a in Attachment D):

2022 Mean Species density (without noxious species) in HRA = 15.5 species/ 100 sq.m.
2023 Mean Species density (without noxious species) in HRA = 10.9 species/ 100 sq.m.

Probability-adjusted density standard:
2022 Mean Reference Area Species Density – 1.15s = 15.5 – 1.15 (2.2) = 12.9
2022 Mean total species density in the 2022 BRB-4 = 14.4
2023 Mean Reference Area Species Density – 1.15s = 10.9 – 1.15 (2.4) = 8.1
2023 Mean total species density in the 2023 BRB-4 = 13.3

Since the reclaimed area values were greater than the standard, **Alternative Test B is passed** for 2022 & 2023 BRB-4 data.

Regarding Alternative Test C, the index assesses similarity between the lifeform species density values for the prescribed lifeforms for the 2022/2023 BRB-4 Phase III release area and the Mean Species density (area-weighted) in the reference area (text and Table J-3a Attachment D).

2022 similarity index is 88%, which exceeds 63%
2023 similarity index is 86%, which exceeds 63%

Hence **Alternative Test C is passed** for 2022/2023 BRB-4 data.

Alternative Test **D** is conducted as a direct test of the presence of native species in the reclaimed area as reflected in the cumulative presence of reclaimed area native species within plots associated with the species density assessment that accompanies cover sampling. In 2022 testing, the total number of native species encountered in the first five 100 sq. m. (2 m x 50 m) samples of the 2022 BRB-4 Phase III release area that constituted an adequate cover sample equaled 19 native species (Table J-4a, Attachment D), substantially greater than the weighted reference area average native species density of 8.4 species per 100 sq.m.

In 2023 testing, the total number of native species encountered in the first ten 100 sq. m. (2 m x 50 m) samples of the 2023 BRB-4 Phase III release area that constituted an adequate cover sample equaled 24 native species (Table J-4a, Attachment D), substantially greater than the weighted reference area average native species density of 6.0 species per 100 sq.m.

Hence **Alternative Test D is passed** for 2022/2023 BRB-4 data.

In summary for BRB-4 species diversity evaluations, Mandatory Test **A** was passed as were Alternative Tests **B**, **C** and **D**.

BRB-5

2022/ 2023 Species Diversity Success Evaluations

Success for Mandatory Test **A** requires that no single species comprise greater than 60% relative cover in the 2022/2023 reclaimed BRB-5 Phase III bond release area. Table J-1b of the revegetation monitoring report (***Attachment D – Revegetation Success Supporting Documentation***) shows that the most abundant single species Alfalfa was 17.6% relative first-hit cover in 2022 and 20.8 relative all-hit cover in 2023, both well below the 60% threshold of concern.

Thus, **Mandatory Test A is passed** based on assessment of 2022/2023 BRB-5 cover data.

With regard to Alternative Test **B**, Total Species Density Test, the standard is the point at which the central 75 percent of the distribution of overall species density in the Reference Areas begins. Mathematically this would be the Mean Reference Area species density (# of species per 100 sq. m.) – 1.15s where s is the standard deviation. The following is calculated for the 2022/2023 BRB-5 Phase III release area (see Table J-2b in Attachment D):

2022 Mean Species density (area weighted, without noxious species) in 4 RA = 27.6 species/ 100 sq.m.

2023 Mean Species density (area weighted, without noxious species) in 4 RA = 25.2 species/ 100 sq.m.

Probability-adjusted density standard:
2022 Mean Reference Area Species Density – 1.15s = 27.6 – 1.15 (4.8) = 22.1
2022 Mean total species density in the 2022 BRB-5 = 19.7 (max. 20.8)
2023 Mean Reference Area Species Density – 1.15s = 25.2 – 1.15 (5.1) = 19.3
2023 Mean total species density in the 2023 BRB-5 = 14.8 (max. 15.8)

Since the reclaimed area values were greater than the standard, **Alternative Test B is passed** for 2022 & 2023 BRB-5 data.

Regarding Alternative Test C, the index assesses similarity between the lifeform species density values for the prescribed lifeforms for the 2022/2023 BRB-5 Phase III release area and the Mean Species density (area-weighted) in the reference area (text and Table J-3b Attachment D).

2022 similarity index is 69%, which exceeds 63%
2023 similarity index is 67%, which exceeds 63%

Hence **Alternative Test C is passed** for 2022/2023 BRB-5 data.

Alternative Test **D** is conducted as a direct test of the presence of native species in the reclaimed area as reflected in the cumulative presence of reclaimed area native species within plots associated with the species density assessment that accompanies cover sampling. In 2022 testing, the total number of native species encountered in the first eleven 100 sq. m. (2 m x 50 m) samples of the 2022 BRB-5 Phase III release area that constituted an adequate cover sample equaled 35 native species (Table J-4b, Attachment D), substantially greater than the weighted reference area average native species density standard of 23.7 species per 100 sq.m.

In 2023 testing, the total number of native species encountered in the first sixteen 100 sq. m. (2 m x 50 m) samples of the 2023 BRB-5 Phase III release area that constituted an adequate cover sample equaled 31 native species (Table J-4a, Attachment D), substantially greater than the weighted reference area average native species density standard of 22.3 species per 100 sq.m.

Hence **Alternative Test D is passed** for 2022/2023 BRB-5 data.

In summary for BRB-5 2022/2023 species diversity evaluations, Mandatory Test **A** was passed as were Alternative Tests **B**, **C** and **D**.

Successful revegetation for the parameter of species diversity was demonstrated in both 2022 and 2023 for both BRB-4 and BRB-5 Phase III reclamation areas.

SEDIMENT DEMONSTRATION

Phase II – Suspended Solids Evaluation

The Yoast Mine lies within the headwaters of Grassy Creek and Sage Creek watershed. The southwest portion of the permit drains to the west towards Sage Creek, which ultimately flows to the north-northeast towards the Yampa River. A small area on the southeastern end of the permit drains southeast towards Grassy Creek, which flows to the northeast near the southern end of the permit area before bending to the north towards the Yampa River. The remainder of the permit area drains to the north-northeast towards Annand Draw. Annand Draw reports north to Scotchmans Gulch, which flows to the east-northeast to Grassy Creek. Runoff from the reclaimed mine discharges from five NPDES Outfalls: Outfall 010 located near the northern end of the mine discharges to Annand Draw, Outfall 011 discharges to the southeast to an unnamed tributary of Grassy Creek, and Outfalls 012, 013, and 014 located along southwest permit boundary all discharge to unnamed tributaries to Sage Creek (Map 1).

Ongoing stream monitoring points include YSGF5 and YSG5 within the Grassy Creek watershed and YSSF3 and YSS2 within the Sage Creek watershed. YSGF5 is located downstream of Outfall 011 but upstream of Scotchmans Gulch. Monitoring point YSG5 is located downstream of Scotchmans Gulch and receives drainage from both Outfall 010 and 011. Monitoring at YSG5 did not begin until after mining began in the watershed and therefore no background data is available for this location. This portion of Grassy Creek also receives drainage from the adjacent Sage Creek Mine. Sage Creek monitoring point YSSF3 is located upstream of Outfalls 012, 013, and 014 and YSS2 is located downstream of Outfalls 012, 013, and 014.

Analytical results for the Grassy Creek (YSGF5, YSG5) and Sage Creek (YSSF3, YSS2) stream points between 2019 – 2023 are included in Tables 1 – 4. Table 5 provides a comparison of the pre-mine and post-mine total suspended solids (TSS) for these locations. The range of TSS concentrations observed between 2019 – 2023 at Grassy Creek stream point YSGF5 was lower than the range observed prior to mining. Although Grassy Creek stream point YSG5 does not have location specific baseline data the post mining TSS range falls within the pre-mine range observed upstream at Grassy Creek YSGF5.

The post mining TSS range observed at Sage Creek stream points YSSF3 and YSS2 both exceed the pre-mine concentrations. However, both locations datasets are skewed by a single sample. The 75 mg/L TSS observed in the June 15, 2021, sample at YSSF3 exceeded the baseline maximum of 46 mg/L. The TSS measured at downstream point YSS2 during the same event was 22 mg/L. Minimal flow was present at YSSF3 during this event (<10 gpm) and the elevated TSS is likely from the disturbance of sediment at the base of the channel during sample collection. If this sample is excluded from the 2019 – 2023 dataset the remaining post mining TSS results fall within the pre-mine range. Similarly, the 181 mg/L TSS observed in the September 9, 2021, sample at YSS2 exceeded the baseline maximum of 118 mg/L. Minimal flow was present at YSSF3 during this event (<5 gpm) and the elevated TSS is likely from the disturbance of sediment at the base of the

channel during sample collection. If this sample is excluded from the 2019 – 2023 dataset all remaining post mining TSS results fall within the pre-mine range.

Analytical results for the mines five NPDES outfalls for 2019 – 2023 are provided in Tables 6 – 10. TSS was removed as a monitoring requirement from the outfalls when their drainage status was changed to reclamation and TSS was only monitored periodically at Outfalls 011 and 013 during the last five years. Outfalls 010 and 011 were reclassified as reclamation in November 2006 and Outfalls 012, 013, and 014 were reclassified to reclamation in July 2010. Between 2019 and 2023 only 7 TSS samples were collected from the outfalls (011: 2; 013: 5) and the TSS ranged from <0.5 - 31 mg/L. None of these samples exhibited TSS above the pre-mine maximums measured in Grassy Creek and Sage Creek.

Table 11 includes a summary of the five outfalls TSS analytical data during the five years prior to their reclamation drainage status change. The TSS at Outfall 010 during this time ranged from <5 – 46 mg/L (mean: 8.9 mg/L) and is less than the pre-mine concentrations observed at Grassy Creek point YSGF5 (range: 33.8 – 296 mg/L; mean: 33.8 mg/L). The TSS at Outfall 011 during this time ranged from <5 – 38 mg/L (mean: 13.8 mg/L) and is less than the pre-mine concentrations observed at Grassy Creek point YSGF5 (range: 33.8 – 296 mg/L; mean: 33.8 mg/L). The TSS measured at the three outfalls that discharge to Sage Creek during the five years prior to being classified as reclamation drainage ranged from <5 – 25 (mean: 8.6) at Outfall 012, <5 – 26 mg/L (mean: 8.5 mg/L) at Outfall 013, and <5 – 170 mg/L (mean: 26.8 mg/L) at Outfall 014. The average TSS concentration at Outfalls 012 and 013 are below the pre-mine average measured at downstream point YSS2 (23.6 mg/L) and the average TSS concentration at Outfall 014 only exceeds the pre-mine average at downstream point YSS2 by a few milligrams per liter. The average at Outfall 014 is strongly influenced by a single elevated TSS (170 mg/L) result and it's important to note that TSS concentrations in the 13 other samples collected during this time did not exceed 42 mg/L. A statistical comparison of pre-mine stream points and post mine NPDES TSS concentrations is provided in Attachment 1. The analysis indicates there is no statistically significant difference (95% Confidence Level) between the TSS concentrations measured at the Yoast NPDES outfalls and the pre-mine stream concentrations. This further indicates that the reclaimed parcels reporting to these ponds are adequately stable.

HYDROLOGY DEMONSTRATION

Phase III - Hydrology Demonstration

A.) Basic Standards Interim Narrative Standard for Ground Water (CWQCC Regulation 41.5(c)(6).

The Yoast Mine Groundwater Points of Compliance (GWPOC) were established in Technical Revision 39 (TR-39) (see Appendix 15-1 of the C-1994-082 permit package). The two GWPOC monitoring wells are YSAL3 which is screened within the Sage Creek Alluvium and SGAL70 which is screened within the Grassy Creek Alluvium (see Map 1). SGAL70 is located downgradient of both the Yoast Mine and adjacent Sage Creek Mine. GWPOC bedrock wells were deemed unnecessary in TR-39 due to the limited potential for the mine to negatively impact the quality of bedrock groundwater. The Wadge and Wolf Creek Coal exhibit low hydraulic conductivity (Wadge Coal: 2.45E-7 to 3.5E-7 cm/sec; Wolf Creek Coal: 4.55E-6 cm/sec) and will limit mine-impacted groundwater from migrating within these units. Attenuation and dilution should further limit water quality impacts. Aquifers of regional significance include the Trout Creek Sandstone and the Twentymile Sandstone. The Twentymile Sandstone is located approximately 500 ft above the Wadge Coal seam and is not found within the Yoast permit boundary. Low permeability confining layers of the Williams Fork Formation isolate the Trout Creek Sandstone from the mine. The Trout Creek Sandstone lies approximately 300 to 400 feet below the Wadge Coal seam and approximately 60 to 100 feet below the Wolf Creek Coal Seam. The groundwater in the Trout Creek Sandstone is under confined conditions and exhibits an upward hydraulic head that further limits the potential for infiltration of mine affected groundwater into the unit. See Technical Revision 39 (TR-39) located in the Appendix 15-1 of the Yoast Mine permit package for additional justification for the Groundwater Points of Compliance.

Tables 12 and 13 include the analytical results for samples collected at wells SGAL70 and YSAL3 over the last five years (2019 – 2023) and provide a comparison against the Grassy Creek and Sage Creek Alluvial GWPOC water quality standards established in TR-39. The groundwater quality at SGAL70 meets the existing water quality standards for all parameters except for dissolved cadmium. The lab detection limit for the dissolved cadmium samples exceeds the cadmium water quality standard. None of the exceedances were associated with measurable values of cadmium. Water quality samples at commercial labs are often run in groups that include samples from unrelated locations and the detection limit for the batch of samples can be increased above the normal detection as a result of elevated concentrations in one or more samples within the batch or from unrelated instrument interference. The fluctuation in the lab's detection limit and the fact that cadmium has not historically been an issue at this well suggest that the increase in the detection limit for these three samples is likely unrelated to the presence of cadmium above the standard. There were no exceedances of the GWPOC standards at YSAL3.

B.) Instream Numeric Standards (CWQCC Regulation 33)

The Colorado Water Quality Control Commission (CWQCC) has established segment specific aquatic life water quality standards for Grassy Creek (Segment 13i and 13j) and Sage Creek (Segment 13e) of the Yampa River. The water quality standards for these segments are included in CWQCC Regulation 33. Tables 1 and 2 include a summary of the water quality at the two Grassy Creek stream monitoring points over the last five years (2019 – 2023) and a comparison against either the Segment 13i or Segment 13j water quality standards. Tables 3 and 4 include a statistical summary of the water quality at the Sage Creek stream monitoring points over the last five years and a comparison against the Segment 13e water quality standards. The water quality in these streams is also compared to CWQCC Regulation 31 Agricultural Use standards. Additional discussion of the water quality in each stream segment follows.

Grassy Creek – Yampa Segments 13i and 13j

Total Recoverable Iron

Between 2019 and 2023 total recoverable iron ranged from 0.41 – 3.69 mg/L (mean: 1.02 mg/L) at YSGF5 and 0.26 – 2.38 mg/L (mean: 0.87 mg/L) at YSG5. Total recoverable iron exceeded the Yampa Segment 13i water quality standard five times (n: 18) at YSGF5 and exceeded the Yampa Segment 13j water quality standard three times (n: 14) at YSG5 during this time. YSGF5 receives drainage from Outfall 011 and YSG5 receives drainage from both Outfalls 010 and 011. Total recoverable iron was monitored 43 times at outfall 010 and six times at outfall 011 between 2019 and 2023. During this time there was not a single exceedance of the 1 mg/L total recoverable iron water quality standard at these outfalls (Table 6 and 7). Although the total recoverable iron in the YSGF5 samples is slightly more elevated than the iron observed at YSG5, the YSGF5 post mine concentrations fall within the range of total iron observed during the pre-mine monitoring period (range: 0.15 – 9.9 mg/L; mean 1.34 mg/L) (Table 14). Pre-mine total iron data is not available for YSG5, however the concentrations observed during the last five years do not exceed the pre-mine concentrations observed at YSGF5. Total recoverable iron at these stream points is correlated (r^2: 0.68 – 0.91) with suspended solids which become naturally elevated during rain and snow melt runoff events (see Figure 1).

Monitoring was conducted at Outfall 011 during three of five sampling events that iron exceeded the standard at stream pointYSGF5. During these events the iron measured at outfall 011 was either less than the laboratory detection limit or the outfall was not discharging. Monitoring was also conducted at both Outfalls 010 and 011 during the same monitoring events that iron exceeded the iron standard at stream point YSG5. There were no exceedances of the iron standard at either outfall during these events and the iron was an order of magnitude less than the concentrations observed at YSG5. This further demonstrates that the elevated iron in Grassy Creek is unrelated to the runoff from the reclaimed mine and is likely the result of natural erosional processes that are occurring within the native portions of the watershed.

Sulfide

The method detection limit for the sulfide analysis (MDL: 0.02 mg/L) conducted by SCC's lab exceeds the Yampa Segment 13i water quality standard for un-ionized sulfide (0.002 mg/L). The analytical method employed detects both dissolved sulfides and acid-soluble metallic sulfides that are present in suspended matter and provides a single cumulative concentration that includes both the ionized (HS^-) and un-ionized forms of hydrogen sulfide (H_2S). The un-ionized hydrogen sulfide is the potentially toxic form which the standard is based upon. The distribution of sulfide between the un-ionized hydrogen sulfide and ionized form is dependent on the temperature and pH. At low pH most of the total dissolved sulfide exists as un-ionized hydrogen sulfide. In alkaline waters, like those present at Yoast Mine, most of the total dissolved sulfide exists as non-toxic ionized sulfide. A procedure for calculating the un-ionized form from the sulfide data can be found in the American Public Health Standard Methods for the Examination of Water and Wastewater. The results of this calculation indicate that un-ionized hydrogen sulfide will not exceed the water quality standard when the non-detect sulfide concentration is equal to 0.02 mg/L. None of the samples collected from YSGF5 and YSG5 during the last five years had detection limits above the non-detect value of 0.02 mg/L.

