DEPARTMENT OF ENVIRONMENTAL QUALITY
MINING BUREAU
HARD ROCK MINING SECTION
PO BOX 200901
HELENA MT 59620-0901
(406) 444-4953

Operating Permit Number: 00030

Project Name: Continental Mine

Report Due date: 06/13/2023

(Mail Required $100.00 Annual Filing Fee or Pay Online)

ANNUAL PROGRESS REPORT FOR OPERATING PERMITS

Issued Pursuant to Title 82, Chapter 4, Part 3, Montana Code Annotate (MCA)
And Administrative Rules of Montana (ARM) Adopted Thereunder
(See 82-4-339, MCA, and 17.24.118, ARM, for specific guidance)

Name and Address of Permittee		**Legal Description and Location of Permitted Area**
Montana Resources, LLC 600 Shields Avenue Butte, Montana		Section(s): See Attachment 1 T R County: Silver Bow Directions, in miles, from the nearest town: 1-2 miles east of Butte, Montana See Attachment 1 for additional description
Primary Contact Name: Mark Thompson Title: Vice President of Environmental Affairs Phone Number: 406.496.3211 Email Address: MThompson@montanaresources.com	**Secondary Contact** Name: Jeremy Fleege Title: Environmental Engineer Phone Number: 406.496.3205 Email Address: JFleege@	
Include any other activity-specific contacts (bonding, compliance, etc.) on an attached sheet and specify contact title/responsibilities		

A. CORPORATE INFORMATION

1) If the permittee is a corporation or other business entity, ATTACH a list of names and addresses of current officers, directors, owners of 10% or more of any class of voting stock, partners and the like and its resident agent for service of process. N/A List attached x Attachment # See Attachment 1

2) Names of key personnel for maintenance and monitoring if the operation is shut down

See Attachment 1

3) Average number of payroll employees and on-site contracted employees who worked during the *previous* permit year:

January to March 390 April to June 405 July to September 405 October to December 390

4) Average number of anticipated payroll employees and on-site contracted employees who ***will work*** during the next permit year:

January to March 390 April to June 405 July to September 405 October to December 390

B. BOND

1) Total Bond Amount $ 116,905,203 Amount of Obligated Bond $ 116,905,203

2) Has incremental bonding been approved? No x Yes

If yes, has the additional bond be submitted with this report? No x Yes Amount submitted
Status of the incremental bond (number of increments paid, due, etc.)

C. OPERATION STATUS

1) The operation is currently:

x Active

Inactive *If the operation is currently inactive* (*not extracting ore for future use or processing*), *ATTACH the provision(s) of ARM 17.24.150(2) or (3) that apply to the operation and supporting documentation.*

Documentation attached *Attachment #*

Abandoned

Completed *Indicate date of completion*

D. ACREAGE

1) Acreage within operating permit area See Attachment 1 & 6, and Plate II

2) Acreage permitted for disturbance See Attached

3) Acreage currently bonded for disturbance See Attached

4) Acreage currently disturbed See Attached

5) Acreage of cumulative disturbance (including reclaimed acres) See Attached

6) Acreage disturbed by the operation in the previous 12-month period See Attached

7) Acreage of disturbance planned in the next 12-month period See Attached

E. RECLAMATION

Soil Salvage

1) Cubic yards salvaged in the preceding 12-month period See Attachment 5

2) Cubic yards salvaged cumulatively See Attached

3) Estimate of cubic yards to be salvaged in the next 12-month period See Attached

4) Cumulative volume of soils contained in stockpiles See Attached

5) Average replaced soil depths in the preceding 12-month period See Attached

6) Replaced soil volumes in the preceding 12-month period See Attached

7) Cumulative average replaced soil depths See Attached

8) Cumulative replaced soil volumes See Attached

Backfilling and Grading

9) Acres of backfilling and grading performed during the preceding 12-month period See Attached

10) Cumulative acres of backfilling and grading See Attached

Revegetation

11) Acreage of land planted in the preceding 12-month period See Attached

12) Type of planting or seeding in the preceding 12-month period
See Attached

13) Mixtures and amounts seeded in the preceding 12-month period
See Attached

Copy of seed tag(s) attached *Attachment #*

14) Species, location, and method of planting for site- or species-specific plantings in the preceding 12-month period
See Attached

15) Date(s) of seeding or planting in the preceding 12-month period
See Attached

16) Cumulative acres reseeded See Attached

17) Cumulative acres of completed reclamation See Attached

18) Date each increment of reclamation was completed See Attached

F. MAPS

1) **ATTACH** an updated map or maps. The map(s) should show:
   - ❖ the permit area
   - ❖ land disturbed during the preceding 12 months
   - ❖ cumulative disturbance acreage
   - ❖ land to be disturbed in the next 12 months
   - ❖ land that has been backfilled or graded during the preceding 12 months
   - ❖ reclamation performed during the preceding 12 months
   - ❖ cumulative reclamation
   - ❖ any changes to facilities that occurred in the preceding 12 months

Note: maps must depict all approved surface features, as required by the department, in or associated with the permit area. Maps must be reproduced at a scale applicable for field use.

Map(s) attached x Attachment name(s) Plate I, Plate II, Plate III, and Plate IV

G. MONITORING AND PERMIT CONDITIONS

1) Is comprehensive water monitoring required by the permit? No Yes x

If yes, include an evaluation of water monitoring reports submitted during the preceding year. The evaluation must include trend analyses for those key site-specific parameters required by the department in the permit.
Evaluation attached x *Attachment #* See Attachment 4b

2) Is geologic monitoring required by the permit? No x Yes

If yes, include monitoring results and materials balance report.
Results and report attached *Attachment #*

3) Is monitoring for cyanide neutralization, acid rock drainage development, or similar occurrences, required by the permit for closure? No x Yes

If yes, include an evaluation of monitoring results and testing data required in the permit for closure.
Evaluation attached *Attachment #*

4) Does the operation use cyanide or other metal leaching solvents or reagents, or have the potential to generate acid? No x Yes

If yes, include a narrative summary of water balance conditions during the preceding year and identify excess water holding capacity at the time of the annual report.
Summary attached *Attachment #*

5) Have ongoing cultural resource mitigations been identified in the permit? No x Yes

If yes, include an updated cultural resource management table, including a list of sites mitigated and disturbed in the preceding year and sites to be mitigated and disturbed in the coming year.
List attached *Attachment #*

6) Is any other information required by the permit or stipulations for submittal with this report? No x Yes

Yes, *attached* *Attachment #*(s)

I CERTIFY THAT THE ABOVE STATEMENTS AND ATTACHED INFORMATION ARE TRUE TO THE BEST OF MY KNOWLEDGE.

Preparer Signature: DocuSigned by: 2F5FA24C2E72439... _____

Date: 06/13/2023 Title: Environmental Engineer

Permittee (or Authorized Representative) Signature: DocuSigned by: Mark Thompson DC4980E515B341B... _____

Date: 06/13/2023 Title: VP Env

Montana Resources, LLC
600 Shields Ave.
Butte, Montana
USA 59701

(406) 496-3200
(406) 723-9542 Fax
www.montanaresources.com

Continental Mine
Butte-Silver Bow County

Legal Description:

PERMIT # 00030; General Legal Description:

All or Portions of Sections 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 20, 21, and 22 T3N, R7W

All or Portions of Sections 28, 29, 30, 31, 32, and 33, T4N, R7W

All or Portions of Section 13, T3N, R8W

All or Portions of Section 36, T4N, R8W

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600 Shields Ave.
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Montana Resources, LLC
600 Shields Avenue
Butte, Montana 59701
Federal Tax ID: 81 0458545

Officers:

Jack Standa, President
Daniel Janney, Vice President, Operations
Robert Sanderson, Vice President, Maintenance
Mike McGivern, Vice President, Human Resources
Mark Thompson, Vice President, Environmental Affairs
Kyle Carter, Vice President, Finance

Service of Process:

Montana Resources, Inc.
P.O. Box 16630
101 International Way
Missoula, Montana 59808

Montana Resources, LLC
600 Shields Ave.
Butte, Montana
USA 59701

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ANNUAL PROGRESS REPORT
MINE OPERATING PERMITS

Key Personnel for Maintenance and Monitoring in case of mine shutdown as required by 82-4-338 (5).

Mark Thompson, Vice President of Environmental Affairs

Jeremy Fleege, Environmental Engineer

Daniel Janney, Vice President of Operations

Montana Resources, LLC
600 Shields Ave.
Butte, Montana
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Acreage and Bond

For Operating Permit Number 00030:

- Total Permit Area 6132 Acres
- Total Acreage Currently Disturbed 5566 Acres
- Amount of Bond $116,905,203
- Amount of Obligated Bond $116,905,203

Montana Resources, LLC
600 Shields Ave.
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USA 59701

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Bond Status for Permit No. 00030

Total Bond as of December 31, 2021	**$116,477,500**
Total Bond as of December 31, 2022	**$116,905,203**

A 5-year bond review was completed in January 2021.

2.0 Reclamation Summary

2.1 Reclamation Activities

No reclamation activities were conducted in 2022.

Table 2.1 contains the cumulative acres reseeded and completed reclamation to date. Plate IV is an illustration of the cumulative completed reclamation.

2.2 Reclamation Maintenance

2.2.1 Weed Control

In May 2022, approximately 10.5 acres were treated with sterilant herbicide. These areas included electrical substations, fuel bays, concentrator facilities, main office, explosive bunkers and around the Horseshoe Bend water treatment plant and reservoir. The locations covered are identified in this section.

In June and July 2022, noxious weeds were treated on approximately 56.0 acres. The areas treated, herbicides used, and application rates are identified in this section. The spraying targeted Spotted Knapweed, White Top, Dalmatian Toadflax, Musk Thistle, Canada Thistle, Perennial Pepperweed, Baby's Breath, Elk Thistle, and Hoary Alyssum.

2.2.2 Vegetation Monitoring

Vegetation monitoring studies were conducted during 2022 and are attached in this section.

2.2.3 Seed Mix

No seed mix was used in 2022.

2.3 Soil Salvage

Soil was salvaged in 2022 in association with Revision 22-002 and placed in a temporary stockpile. Soil salvage in this area continued into 2023 and final volumes and stockpile location will be reported in the 2023 Annual Report.

2.4 Recontouring Waste Dump Areas

No waste rock dump slopes were re-contoured in 2022.

2.5 Fencing

Routine property boundary fence maintenance was conducted in 2022.

2.6 Planned Activities for 2023

Topsoil will be salvaged in association with the D-East highwall remediation project (Revision 22-002) and near the tailings pond waterline as needed.

During the 2023 season, reclamation maintenance will continue on previously reclaimed areas. Spot spraying is necessary in many areas because of the presence of broad leaf plant species such as clover and alfalfa in the reclamation seed mix. Maintenance items may include fertilizing, vegetation monitoring, and continued spraying to control noxious weeds.

Table 2.1 Completed Reclamation

Years	**Area (acres)**
1991, 1993	6.6
1992, 1996, 2005	11.2
1993, 2006, 2012	4.7
1996, 1996, 2012	47.8
1992	18.6
1995	1.3
2002	90.4
2004	3.1
2007	10.3
2011	7.3
2012	1.8
2014	6.3
2015	1.1
2017	-37.2
2018	37.4
2019	28.1
2020	25.7
Total:	**264.5**

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 5/11/2022 Applicator: Nathan Taylor License: 105807-12 Job #: 22755

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 8:30 AM

Location (TRS): Finish Time: 2:30 PM

Other Landmarks: Sub Stations Travel Time:

Area Treated: 3.3 Acres

Method: Hand Spray

Weeds Treated
All Vegetation

Chemicals Applied			
Trade Name	App. Rate	Total	EPA Reg. No.
Marker Dye - Blue	Pkt/100 Gal	6 Pkts	N/A
Plainview SC	2 Qts/Acre	6.6 Quarts	432-1606

Weather Conditions			
Time	Temp	Wind Dir	Speed
8:30 AM	32	Southwest	0-1
2:30 PM	54	West	2-4

Equipment/Labor	
Resource	Qty
Truck #21	6 Hours

Comments:
Truck # 21 applied 330 gal. sterilant to 143,748 sq. ft. (3.3 acres).
GPS # 7 start at 007 end at 036.

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 5/11/2022 Applicator: Steve Bell License: 105137-12 Job #: 22755

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 10:00 AM

Location (TRS): Finish Time: 2:30 PM

Other Landmarks: Bunkers & Fuel Bays. Travel Time:

Area Treated: 1.25 Acres

Method: Blanket Spray

Weeds Treated
All Vegetation

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Marker Dye - Blue	Pkt/100 Gal	2.5 Pkts	N/A
Plainview SC	2 Qts/Acre	2.5 Quarts	432-1606

Weather Conditions

Time	Temp	Wind Dir	Speed
10:00 AM	36	Calm	

Equipment/Labor

Resource	Qty
Truck #23	4.5 Hours

Comments:
Truck # 23 applied 125 gal. sterilant to 54,450 sq. ft. (1.25 acres).
GPS # 10 start at 001 end at 057.

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 5/11/2022 Applicator: Dan Navarro License: 105807-12 Job #: 22755

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 10:00 AM

Location (TRS): Finish Time: 4:00 PM

Other Landmarks: Concentrator, Office & Warehouse area. Travel Time:

Area Treated: 2.55 Acres

Method: Hand Spray

Weeds Treated
All Vegetation

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Marker Dye - Blue	Pkt/100 Gal	5.1 Pkts	N/A
Plainview SC	2 Qts/Acre	5.1 Quarts	432-1606

Weather Conditions

Time	Temp	Wind Dir	Speed
10:00 AM	40	Calm	

Equipment/Labor

Resource	Qty
Truck #22	6 Hours

Comments:
Truck # 22 applied 255 gal. sterilant to 111,078 sq. ft. (2.55 acres). Additional applicator Larry Burton.
GPS # 2 start at 001 end at 004.

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 5/12/2022 Applicator: Steve Bell License: 105137-12 Job #: 22755

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 8:30 AM

Location (TRS): Finish Time: 10:00 AM

Travel Time:

Other Landmarks: Spray Influent Pond edges and Water Treatment enclosure. Area Treated: 3.35 Acres

Method: Blanket Spray

Weeds Treated
All Vegetation

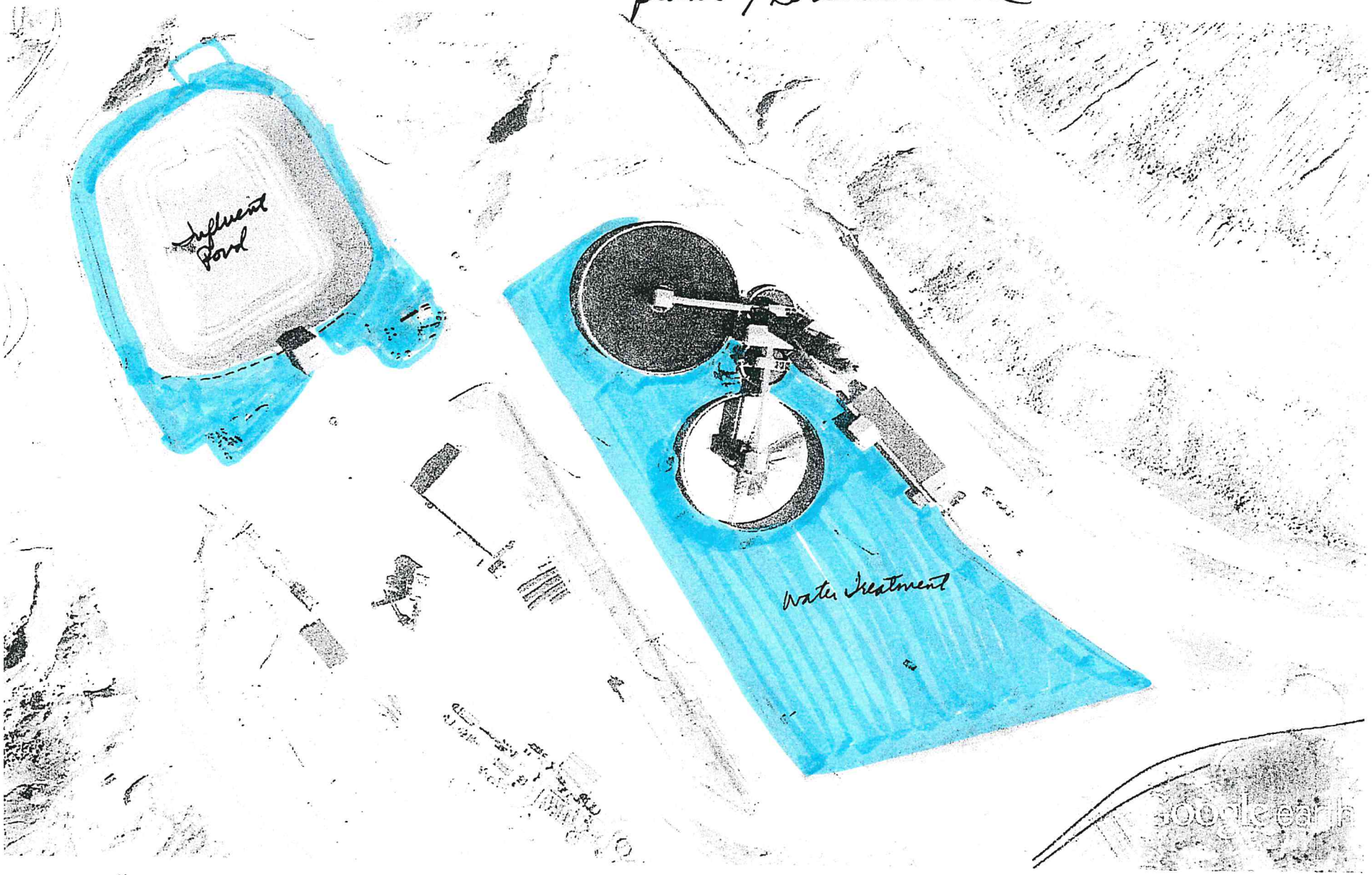
Chemicals Applied			
Trade Name	App. Rate	Total	EPA Reg. No.
Marker Dye - Blue	Pkt/100 Gal	6.7 Pkts	N/A
Plainview SC	2 Qts/Acre	6.7 Quarts	432-1606

Weather Conditions			
Time	Temp	Wind Dir	Speed
8:30 AM	32	South	0-2

Equipment/Labor	
Resource	Qty
Truck #22	1.5 Hours
Truck #23	1.5 Hours

Comments:
Trucks # 22 & 23 applied 335 gal. sterilant to 145,926 sq. ft. (3.35 acres). Additional applicators Larry Burton and Dan Navarro.