Manganese

CWQCC 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 Yoast Mine are alkaline and the 0.2 mg/L standard is therefore not applicable. Dissolved manganese at YSGF5 and YSG5 are significantly lower than the CHPHE Yampa Segment 13i acute and chronic manganese standards.

Mercury

The method detection limit for mercury (0.02 µg/L) used by SCC's lab is above the 0.01 µg/L aquatic life standard. None of the samples collected during the last five years exceeded the labs method detection limit. The CDPHE previously performed a reasonable potential analysis for Outfall 010 and determined that there was no reasonable potential for discharges from this outfall to exceed the mercury limit and the monitoring requirement was dropped from the NPDES permit. Total mercury is monitored quarterly at Outfall 011. Between 2019 and 2023, none of the mercury samples collected (range: 0.0009 – 0.0024 µg/L; n: 2) exceeded the mercury aquatic life standard and there is no reason to believe the total mercury within Grassy Creek is above the aquatic life standard (Table 7).

Selenium

There was a single exceedance of the CWQCC Regulation 33 chronic aquatic life selenium table value standard (4.6 µg /L) at YSG5 during the last five years. The sample collected on April 18, 2022, had an average dissolved selenium of 8.54 µg/L. Several of the tributaries to Grassy Creek flow over soils derived from the Lewis Shale, which naturally contains elevated concentrations of

selenium. Monitoring conducted on April 18, 2022, at outfalls 010 and 011 indicates that Outfall 011 was not discharging and that the selenium in the Outfall 010 discharge was less than 1 µg /L. This demonstrates that the elevated selenium at YSG5 was unrelated to the runoff from the mine. No exceedances of the chronic aquatic life selenium standard occurred at YSGF5 during this time. There were also no exceedances of the CWQCC Regulation 31 agricultural use standard at either YSGF5 or YSG5 between 2019 and 2023.

Selenium was monitored 43 times at Outfalls 010 and three times at Outfall 011 during the last five years. Potentially dissolved selenium exceeded the Segment 13i chronic aquatic life selenium standard four times at Outfall 010. The analytical results for the potentially dissolved selenium in the samples collected on March 11, 2019, February 3, 2020, March 2, 2020, and February 8, 2021, ranged from 6.3 - 100 µg/L. However, the total recoverable selenium measured in these samples ranged from 0.4 – 0.9 µg/L. The total recoverable selenium analysis includes a measurement of both the metals that are dissolved in the water and the metals that are present in the particulates in the water after it's been treated with acid preservative. The potentially dissolved metals analysis measures the metals present in the filtrate of the water that was first treated with acid preservative and allowed to stand for several hours before being filtered through a membrane filter. The potentially dissolved selenium cannot be greater than the total recoverable selenium as the potentially dissolved form is a subset of the selenium that is measured as a part of the total recoverable analysis. This suggests that the elevated potentially dissolved selenium in these samples is not real and is likely a result of an ICP-MS matrix interference which can overestimate the selenium concentrations (Smith and Compton, 2004). There were no exceedances of the Segment 13i chronic aquatic life selenium standard at Outfall 011.

Springs

Four spoil springs are actively monitored at the Yoast Mine. Spoil Spring YSSPG1 and YSSPG2 are located within the Grassy Creek Watershed (see Map 1). Analytical water quality data for the two springs during the last five years are provided in Table 15. The post-mining land use for the reclaimed parcels associated with these springs is livestock grazing and wildlife habitat. Therefore, the water quality data collected from these springs are compared to the agricultural use surface water standards as established in CWQCC Regulation 31. Although there were two exceedances of the manganese agricultural use numeric standard of 0.2 mg/L at YSSPG1, CWQCC Regulation 31 specifies that the manganese agricultural use standard is only applicable when irrigation water is applied to soils with pH lower than 6.0. The soils at Yoast Mine are alkaline and the 0.2 mg/L standard is therefore not applicable. The dissolved manganese at YSSPG1 is significantly lower than the CHPHE Yampa Segment 13i acute and chronic aquatic life manganese standards. There were no exceedances of any of the other agricultural use surface water quality standards at YSSPG1 and YSSPG2 during the five-year monitoring period.

Sage Creek - Yampa River Segment 13e

Total Recoverable Iron

Total recoverable iron exceeded the Yampa Segment 13e water quality standard three times at YSS2 (n: 15) and once at YSSF3 (n:10) between 2019 and 2023 (Table 3 & 4). The exceedance at YSSF3 occurred on April 22, 2021. YSSF3 is located upstream of the Yoast outfalls and is reflective of ambient conditions in the watershed. The exceedances at YSS2 occurred on June 2, 2020, September 9, 2021, and September 6, 2021. As was previously described in the total recoverable iron section for Grassy Creek, elevated total recoverable iron in the headwaters of these watersheds is often associated with increased concentrations of total suspended solids that occur in response to natural erosion from precipitation and snowmelt. A statistical comparison of the total suspended solids and total recoverable iron concentrations at YSSF3 and YSS2 indicate that they are strongly correlated (r^2: 0.82 - 0.90) (see Figure 2). Monitoring conducted at the Sage Creek outfalls during these same events indicates that Outfalls 013 and 014 were not discharging and that the iron at Outfall 012 (range: < 0.1 to < 0.12 mg/L) was well below the Segment 13e standard (Table 8 – 10). In all three instances the total recoverable iron at the Yoast Mine outfalls were an order of magnitude less than the concentrations observed at downstream point YSS2. This demonstrates that the elevated iron was unrelated to the runoff from the reclaimed mine.

Sulfide

As discussed in greater detail in the Grassy Creek Sulfide section, the sulfide detection limit for the method utilized by SCC's lab exceeds the instream water quality standard. The analytical method detects both dissolved sulfides and acid-soluble metallic sulfides that are present in suspended matter and provides a single cumulative concentration that includes both the ionized (HS^-) and un-ionized forms of hydrogen sulfide (H_2S). The un-ionized hydrogen sulfide is the potentially toxic form that the instream water quality standard was established for. Calculations of the un-ionized H_2S indicate that the alkaline surface water at this location will not result in un-ionized H2S above the water quality standard when the sulfide concentrations are below 0.02 mg/L. None of the samples collected from stream point YSS2 exceeded the 0.02 mg/L concentration.

Mercury

The method detection limit for mercury (0.02 µg/L) used by SCC's lab is above the 0.01 µg/L aquatic life standard for mercury. None of the samples collected from YSS2 during the last five years exceeded the labs method detection limit. The CDPHE previously performed a reasonable potential analysis for Outfall 012 and 014 and determined that there was no reasonable potential for the discharges from these outfalls to exceed the mercury limit and the monitoring requirement was dropped from the discharge permit. Total mercury is monitored quarterly (when discharge occurs) at Outfall 013. Between 2019 and 2023 none of the mercury samples collected from Outfall 013 (Range: 0.0017 – 0.0035 µg/L; n:5) have exceeded the mercury standard.

Selenium

There were no exceedances of the CWQCC Regulation 33 chronic aquatic life standard or Regulation 31 agricultural use selenium standard at YSSF3 or YSS2 during the last five years.

Springs

Spoil Springs YSSPG3 and Spoil Spring YSSPG4 are located within the Sage Creek Watershed (see Map 1). The post-mine land use of the reclaimed parcels associated with these springs are designated as livestock grazing and wildlife habitat. Therefore, the water quality data collected from these springs are compared to the Agricultural Use surface water standards as established in CWQCC Regulation 31. Although there were several exceedances of the manganese agricultural use numeric standard of 0.2 mg/L at YSSPG3 and YSSPG4, CWQCC Regulation 31 specifies that the manganese agricultural use standard is only applicable when irrigation water is applied to soils with pH lower than 6.0. The soils at Yoast Mine are alkaline and the 0.2 mg/L standard is therefore not applicable. The dissolved manganese at YSSPG3 and YSSPG4 is significantly lower than the CHPHE Yampa Segment 13i acute and chronic aquatic life manganese standards. There were no exceedances of any of the other agricultural use surface water quality standards at YSSPG3 and YSSPG4 during the five-year monitoring period.

A natural spring is also located above and reports to the pond associated with Outfall 013. This spring Is not monitored under permit C-1994-082 but has poor water quality. A sample collected on May 19, 2022, exhibited elevated levels of total recoverable selenium (300 µg/L), sulfate (17,300 mg/L), and total dissolved solids (26,700 mg/L).

C.) Permit Requirements of the Colorado Department of Public Health & Environment (CDPHE)

The five outfalls at Yoast Mine are permitted under CDPHE Permit No. CO-0000221. Outfall 010 discharges to Annand Draw which is a tributary to Grassy Creek, Outfall 011, located on the southeast end of the permit, discharges to Grassy Creek, and Outfalls 012, 013, and 014 discharge to unnamed tributaries to Sage Creek. Tables 6 – 10 include analytical results for samples collected from the outfalls between 2019 – 2023 and a comparison against the NPDES limits and CWQCC surface water quality standards.

Between January 1, 2019 and December 31, 2023 there were no exceedances of the NPDES limits at outfalls 010, 011, 012, and 014. Four samples from Outfall 010 and two samples from Outfall 012 exhibits potential exceedances of the potentially dissolved selenium NPDES limits, however in all instances the total recoverable selenium was less than 1 µg/L (range: 0.4 – 0.9 µg/L). As previously described, a potentially dissolved metal concentration cannot be greater than the total recoverable metal concentration as the potentially dissolved form is a subset of the selenium that is measured as a part of the total recoverable analysis. The elevated potentially dissolved selenium was likely the result of matrix interference that occurred during the laboratory analysis.

Outfall 013 exceeded the upper pH limit of 9.0 s.u. three times. The exceedances occurred in May 2019, April 2022, and May 2022. Outfall 013 only discharges in response to the spring snowmelt and the flows are typically low and of limited duration. The flow measured in May 2019 was 91.5 gpm and the flow measured in the April and May 2022 monitoring events were 24.7 gpm and 1.7 gpm. The pH measured at downstream point YSS2 on the same day as the discharges in May 2019 (8.29 s.u.) and April 2022 (8.15 s.u.) was compliant with the Yampa Segment 13e pH standards and the discharge permit limit indicating the discharge from Outfall 013 did not impact Sage Creek. Since 2014 there have been eight monitoring events when Outfall 013 and YSS2 have been sampled on the same day. During these events the spring flow at YSS2 was, at a minimum, 31 times greater than the discharge at Outfall 013 (flow ratio range: 31:1 – 391:1; mean: 126:1). This indicates there is substantial mixing potential within Sage Creek. Assuming the flow at YSS2 was 31 times greater (52.7 gpm) than the flow observed at Outfall 013 (1.7 gpm) during the May 2022 discharge event and the instream pH prior to mixing was the average of the pH measured at YSS2 in April and June 2022 (8.12 s.u.), the estimated pH at YSS2 after mixing would be 8.17. This represents less than a 0.1 s.u. increase and suggests there would not have been an impact to Sage Creek from the May 2022 discharge. Algae are naturally present in the Outfall 013 pond. Fertilizers have never been applied in the Outfall 013 watershed and the elevated pH is likely the result of algae photosynthesis which removes carbon dioxide from the water causing the pH of the waterbody to increase.

There were no other exceedances of the NPDES discharge limits at Outfall 013. However, total recoverable iron exceeded the Yampa Segment 13e aquatic life standard once and the selenium aquatic life standard three times. The total recoverable exceedance at Outfall 013 occurred in April 2023. The pH of this discharge was neutral (7.9 s.u.) and the TSS was low (14 mg/L), suggesting this result may be an anomaly. There have been no other exceedances of the iron standard at Outfall 013 over the last 10 years (January 2014 – Present; n: 22). The selenium aquatic life standard was exceeded in May 2019, April 2020, and May 2023. These exceedances may be related to the elevated selenium in the natural spring (13_Spring) that reports to the pond associated with Outfall 013. Concurrent monitoring completed at downstream point YSS2 on the same days as these exceedances demonstrated that the selenium (range: 0.21 – 1.1 µg/L) was well below the Segment 13e chronic aquatic life standard of 4.6 µg/L. This indicates that the selenium in these discharges did not impact Sage Creek.

The post-mining land use of the reclaimed parcels in this bond release application are predominantly livestock grazing and wildlife habitat. Therefore, the water quality data collected from the NPDES outfalls are also compared to the Agricultural Use surface water standards as established in CWQCC Regulation 31. Permit CO-0000221 requires that the metals be collected in the potentially dissolved form whereas the Agricultural Use standards are based on the total form. For comparative purposes, when the total form is not available the potentially dissolved form is compared to the Agricultural Use standards. The selenium agricultural use standard (20 µg/L)

was exceeded once at Outfall 013. The exceedances occurred on May 24, 2023. As discussed above, downstream monitoring point YSS2 was sampled for dissolved selenium during this discharge event. The dissolved selenium at YSS2 was 0.21 µg/L indicating the streams water quality was not being influenced by the discharge. All remaining selenium samples at 013 were within the Agricultural Use standards.

There were no other exceedances of the NPDES limits or water quality standards at the Yoast Mine Outfalls. See the Yoast Mine Annual Hydrology Reports for 2019 through 2023 for additional discussion about the frequency of discharge at the NPDES outfalls.

D.) Clean Water Act Effluent Limitations (40CFR Part 434)

Monitoring data from the past five years indicates the mine has not caused exceedances of the 40 CFR Part 434 settleable solids and pH limits that are applicable to reclamation areas on coal mines (settleable solids limit: 0.5 ml/l; pH limit: 6.0 - 9.0 S.U.). The pH at Outfall 013 has periodically exceeded 9.0 s.u. during the last five years. However, as is discussed in Section C., this is not associated with the runoff from the reclamation but is related to the natural presence of algae within the pond. The pond does not discharge annually, and when it does, its typically for a limited duration. No fertilizers have been applied to the watershed above this pond and the elevated pH is the result of algae photosynthesis. This is commonly seen in water bodies with irregular discharge. See the Yoast Mine Annual Hydrology Reports from 2019 through 2023 for additional discussion of the frequency of discharge and analytical data.

E.) Impacts to Alluvial Valley Floors (AVFs)

Two alluvial valley floor (AVF) studies were performed on Sage Creek and Grassy Creek along with their associated tributaries. The first study conducted in 1990 focused on Dry Creek, Sage Creek, and the upper portion of Grassy Creek in 1990. The second study conducted in 1992 and 1993 included lower Grassy Creek, Scotchmans Gulch, Annand Draw, and an unnamed drainage lying east of Annand Draw. As described in Tab 16, Protection of the Hydrologic Balance, of permit C-1994-082 both studies found that there is insufficient flow to support flood irrigated crops and neither drainage contains alluvial valley floors. Additional information concerning these determination as well as copies of the two studies may be found in Tab 16 and Attachment 16-3 of the mine permit.

F.) Agreement of Observed Hydrologic Impacts with the "Probable Hydrologic Consequences" (PHC) Projected in the Mining Permit

The Observed Hydrologic Impacts are generally in good agreement with the Probable Hydrologic Consequences projected in the mine permit. The pre-mine groundwater use was marginal for

livestock and irrigation and unsuitable for domestic supply. No residential domestic supply wells are present within or downgradient of the mine area. Water quality at downgradient compliance wells SGAL-70 and YSAL3 meet all applicable water quality standards. Due to the limited potential for the mine to negatively impact the quality of bedrock groundwater compliance bedrock wells were deemed unnecessary (see Appendix 15-1 TR 39). Therefore, as predicted in the PHC no groundwater users have been impacted.

Impacts to groundwater and surface water quality were addressed in the Probable Hydrologic Consequences section of the permit (Tab 17, Attachment 17-5). Projected TDS concentrations in the receiving stream alluvium were estimated from geochemical models that evaluated potential salt loads from spoil/groundwater interactions. The impact analysis projected a final TDS value of 798 mg/L at Sage Creek alluvial well YSAL3, a final TDS value of 1296 mg/L at Grassy Creek alluvial well YGAL16, and a final TDS value of 2036 mg/L at Annand Draw alluvial well YAAL14. A prediction for Lower Grassy Creek alluvial well SGAL-70 was not made as part of the PHC. The average TDS concentrations measured from 2019 – 2023 at alluvial wells are:

Well	**TDS Mean (mg/L)**	**TDS Range (mg/L)**
Sage Creek Alluvial Well: YSAL3	1115	966 - 1310
Grassy Creek Alluvial Well: YGAL16	1678	1280 - 2050
Annand Draw Alluvial Well: YAAL14	2656	1940 - 3470

Although the predicted TDS values for the Grassy Creek (YAAL14, YGAL16) and Sage Creek (YSAL3) alluvial wells were exceeded its important to acknowledge that the recent concentrations remain within the range of ambient, pre-mine, TDS measured in alluvial monitoring wells in these same drainages. Overburden removal in the Grassy Creek basin began in 1996. The pre-mine (1/1/1980 – 1/31/1994) TDS measured in Grassy Creek alluvial wells YGAL15, YGAL16, YGAL17 and YGAL18 ranged from 546 – 4030 mg/L (mean:1603 mg/L) (see Table 6 TR-39). The pre-mine (1/1/1980 – 12/31/1999) TDS measured in Sage Creek alluvial wells YSAL1, YSAL12, YSAL3, and YSAL8 ranged from 230 – 2140 mg/L (see Table 2 TR-39). This suggests that the slightly elevated TDS concentrations could be from non-mine related sources such as bedrock groundwater contributions from the underlying Lewis Shale or agriculture, which can concentrate dissolved salts, which weren't considered as part of the post mine predictions.

Although the post mine TDS concentrations have exceeded the projected concentrations the post mine concentrations do not preclude the potential suitability of this water for livestock or agricultural use (where well yields are sufficient). The TDS concentrations at POC wells SGAL-70 and YSAL3 remain well below the TDS standard established in Appendix 15-1 (TR39) and none of the water quality standards have been exceeded at these locations. Additional information about the TDS at Yoast Mine is provided in the 2023 Annual Hydrology Report.

TDS concentrations were projected to increase by 62% in Upper Grassy Creek to 1337 mg/L, by 230% in Sage Creek to 2118 mg/L, and by 314% in Annand Draw to 3938 mg/L. No change was projected for Lower Grassy Creek with TDS projected to remain 2177 mg/L. The Lower Grassy Creek concentration was based on the TDS measured at former Seneca Mine monitoring location SW-S2-2, located just upstream of Scotchmans Gulch. The TDS concentrations measured in these streams between 2019 – 2023 were:

Stream	**TDS Mean (mg/L)**	**TDS Range (mg/L)**
Upper Grassy Creek: YSGF5	1021	758 - 1290
Lower Grassy Creek: YSG5	2682	1300 - 3690
Sage Creek: YSS2	1739	388 - 3480

The average TDS concentrations in the receiving streams exhibit general agreement with the predicted values. Both the Sage Creek and Upper Grassy Creek monitoring points exhibit average TDS concentrations below the predicted values. Although YSG5 exhibits TDS concentrations that are above the predicted value for lower Grassy Creek it's important to remember that YSG5 is located downstream of Scotchmans Gulch and the predicted concentrations did not consider contributions from Scotchmans Gulch.

The PHC predicted that impacts from Yoast Mine spoil discharges to Annand Draw/Scotchmans Gulch/Grassy Creek and Sage Creek would be of moderately long duration, but impacts would not be significant enough to alter their potential use. Streamflow is limited in both reaches and remains insufficient to rely on for flood irrigation practices (see Tab 7, Hydrologic Description). Streamflow in Grassy Creek was determined to be insufficient for drinking water, agricultural water, or livestock water, while stream flow in Annand Draw and Sage Creek were determined to be sufficient for livestock purposes. The TDS concentrations measured at the stream points above indicate that the water quality remains adequate for livestock purposes. As described in Section B, the water quality at both the Grassy Creek and Sage Creek stream points meets the WQCC Regulation 31 Agricultural Use water quality standards.

Impacts from runoff of the reclaimed mine areas and sediment ponds were projected to be of minimal significance. This is in agreement with the water quality observed in the receiving stream and at the NPDES outfalls (see Section B and C above).

G.) Completion of the Hydrologic Reclamation Plan

Yoast Mine has been reclaimed utilizing the approved practices and measures described within the C-1994-082 permit. The final measure to be addressed within the Hydrologic Reclamation Plan is

the abandonment of the 37 remaining monitoring wells within or adjacent to the requested Phase III release area. Sixteen of the wells are located in the alluvium, seven within the Wadge Coal seam, seven within the Wadge overburden, five within the Wadge underburden, one within the Wolf Creek Coal and one within the Wolf Creek Coal underburden (see Table 15-3 in Tab 15 Hydrologic Monitoring Program of C-1994-082). Note that SGAL-70 will not be abandoned as it is also monitored for the Sage Creek Mine Permit C-2009-087. Water supply well YTM32, located at the shop, will also remain in place. The 37 remaining wells will be removed using well abandonment procedures approved by the CDRMS upon approval of this bond release application.

As described in above in Part A and in previously approved in Technical Revision 39 (TR-39) YSAL3 and SGAL70 are the only groundwater points of compliance (GWPOC) for the Yoast Mine. YSAL3 is screened within the Sage Creek Alluvium and SGAL70 is screened within the Grassy Creek Alluvium. GWPOC bedrock wells were deemed unnecessary in TR-39 due to the limited potential for the mine to negatively impact the quality of bedrock groundwater. See Technical Revision 39 (TR-39) located in the Appendix 15-1 of the Yoast Mine permit package for additional justification for the Groundwater Points of Compliance. The groundwater quality at GWPOC well YSAL3 and SGAL70 complies with the groundwater quality standards.

In 2023 the water levels measured at all bedrock and alluvial wells were within historic ranges except for bedrock well YOV30. YOV30 is screened within the Wadge overburden and the water level has generally been declining since it was installed in 1990. YOV30 is part of a well cluster that includes YW30 which monitors the Wadge Coal seam and YWU30 which monitors the Wadge underburden. This well cluster is located immediately adjacent to the mining area and the water level returns are dependent on the time necessary for the spoil to become saturated. Groundwater levels recently returned to pre-mine ranges in the underburden (2008) and Wadge Coal seam (2014). The water level in YOV30 has also exhibited some stabilization with the water level fluctuating from 7449.74 to 7452.84 ft msl since 2015. YOV30 is screened within the shallowest interval of these three units and it's not unexpected that the water levels would take longer to stabilize than the lower bedrock units. The radius of influence from the water level drawdown in the adjacent bedrock is expected to be limited in aerial extent based on the low hydraulic conductivity of the bedrock materials. Additional information concerning groundwater levels at Yoast Mine is provided in the 2023 Yoast Mine Annual Hydrology Report.

The drainage channels and stock ponds that will remain in the Phase III bond release area are those that have already been approved for permanent retention and are shown on Map 1. These will include sediment ponds 010, 011, 012, 013, and 014 that are associated with NPDES permit CO-0000221. See Part B and C above for a detailed discussion of the receiving stream and NPDES outfalls water quality.

H.) Findings of the Protection of Hydrological Balance

The disturbance of the hydrologic balance within and adjacent to the permit area have been minimized through the use of best management practices. Groundwater levels fall within historic ranges at all bedrock and alluvial wells except for bedrock well YOV30. YOV30 is screened within the Wadge overburden, and the water level has generally been declining since it was installed in 1990. YOV30 is part of a well cluster that includes YW30 which monitors the Wadge Coal seam and YWU30 which monitors the Wadge underburden. This well cluster is located immediately adjacent to the mining area and the water level returns are dependent on the time necessary for the spoil to become saturated. Groundwater levels recently returned to pre-mine ranges in the underburden (2008) and Wadge Coal seam (2014). The water level in YOV30 has also exhibited some stabilization with the water level fluctuating from 7449.74 to 7452.84 ft msl since 2015. YOV30 is screened within the shallowest interval of these three units and its not unexpected that the water levels would take longer to stabilize than the lower bedrock units. The radius of influence from the water level drawdown in the adjacent bedrock is expected to be limited in aerial extent based on the low hydraulic conductivity of the bedrock materials. Additional information concerning groundwater levels at Yoast Mine is provided in the 2023 Yoast Mine Annual Hydrology Report.

Groundwater quality meets all applicable standards at compliance wells SGAL-70 and YSAL3. Bedrock groundwater point of compliance wells were deemed unnecessary based on the absence of the potential for the mine to negatively impact the bedrock groundwater quality. Disturbance to adjacent surface water bodies were minimized through the proper utilization of drainage and sediment control structures. As discussed in detail in the sections above the discharges from the mine site meet the NPDES permitted limits except for the irregular exceedance of the pH upper limit at Outfall 013 and the receiving streams meet all applicable surface water quality standards except for the occasional excursion of total recoverable iron. The elevated pH at Outfall 013 is associated with algae that are naturally present in the pond. Discharge at this outfall occurs only in response to the spring snowmelt and is of minimal volume during the season when the stream flow is at its most substantial. Concurrent monitoring downstream of the discharge indicates the slightly elevated pH in the discharge from Outfall 013 is not impacting Sage Creek. The elevated iron is strongly correlated with suspended solids in the streams water column. Multiple concurrent NPDES outfall and receiving stream sampling events indicate that the elevated iron is unrelated to the discharges from the mine site and is the result of natural erosion that is occurring in the native portion of the Grassy Creek and Sage Creek watershed. Total dissolved solids within the receiving streams have remained below or near (see Part F above) the concentrations predicted within the Probably Hydrologic Consequences and the streams water uses have not been degraded. Additional hydrology data for Yoast Mine can be found in the Annual Hydrology Reports which have been submitted to CDRMS for several decades.

Reference

Matrix effects in the ICP-MS analysis of selenium in saline water samples. Smith, M., Compton, J. S. Proceedings of the 2004 Water Institute of Southern Africa Biennial Conference, Cape Town, South Africa, (2004).

POSTMINING LAND USE

The postmine land uses for the Yoast mine are livestock grazing and wildlife habitat. Grazing has been conducted since 2009 on reclaimed lands at the mine to implement and demonstrate the postmine land use. Proper grazing management has been used to encourage re-establishment and enhancement of native plant diversity and woody plant density. Sheep have been the only livestock grazing reclaimed lands at the Yoast mine. The grazing season at Yoast has historically been from August through September. The estimated stocking rate based on available herbaceous production data, forage palatability and a fifty percent (50%) proper use factor was on average 1.2 acres per animal unit month (AUM - the forage required for one animal unit for one month). This value reflects a range of historic stocking rate levels at the Yoast Mine. The ability of the reclaimed lands to provide good stocking rate values represents the results of implemented best practices for reclamation, management of the reclaimed areas and the restoration of ecosystem function and continuing successional development of the reclaimed lands.

Yoast reclaimed area livestock grazing by sheep was initiated in 2009 using the reclaimed pastures located in the general BRB-5 Phase III release area. On average 400-500 sheep are grazed approximately 45 days and forage use averages around 9 percent use of all forage and 19% of the PUF forage (PUF = 50% of available forage as a proper use factor). Since 2009 sheep grazing has continued annually through 2024 on reclaimed areas. The sheep numbers have ranged from 420 (2012) to 850 (2014). Days of grazing have ranged from 20 (2014) days to 53 (2023) days. Utilization has generally been light to with rates from 11% of total forage (23% of PUF forage) in 2018 to 16% of total forage (32% of PUF forage) in 2012. Anecdotal comments by the livestock operators to reclamation management personnel indicate satisfaction with the reclaimed grazing resource and animal performance.

Wildlife baseline and monitoring was conducted annually at the Yoast Mine from 1994 through 2010. Comprehensive monitoring included big game, upland game birds, raptors and predators and continued through 2007. From 2008 through 2010 monitoring centered on upland game birds, golden eagles and Sandhill cranes. From 2011 the general mine area has been included in annual raptor nest monitoring and Columbian Sharp-tailed grouse counts. The results of monitoring are presented in the annual reports submitted to CDRMS. Additionally, CDRMS inspection personnel note wildlife observations in their ongoing inspection activities at the mine.

Yoast reclaimed lands provide excellent habitat for a number of wildlife species. Elk and mule deer make common use of the reclaimed areas where significant numbers of deer and elk can be observed in the reclaimed areas throughout the year. The reclaimed areas provide beneficial and nutritional forage resources throughout the year but especially in the spring and early summer as the elk and mule deer complete gestation and move to lactation cycles. Elk and mule deer numbers on the mine site during the period of monitoring for these species have shown year to year fluctuations as a result of regional trends, mining activities and climatic conditions. As mining activity moved to new areas and reclamation became established, big game moved back into reclaimed areas and adjacent native habitats. This has been especially true for elk as the herbaceous forage quality is compatible with their foraging preferences. The presence of big game on reclaimed areas is significant and requires 8 foot fencing to protect aspen and tall shrub planting sites. As a final demonstration of success the tree plots have been opened up for access to the wildlife. Plots remain stable and well established. s

Review of annual monitoring reports shows that mule deer and elk numbers have had a steady increase over the 1994 through 2007 period. This has been in part due to improved survey methods later in the period. In the latter part of the monitoring years elk and mule deer were found increasingly in the established areas of reclamation. In 2006 elk were averaging 2.6 individuals per square mile while mule deer were averaging 1.92 individuals per square mile. Incidental observations by mine personnel and CDRMS inspectors indicate that elk and mule deer are common on reclamation through much of the year.

Raptors including red-tailed hawks and golden eagles nest and hunt in the area and other raptors such as northern harriers and Swainson's hawks that prefer more grassland or grass shrubland habitat have been observed in reclaimed areas in past studies and monitoring. The reclaimed areas are trending towards a sagebrush grassland/shrubland habitat and species with an affinity to that habit type are present in these reclaimed areas. Golden eagle nests are located to the northwest of Permit area. Golden eagles have often been observed over the reclaimed areas. The continued presence of these birds and successful breeding activity in the immediate area could in part be contributed by the reclaimed areas which offer good foraging opportunities related to the stature and nature of the herbaceous dominated reclaimed areas and related prey base.

Columbian sharp-tailed grouse (CSTG) are of particular interest in Colorado. Monitoring efforts have been attuned to documenting presence and numbers, particularly at lek sites during the breeding season. Monitoring has shown a steady increase in presence of these birds at leks adjacent to the Yoast haul road and north of the main permit area. There are as many as 10 known lek sites in this area. In 2011 or 2012 CSTG activity was noted on the mine site. In 2013 and active lek site was discovered on Yoast reclaimed lands and monitoring was begun at this site. The site is located just north of the most southern block of BRB-1. This lek is referred to as the Yoast tree plot lek. The affinity for reclaimed sites by CSTG is well documented in northwest Colorado and

this is consistent with observations at the nearby Seneca II/PSCM mine. CSTG have established up to four active leks on Seneca II/PSCM mine reclaimed lands and these leks are monitored annually. The 2013 counts for these four leks totaled 66 CSTG with the lowest lek count having 14 CSTG and the highest with 23 CSTG. Therefore there is a potential for additional CTSG presence on Yoast reclaimed lands over time due to the large amount of similar and available reclamation habitat and the proximity of active leks and CSTG activity surrounding the mine. Please note that Colorado Parks and Wildlife monitoring is showing an increased upward trend in CSTG numbers and reclaimed lands play a role in this trend.

Sandhill cranes have been monitored for a number of years through 2010. Birds have been present in areas adjacent to the northeast portions of the mine and have been observed flying over the mine. None have been documented as nesting on the Yoast mine site.

PERMANENT INFRASTRUCTURE

Upon final release of the Seneca Yoast Mine many features will be left as permanent infrastructure. These features include access roads, light-use roads, culverts, a water well, power lines and a substation, fenced shrub plots, sediment ponds, stock ponds, and miscellaneous boundary and grazing fences. All of the features and structures to remain as permanent are documented with rational and justification in Attachment 20-1 of the approved mine PAP, and are summarized below. Map 3, Permanent Features, shows the locations of the approved permanent features and structures to remain post mining.

ACCESS ROADS

Access roads remaining permanent features include Road “A” (part of the north permit boundary, not included on Map 2) and Road “B” (turns into LU-3A). Both of these roads provide landowner access to properties within the Yoast permit boundary that would otherwise be considered landlocked and inaccessible. In addition, SPL uses these access roads to perform maintenance and monitoring throughout the Yoast Mine property. These roads have been modified to the acceptable post-mine land use requisitions. The road profiles and cross-sections can be found in the approved mine PAP in Exhibit 20-3, Post Mine Road Profiles.

LIGHT USE ROADS

For limited access, Light-Use Roads have been retained as permanent features to access reclaimed lands and accommodate future landowner use. Light-Use Roads retained include LU 1, LU 2, LU 3A, LU 3B, LU 4, and LU 5. The Light-Use Roads retained are used property access by landowners, access to monitoring sites for water quality, pond access for inspections, and maintenance and monitoring of shrub plots and reclaimed parcels. All Light-Use Roads meet the

criteria for design, grade, and drainage. Maintenance on the Light-Use Roads will be conducted as necessary prior to final bond release.

CULVERTS

For adequate drainage throughout the mine property, multiple culverts have been approved as permanent features. For Access Road "A" culverts YA-1, YA-2, YA-3, YA-3A, YA-4, YA-4A, YA-5, YA-5A, YA-6, YA-7, YA-UN, and YM-1 remain as permanent. For Access Road "B" culverts YB-1, YB-2, YB-3, and YB-6 remain as permanent. Within all of the Light Use Roads there are 4 culverts that remain as permanent features; these include EX-2, EX-4, EX-5, and LU-1. Design documentation of each culvert is included in the approved mine PAP in Attachments 13-8 and 13-12.

WATER WELL

The water well that feed the Yoast Mine Shop has been retained as a permanent feature. This well is a domestic and industrial water supply that has been retained to supply water, as necessary, for wildlife and livestock consumption, shrub plot irrigation, and other land owner uses as identified in the future. A complete well summary can be found in Appendix 7-1 in the approved mine PAP along with the water right in Attachment 16-4.

POWERLINES AND SUBSTATION

The Yoast Mine permit boundary consists of a single remaining substation and approximately 7,355 feet of powerline with poles throughout the property. The substation was constructed to provide electricity to the mining equipment and facilities during the mining operation. The Substation is privately owned by Yampa Valley Electric Association (YVEA). YVEA has provided a letter requesting the substation remain as a permanent feature.

FENCED SHRUB PLOTS

The Yoast Mine Permit area includes six fenced shrub plots that were part of the reclamation efforts of the Yoast Mine. These plots are remaining as permanent features along with the existing big-game proof fence enclosures. These enclosures where required by permit conditions during the ten-year liability term. Prior to final bond release the gates to the plots were opened to demonstrate the shrubs can withstand the existing wildlife and livestock foraging pressure.

SEDIMENT PONDS

SPL proposes that the five remaining sediment ponds remain as permanent. Three sediment ponds have CDRMS and the State Engineers Office (SEO) approval; ponds 10, 13, and 14. SPL has applied for ponds 12 and 11 to remaining as permanent and is awaiting SEO approval. All ponds meet the criteria specified under Rule 4.05.9(13) and will be used to support the post mining land use. The permanent pond demonstrations can be found in Appendix 20-1.2 of the approved mine PAP.

STOCK PONDS

Within the Yoast permit area there are two ponds that have been specified as "Stock Ponds", ST-1 and 11A. Both of these stock ponds have been approved through the CDRMS and the SEO to remain as permanent features. They each have a storage capacity of less than two-acre feet and an embankment no greater than five feet high measured from the invert of the spillway to the upstream toe of the embankment. The permanent pond demonstrations for these stock ponds can be found in Appendix 20-1.2 in the approved mine PAP.