Water treatment plant / Horseshoe Bend



Water Treatment and Influent Pond 3.35 Acres

Truck 22 + 23 Burton + Bell 335 gal.

5/11/2022 145,926 sq. ft.

MR Sterilant 2022

Pioneer Weed Control, Inc.

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 6/21/2022 Applicator: Nathan Taylor License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 11:15 AM

Location (TRS): Finish Time: 12:45 PM

Other Landmarks: Sprayed West of white floatation tanks. Travel Time:

Area Treated: 0.5 Acres

Method: Hand Spray

Weeds Treated

Spotted Knapweed
White Top

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	1 Ounces/Acre	0.5 Ounces	352-439
Marker Dye - Blue	Pkt/100 Gal	0.5 Pkts	N/A
Milestone	7 Ounces/Acre	0.219 Pints	62719-519
Phase	1 Qt./100 Gal	0.35 Quarts	N/A
Salvo	1 Pints/Acre	0.5 Pints	34704-609

Weather Conditions

Time	Temp	Wind Dir	Speed
11:15 AM	55	West	1-2
12:45 PM	61	South	2-4

Equipment/Labor

Resource	Qty
Truck #21	1.5 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/19/2022 Applicator: Dan Navarro License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 6:30 AM

Location (TRS): Finish Time: 2:00 PM

Other Landmarks: South of Berkeley Bunker Travel Time:

Area Treated: 3.5 Acres

Method: Hand Spray

Weeds Treated

- Dalmation Toadflax
- Musk Thistle
- Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	2 Ounces/Acre	7 Ounces	352-439
Marker Dye - Blue	Pkt/100 Gal	4 Pkts	N/A
Phase	1 Qt./100 Gal	2.4 Quarts	N/A
Tordon 22K*	2 Pints/Acre	7 Pints	62719-6

Weather Conditions

Time	Temp	Wind Dir	Speed
6:30 AM	43	South	1
9:00 AM	57	Southwest	2
12:30 PM	71	Northeast	1-5
2:00 PM	76	West	4-5

Equipment/Labor

Resource	Qty
Truck #22	7.5 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/19/2022 Applicator: Nathan Taylor License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 6:30 AM

Location (TRS): Finish Time: 2:00 PM

Other Landmarks: South & West of ecology pond. Travel Time:

Area Treated: 1 Acres

Method: Hand Spray

Weeds Treated

- Canadian Thistle
- Dalmation Toadflax
- Musk Thistle
- Perenial Pepperweed
- Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	2 Ounces/Acre	2 Ounces	352-439
Marker Dye - Blue	Pkt/100 Gal	2 Pkts	N/A
Phase	1 Qt./100 Gal	0.7 Quarts	N/A
Tordon 22K*	2 Pints/Acre	2 Pints	62719-6

Weather Conditions

Time	Temp	Wind Dir	Speed
6:30 AM	45	South	0-1
2:00 PM	76	West	4-5

Equipment/Labor

Resource	Qty
Truck #23	7.5 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/20/2022 Applicator: Dan Navarro License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 6:45 AM

Location (TRS): Finish Time: 1:45 PM

Other Landmarks: East of Lower Fuel Bay Travel Time:

Area Treated: 4 Acres

Method: Hand Spray

Weeds Treated

- Baby's Breath
- Dalmation Toadflax
- Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	2 Ounces/Acre	8 Ounces	352-439
Foam Marker Soap	Pints/Acre	0.5 Pints	N/A
Marker Dye - Blue	Pkt/100 Gal	4 Pkts	N/A
Phase	1 Qt./100 Gal	2.8 Quarts	N/A
Tordon 22K*	2 Pints/Acre	8 Pints	62719-6

Weather Conditions

Time	Temp	Wind Dir	Speed
6:45 AM	43	Southeast	1-3
1:45 PM	82	West	10-15

Equipment/Labor

Resource	Qty
Truck #22	7 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/20/2022 Applicator: Nathan Taylor License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 6:45 AM

Location (TRS): Finish Time: 1:45 PM

Other Landmarks: West of Concentrator Travel Time:

Area Treated: 1.5 Acres

Method: Hand Spray

Weeds Treated

- Baby's Breath
- Dalmation Toadflax
- Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	2 Ounces/Acre	3 Ounces	352-439
Foam Marker Soap	Pints/Acre	0.5 Pints	N/A
Marker Dye - Blue	Pkt/100 Gal	1 Pkts	N/A
Phase	1 Qt./100 Gal	1 Quarts	N/A
Tordon 22K*	2 Pints/Acre	3 Pints	62719-6

Weather Conditions

Time	Temp	Wind Dir	Speed
6:45 AM	43	Southeast	1-3
1:45 PM	82	West	10-15

Equipment/Labor

Resource	Qty
Truck #23	7 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/21/2022 Applicator: Dan Navarro License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 6:30 AM

Location (TRS): Finish Time: 1:00 PM

Other Landmarks: Hillcrest Dump Travel Time:

Area Treated: 4 Acres

Method: Spot Spray

Weeds Treated

- Baby's Breath
- Dalmation Toadflax
- Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	2 Ounces/Acre	8 Ounces	352-439
Foam Marker Soap	Pints/Acre	2 Pints	N/A
Marker Dye - Blue	Pkt/100 Gal	4 Pkts	N/A
Phase	1 Qt./100 Gal	2.9 Quarts	N/A
Tordon 22K*	2 Pints/Acre	8 Pints	62719-6

Weather Conditions

Time	Temp	Wind Dir	Speed
6:30 AM	45	Southeast	0-1
9:45 AM	66	Northwest	1-2
1:00 PM	83	Northwest	5-6

Equipment/Labor

Resource	Qty
Truck #22	6.5 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/21/2022 Applicator: Nathan Taylor License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 6:30 AM

Location (TRS): Finish Time: 1:00 PM

Other Landmarks: Hillcrest Dump Travel Time:

Area Treated: 3 Acres

Method: Spot Spray

Weeds Treated

- Baby's Breath
- Dalmation Toadflax
- Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	2 Ounces/Acre	6 Ounces	352-439
Foam Marker Soap	Pints/Acre	1.5 Pints	N/A
Marker Dye - Blue	Pkt/100 Gal	1.5 Pkts	N/A
Phase	1 Qt./100 Gal	1.85 Quarts	N/A
Tordon 22K*	2 Pints/Acre	6 Pints	62719-6

Weather Conditions

Time	Temp	Wind Dir	Speed
6:30 AM	45	Southeast	0-1
9:15 AM	64	Southeast	0-1
1:00 PM	82	Northwest	5-6

Equipment/Labor

Resource	Qty
Truck #23	6.5 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/22/2022 Applicator: Larry Burton License: 2-01-12772-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 7:45 AM

Location (TRS): Finish Time: 10:15 AM

Travel Time:

Other Landmarks: Spot spray around trees and bushes North of Hillcrest between Continental Drive and R.R. tracks. Area Treated: 1 Acres

Method: Spot Spray

Weeds Treated
Canadian Thistle
Elk Thistle
Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	1 Ounces/Acre	1 Ounces	352-439
Milestone	7 Ounces/Acre	0.438 Pints	62719-519
Platoon (2,4-D)	1 Quarts/Acre	1 Quarts	228-145
Spreader 90	1 Qts/100 gal	0.25 Quarts	N/A

Weather Conditions

Time	Temp	Wind Dir	Speed
7:45 AM	59	Calm	
10:15 AM	73	Calm	

Equipment/Labor

Resource	Qty
ATV #20	2.5 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/22/2022 Applicator: Dan Navarro License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 7:00 AM

Location (TRS): Finish Time: 1:15 PM

Other Landmarks: Hillcrest Dump Travel Time:

Area Treated: 7 Acres

Method: Spot Spray

Weeds Treated

- Baby's Breath
- Dalmation Toadflax
- Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	2 Ounces/Acre	14 Ounces	352-439
Foam Marker Soap	Pints/Acre	2 Pints	N/A
Marker Dye - Blue	Pkt/100 Gal	5 Pkts	N/A
Spreader 90	1 Qts/100 gal	3.5 Quarts	N/A
Tordon 22K*	2 Pints/Acre	14 Pints	62719-6

Weather Conditions

Time	Temp	Wind Dir	Speed
7:00 AM	47	Southeast	1-5
8:45 AM	62	South	1
10:30 AM	77	Southeast	4
1:15 PM	85	West	4-5

Equipment/Labor

Resource	Qty
Truck #22	6.25 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/22/2022 Applicator: Nathan Taylor License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 7:00 AM

Location (TRS): Finish Time: 1:00 PM

Other Landmarks: Hillcrest Dump Travel Time:

Area Treated: 3 Acres

Method: Spot Spray

Weeds Treated

- Baby's Breath
- Dalmation Toadflax
- Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	2 Ounces/Acre	6 Ounces	352-439
Foam Marker Soap	Pints/Acre	1.5 Pints	N/A
Marker Dye - Blue	Pkt/100 Gal	2.5 Pkts	N/A
Spreader 90	1 Qts/100 gal	1.5 Quarts	N/A
Tordon 22K*	2 Pints/Acre	6 Pints	62719-6

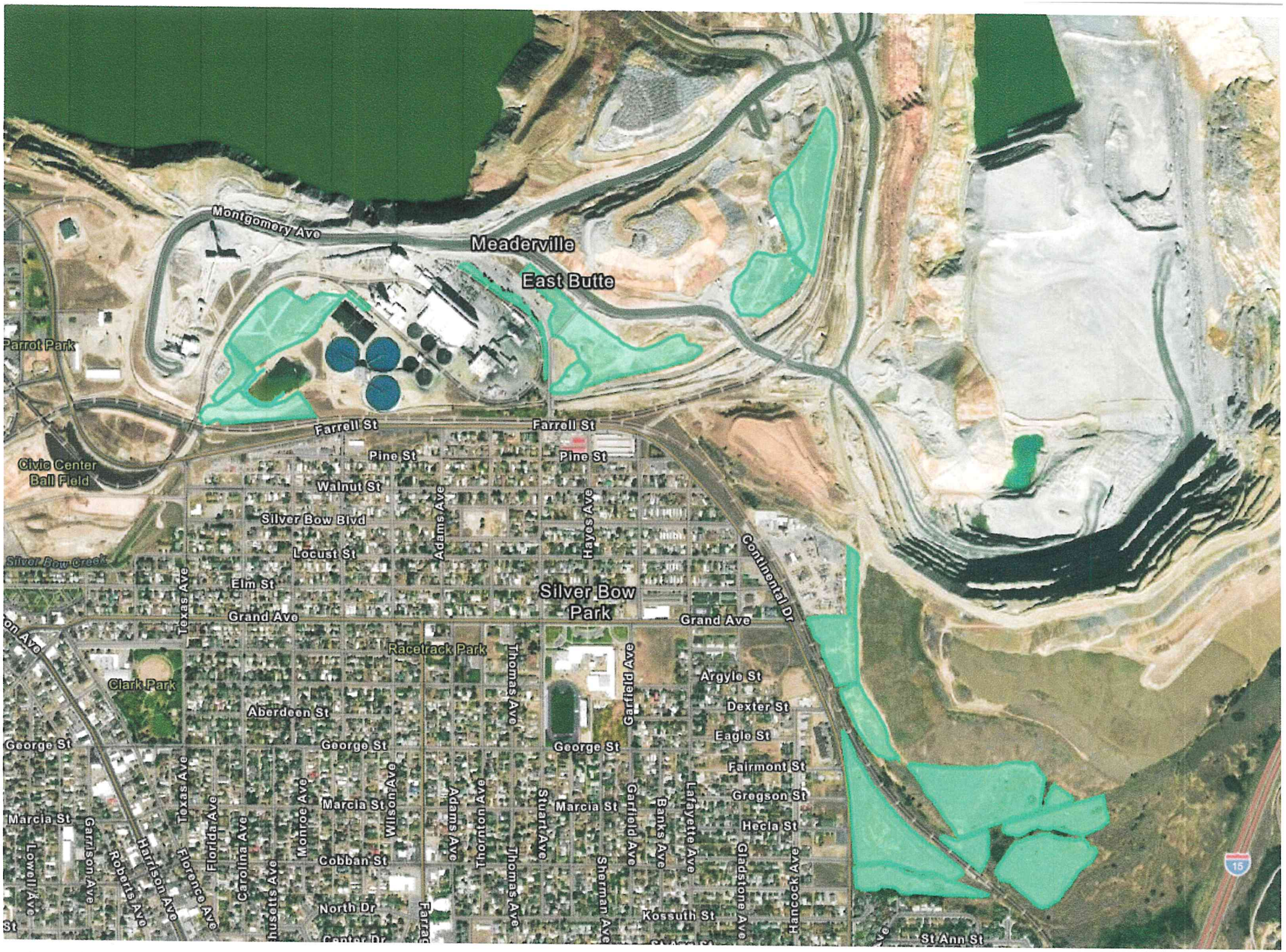
Weather Conditions

Time	Temp	Wind Dir	Speed
7:00 AM	50	South	0-1
1:00 PM	85	West	4-5

Equipment/Labor

Resource	Qty
Truck #23	6 Hours

Comments:


Montgomery Ave
Meaderville
East Butte
Parrot Park
Farrell St
Farrell St
Civic Center
Ball Field
Pine St
Pine St
Walnut St
Silver Bow Blvd
Locust St
Elm St
Grand Ave
Grand Ave
Silver Bow
Park
Silver Bow Creek
Racetrack Park
Clark Park
Aberdeen St
George St
George St
George St
Marcia St
Marcia St
Marcia St
Cobban St
North Dr
Kossuth St
St Ann St
Argyle St
Dexter St
Eagle St
Fairmont St
Gregson St
Hecla St
Adams Ave
Hayes Ave
Continental Dr
Texas Ave
Thomas Ave
Garfield Ave
Wilson Ave
Monroe Ave
Florida Ave
Carolina Ave
Harrison Ave
Roberts Ave
Garrison Ave
Lowell Ave
Florence Ave
Thornton Ave
Stuart Ave
Sherman Ave
Banks Ave
Lafayette Ave
Gladstone Ave
Hancock Ave
15

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/28/2022 Applicator: Nathan Taylor License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 8:00 AM

Location (TRS): Finish Time: 12:15 PM

Other Landmarks: Moulton Reservoir Rd. Travel Time:

Area Treated: 5 Acres

Method: Spot Spray

Weeds Treated
Canadian Thistle
Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Transline	1 Pints/Acre	5 Pints	62719-73

Weather Conditions

Time	Temp	Wind Dir	Speed
8:00 AM	57	Calm	
10:45 AM	73	East	0-1
12:15 PM	79	Northeast	2-3

Equipment/Labor

Resource	Qty
Truck #14	4.25 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/28/2022 Applicator: Dan Navarro License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 6:30 AM

Location (TRS): Finish Time: 10:00 AM

Other Landmarks: Hillcrest Dump Travel Time:

Area Treated: 4 Acres

Method: Spot Spray

Weeds Treated

- Dalmation Toadflax
- Hoary Alyssum
- Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	2 Ounces/Acre	8 Ounces	352-439
Foam Marker Soap	Pints/Acre	1 Pints	N/A
Spreader 90	1 Qts/100 gal	2 Quarts	N/A
Tordon 22K*	2 Pints/Acre	8 Pints	62719-6

Weather Conditions

Time	Temp	Wind Dir	Speed
6:30 AM	53	Calm	
10:00 AM	79	North	2-3

Equipment/Labor

Resource	Qty
Truck #22	3.5 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/28/2022 Applicator: Steve Bell License: 105137-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Industrial Start Time: 6:30 AM

Location (TRS): Finish Time: 11:30 AM

Other Landmarks: Hillcrest/Moulton Travel Time:

Area Treated: 8 Acres

Method: Spot Spray

Weeds Treated
Dalmation Toadflax
Hoary Alyssum
Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Escort	2 Ounces/Acre	16 Ounces	352-439
Foam Marker Soap	Pints/Acre	4 Pints	N/A
Spreader 90	1 Qts/100 gal	4 Quarts	N/A
Tordon 22K*	2 Pints/Acre	16 Pints	62719-6

Weather Conditions

Time	Temp	Wind Dir	Speed
6:30 AM	53	Calm	
8:00 AM	57	East	2-3
11:30 AM	79	North	2-3

Equipment/Labor

Resource	Qty
Truck #23	5 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/29/2022 Applicator: Nathan Taylor License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Range Land Start Time: 6:30 AM

Location (TRS): Finish Time: 12:30 PM

Other Landmarks: Moulton Reservoir Rd. Travel Time:

Area Treated: 4 Acres

Method: Spot Spray

Weeds Treated

Canadian Thistle
Spotted Knapweed

Chemicals Applied

Trade Name	App. Rate	Total	EPA Reg. No.
Foam Marker Soap	Pints/Acre	2 Pints	N/A
Transline	1 Pints/Acre	4 Pints	62719-73

Weather Conditions

Time	Temp	Wind Dir	Speed
6:30 AM	51	Calm	
10:15 AM	71	Southeast	0-1
12:30 PM	81	North	4-5

Equipment/Labor

Resource	Qty
ATV #20	6 Hours

Comments:

Pioneer Weed Control, Inc. RR2 Box 220 Butte, MT 59701

Date: 7/29/2022 Applicator: Dan Navarro License: 105807-12 Job #: 2214

County: Silver Bow Landowner: Montana Resources Reference:

Site: Range Land Start Time: 6:30 AM

Location (TRS): Finish Time: 12:30 PM

Other Landmarks: Moulton Reservoir Rd. Travel Time:

Area Treated: 6.5 Acres

Method: Spot Spray

Weeds Treated
Canadian Thistle
Spotted Knapweed

Chemicals Applied			
Trade Name	App. Rate	Total	EPA Reg. No.
Foam Marker Soap	Pints/Acre	1 Pints	N/A
Transline	1 Pints/Acre	6.5 Pints	62719-73

Weather Conditions			
Time	Temp	Wind Dir	Speed
6:30 AM	51	Calm	
9:30 AM	68	North	0-2
10:30 AM	71	Southeast	0-1
12:30 PM	81	North	4-5

Equipment/Labor	
Resource	Qty
Truck #14	6 Hours

Comments:

Pioneer Weed Control
Weed Spray July 28-29, 2022

Pioneer Weed Control
Weed Spray. July 28, 29, 2022

Montana Resources, LLC
Continental Mine

2022 Reclamation Monitoring Report

Date:
April 2023

Prepared For:
Montana Resources, LLC

600 Shields Avenue
Butte, MT 59701
USA

Prepared By:
WESTECH Environmental Services, Inc.