MISCELLANEOUS BOUNDARY AND GRAZING FENCES

There are a variety of fences throughout the Yoast Mine permit area. All of the current fences will remain as permanent features following final bond release. These fences delineate property boundaries, and grazing areas. The fences support reclamation success along with post mining land use.

SUPPORTING INFORMATION

LEGAL SURFACE OWNERS WITHIN THE PERMIT BOUNDARY

Bureau of Land Management
Little Snake Field Office
455 Emerson Street
Craig, Colorado 81625

Colorado State Land Board
Northwest District Office
2667 Copper Ridge Circle, Unit 1
Steamboat Springs, CO 80487

Red Rock Ranch, LLC
2711 South Carter Place
Sioux Falls, South Dakota 57105

Sage Creek Holdings, LLC
29515 Routt County Road 27
Oak Creek, Colorado 80467

Salt River Project
Land Dept PAB10W
PO Box 52025
Phoenix, Arizona 85072

Salt River Project
c/o Mark Stewart
13125 US HWY 40 Hayden,
Colorado 81639

20 Mile Sheep, LLC
35513 N. HWY 13
Craig, Colorado 81625

Camilletti & Sons Inc.
HC 66 Box 69
Steamboat Springs, Colorado 80487

Sage Creek Holdings, LLC
29515 RCR 27
Oak Creek, CO 80467

SURFACE OWNERS CONTIGUOUS TO THE PERMIT BOUNDARY

Dennis A. & Laurie L. Hallenbeck
36190 Routt County Road 27
Hayden, Colorado 81639

Stephen & Susan Metcalfe
22415 SE Bohna Ct.
Boring, Oregon 97009-9347

Carroll Family Land, LLLP
501 Brackenridge Ave
Norfok, VA 23505

Chris & Kristen Miller
P.O. Box 276
Hayden, Colorado 81639

Chance Revocable Living Trust
P.O. Box 119
Ballico, California 95303-0119

Sage Creek Meadow LLC
PO Box 1119
Hayden, Colorado 81639

Grassy Creek Ranch
PO Box 2061
West Chester, PA 19380

Joseph & Lysa Long
31145 Routt County Road 37
Hayden, Colorado 81639

Jeffery Fry
32250 Routt County Road 37
Hayden, Colorado 81639

Gary Valora
32195 Routt County Road 37
Hayden, Colorado 81639

HOLDERS OF EASEMENTS ON THE PROPERTY

Tri-State Generation & Transmission Assoc
P.O. Box 33695
Denver, Colorado 80233

Yampa Valley Electric Association Inc.
2211 Elk River Road
Steamboat Springs, Colorado 80487

Western Area Power Administration
1800 South Rio Grande
Montrose, Colorado 81401

LOCAL GOVERNMENT BODIES

Colorado Parks & Wildlife
925 Weiss Drive
Steamboat Springs, Colorado 80487

Colorado River Water Conservation District
201 Centennial, Suite 200
Glenwood Springs, Colorado 81601

Office of Surface Mining Recl & Enfm
PO Box 25065
Denver, Colorado 80225-0065

Routt County Board of Commissioners
522 Lincoln Avenue
P.O. Box 773598
Steamboat Springs, Colorado 80487

Routt County Regional Planning Dept.
Planning Director
136 6th Street, Suite 200
Steamboat Springs, Colorado 80487

Town of Hayden
P.O. Box 190
178 Jefferson Ave.
Hayden, Colorado 81639

Upper Yampa Water Conservancy District
P.O. Box 775529
Steamboat Springs, Colorado 80477

ATTACHMENT A

NOTARIZED STATEMENT

In accordance with Rule 3.03.2 (1)(e): I hereby certify that, to the best of my knowledge, all applicable reclamation activities have been accomplished in accordance with the requirements of the Act, the rules and the approved reclamation program.

Miranda Kawcak 9/18/24

Miranda Kawcak Date

Environmental Manager

Seneca Property, LLC

Peabody Energy

Notary seal

CANDICE RENEE TRUJILLO
NOTARY PUBLIC - STATE OF COLORADO
NOTARY ID 20234016335
MY COMMISSION EXPIRES MAY 1, 2027

Signed Candice Trujillo

My Commission Expires: 5/1/27

September 17, 2024

TO:

RE: Seneca Yoast Mine Final Phase III (SL-9) Bond Release Application

To Whom It May Concern:

You are receiving this notification as a requirement by the Colorado Division of Reclamation, Mining and Safety (CDRMS). Pursuit to rule 3.03.2 of CDRMS regulations Seneca Properties, LLC is required to notify all adjoining property owners, surface owners, appropriate local government bodies, municipalities, regional planning commissions, boards of county commissioners, county planning agencies, sewage and water treatment authorities, and water conservancy and water conservation districts in the locality in which the surface coal mining operations took place.

Seneca Property, LLC, 29515 Routt County Road 27, Oak Creek, Colorado 80467, has requested final phase III release of 162.7 acres of its reclaimed lands at the Seneca Yoast Mine *(CDRMS Permit No. C 1994-082, approved August 5, 1995).*

The Seneca Yoast Mine is located approximately 8.5 mile southwest of the Town of Hayden, Colorado, off of Routt County Road 27. The specific area to which this bond release request applies is included within the Permit Area located as follows:

T6N, R87W	
Section 28:	Portions of NW ¼, NW¼ SW ¼ , SW ¼NE ¼
Section 29:	Portions of SE ¼
Section 32:	Portions of NW¼ NE ¼, W ½E ½
T5N, R87W	
Section 5:	Portions of W ½ E½
Section 8:	Portions of NW¼, SW¼, W½NE¼, and W½SE¼
Section 16:	SW¼NW¼, NW¼SW¼ . and portions of SW¼SW¼ , NW¼NW¼ , SE¼NW¼, NE¼SW¼, and SW¼ SE¼
Section 17:	All
Section 18:	NE¼SE¼, S½SE¼
Section 19:	E½ and portions of E½W½
Section 20:	SW¼NW¼, N½NW¼, W½ SW¼ and portions of N½NE¼
Section 29:	NW¼ NW¼
Section 30:	N½NW¼

All located west of the 6th Principal Meridian; totaling 2318.3 acres, of which 162.7 acres for Phase III Release are requested in the Partial Bond Release (SL-9). The USGS 7.5 Minute Quadrangle maps for Dunckley and Mt. Harris contain the described affected area.

A Corporate Surety Bond in the amount of $713,941.06 is currently in place of which its entirety is being requested for release. A permittee may request Phase II bond Release upon the establishment of vegetation which supports the approved postmining land use and which meets the approved success standard for cover, pursuit to Rule 4.15.8. A permittee may request Phase III Bond Release upon completion of all surface mining operations in accordance with the approved reclamation plan, and the final inspection and procedures of Rule 3.03.2 have been satisfied, achieving postmining land used of Rangeland. Phase III shall not be released prior to a ten year liability period specified for vegetation responsibility and success. The portion of the mine for which Bond Release is being requested consists primarily of permanent roads, permanent ponds, and previously phase I and Phase II released areas. Reclamation of the disturbed mining areas and demolition of non-permanent structures occurred throughout the reclamation phases from 1997 through 2013. The approved reclamation plan can be viewed in its entirety in the Seneca Yoast Mine Permit Application Package located at the Twentymile Mine Office, Oak Creek, Colorado.

A copy of the SL-9 bond release application is available for public inspection at the Twentymile Mine Office, 29515 Routt County Road 27, Oak Creek, Colorado 80467. Written comments or objections or requests for public hearing or informal conference concerning this application may be submitted to, and additional information obtained from, the Colorado Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, Colorado 80203-2273, (303) 866-3567. Comments must be received within 30 days of the last publication of this notice or within 30 days of the onsite inspection, whichever is later.

Sincerely,

Miranda Kawcak

Miranda Kawcak
Manager, Environmental
Peabody
Seneca Properties, LLC | 29515 Routt County Rd #27 | Oak Creek, CO 80467
Office Phone: (970) 870-2718 | Cell: (970) 439-8273
mkawcak@peabodyenergy.com

PUBLIC NOTICE

Seneca Property, LLC, 29515 Routt County Road 27, Oak Creek, Colorado 80467, has requested final release of liability on the remaining 162.7 acres of its reclaimed lands at the Seneca Yoast Mine *(CDRMS Permit No. C 1994-082, approved August 5, 1995)*.

The Seneca Yoast Mine is located approximately 8.5 mile southwest of the Town of Hayden, Colorado, off of Routt County Road 27. The specific area to which this bond release request applies is included within the Permit Area located as follows:

T6N, R87W	
Section 28:	Portions of NW ¼, NW¼ SW ¼ , SW ¼NE ¼
Section 29:	Portions of SE ¼
Section 32:	Portions of NW¼ NE ¼, W ½E ½
T5N, R87W	
Section 5:	Portions of W ½ E½
Section 8:	Portions of NW¼, SW¼, W½NE¼, and W½SE¼
Section 16:	SW¼NW¼, NW¼SW¼ . and portions of SW¼SW¼ , NW¼NW¼ , SE¼NW¼, NE¼SW¼, and SW¼ SE¼
Section 17:	All
Section 18:	NE¼SE¼, S½SE¼
Section 19:	E½ and portions of E½W½
Section 20:	SW¼NW¼, N½NW¼, W½ SW¼ and portions of N½NE¼
Section 29:	NW¼ NW¼
Section 30:	N½NW¼

All located west of the 6th Principal Meridian; totaling 2318.3 acres, of which 162.7 acres for final Release are requested in the Bond Release Application (SL-9). The USGS 7.5 Minute Quadrangle maps for Dunckley and Mt. Harris contain the described affected area.

A Corporate Surety Bond in the amount of $713,941.06 is currently in place and its entirety is being requested for release. Pursuant to Rule 3.01.1, a permittee may request Phase I bond Release upon successful completion of backfilling, regarding, and drainage control in accordance with the approved reclamation plan. A permittee may request Phase II bond Release upon the establishment of vegetation which supports the approved postmining land use and which meets the approved success standard for cover, pursuit to Rule 4.15.8. A permittee may request Phase III Bond Release upon completion of all surface mining operations in accordance with the approved reclamation plan, and the final inspection and procedures of Rule 3.03.2 have been satisfied, achieving postmining land used of Rangeland. Phase III shall not be released prior to a ten year liability period specified for vegetation responsibility and success. The portion of the mine for which Bond Release is being requested consists of permanent roads, permanent ponds, and successfully reclaimed areas. Reclamation of the disturbed mining areas and demolition of non-permanent structures occurred throughout the reclamation phases from 1997 through 2013. The approved reclamation plan can be viewed in its entirety in the Seneca Yoast Mine Permit Application Package located at the Twentymile Mine Office, Oak Creek, Colorado.

A copy of the SL-9 bond release application is available for public inspection at the Twentymile Mine Office, 29515 Routt County Road 27, Oak Creek, Colorado 80467. Written comments or objections or requests for public hearing or informal conference concerning this application may be submitted to, and additional information obtained from, the Colorado Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, Colorado 80203-2273, (303) 866-3567. Comments must be received within 30 days of the last publication of this notice or within 30 days of the onsite inspection, whichever is later.

Table 1. Surface water quality data at Grassy Creek YSGF5 for the period of January 1, 2019 - December 31, 2023

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	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	5/2/2019	4.931	1075	8.28	9.1	< 0.03	0.17	0.77	0.041	< 0.2	< 0.05	0.07	< 0.01	0.7	0.8	0.9	337	< 0.02	762	15
YSGF5	6/11/2019	0.957	1337	8.31	11.3			0.57	0.0538	< 0.2	< 0.05	< 0.01	< 0.02	0.5	0.4	0.4	467	< 0.02	984	20
YSGF5	7/17/2019	0.485	1347	8.21	17.9	0.08	0.24	0.44											966	14
YSGF5	9/4/2019	0.000																		
YSGF5	4/21/2020	4.632	1245	6.93	10.4	< 0.06	0.29	0.79											938	23
YSGF5	4/21/2020	4.632	1245	6.93	10.4			0.75	0.113	< 0.2	< 0.05	0.02	< 0.01	0.7	0.7	0.6	463	< 0.02	946	18
YSGF5	6/2/2020	0.527	1011	7.51	14.1			**1.56**	0.0686	< 0.2	0.08	< 0.02	0.01	0.5	0.4	0.5	429	0.02	924	52
YSGF5	7/20/2020	0.206	1337	8.44	25	< 0.06	0.48	**1.06**											1020	38
YSGF5	9/1/2020	0.001	1225	8.46	16.3			0.45	0.224	< 0.2	< 0.05	< 0.02	< 0.01	0.2	0.2	0.2	496	< 0.02	1160	13
YSGF5	4/21/2021	1.047	1315	8.5	5.3	< 0.06	0.241	0.434											1030	8
YSGF5	4/21/2021	1.047	1315	8.5	5.3			0.406	0.209	< 0.2	< 0.05	< 0.02	< 0.01	0.81	0.72	0.67	529	< 0.02	1020	11
YSGF5	6/15/2021	0.025	1527	7.32	13.5			**3.69**	0.272	< 0.2	< 0.05	< 0.02	< 0.01	0.26	0.26	0.43	667	< 0.02	1150	141
YSGF5	7/20/2021	0.000																		
YSGF5	9/9/2021	0.000																		
YSGF5	4/18/2022	1.106	1437	8.06	12			0.943	0.102	< 0.2	< 0.05	< 0.02	< 0.01	1.78	2.08	1.92	633	< 0.02	1080	14
YSGF5	4/18/2022	1.106	1437	8.06	12	< 0.06	0.238	0.964											1090	7
YSGF5	6/21/2022	0.018	1653	8.18	10.6			1	0.461	< 0.2	< 0.05	< 0.02	< 0.01	0.26	0.29	0.3	669	< 0.02	1280	20
YSGF5	7/18/2022	0.012	1794	8.27	24.3	0.077	0.419	0.711											1290	22
YSGF5	9/6/2022	0.000																		
YSGF5	5/23/2023	4.630	955	8.3	16.5	0.0958	0.189	0.417	0.114	< 0.2	< 0.05	0.026	< 0.01	0.8	0.79	0.78	363	< 0.02	758	18
YSGF5	6/28/2023	0.057	1386	8.2	12.2			**1.57**	0.108	< 0.2	< 0.1	0.025	< 0.01	0.39	0.23	0.38	447	< 0.02	944	62
YSGF5	7/17/2023	0.015	1386	8.1	21.7	0.074	0.696	**1.79**											1030	59
YSGF5	9/7/2023	0.000																		
Yampa Segment 13i Standards - Acute		-	-	6.5 - 9.0	-	-	-	-	4.738	0.01**	Varies	100	0.05	18.4	-	-	-	0.002***	-	-
Yampa Segment 13i Standards - Chronic		-	-	-	-	-	-	1	2.618	-	Varies	-	-	4.6	-	-	-	-	-	-
Agricultural Use Standards		-	-	-	-	-	-	-	0.2*	-	-	100	10	20	-	-	-	-	-	-

Notes

The ammonia standard varies based on stream classification, pH, and temperature. See Regulation 33 Table Value Standard calculation formula. Each samples water quality was compared to calculated standard.

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

** The mercury standard is an order of magnitude less than the labs 0.2 mg/L analytical detection limit.

*** The sulfide standard is an order of magnitude less than the labs 0.02 mg/L sulfide analytical detection limit.

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

Table 2. Surface water quality data at Grassy Creek YSG5 for the period of January 1, 2019 - December 31, 2023

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	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
YSG5	5/2/2019	6.369	1696	8.31	7.5	**2.38**	< 0.01	< 0.2	< 0.05	0.76	0.02	4		3.6	716	< 0.02	1300	32
YSG5	6/11/2019	0.600	2824	8.39	18.7	0.26	0.07	< 0.2	< 0.05	0.38	0.01	1.7		1.8	1450	< 0.02	2540	10
YSG5	6/12/2019	2.031		8.5	11.7	0.46	0.0757	< 0.2	< 0.05			1.7	1.7	1.7	1470	< 0.02	2520	13
YSG5	6/12/2019	2.031		8.5	11.7							1.6		1.8	1460		2520	
YSG5	7/17/2019	0.599	2784	8.23	19.9							1.2		1.1	1390		2430	
YSG5	9/3/2019	0.017	3714	8.24	17.2	0.75	0.72	< 0.2	< 0.05	< 0.01	< 0.02	0.6		0.7	2080	< 0.02	3580	17
YSG5	4/21/2020	5.921	2388	7.87	15.2							4		4.5	1150		2020	
YSG5	4/21/2020	5.921	2388	7.87	15.2	0.9	0.06	< 0.2	< 0.05	1.1	0.01	4.2		4.5	1140	< 0.02	2020	20
YSG5	6/2/2020	0.608	2460	7.96	19.4	**2.2**	0.47	< 0.2	0.07	0.19	0.03	1.3		1.6	1400		2470	64
YSG5	7/20/2020	0.253	3254	8	17.3							1		1.4	1790		3010	
YSG5	9/1/2020	0.017	2868	7.93	17.3	0.6	0.23	< 0.2	< 0.05	< 0.02	< 0.01	0.7		0.6	1920	< 0.02	3320	14
YSG5	4/21/2021	1.781	2990	8.37	5.2	0.421	0.507	< 0.2	< 0.05	0.11	< 0.01	2.15		1.99	1910	< 0.02	3020	5
YSG5	4/21/2021	1.781	2990	8.37	5.2							2.22		1.97	1840		3010	
YSG5	6/15/2021	0.011	3618	7.9	17.6	0.897	1.69	< 0.2	0.091	0.03	< 0.01	0.59		0.58	1990	< 0.02	3310	28
YSG5	7/20/2021	0.000																
YSG5	9/9/2021	0.000																
YSG5	4/18/2022	1.176	2237	8.18	10.3							**8.27**		8.65	1120		1860	
YSG5	4/18/2022	1.950	2237	8.18	10.3	**1.06**	0.072	< 0.2	< 0.05	1.12	0.013	**8.81**		8.48	1110	< 0.02	1910	20
YSG5	6/21/2022	0.018	398	8.53	15.3	0.512	0.236	< 0.2	< 0.05	< 0.02	< 0.01	0.72		0.77	2380	< 0.02	3690	6
YSG5	7/18/2022	0.002	3676	8.02	21.9							0.7		0.51	2130		3650	
YSG5	9/6/2022	0.000																
YSG5	5/23/2023	7.510	3375	8.3	19.9	0.437	0.045	< 0.2	< 0.05	1.07	0.019	4.75		4.55	1460	< 0.02	2320	16
YSG5	5/25/2023	7.510[1]	2390	8.3	13.1							4.13	3.88	3.81				
YSG5	6/28/2023	0.090	2934	7.9	17.4	0.576	0.095	< 0.2	< 0.1	0.368	< 0.01	2.08		1.98	1520	< 0.02	2500	14
YSG5	7/17/2023	0.007	3273	8	21.5							1.62		1.7	1670		2970	
YSG5	9/7/2023	0.020	2685	8.1	14.8	0.746	0.398	< 0.2	< 0.1	< 0.02	< 0.01	0.89		1.07	1870	< 0.02	3030	16
Yampa Segment 13j Standards - Acute		-	-	6.5 - 9.0	-	-	4.738	0.01***	Varies	100	0.05	18.4	-	-	-	0.002****	-	-
Yampa Segment 13j Standards - Chronic		-	-	-	-	1	2.618	-	Varies	-	-	4.6	-	-	-	-	-	-
Agricultural Use Standards		-	-	-	-	-	0.2**	-	-	100	10	20	-	-	-	-	-	-

Notes

[1] Flow measured on 5/23/2023

The ammonia standard varies based on stream classification, pH, and temperature. See Regulation 33 Table Value Standard calculation formula. Each samples water quality was compared to calculated standard.

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

** The mercury standard is an order of magnitude less than the labs 0.2 mg/L analytical detection limit.

*** The sulfide standard is an order of magnitude less than the labs 0.02 mg/L sulfide analytical detection limit.

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

Table 3. Surface water quality data at Sage Creek YSSF3 for the period of January 1, 2019 - December 31, 2023

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	Selenium D UG/L	Selenium PD UG/L	Selenium TR UG/L	TDS, Lab N MG/L	TSS N MG/L
YSSF3	5/1/2019	2.635	465.3	8.61	5.4	0.26	0.0024	0.5	0.4	0.5	232	5
YSSF3	6/11/2019	1.688	494	8.38	9.8	0.13	0.0121	0.1	0.2	0.1	276	< 5
YSSF3	4/22/2020	2.540	555	7.26	4	0.51	0.0117	0.4	0.4	0.4	290	8
YSSF3	6/2/2020	1.251	478	7.74	11.3	0.67	0.0089	< 0.1	0.1	0.1	290	11
YSSF3	4/22/2021	1.248	698	8.48	1.6	0.085	0.0305	0.77	0.74	0.67	398	< 5
YSSF3	6/15/2021	0.014	921	8.07	9.4	**2.1**	0.0651	0.14	0.17	0.24	510	75
YSSF3	4/19/2022	3.159	736	8.13	3.6	0.081	0.0131	1.89	2.01	1.86	478	< 5
YSSF3	6/21/2022	0.014	2830	7.81	10	0.084	0.0369	0.15	0.16	0.21	412	< 5
YSSF3	5/25/2023	2.220 [1]	343	8.2	16.2	0.384	0.0142	0.11	0.27	0.2	228	12
YSSF3	6/28/2023	0.068	603	7.9	8.7	0.279	0.0335	0.17	0.11	0.14	314	6
Yampa Segment 13e Standards - Acute		-	-	6.5 - 9.0	-	-	4.738	18.4	-	-	-	-
Yampa Segment 13e Standards - Chronic		-	-	-	-	1.25	2.618	4.6	-	-	-	-
Agricultural Use Standards		-	-	-	-	-	0.2*	20	-	-	-	-

Notes

[1] Flow measured on 5/24/2023

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

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

Table 4. Surface water quality data at Sage Creek YSS2 for the period of January 1, 2019 - December 31, 2023

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	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
YSS2	5/1/2019	9.445	971	8.29	6.1	0.78	0.0106	< 0.2	< 0.05	0.31	0.02	1.1	1	1	309	< 0.02	676	13
YSS2	6/11/2019	1.830	1237	8.4	9.6	0.43	0.0243	< 0.2	< 0.05	0.08	< 0.01	0.4	0.6	0.4	410	< 0.02	916	10
YSS2	9/3/2019	0.015	2608	8.53	17.8	0.42	0.112					0.4	0.3	0.5			2220	18
YSS2	4/22/2020	9.325	1146	7.34	3.4	0.8	0.0342	< 0.2	< 0.05	0.21	< 0.01	0.8	0.8	0.7	397	< 0.02	800	12
YSS2	6/2/2020	1.420	1001	8.03	12.3	**1.82**	0.0247	< 0.2	< 0.05	0.06	< 0.01	0.3	0.3	0.3	494	< 0.02	1020	54
YSS2	9/1/2020	0.015	2686	8.31	18.6	0.33	0.082					0.4	0.3	0.4			2990	11
YSS2	4/22/2021	2.654	1735	8.55	1.8	0.222	0.198	< 0.2	< 0.05	< 0.02	< 0.01	0.7	0.71	0.6	804	< 0.02	1450	< 5
YSS2	6/15/2021	0.011	2788	7.82	11	0.734	0.194	< 0.2	< 0.05	0.05	< 0.01	0.32	0.33	0.46	1480	< 0.02	2450	22
YSS2	9/9/2021	0.006	3511	8.5	14.8	**4.12**	0.0746					0.28	0.32	0.49			3120	181
YSS2	4/19/2022	1.106	1301	8.15	2.3	0.548	0.0963	< 0.2	< 0.05		< 0.01	1.58	1.66	1.64	586	< 0.02	1030	8
YSS2	6/21/2022	0.033	1943	8.09	8.2	0.565	0.0527	< 0.2	< 0.05		< 0.01	0.22	0.21	0.31	828	< 0.02	1510	13
YSS2	9/6/2022	0.006	3643	8.81	15.7	**1.26**	0.0726					0.23	0.29	0.27			3480	34
YSS2	5/24/2023	4.300	2390	8.3	13.1	0.319	0.0741	< 0.2	< 0.05	0.647	< 0.01	0.21	0.28	0.26	117	< 0.02	388	12
YSS2	6/28/2023	0.072	1762	8.2	9.9	0.451	0.043	< 0.2	< 0.1	0.048	< 0.01	0.37	0.31	0.35	684	< 0.02	1280	13
YSS2	9/7/2023	0.010	2557	8.3	17.2	0.649	0.0655					0.31	0.4	0.36			2760	17
Yampa Segment 13e Standards - Acute		-	-	6.5 - 9.0	-	-	4.738	0.01**	Varies	100	0.05	18.4	-	-	-	0.002***	-	-
Yampa Segment 13e Standards - Chronic		-	-	-	-	1.25	2.618	-	Varies	-	-	4.6	-	-	-	-	-	-
Agricultural Use Standards		-	-	-	-	-	0.2*	-	-	100	10	20	-	-	-	-	-	-

Notes

The ammonia standard varies based on stream classification, pH, and temperature. See Regulation 33 Table Value Standard calculation formula. Each samples water quality was compared to calculated standard.

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

** The mercury standard is an order of magnitude less than the labs 0.2 mg/L analytical detection limit.

*** The sulfide standard is an order of magnitude less than the labs 0.02 mg/L sulfide analytical detection limit.

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

Table 5. Total Suspended Solids Concentrations at Grassy Creek and Sage Creek Stream Points

Stream	Time Period	Dates	SW Pt	N	Total Suspended Solids (mg/L)		
					Mean	Min	Max
Grassy Creek	Pre-Mine	1991 -1993	YSGF5	19	33.8	<2	296
	Post Mine	2019 - 2023	YSGF5	18	30.8	7	141
			YSG5	14	19.6	5	64
Sage Creek	Pre-Mine	1991 - 1993	YSSF3	20	8.1	<2	46
			YSS2	20	23.6	<2	118
	Post Mine	2019 - 2023	YSSF3	10	12.7	<5	75
			YSS2	15	28.0	<5	181

Note

One half the non-detect value applied to censored data for statistical calculations

Table 6. Water quality data at NPDES Outfall 010 for the period of January 1, 2019 - December 31, 2023

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron TR MG/L	TDS, Lab N MG/L	Copper PD UG/L	Selenium* D UG/L	Selenium PD UG/L	Selenium* TR UG/L	Settleable Solids ML/L
NPDES10	1/10/2019	0.002	7.95	N	0.05	3280	< 0.8		0.7	0.3	< 0.1
NPDES10	2/11/2019	0.002	7.91	N	0.07	3220	< 0.8		0.7	0.7	< 0.1
NPDES10	3/11/2019	0.002	7.87	N	0.07	3030	< 0.8		20.3	0.9	< 0.1
NPDES10	4/4/2019	0.007	7.85	N	0.09	1420	< 0.8		0.7	0.7	< 0.1
NPDES10	5/2/2019	0.393	8.13	N	0.13	1880	< 0.8	0.4	0.4	0.4	< 0.1
NPDES10	6/11/2019	0.268	8.15	N	< 0.06	2290	8		< 0.2	0.3	< 0.1
NPDES10	7/17/2019	0.015	8.24	N	0.38	2150	< 0.8		0.3	< 0.2	< 0.1
NPDES10	7/17/2019	0.015	8.24	N		2160		0.3		< 0.2	
NPDES10	8/5/2019	0.011	8.07	N	< 0.06	2420	< 2		0.3	< 0.2	< 0.1
NPDES10	9/3/2019	0.011	8.21	N	< 0.06	2760	< 2		< 0.2	0.2	< 0.1
NPDES10	10/23/2019	0.010	8.71	N	0.15	2810	< 2		0.3	0.3	< 0.1
NPDES10	11/11/2019	0.010	8.62	N	0.07	2680	< 2		0.4	0.4	< 0.1
NPDES10	12/3/2019	0.008	8.14	N	0.06	2770	< 2		0.4	0.3	< 0.1
NPDES10	1/8/2020	0.008	7.8	N	0.14	2740	< 2		0.5	0.5	< 0.1
NPDES10	2/3/2020	0.003	7.77	N	0.07	2780	< 0.8		6.3	0.4	< 0.1
NPDES10	3/2/2020	0.003	7.75	N	0.07	2640	< 20		14	0.9	< 0.1
NPDES10	4/21/2020	0.312	8.29	N		2160		0.5		0.4	
NPDES10	4/21/2020	0.312	8.29	N	< 0.1	2140	< 2		0.4	0.5	< 0.1
NPDES10	5/5/2020	0.299	7.18	N	< 0.06	2270	< 0.8		0.6	0.4	< 0.1
NPDES10	6/2/2020	0.241	8.25	N	< 0.1	2280	< 2		0.4	0.4	< 0.1
NPDES10	7/20/2020	0.018	7.93	N	< 0.1	2620	< 2		0.5	0.5	< 0.1
NPDES10	7/20/2020	0.018	7.93	N		2570		0.4		0.6	
NPDES10	8/3/2020	0.012	7.92	N	0.07	2850	< 0.8		0.3	0.3	< 0.1
NPDES10	9/1/2020	0.010	8.12	N	0.15	3140	< 2		0.2	0.3	
NPDES10	10/22/2020	0.002	8.07	N	0.147	3340	< 1.6		< 0.2	0.28	< 0.1
NPDES10	11/2/2020	0.002	8.68	N	0.137	3290	< 0.8		0.37	0.44	< 0.1
NPDES10	12/1/2020	0.003	8.69	N	< 0.12	3490	< 1.6		0.36	0.47	< 0.1
NPDES10	1/11/2021	0.002	7.59	N	0.206	3190	< 1.6		2.9	1.91	< 0.1
NPDES10	2/8/2021	0.002	7.5	N	< 0.12	3100	< 8		100	0.66	< 0.1
NPDES10	3/22/2021	0.003	7.91	N	0.172	1960	1.96		0.96	0.9	< 0.1
NPDES10	4/21/2021	0.025	8.07	N	0.415	2810	< 1.6		0.83	0.7	< 0.1
NPDES10	4/21/2021	0.025	8.07	N		2780		0.76		0.66	
NPDES10	5/17/2021	0.021	8.11	N	0.12	2880	< 0.8		0.62	0.64	< 0.1
NPDES10	6/14/2021	0.000									
NPDES10	7/20/2021	0.000									
NPDES10	8/3/2021	0.000									
NPDES10	9/9/2021	0.000									
NPDES10	10/27/2021	0.000									
NPDES10	11/8/2021	0.000									
NPDES10	12/1/2021	0.000									
NPDES10	1/11/2022	0.000									
NPDES10	2/8/2022	0.000									
NPDES10	3/23/2022	0.000									
NPDES10	4/18/2022	0.039	8.06	N		3500		0.69		0.77	
NPDES10	4/18/2022	0.039	8.06	N	0.51	3540	< 1.6		0.52	0.71	< 0.1
NPDES10	5/9/2022	0.037	8.06	N	0.36	3360	< 0.8		0.67	0.89	< 0.1
NPDES10	6/20/2022	0.021	7.92	N	0.28	3560	< 1.6		0.47	0.59	< 0.1
NPDES10	7/18/2022	0.000									
NPDES10	8/17/2022	0.002	8.41	N	< 0.12	3780	< 0.8		0.37	0.51	< 0.1
NPDES10	9/6/2022	0.000									

Table 6. Water quality data at NPDES Outfall 010 for the period of January 1, 2019 - December 31, 2023

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron TR MG/L	TDS, Lab N MG/L	Copper PD UG/L	Selenium* D UG/L	Selenium PD UG/L	Selenium* TR UG/L	Settleable Solids ML/L
NPDES10	10/22/2022	0.000									
NPDES10	11/16/2022	0.001	8.22	N	< 0.3	4280	< 0.8		0.38	0.69	< 0.1
NPDES10	12/5/2022	0.001	8.19	N	< 0.3	4210	< 0.8		0.38	0.59	< 0.1
NPDES10	1/22/2023	0.002	7.48	N	< 0.3	4080	< 4		0.57	0.56	< 0.1
NPDES10	2/9/2023	0.000	8	N	< 0.3	4270	< 1.6		0.73	0.53	< 0.1
NPDES10	3/21/2023	0.020	7.2	N	0.191	3720	< 1.6		1.38	0.99	
NPDES10	4/20/2023	1.176	7.8	N	0.277	1270	< 0.8		1.36	1.22	< 0.1
NPDES10	5/23/2023	1.063	8.1	N	< 0.12	2500	< 0.8	0.58	0.48	0.62	< 0.1
NPDES10	6/26/2023	0.002	7.5	N	0.425	2770	< 1.6		0.28	0.47	
NPDES10	7/17/2023	0.000									
NPDES10	8/21/2023	0.000									
NPDES10	9/7/2023	0.000									
NPDES10	10/27/2023	0.000									
NPDES10	11/6/2023	0.003	8.2	N	0.135	3360	< 1.6		0.45	0.46	< 0.1
NPDES10	12/5/2023	0.003	8.2	N	0.066	3450	< 1.6		0.68	0.63	< 0.1
NPDES Limit	Daily Max		6.5 - 9.0	10	Report	Report	Report	-	Report	-	0.5
	Monthly Avg.		NA	NA	1	Report	Report	-	Report	-	Report
Yampa Segment 13j Standards - Acute			6.5 - 9.0	-	-	-	50	18.4	-	-	-
Yampa Segment 13j Standards - Chronic			-	-	1	-	29	4.6	-	-	-
Agricultural Use Standards			-	-	-	-	200	-	-	20	-

Note

*NPDES10 does not have a Dissolved or Total Recoverable Selenium NPDES monitoring requirement.