P.O. Box 6045
Helena, MT 59604
406.442.0950
www.westech-env.com

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Acronyms and Abbreviations

AGS	Applied Geological Services
EPA	Environmental Protection Agency
GPS	Global Positioning System
MDEQ	Montana Department of Environmental Quality
MR	Montana Resources
NRCS	Natural Resources Conservation Service
ppm	parts per million
RDS	Rock Disposal Site
ROD	Record of Decision
SE	Standard Error
TMI	Total Metal Index
WB	Walkley-Black
WESTECH	WESTECH Environmental Services, Inc.

1.0 Introduction and Objectives

Reclamation monitoring was conducted in 2022 at Montana Resources' (MR) Continental Mine in Butte, Montana. Monitoring focused on older (pre-2002) reclaimed areas (circa 1991-2014) distributed throughout the mine area, as well as resampling of specific plots in the reclaimed East Rock Disposal Site (RDS) complex that were sampled in 2021 (WESTECH 2022). Monitoring in both years included an evaluation of vegetation, coversoil, and erosion.

The East RDS complex is comprised of the Hillcrest RDS, East RDS, and North East RDS. Most reclamation at this complex was completed between 2017 and 2020; however, portions of the Hillcrest RDS and a tree stand within the North East RDS were reclaimed prior to 2015. In total, the East RDS constitutes the most extensive, contiguous reclamation completed at the mine to date.

Sample areas in 2021 and 2022 are shown in Figure 1. Individual sample sites and year of reclamation are shown in Appendix A.

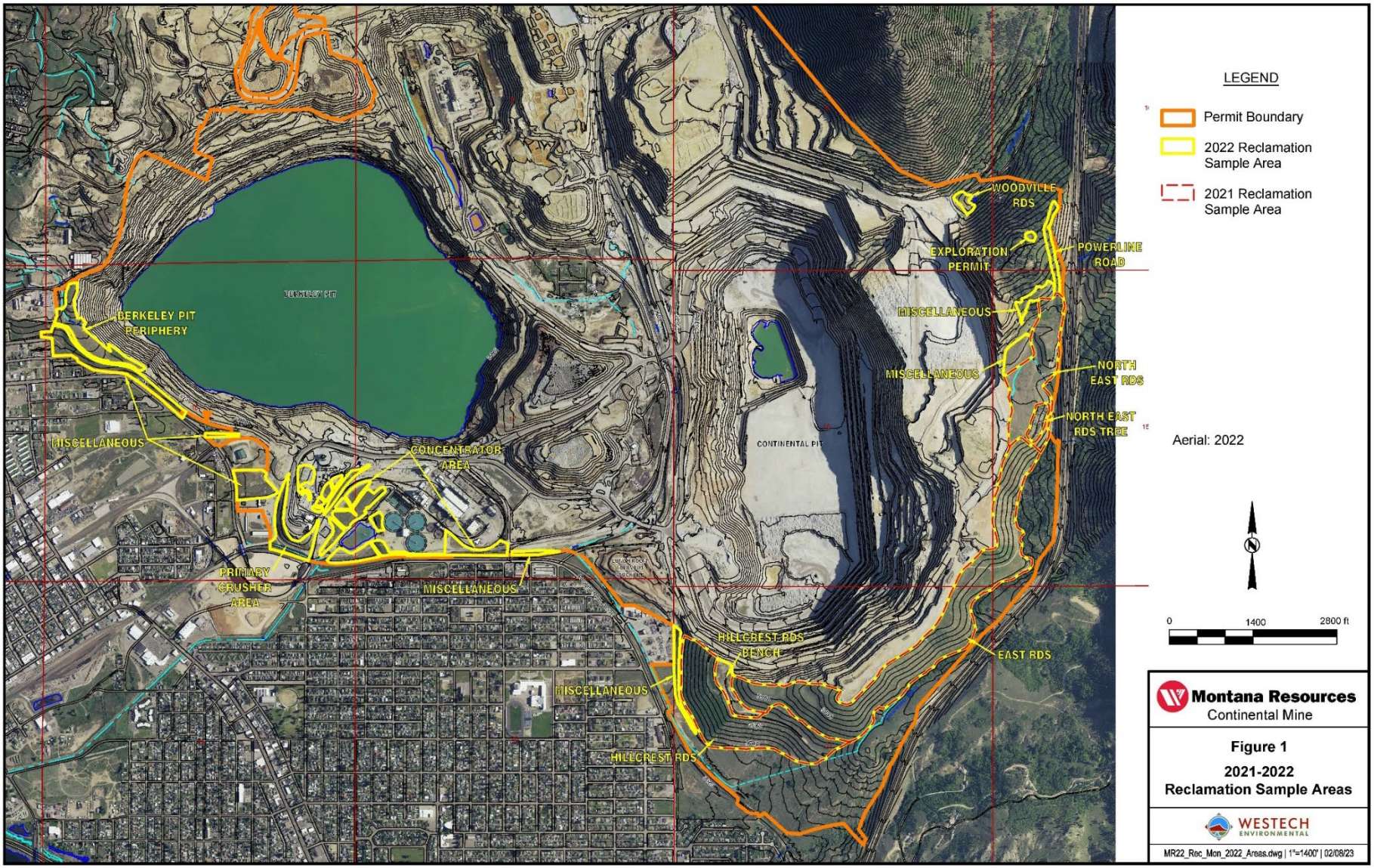
Monitoring objectives in 2022 included:

- assessing desirable plant establishment, and reclamation utility and stability; and
- evaluating the relationship between coversoil characteristics and revegetation establishment and growth.

In addition, noxious weeds and erosion were recorded as they were observed.

Using data collected relative to these objectives, revegetation was assessed relative to four primary questions:

1. How much additional annual growth occurred between 2021 and 2022 (the second and third growing seasons) in the recently seeded East RDS?
2. Is coversoil suitable for establishing stable and self-sustaining vegetation capable of supporting comparable utility of adjacent areas?
3. Do low pH, high metal concentrations, or other chemical parameters negatively affect revegetation relative to establishing stable and self-sustaining vegetation capable of supporting comparable utility of adjacent areas?
4. Is coversoil depth a limiting factor in establishing stable and self-sustaining vegetation capable of supporting comparable utility of adjacent areas?


LEGEND
Permit Boundary
2022 Reclamation Sample Area
2021 Reclamation Sample Area
Aerial: 2022
0
1400
2800 ft
BERKELEY PIT PERIPHERY
MISCELLANEOUS
CONCENTRATOR AREA
PRIMARY CRUSHER AREA
MISCELLANEOUS
MISCELLANEOUS
HILLCREST RDS
HILLCREST RDS BENCH
EAST RDS
MISCELLANEOUS
MISCELLANEOUS
NORTH EAST RDS
NORTH EAST RDS TREE
EXPLORATION PERMIT
POWERLINE ROAD
WOODVILLE RDS
CONTINENTAL PIT
Montana Resources
Continental Mine
Figure 1
2021-2022
Reclamation Sample Areas
WESTECH ENVIRONMENTAL
MR22_Rec_Mon_2022_Areas.dwg | 1"=1400' | 02/08/23

2.0 Methods

2.1 Sample Units

Sample units shown on Figure 1 and detailed in Appendix A were identified based on year of seeding, slope, and coversoil depth, and included the following:

- Woodville RDS - 0.4 acres (1 vegetation sample plot; 1 soil sample);
- Exploration Permit - 0.5 acres (1 vegetation sample plot; 1 soil sample);
- Powerline Road - 3.3 acres (3 vegetation sample plots; 3 soil samples);
- Hillcrest Bench - 4.6 acres (3 vegetation sample plots; 3 soil samples and 1 vegetation and soil sample within a Hot Spot on the Hillcrest Bench);
- Berkeley Pit Periphery - 6.3 acres (5 vegetation sample plots; 5 soil samples);
- Primary Crusher Area - 13.7 acres ((10 vegetation sample plots; 10 soil samples);
- Concentrator Area - 19.3 acres (8 vegetation sample plots; 8 soil samples);
- Miscellaneous Reclamation - 33.2 acres (12 vegetation sample plots; 12 soil samples);
- East RDS - 91.5 acres, (25 vegetation sample plots; 6 soil samples [note, soil samples were collected at most East RDS vegetation plots in 2021]).

All of these sites, with the exception of the Hillcrest Bench, were reclaimed using typical reclamation techniques by first establishing a layer of suitable alluvium and/or topsoil over waste rock, then seeding with a perennial grass seed mix. Coversoil at sites reclaimed before 2002 was more variable in depth and chemical composition, while sites reclaimed after 2002 were subject to a standard coversoil "recipe" (see Section 3.2). In contrast, the small Hillcrest Bench was seeded with perennial grasses on a scraped alluvium substrate and does not contain coversoil with higher organic matter as do the typical sites. This atypical method was used to stabilize soil and reduce dust on a portion of the Hillcrest RDS that received occasional traffic.

Two other atypical areas were sampled in 2021; the North East RDS – Tree stand (2.6 acres) and small, scattered "Hot Spots" on the Hillcrest RDS. Data from these units are included for comparison with analysis in this 2022 report. Similar to the Hillcrest Bench, the North East RDS – Tree stand does not contain typical coversoil or vegetation and was planted with lodgepole pine (*Pinus contorta*) seedlings rather than seeded with perennial grasses. Hot Spots are small areas without typical reclamation, although they are surrounded by typical reclamation at the Hillcrest RDS. Hot Spots contain high metal concentrations, have low pH, and support very little vegetation. It is unclear what created these features and whether any reclamation occurred on them; Hot Spots may be the result of uneven coversoil distribution over acidic alluvium, a past disturbance that removed the coversoil and vegetation, or some other activity.

2.2 Sample Plots

Sample plots consisted of 0.01-acre (radius = 11.7 feet) circular plots for recording vegetation cover and composition. In addition, soil pits were excavated, and soil samples recorded from the approximate

center of most plots. Only those vegetation plots that were re-sampled in 2022 did not have corresponding soil samples since soil samples were collected at those plots in 2021 and it was assumed that soil physical and chemical attributes had not measurably changed in a single year. The center of each sample plot was recorded with a resource-grade Global Positioning System (GPS) unit.

Variables evaluated at each plot included:

- canopy cover and species composition;
- coversoil depth and composition; and
- slope percent and aspect.

Specific parameters used to evaluate these variables are described in the following sections.

2.3 Canopy Cover and Composition

Total non-stratified (i.e., cannot exceed 100 percent) plant canopy cover was ocularly estimated within each sample plot. Canopy cover was recorded by species and summarized by morphological and origin classes according to the following categories:

- Native perennial grasses
- Introduced perennial grasses
- Native annual grasses
- Introduced annual grasses
- Native perennial forbs
- Introduced perennial forbs
- Native annual/biennial forbs
- Introduced annual/biennial forbs
- Shrubs
- Trees.

In addition to canopy cover, ground cover was also estimated to the nearest percent (to total 100 percent) in the following categories:

- Bare ground
- Rock
- Litter
- Lichen
- Moss
- Basal vegetation.

2.4 Noxious Weeds

Noxious weeds were documented within sample plots. Surveyors recorded the percent cover by species within each plot and noted noxious weeds as they were observed outside of sample plots. A map of noxious weeds within the study area is included in Appendix D.

2.5 Soil Characteristics

Soil samples were collected with a shovel or soil auger to the point of refusal due to indurate soils or rock. Samples were collected at all plots in 2022 that were not also sampled in 2021 (i.e., East RDS) and at approximately half of the plots in 2021. In both years, the topsoil (if present) and coversoil were identified and described by their physical characteristics, including:

- Boundary distinction
- Color
- Texture
- Coarse fragment content
- Structure
- Roots abundance and size
- Horizon depth
- Coversoil depth above shovel refusal.

In addition, samples were submitted to Energy Laboratories for analysis of the parameters listed in Table 1. These parameters include constituents typically analyzed to determine soil productivity, but also include metals that could influence revegetation establishment and growth depending on where in the soil profile they occur.

Table 1. Soil Parameters for Laboratory Analysis

Soil pH	Arsenic	Lead
Soil Texture	Boron	Manganese
Electrical Conductivity	Cadmium	Molybdenum
Moisture Content	Calcium	Nickel
Bulk Density	Chloride	Nitrogen
Organic Matter	Copper	Potassium
Aluminum	Iron	Zinc

In particular, select metals were used to assess potential phytotoxicity relative to suitability criteria in the MR Continental Mine Reclamation Plan (Reclamation Plan) (Montana Resources January 2023) (Table 2).

Table 2. Criteria for Determining Alluvium Suitability[1]

Parameter	Criteria
pH	5.5 through 8.5
Coarse Fragments[2]	≤ 40 percent
Copper (Cu)	≤ 1000 ppm
Total Metal Index (TMI)[3]	≤ 1700 ppm

[1] Excerpted from Table RP-4-5 of the Reclamation Plan.
[2] Material > 2mm diameter
[3] Total Metal Index is a parameter used by EPA Superfund at the Anaconda Smelter (EPA 2016). It is calculated as the sum of total concentrations (in ppm) of arsenic, copper, and zinc. In Anaconda, areas with a TMI less than 1700 ppm (equivalent to mg/Kg) were considered to have a low risk of revegetation failure with low operational and maintenance activities anticipated.

2.6 Erosion

In addition to collecting vegetation and soils data at specific sample points, indicators of erosion were recorded when encountered. The following indicators of accelerated erosion were described if observed:

- Flow pattern development resulting in larger (greater than 6 inches in depth) rills or gullies;
- Subsidence or slumping;
- Headcutting in drainages;
- Wind-scoured blowouts or depressions;
- Litter movement;
- Pedestals/terraces; and
- High percent bare ground.

2.7 Data Analytical Methods

Data were analyzed in Microsoft Excel. Student's t-tests were used for comparisons between two variables, or a variable and a standard (e.g., 1.5 percent organic matter). Two-sample tests were performed for sample units with more than one observation, one-sample tests were performed for sample units with a single observation. Note, however, that sample sizes are small in several sample units and t-test results for these comparisons have little statistical power. These results, therefore, may not be indicative of results from larger samples.

Standard error (SE) bars are displayed on many bar graphs to illustrate variance around the mean value. R-square values are depicted on scatter plot graphs to assess the correlation between two variables.

Multiple regression ANOVA was completed to evaluate the effect of multiple independent variables on a single dependent variable (e.g., the effect of coversoil thickness, reclamation age, and percent organic matter on perennial grass cover).

A *p*-value of <0.1 was considered significant for both Student's t-tests and multiple regression ANOVA.

3.0 Results

Results are summarized in the following sections. Section 3.1 focuses on vegetation sampling results and Section 3.2 focuses on soil sampling results. Prior to sampling efforts, differences in vegetation growth between and among sample units were speculated to be a function of several potential parameters, including: coversoil depth, soil chemistry (e.g., pH, metal concentrations), or soil organic matter. These relationships are evaluated in Section 3.3 of this Report.

3.1 Vegetation

A list of all vascular plants recorded within sample plots is provided in Appendix B. Canopy cover data and soil parameters are provided in Appendix C for each sample plot.

3.1.1 Canopy Cover and Composition

Canopy cover and composition were assessed within and among sample units. Figure 2 presents the mean canopy cover ± SE for perennial grass, the primary type of plant in typical revegetation, within each sample unit. This figure includes the RDS sites that were evaluated in 2021 as well as the reclaimed areas that were evaluated in 2022. Mean canopy cover by morphological class and origin (e.g., native perennial grass or introduced annual forb) are presented in Table 3 along with sample size per sample unit.

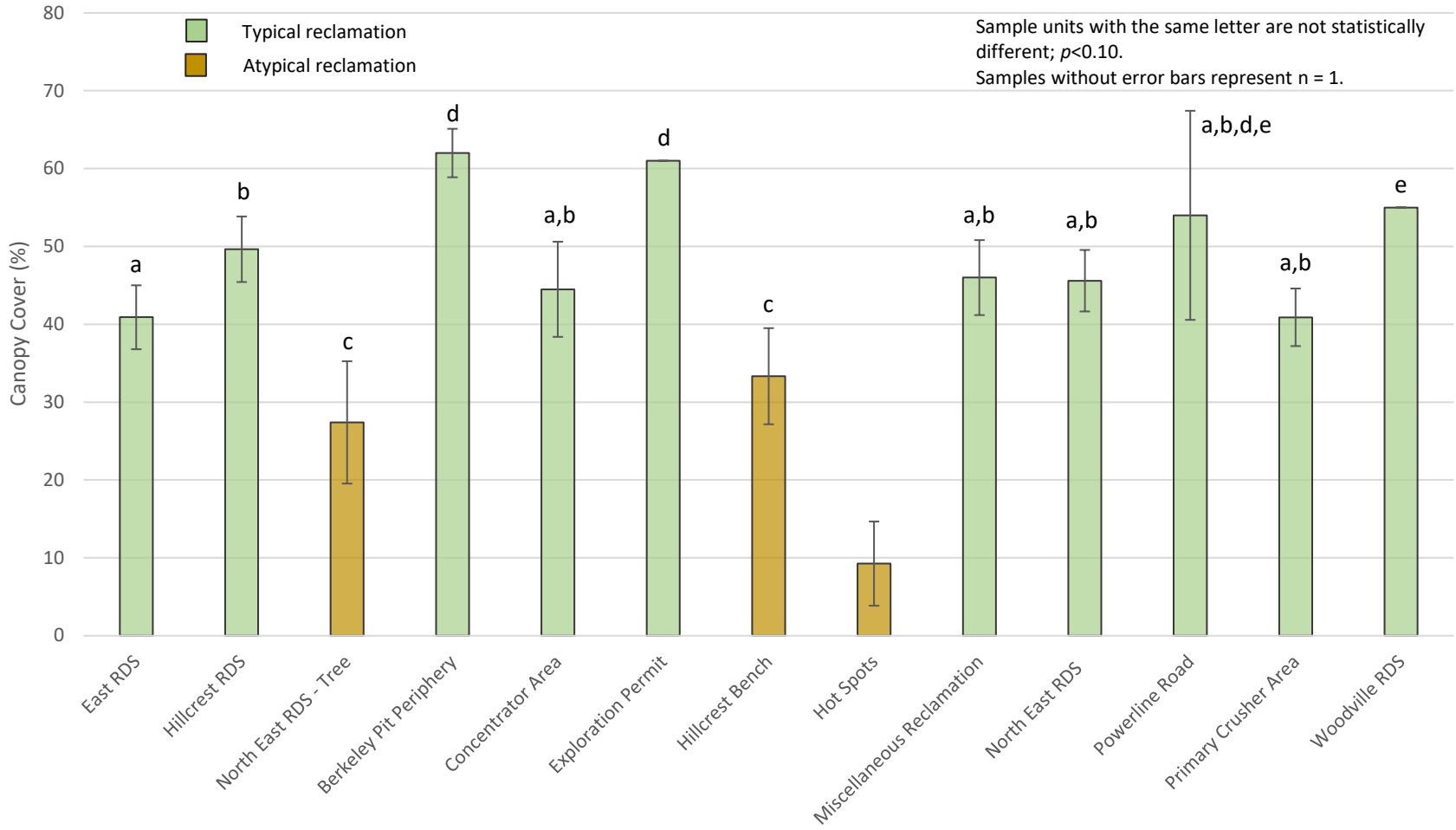
Perennial grass cover at all sites with typical reclamation averages at least 40 percent and varies from 40 to 62 percent across the different sample units. Perennial grass cover is highest within the Berkeley Pit Periphery (62 percent) and lowest within the East RDS (40 percent).

Mean perennial grass cover is also not significantly different among most of the sample units with typical reclamation, although sample size is small in some units and results from these small samples may not be indicative of larger samples. The Berkeley Pit Periphery and Exploration Permit units have the highest mean perennial grass cover (although there is only one sample in the small Exploration Permit site). Both sites are dominated by extensive stands of intermediate wheatgrass (*Agropyron intermedium*), which is a large and robust plant that has considerable canopy cover. Several of the other sample units also support substantial amounts of intermediate wheatgrass; however, these other units are also more floristically diverse and less dominated by this single, large species, which results in somewhat lower canopy cover in these units.

The amount of perennial grass in typical reclamation units compares favorably with that in the adjacent, undisturbed, native vegetation types: lodgepole pine (*Pinus contorta*) and big sagebrush/Idaho fescue (*Artemisia tridentata/Festuca idahoensis*). Mean perennial grass cover in lodgepole pine, such as occurs on the surrounding mountain slopes, typically varies from 14 to 36 percent (Pfister et al. 1977). Mean perennial grass cover in the more productive big sagebrush/Idaho fescue type, which occurs as isolated meadows within the lodgepole pine type, typically varies from 43 to 57 percent (Mueggler and Stewart 1980). Overall, between these two types, mean perennial grass cover is 38 percent. Consequently, perennial grass cover within typical reclaimed areas is similar to, or greater than, that in undisturbed, adjacent vegetation types.

Mean perennial grass cover in atypical reclamation is less than that in typical reclamation. However, mean perennial grass cover in the North East RDS – Tree unit is 27 percent, which is the approximate midpoint of perennial grass cover in the adjacent, native lodgepole pine type (14 to 36 percent; midpoint = 25 percent). Similarly, mean perennial grass cover on the Hillcrest Bench is 33 percent, which is similar to the overall average cover between lodgepole pine and big sagebrush/Idaho fescue types. Mean perennial

Figure 2. Mean Perennial Grass Canopy Cover (%) ± SE by Sample Unit: 2021 and 2022



grass cover is low in Hot Spots (8 percent) and it is unclear if reclamation was completed in these small areas or if a subsequent disturbance removed vegetation and coversoil. Introduced perennial grasses dominate vegetation in all sample units. Native perennial grasses are most common in the North East RDS and East RDS. Native perennial grass relative cover is also high in the Hot Spots; however, total cover within Hot Spots is only 9 percent and these areas only support sparse vegetation.

Introduced annual grasses and forbs are relatively uncommon and were primarily observed at isolated locations in the Concentrator Area, Primary Crusher Area, East RDS, and Hillcrest RDS units. Introduced perennial forbs, such as spotted knapweed (*Centaurea maculosa*), were uncommon in all units except within the Exploration Permit, Powerline Road, and Woodville RDS units. Spotted knapweed is common in these units.

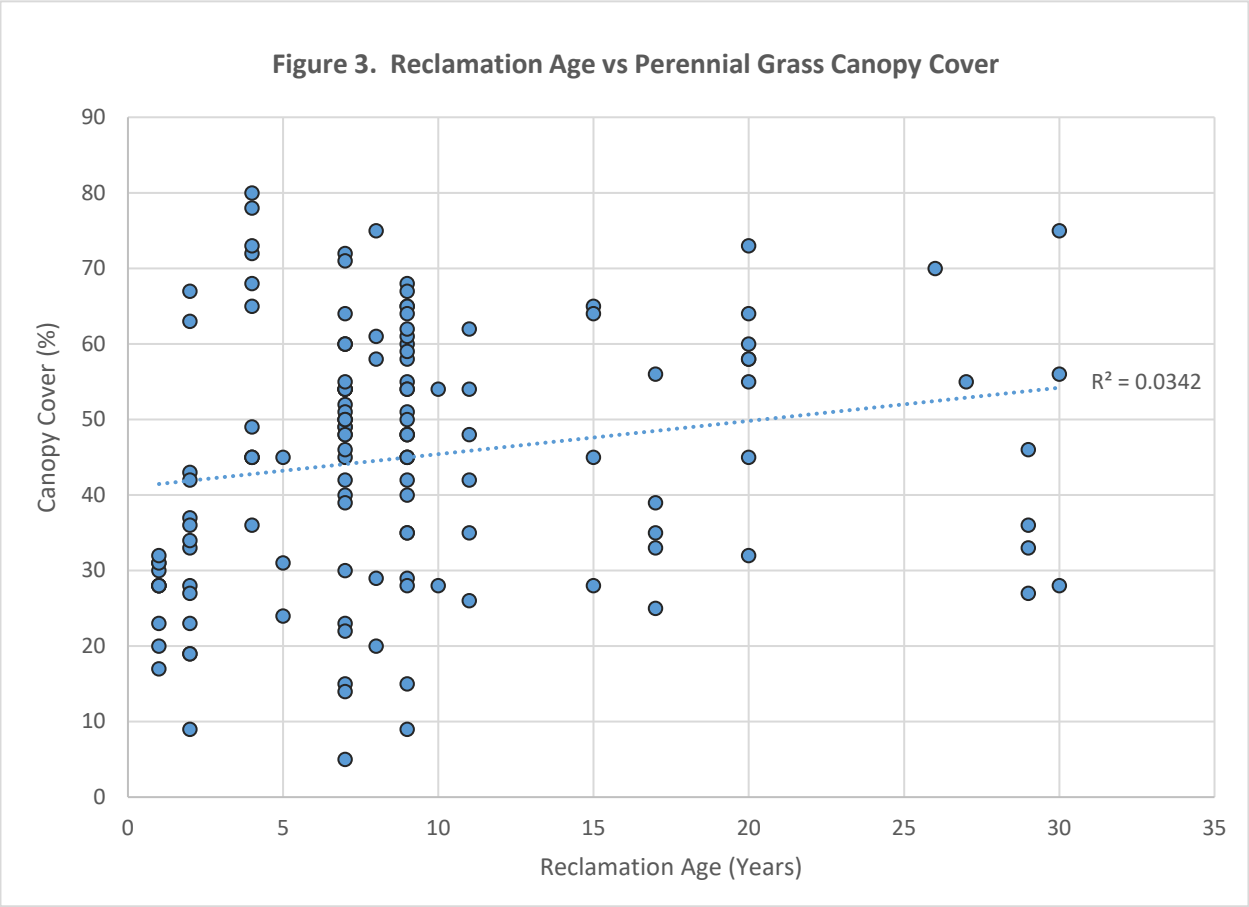
Native annual and perennial forbs are likewise relatively uncommon. The main native perennial forb observed was yarrow (*Achillea millefolium*). Table 3 presents mean cover at each sample unit by origin and morphological class.

Table 3. Mean Cover (%) at Each Sample Unit by Origin and Morphological Class

Sample Unit (Sample Size)	Origin and Morphological Class								
	Native Perennial Grass	Introduced Perennial Grass	Introduced Annual Grass	Native Perennial Forb	Introduced Perennial Forb	Native Annual Forb	Introduced Annual Forb	Shrub	Tree
Berkeley Pit Periphery (5)	12.3	51.9	0.4	0.1	4.5	0.1	0.9	0.1	2.0
Concentrator Area (8)	4.2	42.9	0.4	0.1	0.2	0.0	2.6	0.0	0.0
Exploration Permit (1)	0.3	65.0	0.0	1.3	44.0	0.0	0.3	0.0	0.0
Miscellaneous Reclamation (12)	9.9	47.1	1.8	0.0	0.1	0.2	0.3	0.0	0.0
Powerline Road (3)	0.8	54.3	0.0	0.2	3.6	0.2	0.5	0.0	2.7
Primary Crusher Area (10)	7.9	29.8	5.4	0.1	0.4	0.0	1.4	0.0	0.0
Woodville RDS (1)	0.0	55.3	0.0	2.3	7.6	0.0	0.0	0.0	0.0
North East RDS (30)	4.3	44.4	2.0	0.3	1.4	0.1	0.4	0.0	0.2
East RDS (36)	19.8	48.0	3.6	1.3	0.2	0.0	1.5	0.0	0.6
Hillcrest RDS (29)	24.7	27.2	3.0	0.2	0.8	0.0	0.7	0.0	0.0
Hillcrest Bench (3)	3.2	32.7	1.7	0.2	0.5	0.0	3.4	0.0	0.0
North East RDS – Tree (10)	0.2	21.5	0.0	0.4	3.1	0.0	0.5	0.6	19.2
Hot Spots (7)	1.9	6.0	0.2	0.6	0.0	0.0	0.1	0.0	0.0

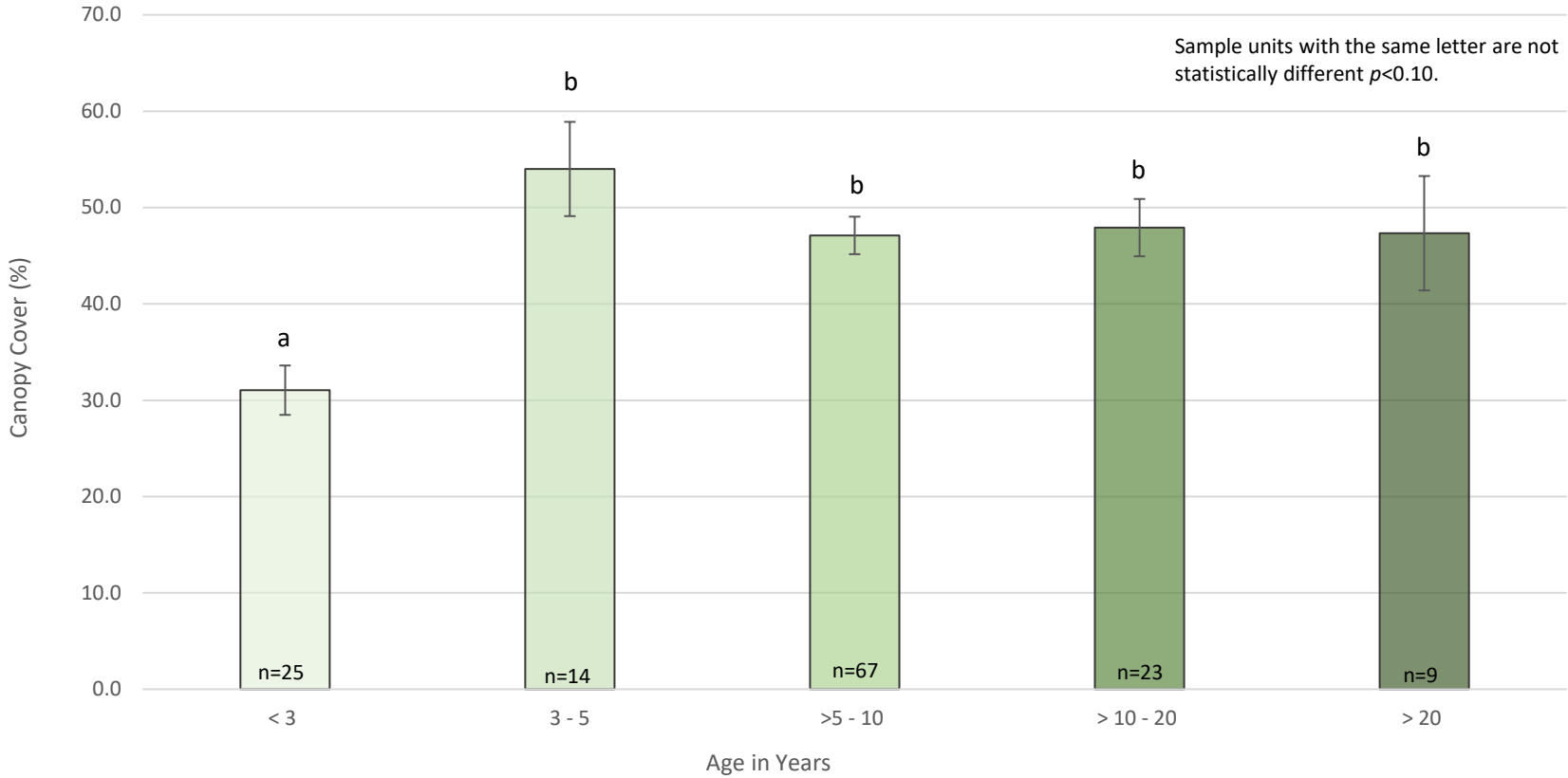
3.1.2 Canopy Cover and Reclamation Age

A parameter that could affect vegetation canopy cover is revegetation age. Figure 3 shows a slight positive correlation between reclamation age and perennial grass canopy cover (note that Hot Spots and the North East-Tree RDS were not included in this analysis since perennial grass cover in those units is either not present or not present in a substantial amount).



Most perennial grasses that are used in reclamation reach full maturity after three years (NRCS 2008, 2009). To determine if mean perennial grass cover differs significantly with reclamation age, sample sites were categorized by age groups (Figure 4). This analysis indicates that mean perennial grass cover is significantly less on sites younger than three years old, but that once vegetation reaches three years old, there is no significant difference in perennial grass canopy cover in subsequent years (Figure 4).

Figure 4. Mean Perennial Grass Canopy Cover (%) ± SE by Age Category



3.1.3 Noxious Weeds

Qualitative reclamation monitoring prior to 2021 documented extensive spotted knapweed throughout reclaimed areas. Consequently, MR implemented an aggressive noxious weed management program, primarily through herbicide treatment, with the result that noxious weeds are now uncommon within reclaimed areas.

In contrast to the noxious weed monitoring completed prior to 2021, monitoring in 2022 documented very limited noxious weed cover throughout all reclaimed areas except within the Exploration Permit, Powerline Road, and Woodville RDS units. Spotted knapweed is common at these units and averages 40 percent cover at the small Exploration Permit, 7 percent cover at the Woodville RDS, and 3 percent cover at the Powerline Road.

Other noxious weeds that were recorded in limited quantities and areas included: hoary alyssum, common mullein, dalmatian toadflax, and yellow toadflax. None of these weeds' average cover is greater than 1 percent and only a few individual sites had cover of more than 1 percent. Scotch thistle, which had been observed in 2021 and was treated that year, was not observed in 2022.

Cheatgrass and Japanese brome are introduced annual grasses; both species are highly invasive and can negatively affect revegetation. These annual grasses are not common in most reclaimed areas and usually account for less than 5 percent cover. However, two areas totaling about 5.6 acres in the East RDS are dominated by cheatgrass and Japanese brome and support little perennial revegetation.