Bold Analyte exceeds the NPDES limit, Segment 13j aquatic life standard, or Agricultural Use standard

Table 7. Water quality data at NPDES Outfall 011 for the period of January 1, 2019 - December 31, 2023

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron TR MG/L	TDS, Lab N MG/L	Cadmium PD UG/L	Chromium PD UG/L	Copper PD UG/L	Lead PD UG/L	Mercury T UG/L	Nickel PD UG/L	Selenium PD UG/L	Selenium* TR UG/L	Silver PD UG/L	Zinc PD MG/L	Settleable Solids MG/L	TSS* N UG/L
NPDES11	1/10/2019	0.000																
NPDES11	2/11/2019	0.000																
NPDES11	3/11/2019	0.000																
NPDES11	4/4/2019	0.000																
NPDES11	5/2/2019	0.184	8.36	N	0.83	1100	< 0.05	< 0.5	< 0.8	0.3	0.0024	< 8	0.4	0.4	< 0.1	< 0.01	< 0.1	
NPDES11	5/2/2019	0.184	8.36	N	0.72	1100								0.4				31
NPDES11	6/11/2019	0.065	8.19	N	< 0.03	1510											< 0.1	
NPDES11	7/17/2019	0.000																
NPDES11	8/5/2019	0.000																
NPDES11	9/4/2019	0.000																
NPDES11	10/24/2019	0.000																
NPDES11	11/12/2019	0.000																
NPDES11	12/4/2019	0.000																
NPDES11	1/9/2020	0.000																
NPDES11	2/4/2020	0.000																
NPDES11	3/2/2020	0.000																
NPDES11	4/21/2020	0.000																
NPDES11	5/5/2020	0.070	6.82	N	< 0.06	1340	< 0.05	< 0.5	< 0.8	< 0.1	0.0009	< 8	0.4	0.3	< 0.1	< 0.02	< 0.1	
NPDES11	6/2/2020	0.047	7.68	N	< 0.06	1590											< 0.1	
NPDES11	7/20/2020	0.000																
NPDES11	8/4/2020	0.000																
NPDES11	9/1/2020	0.000																
NPDES11	10/22/2020	0.000																
NPDES11	11/3/2020	0.000																
NPDES11	12/2/2020	0.000																
NPDES11	1/12/2021	0.000																
NPDES11	2/9/2021	0.000																
NPDES11	3/23/2021	0.000																
NPDES11	4/21/2021	0.000																
NPDES11	5/17/2021	0.000																
NPDES11	6/14/2021	0.000																
NPDES11	7/20/2021	0.000																
NPDES11	8/4/2021	0.000																
NPDES11	9/9/2021	0.000																
NPDES11	10/28/2021	0.000																
NPDES11	11/9/2021	0.000																
NPDES11	12/2/2021	0.000																
NPDES11	1/11/2022	0.000																
NPDES11	2/8/2022	0.000																
NPDES11	3/23/2022	0.000																
NPDES11	4/18/2022	0.000																
NPDES11	5/10/2022	0.000																
NPDES11	6/20/2022	0.000																
NPDES11	7/18/2022	0.000																
NPDES11	8/17/2022	0.000																
NPDES11	9/6/2022	0.000																
NPDES11	10/22/2022	0.000																
NPDES11	11/17/2022	0.000																
NPDES11	12/6/2022	0.000																
NPDES11	1/22/2023	0.000																
NPDES11	2/10/2023	0.000																
NPDES11	3/21/2023	0.000																
NPDES11	4/21/2023	0.000																
NPDES11	5/23/2023	0.046	8.2	N	< 0.06	1450								0.7			< 0.1	< 5
NPDES11	6/26/2023	0.000																
NPDES11	7/17/2023	0.000																
NPDES11	8/21/2023	0.000																
NPDES11	9/7/2023	0.000																

Table 7. Water quality data at NPDES Outfall 011 for the period of January 1, 2019 - December 31, 2023

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron TR MG/L	TDS, Lab N MG/L	Cadmium PD UG/L	Chromium PD UG/L	Copper PD UG/L	Lead PD UG/L	Mercury T UG/L	Nickel PD UG/L	Selenium PD UG/L	Selenium* TR UG/L	Silver PD UG/L	Zinc PD MG/L	Settleable Solids MG/L	TSS* N UG/L
NPDES11	10/27/2023	0.000																
NPDES11	11/6/2023	0.000																
NPDES11	12/5/2023	0.000																
NPDES Limit	Daily Max		6.5 - 9.0	10	Report	Report	Report	Report	Report	Report	Report	Report	Report	-	Report	Report	0.5	-
	Monthly Avg.		NA	NA	1	Report	Report	Report	Report	Report	Report	Report	Report	-	Report	Report	Report	-
Yampa Segment 13i Standards - Acute			6.5 - 9.0	-	-	-	9.2	1773	50	281	0.01	1513	18.4	-	22	0.565	-	-
Yampa Segment 13i Standards - Chronic			-	-	1	-	1.2	231	29	11	-	168	4.6	-	3.5	0.428	-	-
Agricultural Use Standards			-	-	-	-	10	100	200	100	-	200	-	20	-	2	-	-

Note

*NPDES11 does not have a Total Recoverable Selenium or Total Suspended Solids (TSS) NPDES monitoring requirement.

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

Table 8. Water quality data at NPDES Outfall 012 for the period of January 1, 2019 - December 31, 2023

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron TR MG/L	TDS N MG/L	Manganese PD MG/L	Selenium* D UG/L	Selenium PD UG/L	Selenium* TR UG/L	Settleable Solids MG/L
NPDES12	1/10/2019	0.036	7.63	N	0.11	3200	0.343		< 0.2	0.3	< 0.1
NPDES12	2/11/2019	0.036	7.66	N	0.08	3300			1.8	0.6	< 0.1
NPDES12	3/11/2019	0.036	7.69	N	0.06	3090			0.7	< 0.2	< 0.1
NPDES12	4/4/2019	0.043	7.67	N	0.18	2090	0.079		3.2	3.5	< 0.1
NPDES12	5/1/2019	0.378	8.09	N	0.06	1660		1.9	1.8	1.9	< 0.1
NPDES12	6/10/2019	0.297	7.94	N	< 0.06	2990			1.6	1.1	< 0.1
NPDES12	7/17/2019	0.172	8.2	N	0.1	3070	0.08		0.9	0.5	< 0.1
NPDES12	7/17/2019	0.172	8.2	N		3110		0.9		0.6	
NPDES12	8/5/2019	0.126	8.14	N	0.16	3110			0.7	0.7	< 0.1
NPDES12	9/3/2019	0.115	8.3	N	0.1	3160			0.5	0.4	< 0.1
NPDES12	10/23/2019	0.111	8.43	N	0.2	3200	0.44		0.5	0.3	< 0.1
NPDES12	11/11/2019	0.107	8.41	N	0.21	3410			0.9	0.5	< 0.1
NPDES12	12/3/2019	0.094	7.77	N	0.08	3260			1.6	0.4	< 0.1
NPDES12	1/8/2020	0.077	7.71	N	0.07	3360	0.29		0.9	0.5	< 0.1
NPDES12	2/3/2020	0.076	7.73	N	0.07	3280			1.3	0.4	< 0.1
NPDES12	3/2/2020	0.077	7.75	N	0.09	3310			2.5	0.7	< 0.1
NPDES12	4/22/2020	0.378	7.06	N	< 0.1	2280			0.9	0.9	< 0.1
NPDES12	4/22/2020	0.378	7.06	N		2290		0.8		1	
NPDES12	5/5/2020	0.357	7.54	N	< 0.06	2610	0.04		1.7	1.1	< 0.1
NPDES12	6/1/2020	0.286	7.65	N	< 0.1	2740			0.5	0.6	< 0.1
NPDES12	7/21/2020	0.150	7.82	N	0.1	2930			**16.5**	0.4	< 0.1
NPDES12	7/21/2020	0.150	7.82	N		2950		0.6		0.4	
NPDES12	8/3/2020	0.126	7.93	N	0.15	3090	0.22		0.4	0.4	< 0.1
NPDES12	9/1/2020	0.113	8.03	N	0.13	3240			0.3	0.3	< 0.1
NPDES12	10/22/2020	0.110	8.09	N	0.172	3350	0.053		0.24	0.35	< 0.1
NPDES12	11/2/2020	0.093	8.39	N	< 0.12	3020			0.29	0.36	< 0.1
NPDES12	12/1/2020	0.083	8.29	N	< 0.12	3520			0.35	0.28	< 0.1
NPDES12	1/11/2021	0.083	8.06	N	0.176	3240	0.203		0.29	0.24	< 0.1
NPDES12	2/8/2021	0.082	7.94	N	< 0.12	3040			0.12	0.28	< 0.1
NPDES12	3/22/2021	0.079	8.17	N	0.163	3180			0.81	0.52	< 0.1
NPDES12	4/22/2021	0.106	8.33	N	0.235	3150	0.055		0.73	0.63	< 0.1
NPDES12	4/22/2021	0.106	8.33	N		3150		0.68		0.62	
NPDES12	5/17/2021	0.103	8.17	N	0.178	3280			0.53	0.55	< 0.1
NPDES12	6/14/2021	0.083	7.87	N	0.37	3700			0.35	0.59	< 0.1
NPDES12	7/21/2021	0.053	7.97	N	< 0.12	3370	0.155		< 0.1	0.43	< 0.1
NPDES12	7/21/2021	0.053	7.97	N		3390		0.79		0.43	
NPDES12	8/3/2021	0.054	8.13	N	0.112	3410			0.4	0.52	< 0.1
NPDES12	9/9/2021	0.063	8.1	N	0.106	3090			0.32	0.37	< 0.1
NPDES12	10/27/2021	0.054	8.2	N	0.121	3050	0.0378		0.19	< 0.2	< 0.1
NPDES12	11/8/2021	0.062	8.23	N	0.183	3060			0.25	0.26	< 0.1
NPDES12	12/1/2021	0.053	8.16	N	< 0.12	2960			0.21	< 0.2	< 0.1
NPDES12	1/10/2022	0.054	8.09	N	0.11	2900	0.488		1.23	< 0.2	< 0.1
NPDES12	2/7/2022	0.052	8.06	N	0.176	2970			< 0.5	< 0.2	< 0.1
NPDES12	3/22/2022	0.047	7.97	N	< 0.12	2780			1.09	0.45	< 0.1
NPDES12	4/19/2022	0.136	8	N	0.313	1880	0.035		0.98	1	< 0.1
NPDES12	4/19/2022	0.136	8	N		1880		1		0.97	

Table 8. Water quality data at NPDES Outfall 012 for the period of January 1, 2019 - December 31, 2023

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	Iron TR MG/L	TDS N MG/L	Manganese PD MG/L	Selenium* D UG/L	Selenium PD UG/L	Selenium* TR UG/L	Settleable Solids MG/L
NPDES12	5/9/2022	0.124	8	N	0.145	2900			0.64	1.03	< 0.1
NPDES12	6/20/2022	0.108	8.07	N	< 0.12	2940			0.31	0.46	< 0.1
NPDES12	7/19/2022	0.054	7.93	N	0.118	3020	0.143		**27**	0.36	< 0.1
NPDES12	7/19/2022	0.054	7.93	N		3040		0.55		0.37	
NPDES12	8/17/2022	0.053	8.56	N	< 0.12	3140			0.37	0.35	< 0.1
NPDES12	9/6/2022	0.050	8.69	N	< 0.12	3550			0.25	0.23	< 0.1
NPDES12	10/20/2022	0.046	8.27	N	0.072	3310	0.0141		0.21	0.25	< 0.1
NPDES12	11/16/2022	0.044	8.29	N	0.168	3460			0.34	0.23	< 0.1
NPDES12	12/5/2022	0.042	8.26	N	< 0.12	3150			< 0.2	0.14	< 0.1
NPDES12	1/22/2023	0.041	7.82	N	< 0.12	2860			3.06	< 0.2	< 0.1
NPDES12	2/10/2023	0.000	7.4	N	< 0.12	2840			< 0.2	< 0.2	< 0.1
NPDES12	3/21/2023	0.026	7.4	N	< 0.12	3530	0.146		3.8	0.72	< 0.1
NPDES12	4/19/2023	0.144	7.6	N	0.187	1140			1.25	1.24	< 0.1
NPDES12	5/24/2023	0.138	7.9	N	< 0.12	2860		1.62	1.36	1.34	< 0.1
NPDES12	6/26/2023	0.153	7.7	N	< 0.12	2960			1.04	0.63	< 0.1
NPDES12	7/18/2023	0.096	7.6	N	< 0.12	3050	0.038	0.45	0.24	0.43	< 0.1
NPDES12	8/21/2023	0.077	8	N	< 0.06	3170			0.41	0.34	< 0.1
NPDES12	9/7/2023	0.054	8.2	N	< 0.12	3180			0.43	0.41	< 0.1
NPDES12	10/27/2023	0.052	8.1	N	< 0.12	3510	0.052		0.66	0.47	< 0.1
NPDES12	11/6/2023	0.053	8.1	N	< 0.12	3320			0.39	0.44	< 0.1
NPDES12	12/5/2023	0.051	8.2	N	0.092	3220			0.27	0.23	< 0.1
NPDES Limit	Daily Max		6.5 - 9.0	10	Report	Report	Report	-	18	-	0.5
	Monthly Avg.		NA	NA	1	Report	Report	-	4.6	-	Report
Yampa Segment 13e Standards - Acute			6.5 - 9.0	-	1	-	4.738	18.4	-	-	-
Yampa Segment 13e Standards - Chronic			-	-	-	-	2.618	4.6	-	-	-
Agricultural Use Standards			-	-	-	-	0.2**	-	-	20	-

Note

* NPDES12 does not have a Dissolved or Total Recoverable Selenium NPDES monitoring requirement.

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

Bold Analyte exceeds the NPDES limit, Segment 13e aquatic life standard, or Agricultural Use standard

Table 9. Water quality data at NPDES Outfall 013 for the period of January 1, 2019 - December 31, 2023

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	TDS, Lab N MG/L	Arsenic TR UG/L	Cadmium PD UG/L	Chromium PD UG/L	Copper PD UG/L	Iron TR MG/L	Lead PD UG/L	Manganese PD MG/L	Mercury T UG/L	Nickel PD UG/L	Selenium* D UG/L	Selenium PD UG/L	Selenium* TR UG/L	Silver PD UG/L	Zinc PD MG/L	TSS* N MG/L	Settleable Solids MG/L
NPDES13	1/10/2019	0.000																			
NPDES13	2/11/2019	0.000																			
NPDES13	3/11/2019	0.000																			
NPDES13	4/4/2019	0.010	8.06	N	1740	0.9	< 0.05	< 0.5	2.2	0.31	0.1	0.008	0.0034	< 8		5.7	6.2	< 0.1	0.01	5	< 0.1
NPDES13	5/1/2019	0.132	**9.07**	N	1880					0.38					**13**		12.5				< 0.1
NPDES13	6/14/2019	0.000																			
NPDES13	7/17/2019	0.000																			
NPDES13	8/5/2019	0.000																			
NPDES13	9/3/2019	0.000																			
NPDES13	10/23/2019	0.000																			
NPDES13	11/11/2019	0.000																			
NPDES13	12/3/2019	0.000																			
NPDES13	1/8/2020	0.000																			
NPDES13	2/3/2020	0.000																			
NPDES13	3/2/2020	0.000																			
NPDES13	4/22/2020	0.126	7.25	N	2720	0.8	< 0.1	< 1	< 2		< 0.2		0.0028	< 8	**13.7**		15.7	< 0.2	< 0.02		
NPDES13	4/22/2020	0.126	7.25	N	2680					0.2		< 0.01				15	15.7			5	< 0.1
NPDES13	5/5/2020	0.107	7.53	N	5630					< 0.06											< 0.1
NPDES13	6/1/2020	0.000																			
NPDES13	7/21/2020	0.000																			
NPDES13	8/3/2020	0.000																			
NPDES13	9/1/2020	0.000																			
NPDES13	10/22/2020	0.000																			
NPDES13	11/2/2020	0.000																			
NPDES13	12/1/2020	0.000																			
NPDES13	1/11/2021	0.000																			
NPDES13	2/8/2021	0.000																			
NPDES13	3/22/2021	0.000																			
NPDES13	4/22/2021	0.000																			
NPDES13	5/17/2021	0.000																			
NPDES13	6/14/2021	0.000																			
NPDES13	7/21/2021	0.000																			
NPDES13	8/3/2021	0.000																			
NPDES13	9/9/2021	0.000																			
NPDES13	10/27/2021	0.000																			
NPDES13	11/8/2021	0.000																			
NPDES13	12/1/2021	0.000																			
NPDES13	1/10/2022	0.000																			
NPDES13	2/7/2022	0.000																			
NPDES13	3/22/2022	0.000																			
NPDES13	4/19/2022	0.036	**9.13**	N	1500	0.83	< 0.05	< 0.5	1.42	0.142	0.16	< 0.01	0.0026	< 8		6.88	7.21	< 0.1	< 0.02	16	< 0.1
NPDES13	5/9/2022	0.002	**9.76**	N	2790					< 0.12											< 0.1
NPDES13	6/20/2022	0.000																			
NPDES13	7/19/2022	0.000																			
NPDES13	8/17/2022	0.000																			
NPDES13	9/6/2022	0.000																			
NPDES13	10/22/2022	0.000																			
NPDES13	11/16/2022	0.000																			
NPDES13	12/5/2022	0.000																			
NPDES13	1/22/2023	0.000																			
NPDES13	2/10/2023	0.000																			
NPDES13	3/21/2023	0.000																			
NPDES13	4/19/2023	0.118	7.9	N	708	0.8	< 0.05	< 0.5	< 0.8	**1.33**	0.35	0.011	0.00353	< 8		2.93	2.79	< 0.1	< 0.02	14	< 0.1
NPDES13	5/24/2023	0.011	8.9	N	5930	< 1	< 0.1	< 1	< 4	< 0.3	0.24	< 0.01	0.00171	< 8	**45.1**	44.7	**49.1**	< 0.2	< 0.02	15	< 0.1
NPDES13	6/26/2023	0.000																			
NPDES13	7/18/2023	0.000																			
NPDES13	8/21/2023	0.000																			
NPDES13	9/7/2023	0.000																			

Table 9. Water quality data at NPDES Outfall 013 for the period of January 1, 2019 - December 31, 2023

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	TDS, Lab N MG/L	Arsenic TR UG/L	Cadmium PD UG/L	Chromium PD UG/L	Copper PD UG/L	Iron TR MG/L	Lead PD UG/L	Manganese PD MG/L	Mercury T UG/L	Nickel PD UG/L	Selenium* D UG/L	Selenium PD UG/L	Selenium* TR UG/L	Silver PD UG/L	Zinc PD MG/L	TSS* N MG/L	Settleable Solids MG/L
NPDES13	10/27/2023	0.000																			
NPDES13	11/6/2023	0.000																			
NPDES13	12/5/2023	0.000																			
NPDES Limit	Daily Max		6.5 - 9.0	10	Report	Report	Report	Report	Report	Report	Report	Report	Report	Report	-	Report	-	Report	Report	-	Report
	Monthly Avg.		NA	NA	Report	Report	Report	Report	Report	Report	Report	Report	Report	Report	-	Report	-	Report	Report	-	Report
Yampa Segment 13e Standards - Acute			6.5 - 9.0	-	-	340	9.2	1773	50	1.25	281	4.738	0.01	1513	18.4	-	-	22	0.565	-	-
Yampa Segment 13e Standards - Chronic			-	-	-	100	1.2	231	29	-	11	2.618	-	168	4.6	-	-	3.5	0.428	-	-
Agricultural Use Standards			-	-	-	100	10	100	200	-	100	0.2**	-	200	-	-	20***	-	2	-	-