3.2 Soils

3.2.1 Coversoil Depth

Coversoil depth is a key parameter in the Reclamation Plan. The original coversoil "recipe" was developed for a 2002 reclamation program at the Woodville Dump (Minor Revision MR 02-001). The current Reclamation Plan specifies two depths depending on slope:

- 28 inches on slopes < 5%; or
- 20 inches on slopes ≥ 5%

Coversoil may be suitable alluvium or a combination of suitable alluvium with topsoil or compost as necessary to increase the percent organic matter to 0.5 percent (Section 3.2.3).

Approximate slope at each sample plot was measured with a clinometer to determine which coversoil category was most appropriate for analysis. Mean slope was then calculated by sample unit; mean slopes were ≥ 5 percent in all units. Consequently, a coversoil depth of 20 inches is generally most appropriate for comparison for areas reclaimed after 2002. However, note that a substantial portion of the Hillcrest RDS was reclaimed prior to 2002, and the Concentrator Area and Primary Crusher Area are exempt from coversoil depth requirements.

During sampling, coversoil was identified as all soil horizons that could be extracted above the point of shovel refusal. Areas below coversoil are either coarse waste rock, indurate alluvium, or a mix of the two. Note that in the case of Hot Spots and the Hillcrest Bench, there was no clear "coversoil; rather, there is the less consolidated soil material that was excavated to the point of refusal. Mean measured coversoil depths are presented by sample unit in Figure 5.

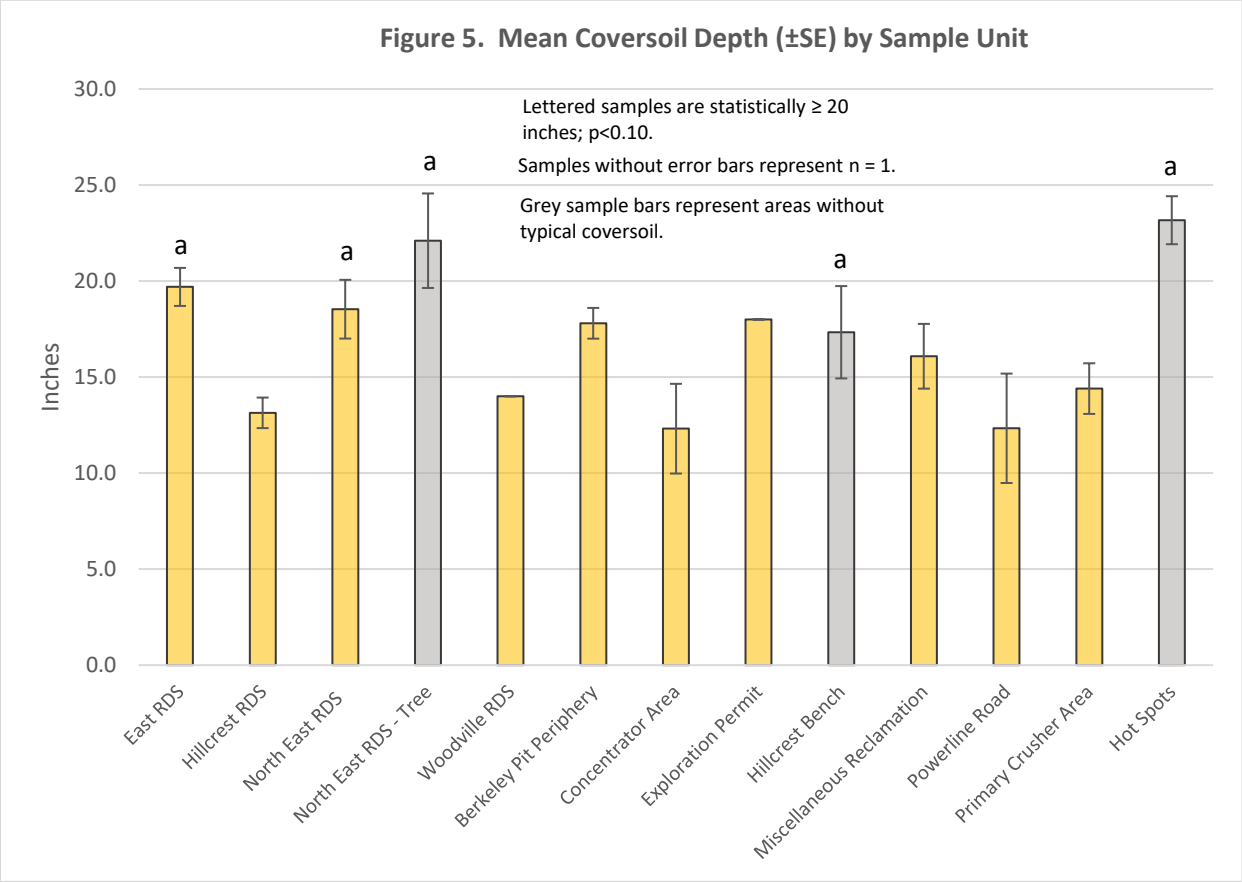
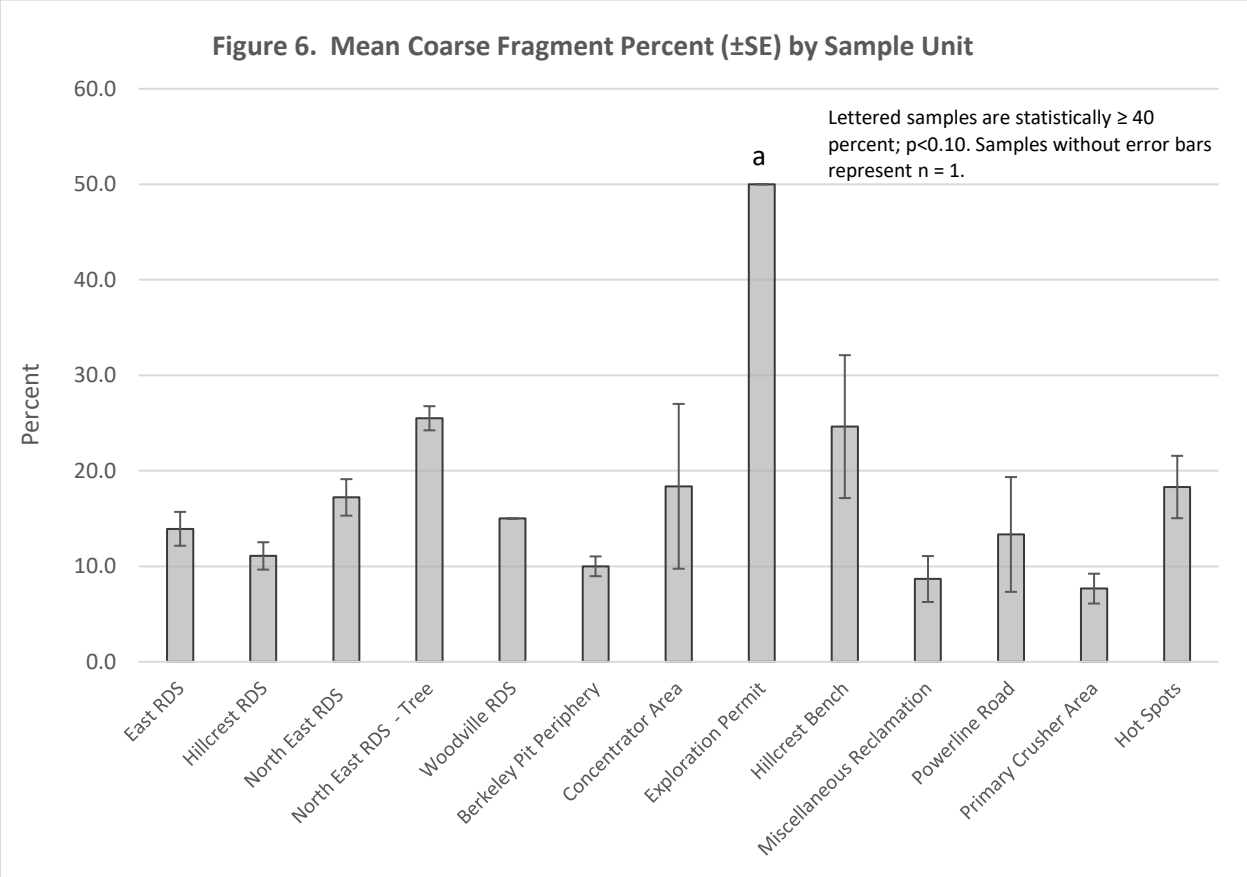


Figure 5 shows that most acreage reclaimed since 2002 (i.e., the East and North East RDS) has a mean coversoil of approximately 20 inches.

Soil depth above shovel refusal at Hot Spots exceeds 20 inches. However, Hot Spots lack typical coversoil. Hot Spots also support little vegetation and typically have low pH and high metal concentrations. Consequently, while the soil material above rock refusal in Hot Spots is greater than 20 inches, this material was likely not intentionally distributed as "coversoil". Similarly, "coversoil" at the Hillcrest Bench site is not the same as coversoil on other areas. The Hillcrest Bench area is outside of any identified reclaimed area and coversoil was likely not applied here; rather, the soil material above rock refusal on the Hillcrest Bench is more similar to alluvium than coversoil. Data from Hot Spots and the Hillcrest Bench are depicted in Figure 5 for comparison with other sites; however, for the reasons noted above, soil material at these two sites should not be considered coversoil in the same manner as other areas where coversoil was intentionally distributed.

3.2.2 Soil Composition and Coarse Fragment in Coversoil

The Reclamation Plan specifies a criterion of no more than 40 percent coarse fragment (>2 mm diameter) in coversoil. Coarse fragments are composed of gravels, cobbles, and stones. Gravels are defined as coarse fragment material between 2 mm and 7.6 cm, cobbles between approximately 7.6 cm and 25 cm, and stones greater than approximately 25 cm (USDA 2015). The percent of gravels, cobbles, and stones was estimated within each soil pit and summed to determine mean coarse fragment content by sample unit as shown in Figure 6.



The only unit with greater than 40 percent coarse fragment is the small Exploration Permit site where there are a substantial number of large cobbles and boulders. All other units average much less than 40 percent coarse fragment content.

3.2.3 Soil Organic Matter

Percent organic matter is a soil parameter specified in the current and previous Reclamation Plan. Coversoil with organic matter ≥ 0.5 percent is considered suitable in the current Reclamation Plan.

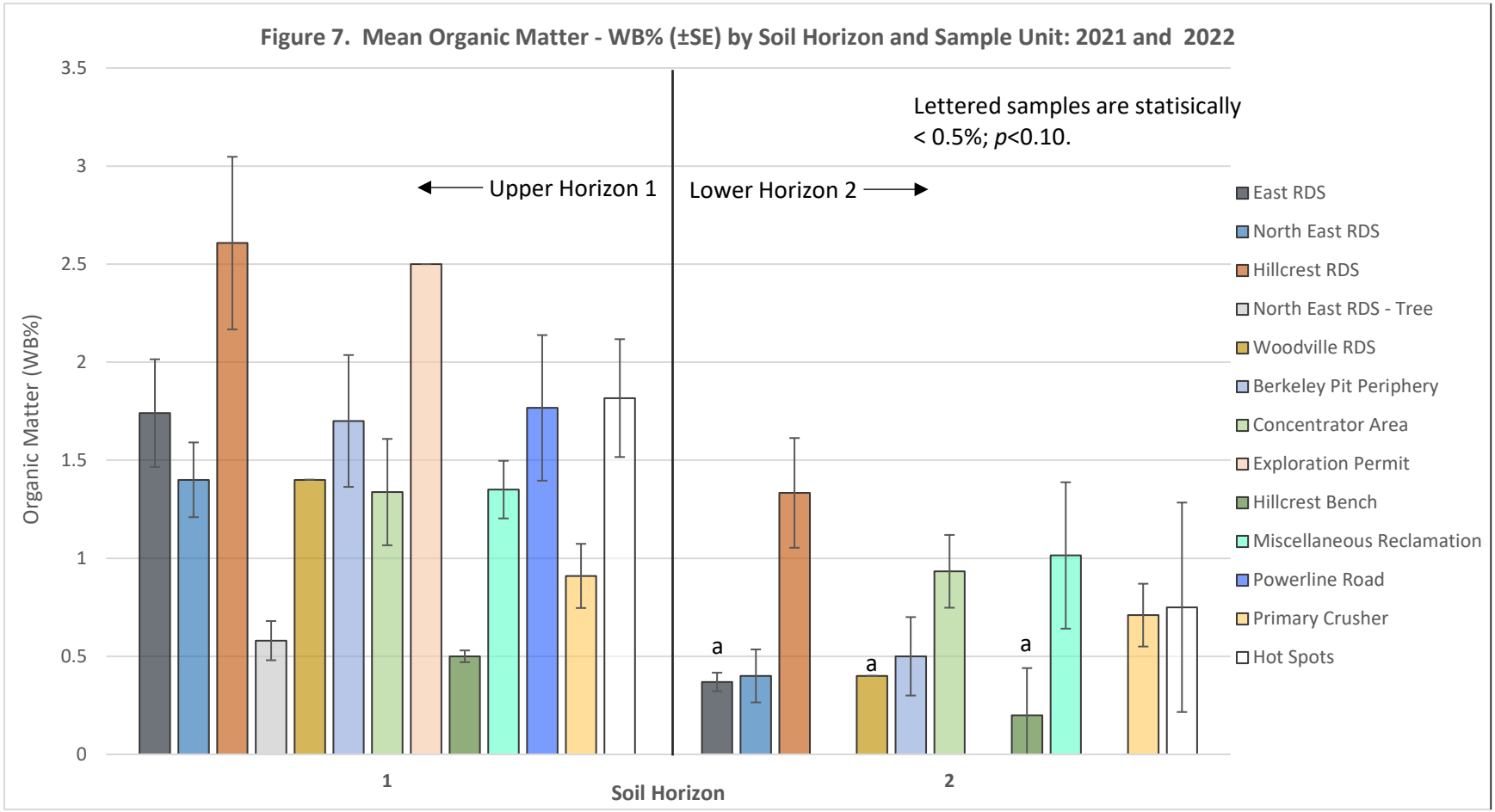


Figure 7. Mean Organic Matter - WB% (±SE) by Soil Horizon and Sample Unit: 2021 and 2022
Lettered samples are statisically < 0.5%; p<0.10.
Upper Horizon 1
Lower Horizon 2
Organic Matter (WB%)
3.5
3
2.5
2
1.5
1
0.5
0
a
a
a
1
2
Soil Horizon
East RDS
North East RDS
Hillcrest RDS
North East RDS - Tree
Woodville RDS
Berkeley Pit Periphery
Concentrator Area
Exploration Permit
Hillcrest Bench
Miscellaneous Reclamation
Powerline Road
Primary Crusher
Hot Spots

Coversoil with organic matter ≥ 1.5 percent was considered suitable in the previous Reclamation Plan since 2002. Figure 7 depicts the mean percent organic matter, as measured by the Walkley-Black (WB) method, by soil horizon and sample unit.

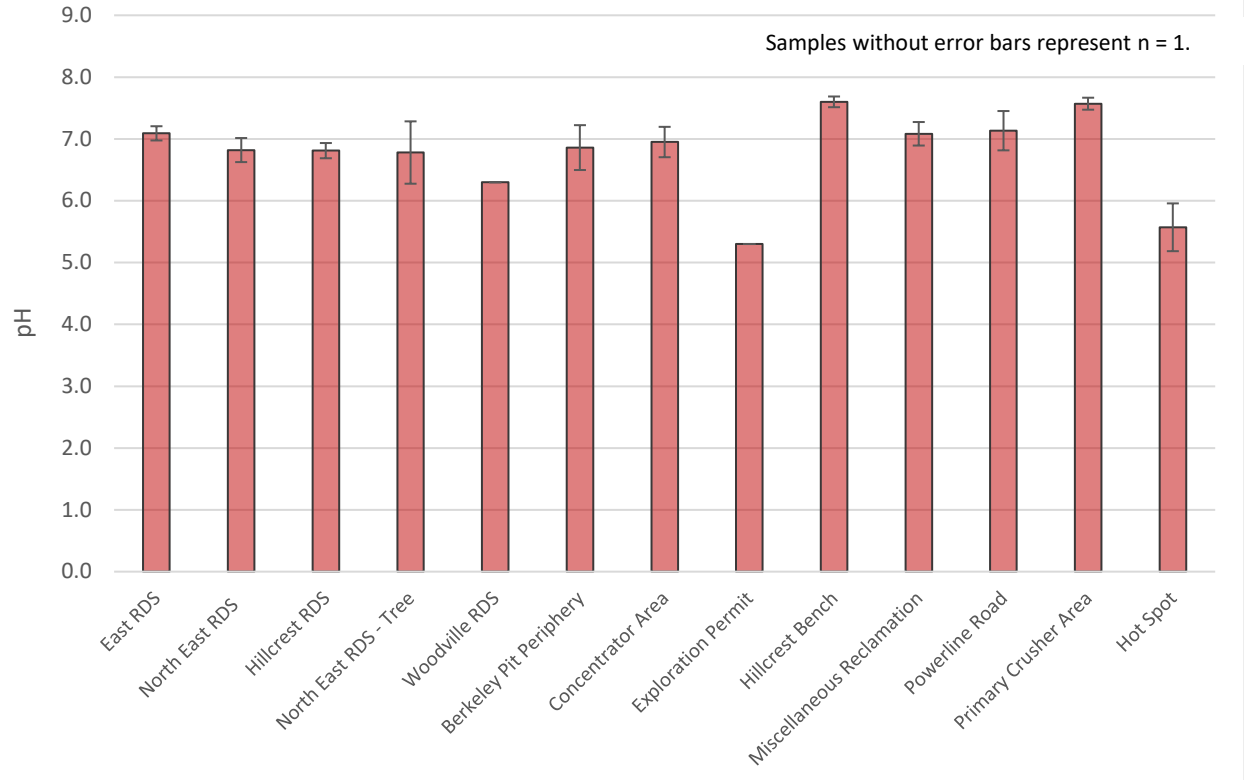
Not surprisingly, organic matter is higher in the upper horizon than in the lower, likely because the first horizon typically contains redistributed topsoil. Percent organic matter is at least equal to 0.5 percent in the first horizon in all sample units. Percent organic matter is lower in the second horizon but also typically at least 0.5 percent. Overall, using data from both 2021 and 2022, organic matter averages 1.2 percent in coversoil across all samples.

Montana Resources annual reports indicate that the average percent organic matter in salvaged topsoil is highly variable prior to redistributing. Between 2017 and 2020, the percent organic matter in topsoil material varied from a low of 0.8 percent to a high of 5.5 percent depending on the source; mean percent organic matter from these samples was 2.8 percent (Montana Resources 2017, 2018, 2019, 2020

3.2.4 Soil pH

The Reclamation Plan criterion for pH coversoil suitability is between 5.5 and 8.5. Figure 8 depicts mean pH for coversoil by sample unit. Separate data for upper and lower soil horizons are not depicted in this figure since 2021 data indicated that, with the exception of Hot Spots, soil pH was similar between the first and second horizons.

Figure 8. Mean pH (±SE) by Sample Unit



Mean soil pH is between 5.5 and 8.5 in all sample units except the Exploration Permit; however, only one sample was collected in the Exploration Permit and this may not be representative of all coversoil in this small sample unit. Montana Resources' recent annual reports indicate that average pH of alluvium prior to redistribution as coversoil was ≥ 6.5 (Montana Resources 2017, 2018, 2019, 2020). It is unlikely that coversoil was applied in the Hot Spots unit; or, conversely, coversoil may have eroded out of these sites or was perhaps removed during previous remediation attempts.

3.2.5 Metals Concentration

A variety of heavy metals may cause phytotoxicity (Munshower 1994). Montana Resources, using data from various agencies, has identified potentially phytotoxic levels for several metals as a function of pH (AGC 2021). In particular, the following metal analytes are of interest: As, Cd, Cu, Pb, Zn, and a TMI in ppm (or mg/kg) calculated as the sum of As + Cu + Zn. Table 4 displays the mean concentration by sample unit of metals of interest and TMI in coversoil for samples that had a pH below the Reclamation Plan threshold of 5.5. Only 7 (out of 106) soil samples had a pH less than 5.5: four samples from Hot Spots and one each from the North East RDS, North East RDS-Tree, and Exploration Permit sample units. Table 5 summarizes the same data for soil samples with pH equal to or above the Reclamation Plan pH threshold of 5.5; these comprise the majority of soil samples. Cells shaded in yellow indicate average concentrations greater than the suitability criterion in the Reclamation Plan.

Table 4. Mean Metal Concentrations (ppm) < pH 5.5 by Unit

Coversoil Samples with pH < 5.5 (n=7)				
Analyte	**North East RDS**	**North East RDS - Tree**	**Exploration Permit**	**Hot Spots**
Mean Unit pH	**5.5**	**4.9**	**5.3**	**4.2**
As	41	3	24	59
Cd	1	0	1	2
Cu	351	827	163	1275
Pb	84	10	37	165
Zn	250	33	38	601
TMI	642	863	225	1934

The mean concentration of Cu and TMI exceeds the suitability criteria in the Reclamation Plan in the Hot Spots at pH both < and ≥ 5.5 (Tables 4 and 5). Copper levels also exceed the suitability criterion at the Hillcrest Bench and Woodville RDS units.

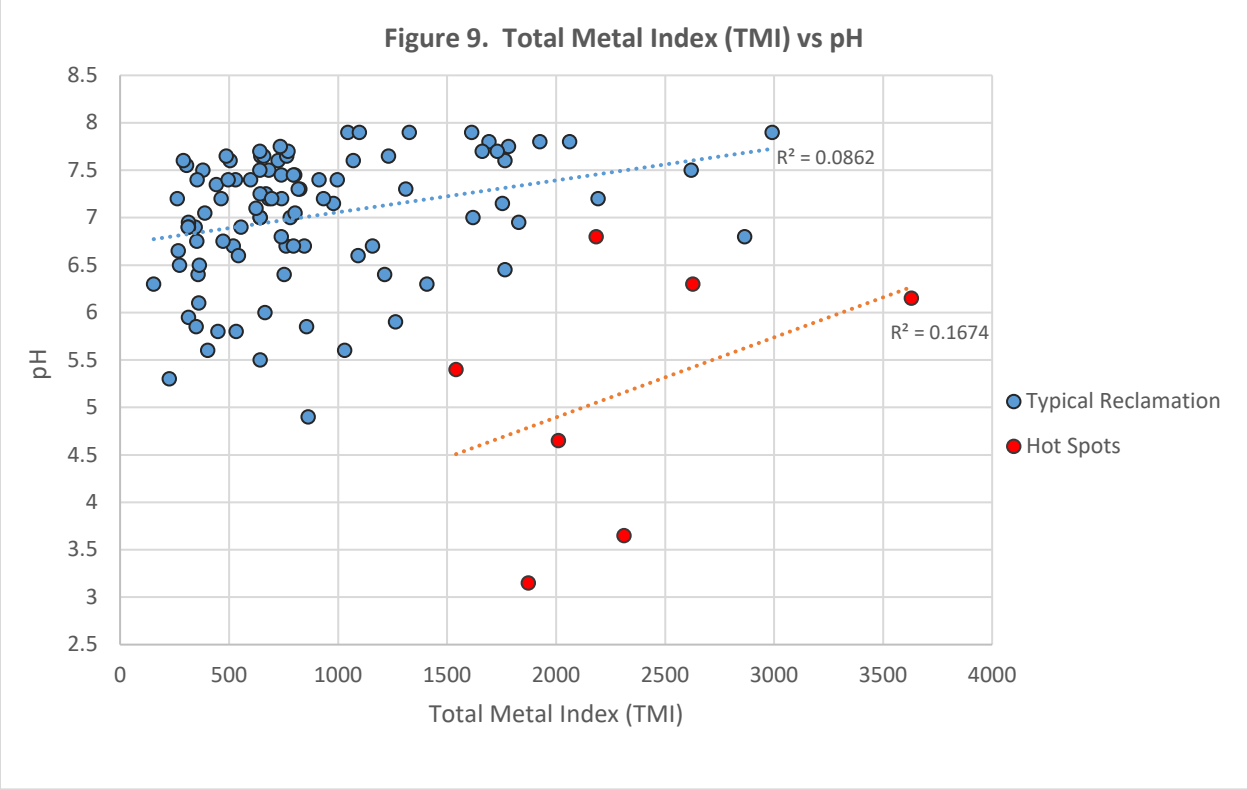
The Hillcrest Bench unit has not been formally reclaimed and coversoil has not been respread at this unit, although it has been seeded at different times in the past. This small sample unit is interesting because it does not have clearly developed soil horizons or clearly applied coversoil. One of the four samples within the unit has the highest level of Cu and TMI recorded on the project; very little vegetation (less than 10 percent cover) occurred within this plot. In contrast, while Cu is also high at the other three sample points within the Hillcrest Bench, vegetative cover at these sites averaged 36 percent. Copper likewise exceeds

the suitability criterion in the Woodville RDS; however, as noted above, only one sample was collected in this small unit and it is unknown if this result is representative of the entire unit.

Table 5. Mean Metal Concentrations (ppm) ≥ pH 5.5 by Unit

Coversoil Samples with pH ≥ 5.5 (n=99)												
Analyte	**East RDS**	**North East RDS**	**Hillcrest RDS**	**North East RDS - Tree**	**Berkeley Pit Periphery**	**Concentrator Area**	**Hillcrest Bench**	**Misc. Recl.**	**Powerline Road**	**Primary Crusher**	**Woodville RDS**	**Hot Spots**
Mean Unit pH	**7.1**	**6.9**	**6.8**	**7.3**	**6.9**	**7.0**	**7.6**	**7.1**	**7.1**	**7.6**	**6.3**	**6.4**
As	26	17	26	25	44	25	14	29	32	26	30	25
Cd	0	0	0	0	3	1	1	1	1	1	1	1
Cu	348	698	670	742	653	312	1125	736	360	957	1203	2331
Pb	82	77	114	209	615	51	68	178	70	124	91	64
Zn	137	128	194	73	899	124	291	542	108	228	174	457
TMI	511	843	891	840	1596	461	1429	1307	500	1211	1407	2813

Figure 9 shows the relationship between TMI and pH. Surprisingly, this figure shows a slightly positive relationship between pH and TMI. There is no clear reason to conclude that higher pH directly correlates with greater TMI; this may be a spurious correlation. Metals are typically more mobile and available for plant uptake at lower pH (Munshower 1994, Kicinska et al. 2021). The potential negative effect of low pH and high metal concentrations is evaluated in Section 3.3.



3.2.6 Erosion

Minor rilling was observed on the East RDS within areas that had been seeded in the last three years and where perennial vegetation is still establishing. None of these rills were contributing to off-site sedimentation; consequently, remedial action was not prescribed. Future monitoring will continue to assess these areas to determine if sediment control is needed. Photos of minor rilling are archived at WESTECH.

3.3 Influence of Soils on Vegetation

This section describes relationships between soil parameters and vegetative establishment as measured primarily by the percent perennial grass cover, since perennial grass is the dominate plant type within revegetation seed mixes. A variety of soil parameters are specified in the Reclamation Plan and other documents that are intended to insure adequate vegetation establishment and longevity. Soil parameters of particular interest due to their potential effect on vegetation establishment include: coversoil depth, coversoil percent organic matter, coversoil pH, and coversoil metal concentrations.

3.3.1 Coversoil Depth and Vegetation

Coversoil depth has been a key factor in the Reclamation Plan since 2002 and is currently specified at 28 inches on slopes < 5 percent and 20 inches on slopes ≥ 5 percent. Figure 10 presents percent perennial grass canopy cover versus coversoil depth. Perennial grass cover was used rather than total cover because perennial grasses account for more than 90 percent of total cover and, until recently, were the only seeded species used in reclamation. Hot Spots and North East RDS – Tree sample units were omitted from this analysis since these areas are anomalies on the RDS reclamation and would skew data based on either very low cover (Hot Spots) or primarily tree cover (North East RDS – Tree).

No clear relationship between coversoil depth and perennial grass cover is discernible in Figure 10 although there is a slight positive trend between increasing canopy cover and increasing coversoil depth.

In order to further evaluate the potential relationship between coversoil depth and perennial grass cover, coversoil depth was categorized into areas with more than 20 inches coversoil and areas with less than 20 inches coversoil. Twenty inches was chosen as the analysis break since that is the coversoil depth that is the minimum prescribed depth for areas that have been reclaimed between 2002 and 2022. Mean perennial grass cover at sites with less than, and more than, 20-inch coversoil depth is shown in Figure 11. There is no significant difference ($p=0.8279$) in perennial grass canopy cover between areas with more than 20-inch coversoil and those with less than 20-inch coversoil.

Since no difference in the percent perennial grass canopy cover was observed using the 20-inch coversoil break, coversoil depths were re-categorized using finer coversoil depth increments. Figure 12 depicts mean canopy cover at sites with <10 inches coversoil, ≥10 – 15 inches coversoil, and > 15 inches coversoil. There is no difference ($p>0.4531$) in perennial grass cover among any of these coversoil categories.

Figure 10. Coversoil Depth vs Perennial Grass Cover

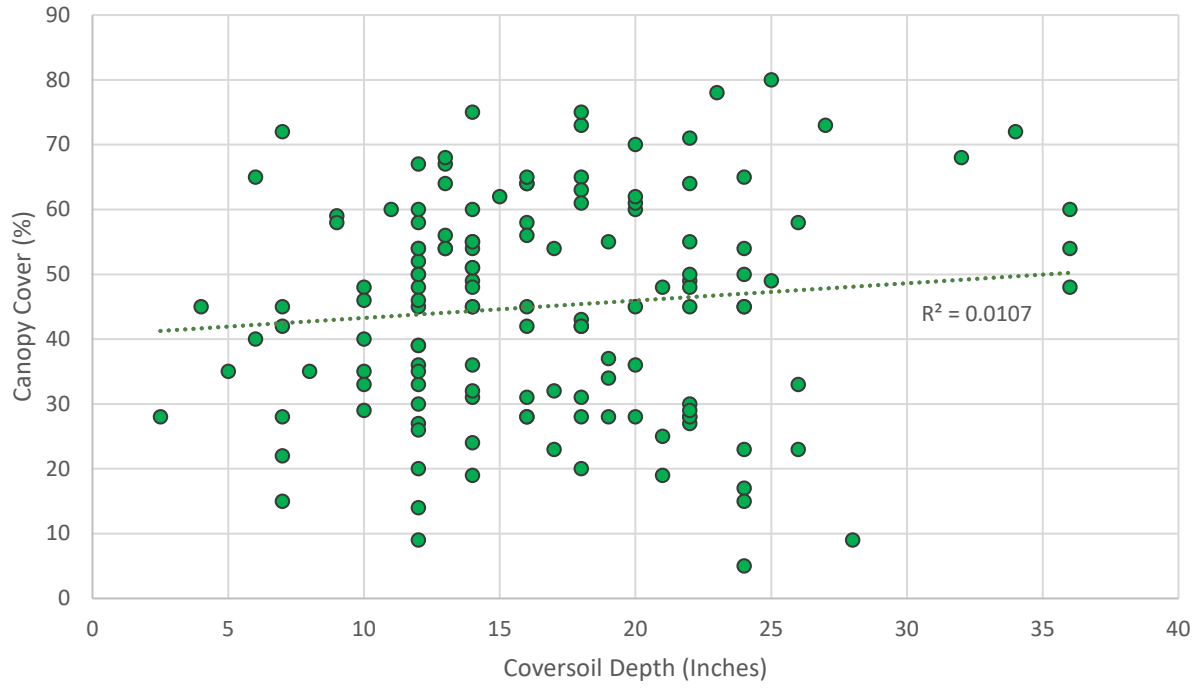
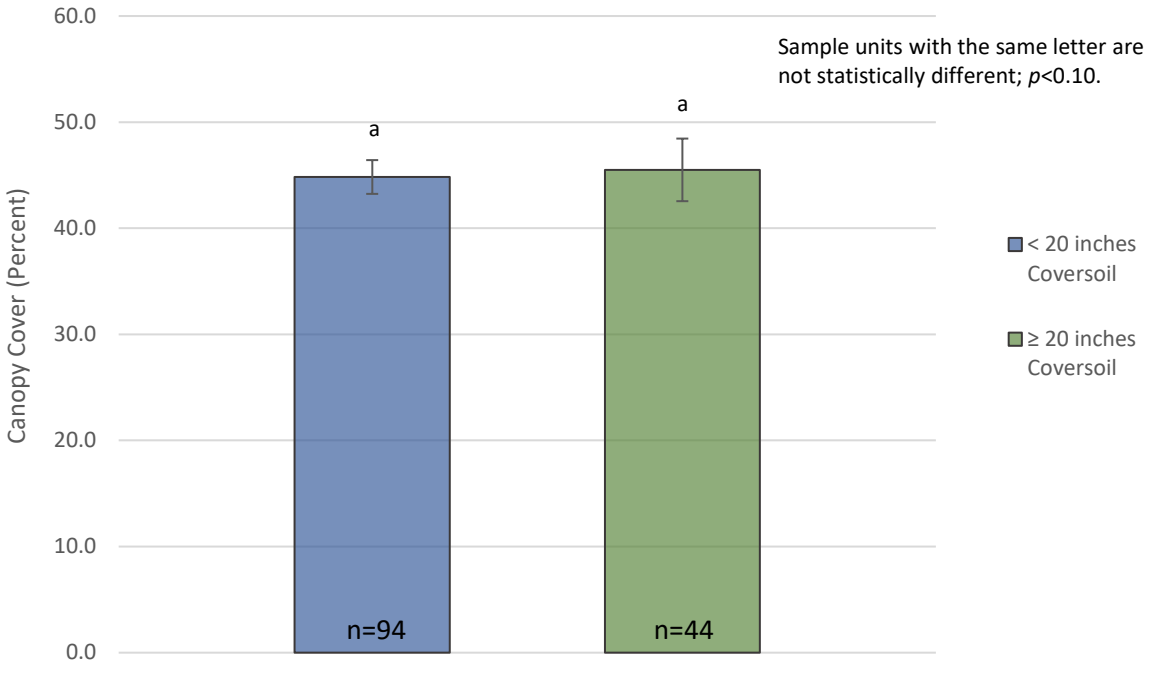
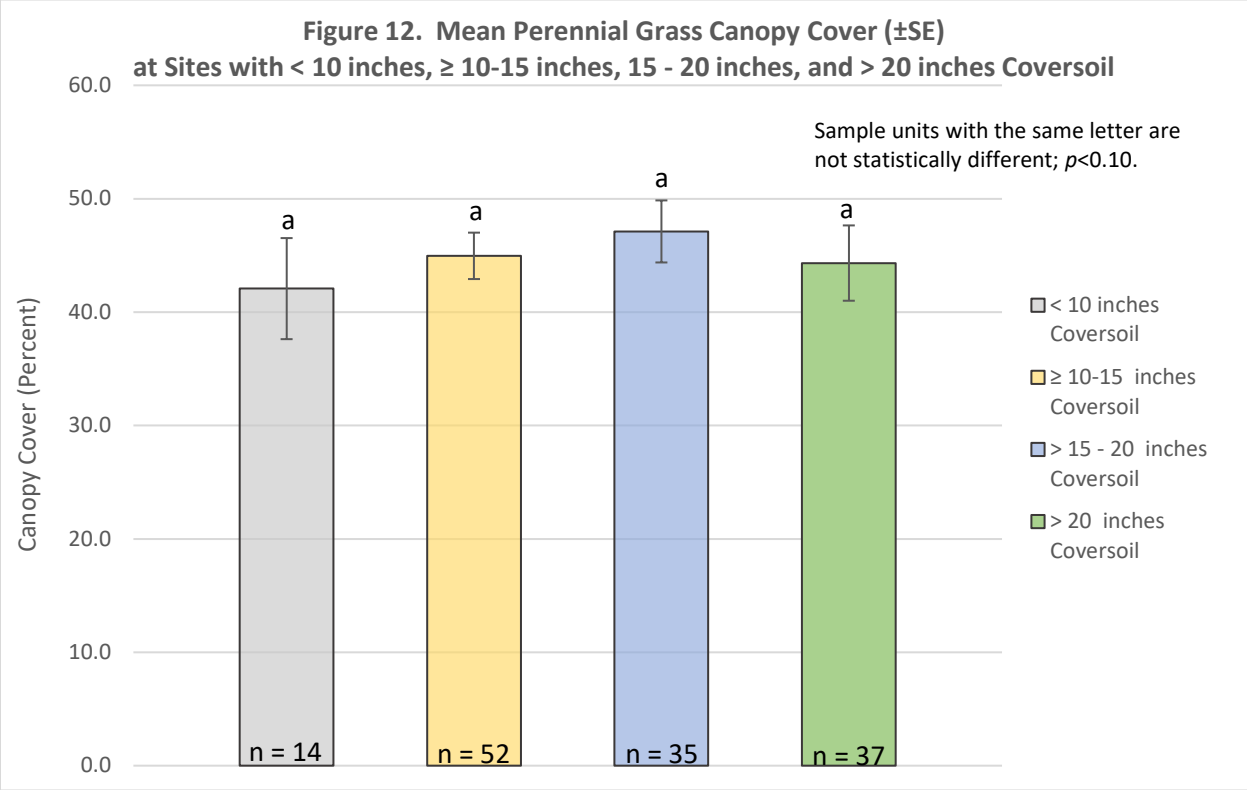