Note

* Dissolved Selenium, Total Recoverable Selenium, and Total Suspended Solids (TSS) are not required NPDES monitoring paramaters at this outfall

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

*** The agricultural use standard is applied to total recoverable selenium

Bold Analyte exceeds the NPDES limit, Segment 13e aquatic life standard, or Agricultural Use standard

Table 10. Water quality data at NPDES Outfall 014 for the period of January 1, 2019 - December 31,

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	TDS N MG/L	Selenium* D UG/L	Selenium* TR UG/L	Settleable Solids MG/L
NPDES14	1/10/2019	0.000						
NPDES14	2/11/2019	0.000						
NPDES14	3/11/2019	0.000						
NPDES14	4/4/2019	0.000						
NPDES14	5/1/2019	0.131	8.29	N	1440	0.7	0.6	< 0.1
NPDES14	6/14/2019	0.000						
NPDES14	7/17/2019	0.000						
NPDES14	8/5/2019	0.000						
NPDES14	9/3/2019	0.000						
NPDES14	10/23/2019	0.000						
NPDES14	11/11/2019	0.000						
NPDES14	12/3/2019	0.000						
NPDES14	1/8/2020	0.000						
NPDES14	2/3/2020	0.000						
NPDES14	3/2/2020	0.000						
NPDES14	4/22/2020	0.097	7.78	N	1370	0.5	0.5	< 0.1
NPDES14	4/22/2020	0.097	7.78	N	1380			< 0.1
NPDES14	5/5/2020	0.103	7.36	N	1920			< 0.1
NPDES14	6/1/2020	0.000						
NPDES14	7/21/2020	0.000						
NPDES14	8/3/2020	0.000						
NPDES14	9/1/2020	0.000						
NPDES14	10/22/2020	0.000						
NPDES14	11/2/2020	0.000						
NPDES14	12/1/2020	0.000						
NPDES14	1/11/2021	0.000						
NPDES14	2/8/2021	0.000						
NPDES14	3/22/2021	0.000						
NPDES14	4/22/2021	0.000						
NPDES14	5/17/2021	0.000						
NPDES14	6/14/2021	0.000						
NPDES14	7/21/2021	0.000						
NPDES14	8/3/2021	0.000						
NPDES14	9/9/2021	0.000						
NPDES14	10/27/2021	0.000						
NPDES14	11/8/2021	0.000						
NPDES14	12/1/2021	0.000						
NPDES14	1/10/2022	0.000						
NPDES14	2/7/2022	0.000						
NPDES14	3/22/2022	0.000						
NPDES14	4/19/2022	0.000						
NPDES14	5/9/2022	0.000						
NPDES14	6/20/2022	0.000						
NPDES14	7/19/2022	0.000						
NPDES14	8/17/2022	0.000						

Table 10. Water quality data at NPDES Outfall 014 for the period of January 1, 2019 - December 31,

Location	Date	Flow N MGD	pH, Field N S.U.	Oil & Grease Y / N	TDS N MG/L	Selenium* D UG/L	Selenium* TR UG/L	Settleable Solids MG/L
NPDES14	9/6/2022	0.000						
NPDES14	10/22/2022	0.000						
NPDES14	11/16/2022	0.000						
NPDES14	12/5/2022	0.000						
NPDES14	1/22/2023	0.000						
NPDES14	2/10/2023	0.000						
NPDES14	3/21/2023	0.000						
NPDES14	4/19/2023	0.134	7.8	N	616			< 0.1
NPDES14	5/24/2023	0.022	8.3	N	2020	0.81	0.93	< 0.1
NPDES14	6/26/2023	0.000						
NPDES14	7/18/2023	0.000						
NPDES14	8/21/2023	0.000						
NPDES14	9/7/2023	0.000						
NPDES14	10/27/2023	0.000						
NPDES14	11/6/2023	0.000						
NPDES14	12/5/2023	0.000						
NPDES Limit	Daily Max		6.5 - 9.0	10	Report	-	-	0.5
	Monthly Avg.		NA	NA	Report	-	-	Report
Yampa Segment 13e Standards - Acute			6.5 - 9.0	-	-	18.4	-	-
Yampa Segment 13e Standards - Chronic			-	-	-	4.6	-	-
Agricultural Use Standards			-	-	-	-	20	-

Note

*NPDES14 does not have a Dissolved or Total Recoverable Selenium NPDES monitoring requirement.

Bold Analyte exceeds the NPDES limit or Agricultural Use standard

Table 11. Total Suspended Solids Concentrations at NPDES Outfalls During the 5-Years Prior To Reclamation Drainage Status

Receiving Stream	Outfall	N	Total Suspended Solids (mg/L)		
			Mean	Min	Max
Grassy Creek	NPDES10*	50	8.9	<5	46
	NPDES11*	18	13.8	<5	38
Sage Creek	NPDES12**	59	8.6	<5	25
	NPDES13**	30	8.5	<5	26
	NPDES14**	13	26.8	<5	170

Notes

* Samples collected November 2001 - November 2006

** Samples collected July 2005 - July 2010

One half the non-detect value applied to censored data for statistical calculations

Table 12. Groundwater analytical results for Grassy Creek GWPOC Well SGAL70 between January 1, 2019 and December 31, 2023

Well	Date	Depth to Water ft btoc	pH, Field N S.U.	Temp., Field N DEG-C	SPC, Field N UMHOS/CM	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
SGAL70	5/7/2019	9.61	7.41	8.7	3150	< 0.1	< 0.4	100	**< 20**	33.6	< 20	< 20	0.2
SGAL70	9/3/2019	10.52	7.02	11.9	3960								0.3
SGAL70	5/19/2020	9.78	7.22	9	3930	< 0.1	< 0.4	90	**< 20**	37.2	< 20	< 20	0.3
SGAL70	9/19/2020	10.62	7.3	10.5	3610								0.1
SGAL70	5/13/2021	10.33	7.28	8.8	3270	< 0.1	< 0.4	96	**< 16**	30.7	< 40	< 20	0.22
SGAL70	9/25/2021	12.58	7.25	10.4	3050	< 0.1	< 0.4	137	**< 16**	29	< 40	< 20	0.34
SGAL70	5/6/2022	9.83	7.42	7.9	3320	< 0.1	< 0.4	107	**< 16**	31.2	< 40	< 20	0.27
SGAL70	9/15/2022	11.31	7.11	9.9	3350	< 0.1	0.29	134	**< 16**	29.8	45	29	0.17
SGAL70	6/21/2023	9.82	7.7	9.5	3380	< 0.1	< 0.4	126	**< 16**	36	< 40	< 20	0.26
SGAL70	9/25/2023	9.78	7.3	14.6	2870	< 0.05	0.25	141	**< 8**	39.6	< 20	< 10	0.26
Grassy Creek TR39 GWPOC Standard*			6.5 - 8.5	**-**	**-**	**5**	**50**	**750**	**5**	**250**	**100**	**200**	**2**

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
SGAL70	5/7/2019	< 0.06	< 60	0.03	< 0.2	< 20	0.02	< 0.01	< 1	2200	< 0.02	3570	< 0.02
SGAL70	9/3/2019	< 0.06		0.32			0.02	0.01	< 1	2270		3750	
SGAL70	5/19/2020	< 0.1	< 60	0.15	< 0.2	< 20	< 0.02	< 0.01	< 2	2250	< 0.02	3660	< 0.04
SGAL70	9/19/2020	< 0.1		0.26			0.03	< 0.01	< 2	2200		3600	
SGAL70	5/13/2021	< 0.12	< 60	0.082	< 0.2	< 16	< 0.02	< 0.01	< 2	1980	< 0.02	3300	< 0.04
SGAL70	9/25/2021	< 0.12	< 60	0.354	< 0.2	< 16	< 0.02	< 0.01	< 2	1940	< 0.02	3160	2.97
SGAL70	5/6/2022	< 0.12	< 60	0.041	< 0.2	< 16	0.027	< 0.01	6.4	1820	< 0.02	3020	0.18
SGAL70	9/15/2022	0.345	< 60	0.027	< 0.2	< 16	0.042	< 0.01	< 2	1840	< 0.02	3020	< 0.04
SGAL70	6/21/2023	< 0.12	< 60	0.082	< 0.2	< 16	0.069	< 0.01	13.5	1870	< 0.02	3270	< 0.04
SGAL70	9/25/2023	0.067	< 30	0.312	< 0.2	< 8	< 0.02	0.013	< 2	2000	< 0.02	3290	0.061
TR-39 GWPOC Standards*		**14.1**	**70**	**2.44**	**2**	**100**	**10**	**1**	**20**	**2517**	**-**	**5038**	**5**

Well	Date	Alk. as CaCO3, @ pH 4.5 N 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 Balance N %
SGAL70	5/7/2019	335	394	3570	2130	279	5.9	184	1.8	-2.9
SGAL70	9/3/2019									
SGAL70	5/19/2020	405	413	3760	2200	283	5.9	202	1.9	-2.8
SGAL70	9/19/2020									
SGAL70	5/13/2021	353	376	3390	1940	242	5.56	181	1.8	-3.1
SGAL70	9/25/2021	374	394	3530	2020	251	6.04	190	1.9	0
SGAL70	5/6/2022	332	346	3260	1810	230	5.64	174	1.8	-2.2
SGAL70	9/15/2022	334	364	3220	1890	239	5.4	170	1.7	-1.1
SGAL70	6/21/2023	398	354	3370	1940	257	5.68	183	1.8	-1.1
SGAL70	9/25/2023	351	372	3410	2040	271	6.18	184	1.8	-1
TR-39 GWPOC Standards*		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Notes

* See Yoast Mine Technical Revision 39 (TR-39) for GWPOC standards

Bold Analyte exceeds the TR-39 GWPOC Standard

Table 13. Groundwater Analytical Results for Sage Creek GWPOC Well YSAL3 between January 1, 2019 and December 31, 2023

Location	Date	Static Water Level 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
YSAL3	5/14/2019	4.18	1300	7.21	7.4	0.3	0.31	0.02	0.66	< 0.01	< 1	450	966
YSAL3	5/20/2020	4.48	1530	7.8	8.9	0.3	0.54	0.03	1.03	< 0.01	< 2	480	1010
YSAL3	5/14/2021	5.11	1620	7.57	7.1	0.28	0.493	0.177	0.09	< 0.01	< 2	557	1130
YSAL3	5/3/2022	6.78	1730	7.65	7.2	0.36	0.278	0.185	0.063	0.018	< 2	546	1160
YSAL3	6/22/2023	4.51	1850	7.3	7.8	0.29	0.423	0.186	< 0.02	0.012	< 2	691	1310
Sage Creek TR39 GWPOC Standards*			-	6.5 - 8.5	-	2	4.91	0.76	10	1	20	1200	2675

Notes

* See Yoast Mine Technical Revision 39 (TR-39) for GWPOC standards

Bold Exceeds groundwater quality standard

Table 14. Pre-mine and Post Mine Total Iron Concentrations at Grassy Creek Stream Points

Iron (mg/L)					
Location	**Dates**	**N**	**Mean**	**Min**	**Max**
YSGF5	1991 - 1993	19	**1.34**	0.15	**9.9**
YSGF5	2019 - 2023	18	**1.02**	0.41	**3.69**
YSG5	2019 - 2023	14	0.87	0.26	**2.38**

Notes

Bold Exceeds the Yampa Segment 13i Iron Standard

One half the non-detect value applied to all censored data for statistical calculations

Table 15. Water quality data from the Yoast Mine springs for the period of January 1, 2019 - December 31, 2023

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
YSSPG1	6/11/2019	0.251136	2849	8.07	17.8	0.68	**0.248**	< 0.2	< 0.05	0.08	< 0.01
YSSPG1	6/2/2020	0.243216	2537	7.85	21.7	1.4	**0.384**	< 0.2	< 0.05	0.1	< 0.01
YSSPG1	6/15/2021	0									
YSSPG1	6/21/2022	0									
YSSPG1	6/29/2023	0.004	2944	8	10.3	0.068	0.0811	< 0.2	< 0.1	0.058	< 0.01
YSSPG2	6/11/2019	0.009504	2774	7.06	11.3	< 0.06	0.188				
YSSPG2	6/2/2020	0.010512	2221	6.64	13.9	< 0.1	0.131				
YSSPG2	6/15/2021	0									
YSSPG2	6/21/2022	0									
YSSPG2	6/29/2023	0									
YSSPG3	6/12/2019	0.002304	2142	8.01	12.1	0.11	**0.201**				
YSSPG3	6/3/2020	0.003456	1417	7.91	13.6	0.31	**0.366**				
YSSPG3	6/16/2021	0									
YSSPG3	6/22/2022	0									
YSSPG3	6/29/2023	0.002	2242	8	17.1	< 0.06	0.0836				
YSSPG4	6/12/2019	0.157968	2894	6.81	9.1	< 0.06	**1.46**				
YSSPG4	6/3/2020	0.153216	1990	6.48	11.8	< 0.1	**1.5**				
YSSPG4	6/16/2021	0									
YSSPG4	6/22/2022	0									
YSSPG4	6/29/2023	0.004	2998	6.5	12.8	0.578	**1.88**				
13_Spring*	5/19/2022			7.9**							
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
YSSPG1	6/11/2019	< 0.2	< 0.2	< 0.2	1420	< 0.02	2540	25
YSSPG1	6/2/2020	< 0.2	< 0.2	< 0.2	1300	< 0.02	2470	44
YSSPG1	6/15/2021							
YSSPG1	6/21/2022							
YSSPG1	6/29/2023	0.17	0.15	0.14	1360	< 0.02	2450	6
YSSPG2	6/11/2019	< 0.2	< 0.2	< 0.2			2380	< 5
YSSPG2	6/2/2020	< 0.2	< 0.2	< 0.2			2500	< 5
YSSPG2	6/15/2021							
YSSPG2	6/21/2022							
YSSPG2	6/29/2023							
YSSPG3	6/12/2019	0.6	0.5	0.5			1760	< 5
YSSPG3	6/3/2020	0.2	0.2	0.3			1510	< 5
YSSPG3	6/16/2021							
YSSPG3	6/22/2022							
YSSPG3	6/29/2023	0.54	0.51	0.56			1800	< 5
YSSPG4	6/12/2019	0.5	0.5	0.5			2480	< 5
YSSPG4	6/3/2020	0.4	0.4	0.4			2450	< 5
YSSPG4	6/16/2021							
YSSPG4	6/22/2022							
YSSPG4	6/29/2023	0.26	0.28	0.25			2510	< 5
13_Spring*	5/19/2022		411	300	17300		26700	
Agricultural Use Standards		20	-	-	-	-	-	-

Notes

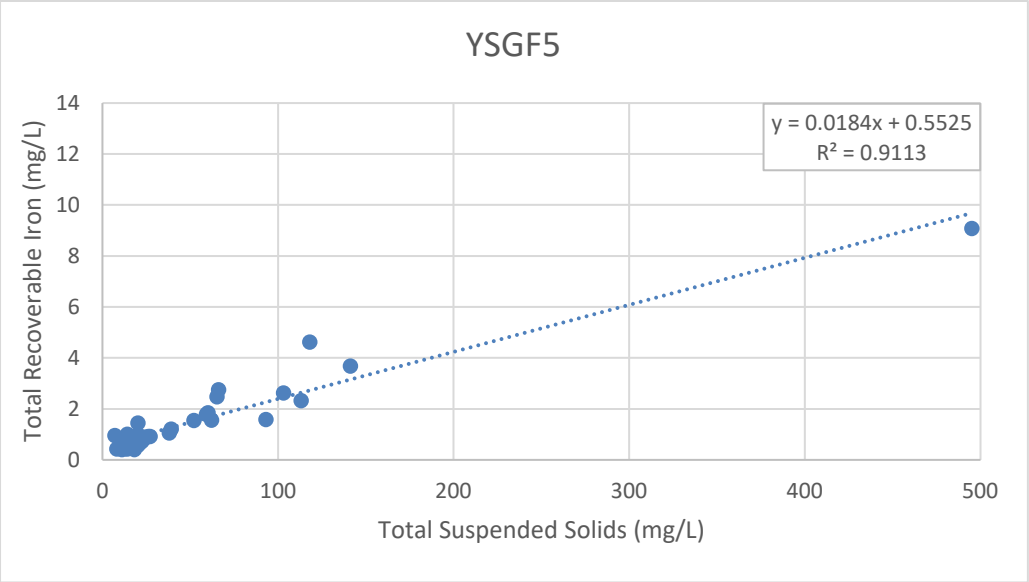
* 13_Spring is a natural spring located outside of mining disturbance that reports to Outfall 013. This spring does not have a monitoring requirement under C-1994-082

** Lab pH

*** 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

Figure 1. Total Recoverable Iron vs Total Suspended Solids for Samples Collected from Grassy Creek Stream Points YSGF5 and YSG5 between January 1, 2014 and December 31, 2023