Figure 11. Mean Perennial Grass Canopy Cover (±SE) at Sites with < 20 inches and ≥ 20 inches Coversoil





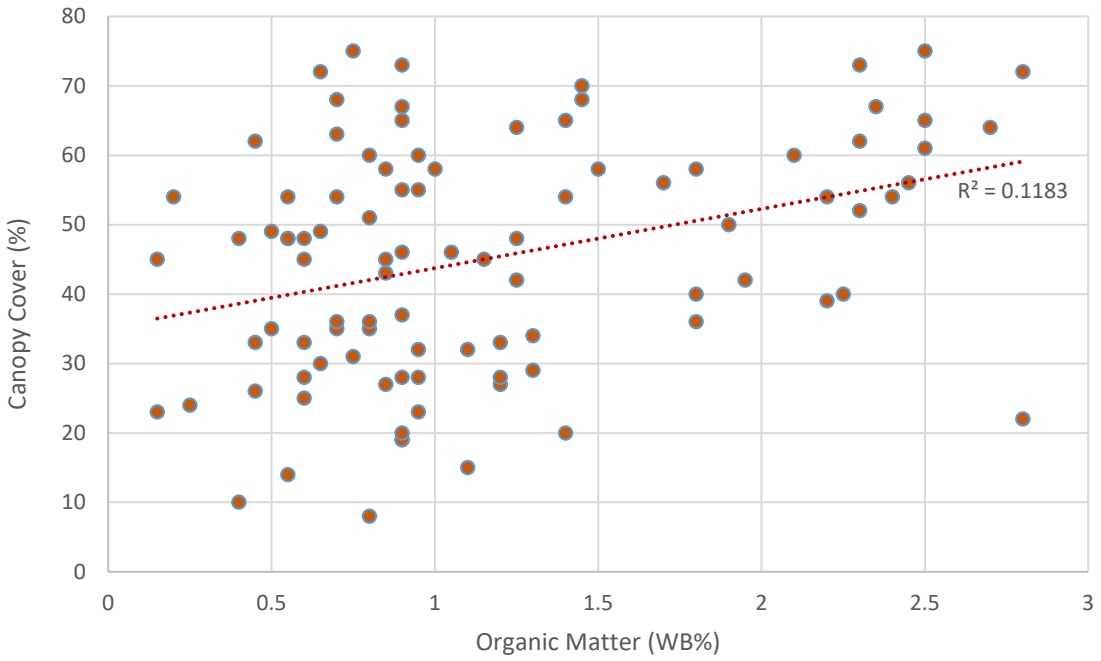
The average coversoil depth in areas with <10 inches is 6 inches; reclamation at these sites averages 9 years old and includes many areas reclaimed prior to 2002 when coversoil depth was first included as a criterion. These sites include 10 samples that were analyzed for chemical constituents. In these samples, mean organic matter is 2.0 percent, mean pH is 6.6, mean Cu concentration is 420 mg/kg, and mean TMI is 615 mg/kg (Appendix C). Consequently, although these areas have thin coversoil relative to the coversoil criterion, they also have organic matter, pH, Cu, and TMI that are suitable to support vegetation. Consequently, if coversoil is otherwise suitable, depth may not be a limiting factor.

3.3.2 Coversoil Organic Matter and Vegetation

Percent organic matter is a key factor in the Reclamation Plan, which specifies that coversoil contains a minimum of approximately 0.5 percent organic matter to be considered suitable. However, comparing data in Figure 2 (perennial grass cover by sample unit) with data in Figure 7 (coversoil organic matter by sample unit), there is not a clear effect of percent organic matter on percent perennial grass canopy cover. For example, mean percent organic matter is much greater within the Hillcrest RDS than in many other sample units (Figure 7) but mean perennial grass cover at the Hillcrest RDS is similar to many other sample units with significantly less organic matter (e.g., North East RDS, Concentrator Area, or Miscellaneous Reclamation areas – Figure 2). Similarly, Figure 13 presents the relationship between percent perennial grass canopy cover and percent organic matter and reveals only a slight, positive relationship between percent perennial grass canopy cover and percent organic matter. Note that Hot Spots and North East – Tree samples are not included in this analysis. The inclusion of Hot Spots could skew data because

although they have adequate organic matter, they also support very little vegetation likely due to low pH and high metal content. The North East - Tree samples could also skew the data because they have very little perennial grass and it is unclear if those areas were seeded with grass or only planted with trees.

Figure 13: Coversoil Organic Matter vs Perennial Grass Cover



Most of the samples in Figure 13 contain at least 0.5 percent organic matter, which is consistent with the current Reclamation Plan. When only those samples with < 0.5 percent are analyzed, the relationship is still only slightly positive, indicating that even substantially lower organic matter content may not result in substantially lower perennial grass cover (Figure 14).

To further examine the relationship between percent organic matter and percent perennial grass cover, all samples were categorized by percent organic matter and the average cover of perennial grass was calculated in each category. Figure 15 depicts mean perennial grass percent cover for four categories of percent organic matter. There is no difference in perennial grass cover at organic matter levels ≤ 1.5 percent; however, samples with organic matter > 1.5 percent do have significantly greater perennial grass cover. These results suggest that organic matter content is not a strongly limiting factor for perennial grass establishment on sample units, particularly at levels ≤ 1.5 percent.

Figure 14. Coversoil Organic Matter at ≤ 0.5% vs Perennial Grass Cover

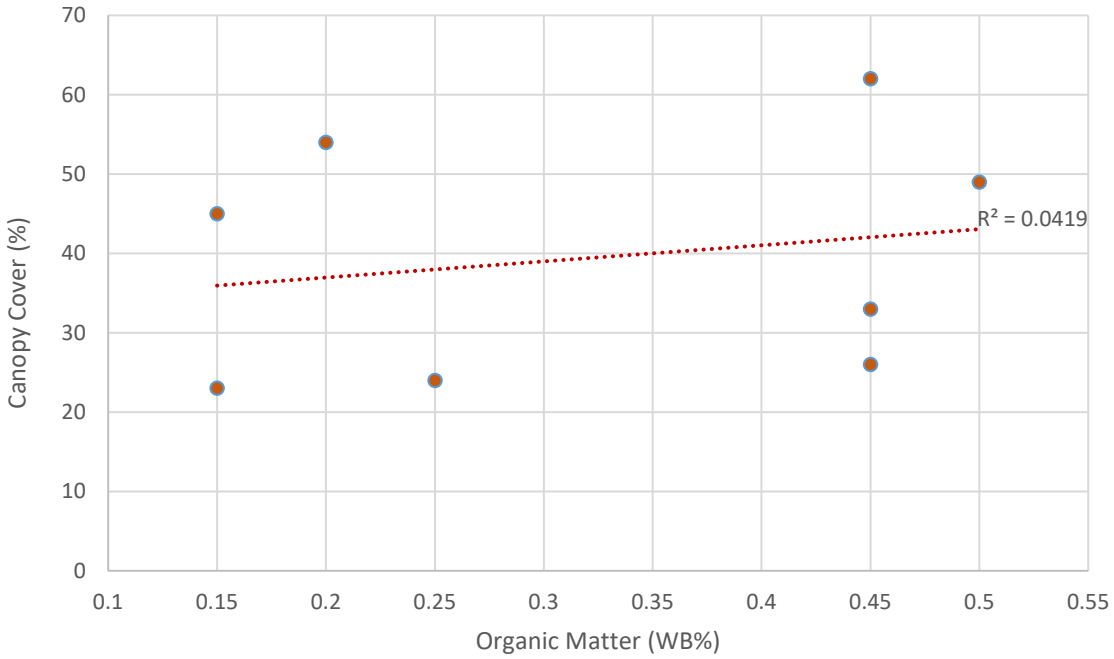
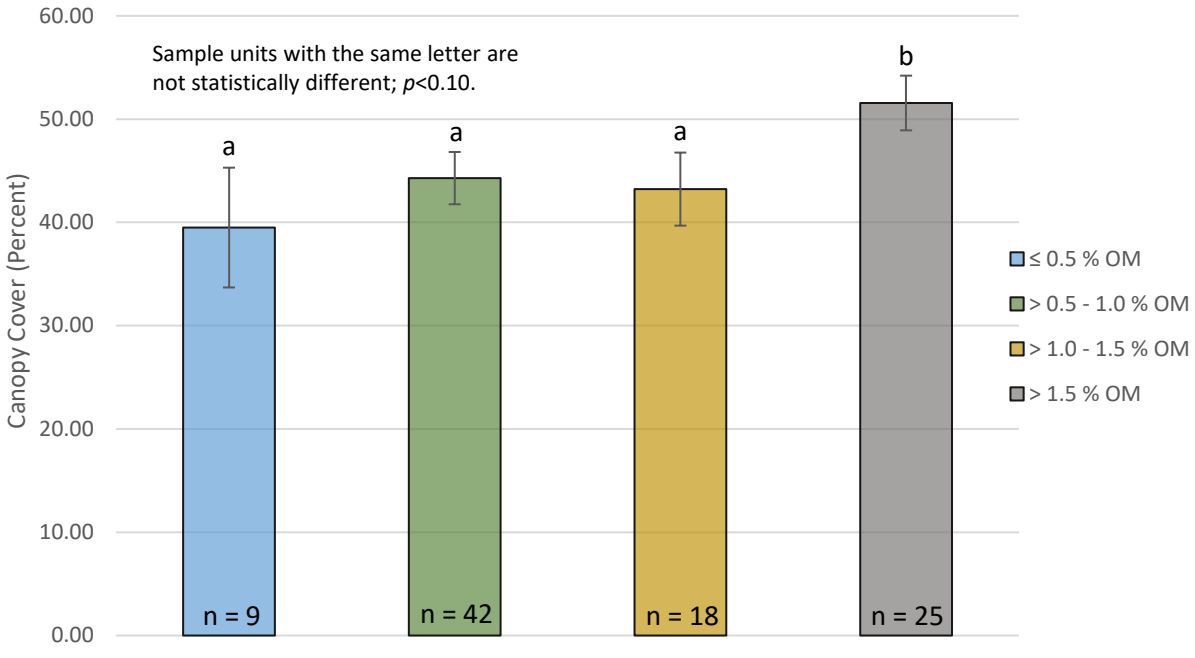


Figure 15. Mean Perennial Grass Canopy Cover (±SE) by Percent Organic Matter Category (WB %)



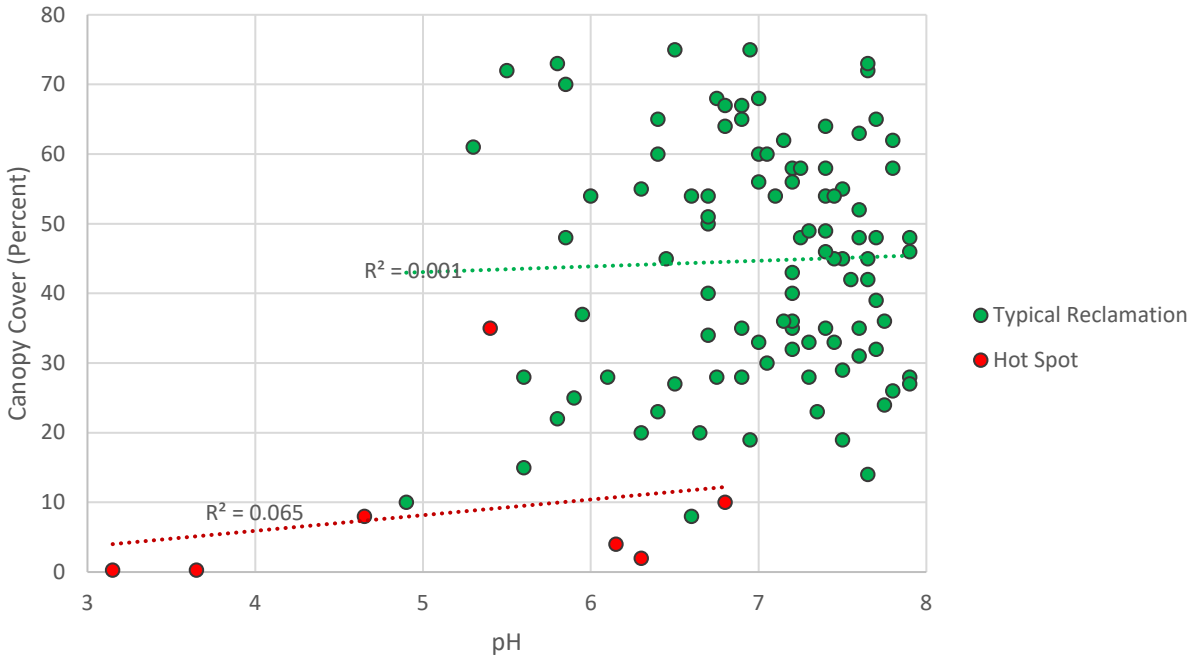
3.3.3 Coversoil pH and Vegetation

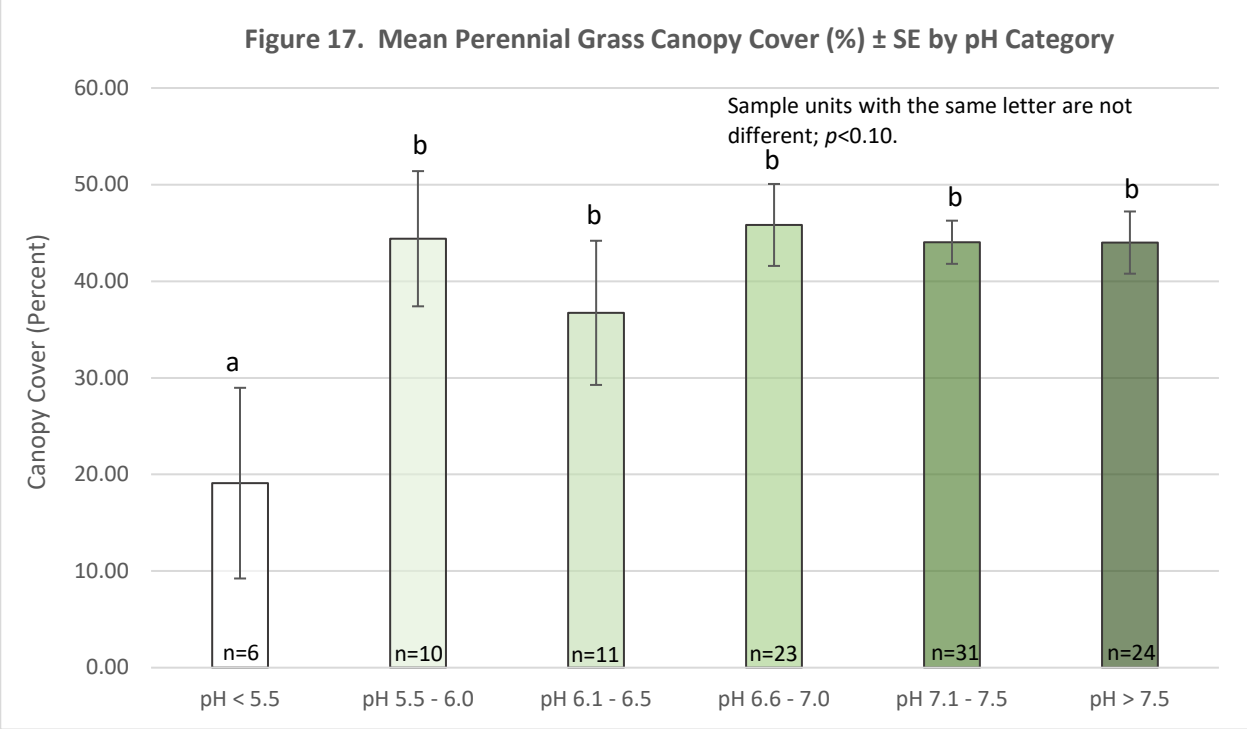
Mean coversoil pH is ≥ 5.5 in all of the sample units except the Exploration Permit (mean pH = 5.3), although mean pH is only 5.6 in Hot Spots (Figure 8). Figure 16 shows percent perennial grass cover relative to pH. Data from all sample units, including Hot Spots, are included since pH may be a limiting parameter to perennial grass cover within the Hot Spots unit. Because pH is similar between the first horizons and the total coversoil within sample unit, further analysis by horizon was not completed. Figure 16 shows no significant relationship between pH and perennial grass cover for units with typical reclamation, and only a slightly positive relationship in Hot Spots.