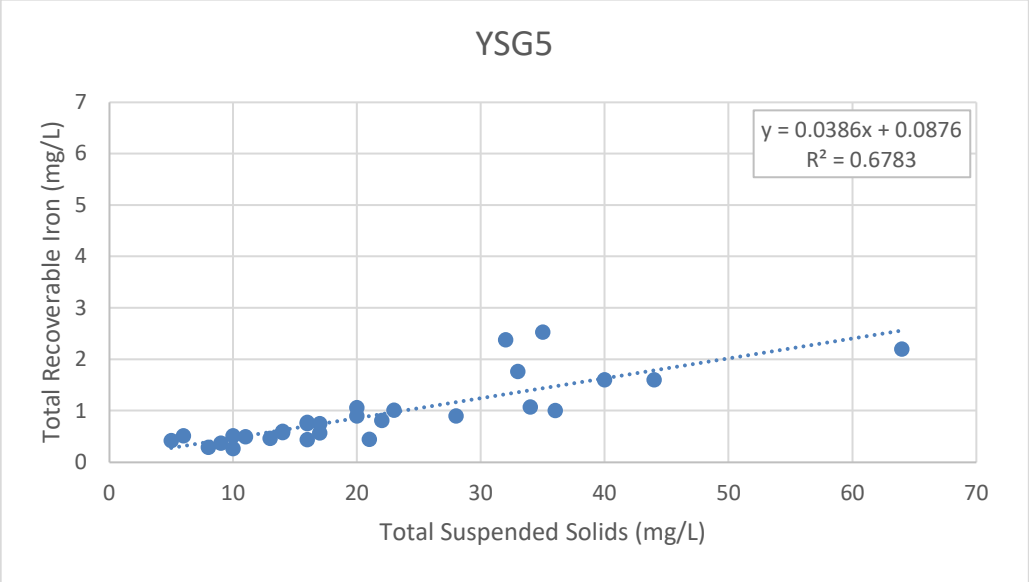
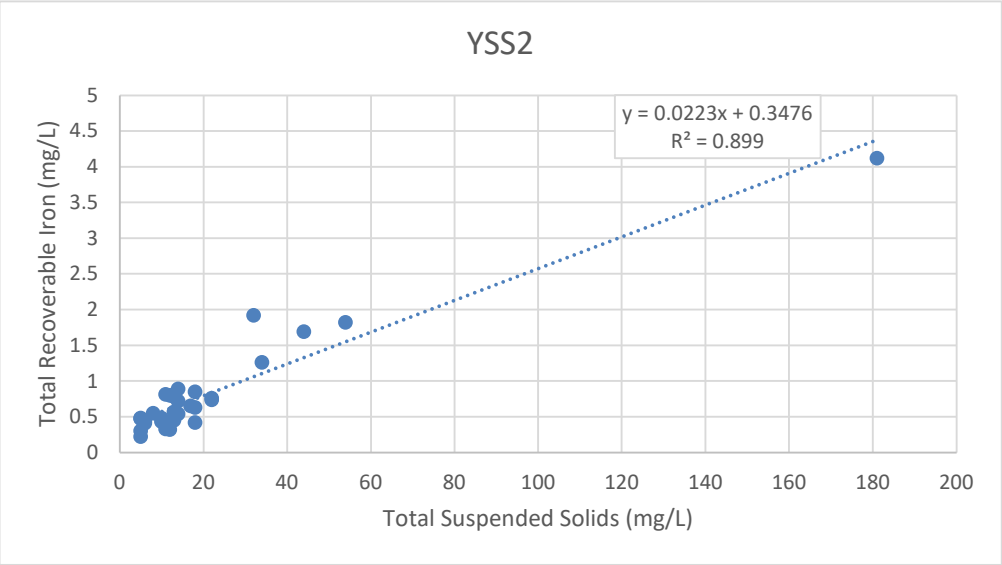
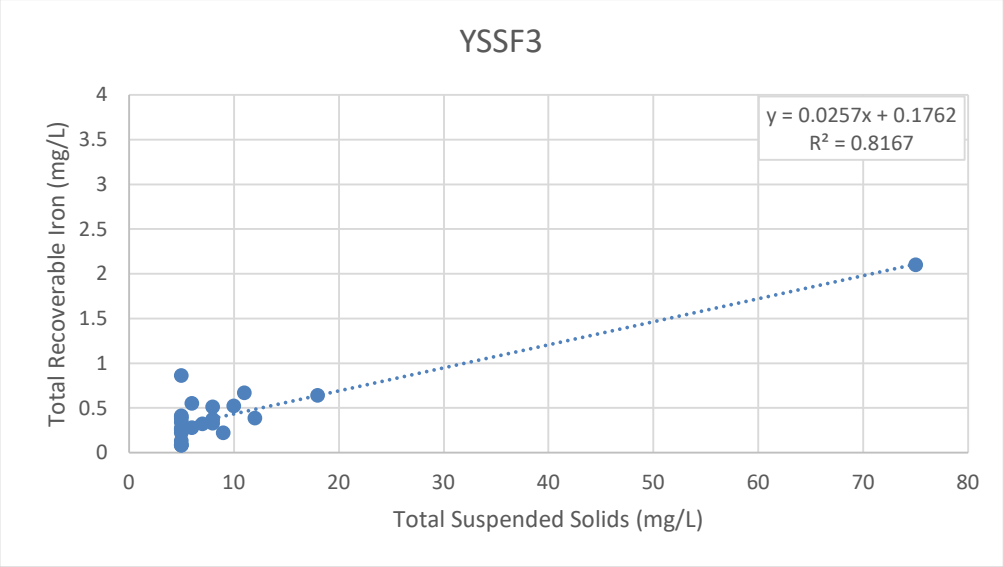


Figure 2. Total Recoverable Iron vs Total Suspended Solids for samples collected from Sage Creek Stream Point YSS2 between January 1, 2014 - December 31, 2023





Attachment 1. Statistical Comparison of TSS in Post Mine NPDES Discharges from Outfall 014 to Pre-mine Sage Creek Stream Point YSS2. Post mine TSS results compared to predicted upper confidence level.

Location	Monitoring Period	Date	TSS N MG/L
YSS2	Pre-Mining	5/1/1991	118
		6/17/1991	< 2
		9/2/1991	28
		3/20/1992	10
		4/13/1992	78
		5/14/1992	28
		6/18/1992	32
		7/15/1992	22
		8/10/1992	46
		9/10/1992	36
		10/14/1992	14
		11/9/1992	2
		3/31/1993	10
		4/21/1993	30
		5/6/1993	4
		6/23/1993	< 2
		7/20/1993	< 2
		8/17/1993	4
		9/14/1993	6
		10/14/1993	< 2
NPDES14	Post Mine	4/12/2006	170*
		5/4/2006	14
		3/19/2007	18
		4/2/2007	42
		4/29/2008	16
		5/20/2008	<5
		6/3/2008	<5
		3/24/2009	14
		4/9/2009	23
		5/1/2009	14
		4/15/2010	14
		5/4/2010	9
		6/14/2010	<5

Pre-Mining		**TSS**
	mean	**23.60**
	VAR	**880.46**
	STDEV	**29.67**

$$Cl = \overline{X_b} \pm t\sqrt{1 + 1/n}\ (S_b)$$

	CL (95%)	**76.17**
	CL (99%)	**100.80**

Post Mining		**TSS**
	Max	**170 (42)***
	Mean	**26.27**

Notes

One half the non-detect value applied to all censored data for statistical calculations

CL = upper confidence limit prediction

t = one-tailed t vlaue at required significance

If the value of the post mine monitoring paramater exceeds the upper confidence limit than a statistically significant change has occurred.

* The sample from NPDES14 on 4/12/2006 may be related to sampler error. No other sample collected from 2006 - 2010 exceeded 42 mg/L.

SENECA Property, LLC

COV011
YSSG1
G-AD-1A
YTM32
NPDES 010
YSA4
YSNZR1
N
W
E
S
YSA4
YSNZR1
YTM32
NPDES 010
YSS2
YSSF1
YSAL3
YSSPG4
YOV1
NPDES 012
YSAL6
YSAL8
YSIN013
NPDES 013
YOV8
YW12
YW11
YW7
YWU30
YOV30
YW30
NPDES 014
YSAL11
YSAL13
YSAL12
YSSF3
YOV15
YW14
YWU16
YW29
YOV29
YWU29
YOV18
YW18
YSPG4
YWU17
YSPG5
YWCU31
YWC31
YW23
YOV22
YOV20
YW21
YSPG6
YSPG7
YSPG10
YSPG8
YSAF4
YAAL14
YSPG9
YSSPG1
YW28
YOV28
YWU28
YW24
YOV25
YSSPG2
YW26
YOV27
YSA4
YSNZR1
YTM32
NPDES 010
NPDES 011
YGAL16
YSG6
YGAL17
YGAL18
0
0.2
0.4
0.8
1.2
1.6
Miles

Legend

SL9

- PHASE III
- PHASE II/III
- DisturbanceBoundary
- Yoast Permit Boundary

- Segement_13e Sage Creek
- Segement_13j Scotchmans/Annand
- Segement_13i Grassy Creek

Hydrology Monitoring Sites

- GW
- NPDES
- SPRING
- Surface Water

Seneca Yoast Mine

Peabody

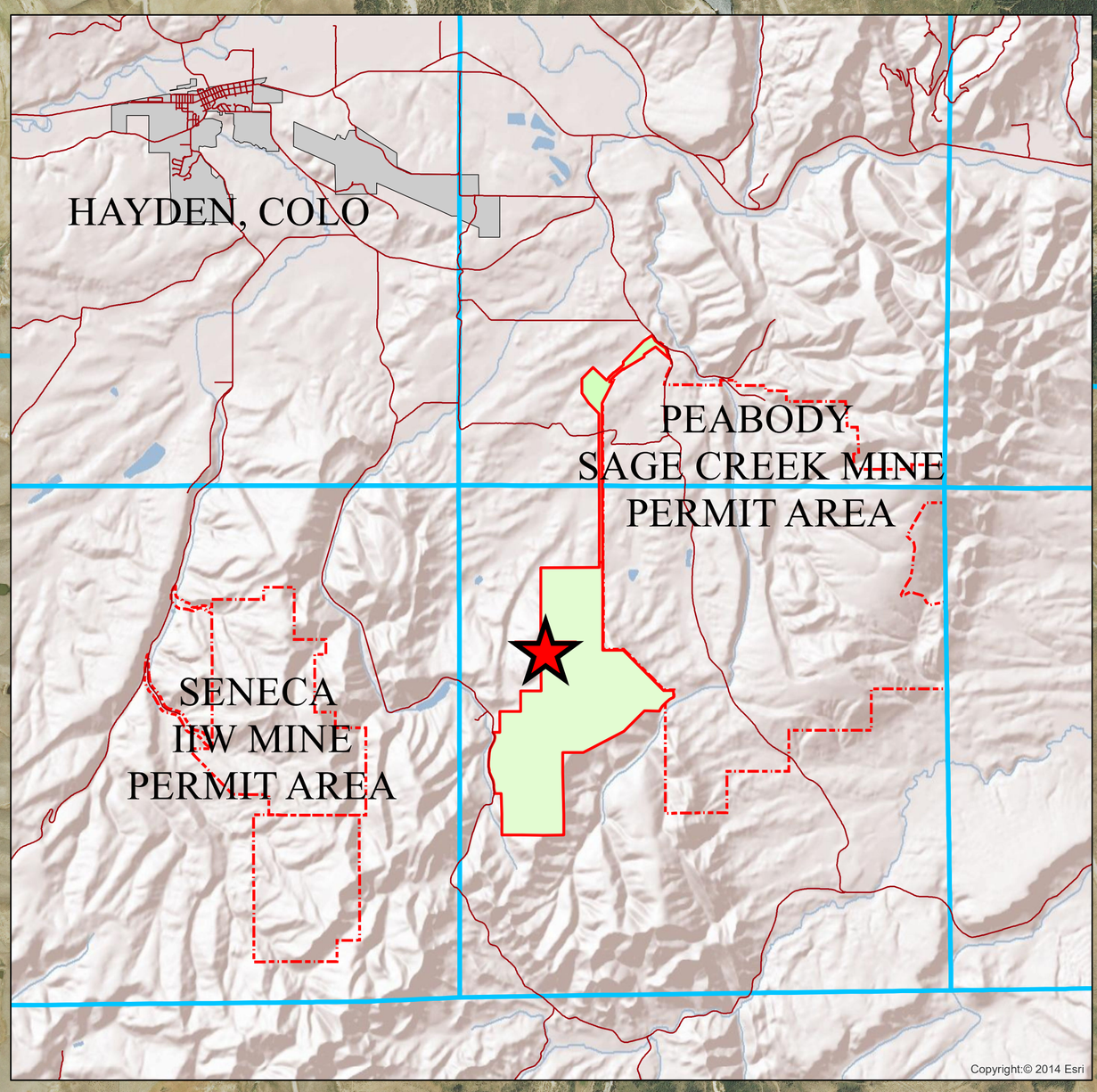
29515 RCR #27
OAK CREEK, CO 80467

2024 SL9 Phase III Final Bond Release

DESIGNED BY: MLK DRAWN BY: MLK APPROVED BY:	COUNTRY: USA STATE/PROVINCE: COLORADO GSC: 5N 87W, 5N 86W, 6N 86W
DATE: 2024-09-10 SCALE:	DRAWING/SHEET: 1 of 1 C.I.: 0'

MAP 1

SENECA
Property, LLC



N
W
E
S

Miles
0 0.2 0.4 0.8 1.2 1.6

MAP 2

Legend

- Yoast Permit Boundary
- DisturbanceBoundary
- Townships
- YoastPonds
- PostMineDrainageChannels

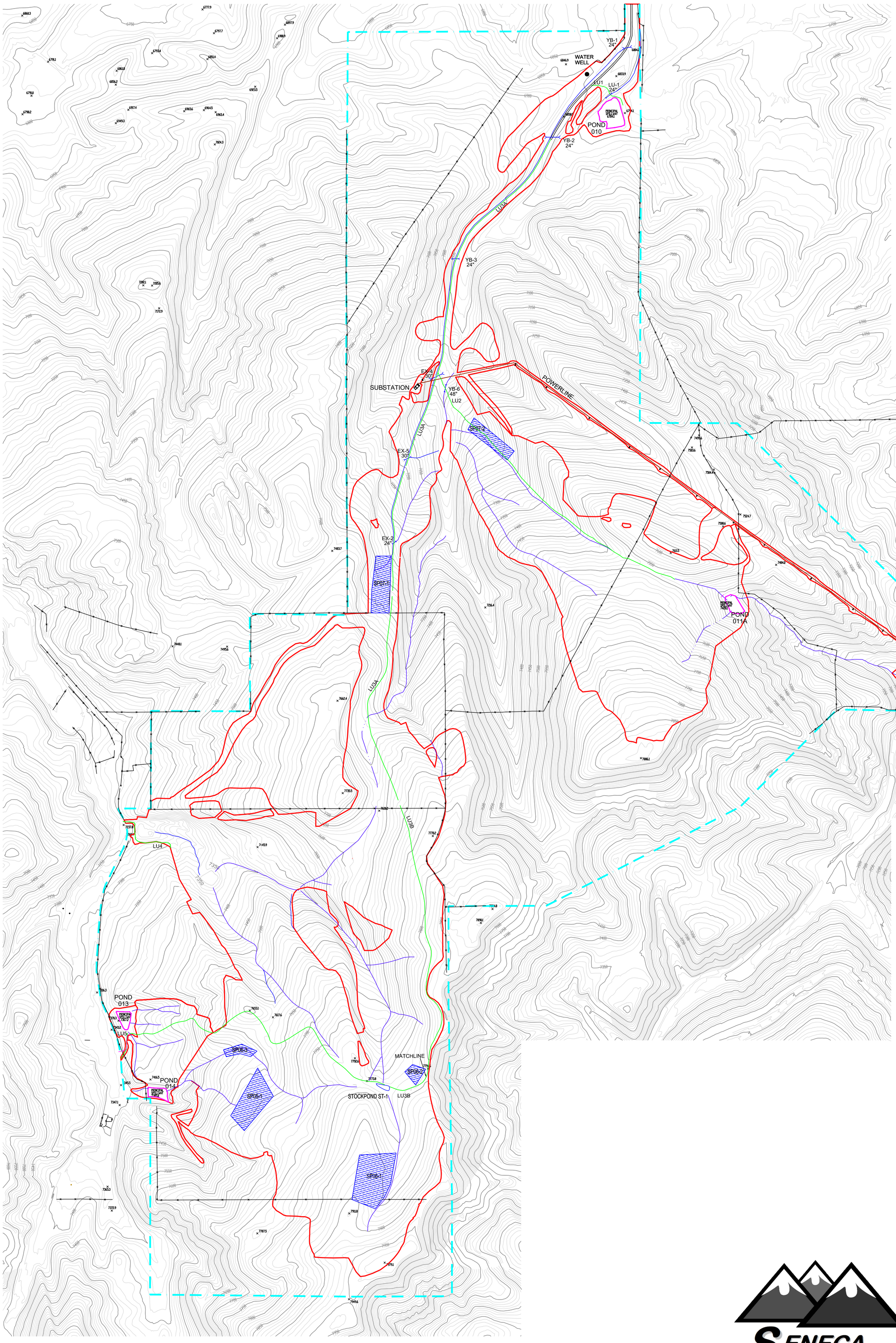
Seneca Yoast Mine

Peabody

29515 RCR #27
OAK CREEK, CO 80467

SL9 PHASE III BOND RELEASE
GENERAL LOCATION MAP

DESIGNED BY: MLK DRAWN BY: MLK APPROVED BY:	COUNTRY: USA STATE/PROVINCE: COLORADO GSC: 5N 87W, 5N 86W, 6N 86W
DATE: 2020-04-20 SCALE:	DRAWING/SHEET: 1 of 1 C.I.: 0'



YOAST PERMIT BOUNDARY
ACCESS ROAD
FENCELINE
SEDIMENT POND
LIGHTUSE ROAD
POWERLINE
POST MINING DRAINAGE
CULVERT
SHRUB PLOT

NOTES:
1.) SEE APPENDIX G IN MINING PERMIT FOR POST MINING CHANNEL PROFILES.
2.) TOPOGRAPHY BASED UPON 09/07 AERIAL FLIGHT.

SENECA Property, LLC

YOAST MINE
Final Phase III Release (SL-9)
PERMANENT FEATURES

Date: May, 2020
Drawn By: RK, JC
Aerial Flight: 09/07

MAP 3