To further examine the correlation between pH and perennial grass cover, pH was divided into standard categories. Soils with pH < 5.0 are considered very strongly acid, soils between pH 5.0 - 5.5 are considered strongly acid, soils between pH 5.6 - 6.0 are considered moderately acid, soils between pH 6.1 – 6.5 are slightly acid, soils between pH 6.6 and 7.3 are neutral, and soils between pH 7.4 and 7.8 are slightly alkaline (Munshower 1994).

Figure 17 depicts mean perennial grass canopy cover by pH category and illustrates the effect of the 6 samples with pH ≤ 5.5 on the analysis shown in Figure 16. Perennial grass cover at pH ≤ 5.5 is less than in the other categories but is the same between the remaining categories. Typically, vegetation responds best at pH 6.6 to 7.0 although some tolerant plant species may do well in pH 5.6 – 6.0 (Munshower 1994). Based on Munshower's analysis, it is interesting that perennial grass canopy cover is not different among pH categories 5.5 to 7.5; this implies that grass species within reclamation at the Continental Mine are relatively tolerant of moderately acidic soils.

Figure 16. Perennial Grass Canopy Cover vs pH





3.3.4 Coversoil Metal Concentrations and Vegetation

Overall, there is not a clear relationship between metal concentration, as measured by TMI, and perennial grass cover (Figure 18), with the exception of the Hot Spots samples which have a high TMI and very low perennial grass cover. This finding is similar to the relationship between pH and perennial grass cover at Hot Spots sample sites (Figure 16) and is anticipated, since low pH can result in mobilized metals that may be phytotoxic.

Stratifying the TMI by pH < 5.5 and ≥ 5.5 does show a clearer trend (Figures 19 and 20). The pH 5.5 boundary is the suitability criterion in the Reclamation Plan. Figure 18 shows a slightly negative relationship between TMI and perennial grass cover. In contrast, when pH is < 5.5 (Figure 19), there is a much stronger negative correlation between TMI and percent perennial grass cover; when pH is ≥ 5.5, the relationship is relatively neutral. These correlations are affected by the Hot Spots samples, which have much lower percent perennial grass cover than the other sample units (Figure 2).

As indicated by Figures 18-20, the percent perennial grass cover appears to be negatively correlated with high TMI levels. However, the inclusion of anomalous Hot Spots in this dataset appears to greatly influence these results. The TMI suitability criterion in the Reclamation Plan is 1700 mg/kg (ppm). Seventeen percent of samples in Figure 18 exceed that threshold; of those samples, one-third are Hot Spots. If Hot Spots are eliminated from consideration, then there is no significant different in percent perennial grass cover between areas with < 1700 mg/kg TMI and areas with ≥ 1700 mg/kg TMI (p=0.7703) (Figure 21). These results suggest that at least two factors influence the effect of TMI on perennial grass cover: 1) when pH is > 5.5 then metals are not available for uptake and do not negatively affect vegetation

cover; and 2) for those Hot Spot samples with pH > 5.5 there is another unknown factor at these specific sites that negatively affects vegetation cover.

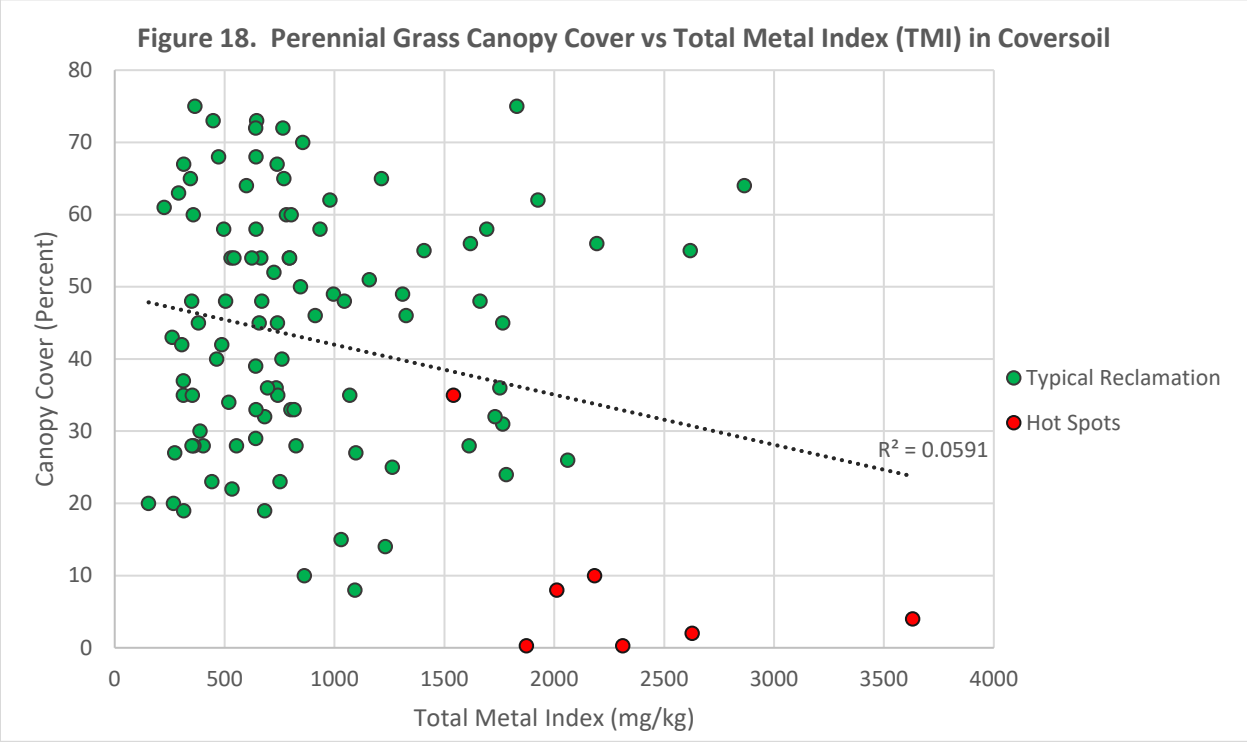


Figure 18. Perennial Grass Canopy Cover vs Total Metal Index (TMI) in Coversoil

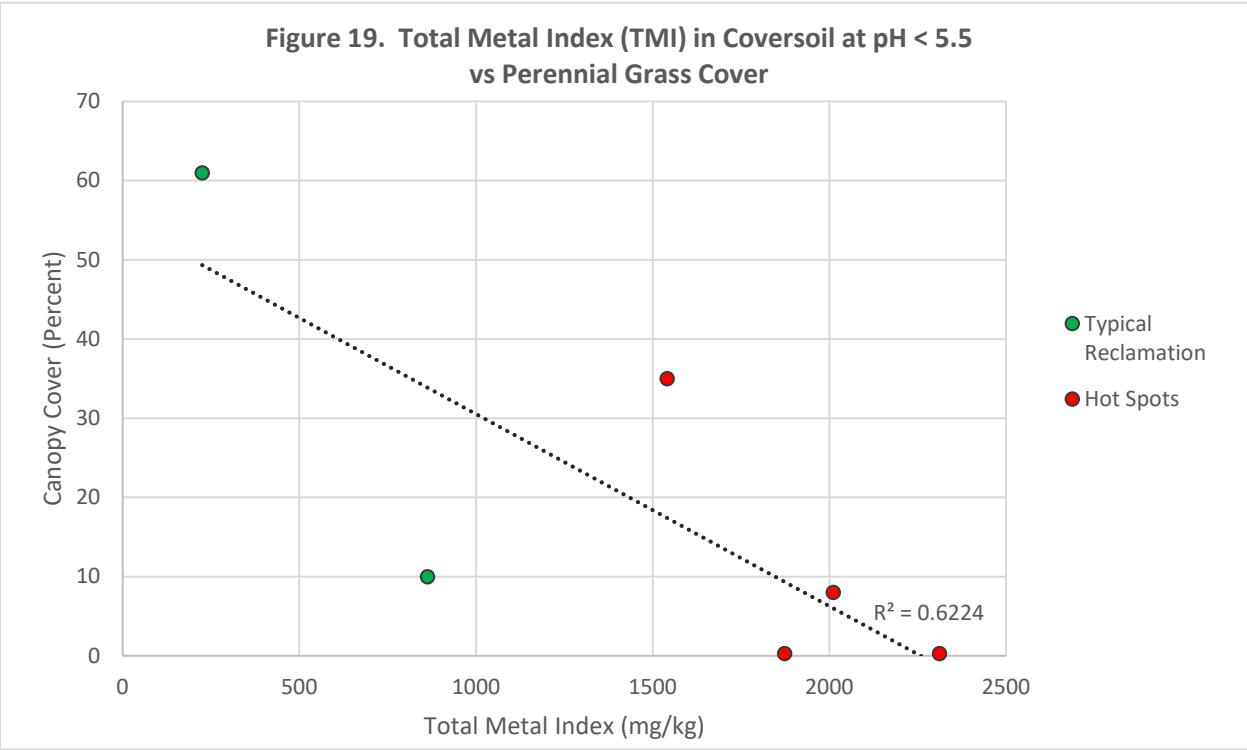


Figure 19. Total Metal Index (TMI) in Coversoil at pH < 5.5 vs Perennial Grass Cover

Figure 20. Total Metal Index (TMI) in Coversoil at pH ≥ 5.5 vs Perennial Grass Cover

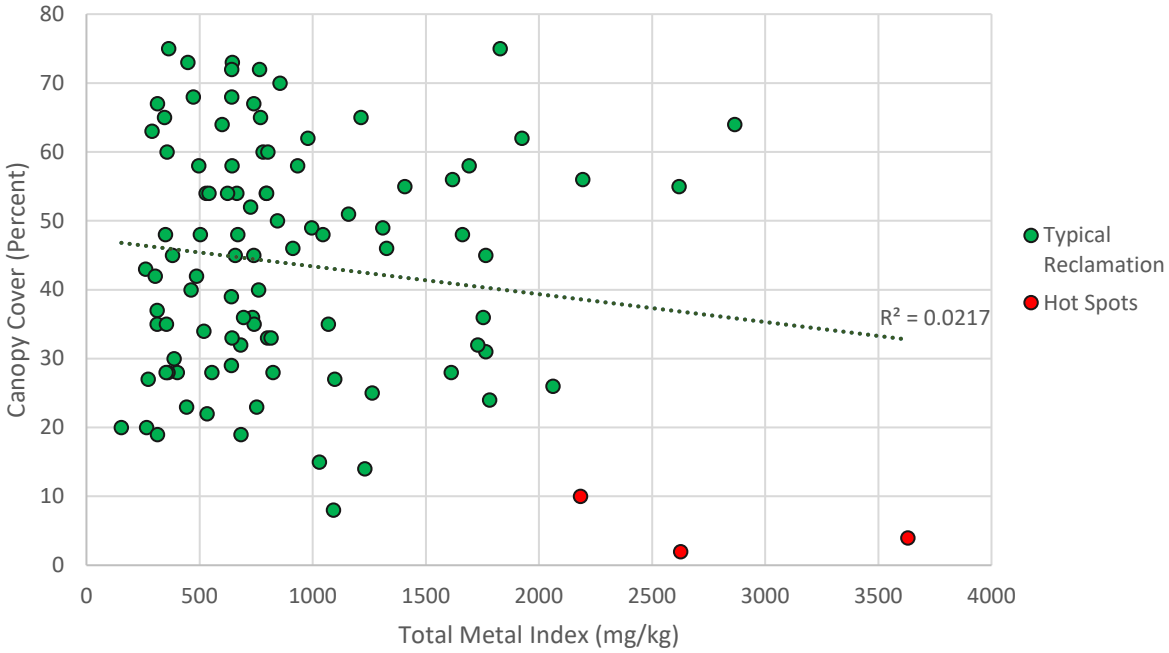
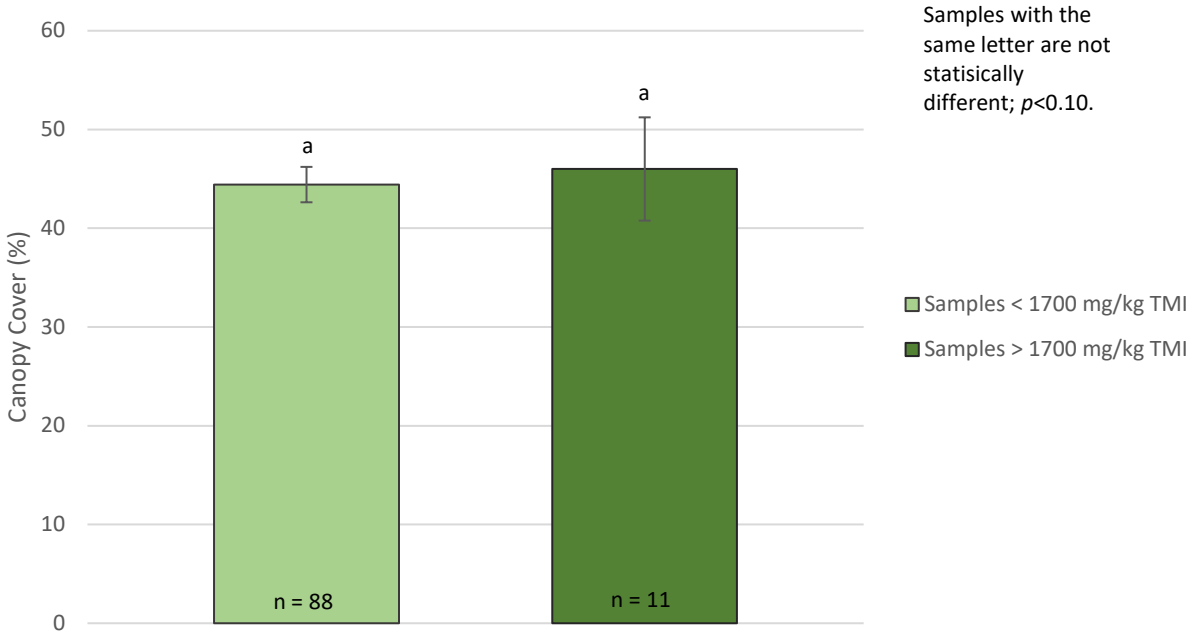


Figure 21. Perennial Grass Cover at TMI < and ≥ 1700 mg/kg (Excludes Hot Spots)



3.3.5 Interaction of Coversoil Parameters and Vegetation

Data analyses in the previous sections indicate that of the coversoil parameters evaluated, the only parameters with a clear measurable influence on vegetation establishment are low pH and more available metals as indicated by a high TMI. However, when the Hot Spots samples are removed from the dataset, the correlation between relatively low pH and relatively high TMI on perennial grass cover is reduced. Because the intent of reclamation is not to reclaim areas consistent with Hot Spots, data from those samples are excluded from the 2021 and 2022 analysis in this section. Similarly, data from the North East RDS – Tree samples are excluded from the 2021 and 2022 analysis in this section. Montana Resources may elect to reclaim additional tree stands in the future, but because this sample unit does not represent typical reclamation procedures at the mine, and because seeded species are relatively sparse within the tree stand, the lack of seeded species within the unit would skew an analysis of the most important factors affecting revegetation establishment at the site. Data from the Hillcrest Bench are included in the 2022 analysis because this area does support relatively high cover of perennial grasses even though percent organic matter is low. Consequently, this area could be informative when looking at the effect of low organic matter in concert with other variables on perennial grass cover.

Using the 2021 data, a multiple regression analysis was completed to evaluate parameters that could influence perennial grass canopy cover (WESTECH 2022). A variety of models were evaluated to identify the most parsimonious version that also explained the most variance. Initial models included the following independent variables based on analysis in previous sections and coversoil parameters of interest: 1) reclamation age; 2) total coversoil depth; 3) percent coarse fragment (> 2mm diameter); 4) pH level; 5) percent organic matter; and 6) TMI. In an analysis conducted in 2021 using soil and vegetation data from that year, the most explanatory model in 2021 had an adjusted R^2 of 0.23 and identified the significant variables in Table 6.

Table 6. 2021 Multiple Regression Model Results: East RDS, North East RDS, and Hillcrest RDS

Independent Variable	*p*-value	*Model Significance (F)*
Reclamation Age (years)	0.0007	0.0021
Coversoil Depth (inches)	0.0248	

In 2021, reclamation age was a key driver of perennial grass canopy cover; the older North East RDS and Hillcrest RDS had more total vegetation cover, and the Hillcrest RDS had more perennial grass cover, than did the younger East RDS. To evaluate the vegetation growth between the second and third growing season, and how that could affect the model results, all the East RDS plots that were sampled in 2021 were resampled in 2022. Perennial grass increased between the second and third growing seasons by 80 percent from 2021 to 2022 (Figure 22); this type of increase is typical between the second and fourth growing seasons (NRCS 2008, 2009). Because perennial grass was expected to increase from 2021 to 2022 at these sites, it was anticipated that age would no longer be a significant factor in predicting perennial grass cover. Consequently, the model was rerun using 2022 East RDS resample data in place of the 2021 East RDS data. These data were compared with the 2021 North East RDS and Hillcrest RDS data; results

are shown in Table 7. Unlike the 2021 analysis, neither reclamation age nor coversoil depth were significant predictors of perennial grass cover. This finding is similar to the results presented in Figure 5, where perennial grass cover was not different in age classes after the third growing season.

Figure 22. Vegetation at East RDS Plots: Repeat Measurements 2021 and 2022 (n=19)

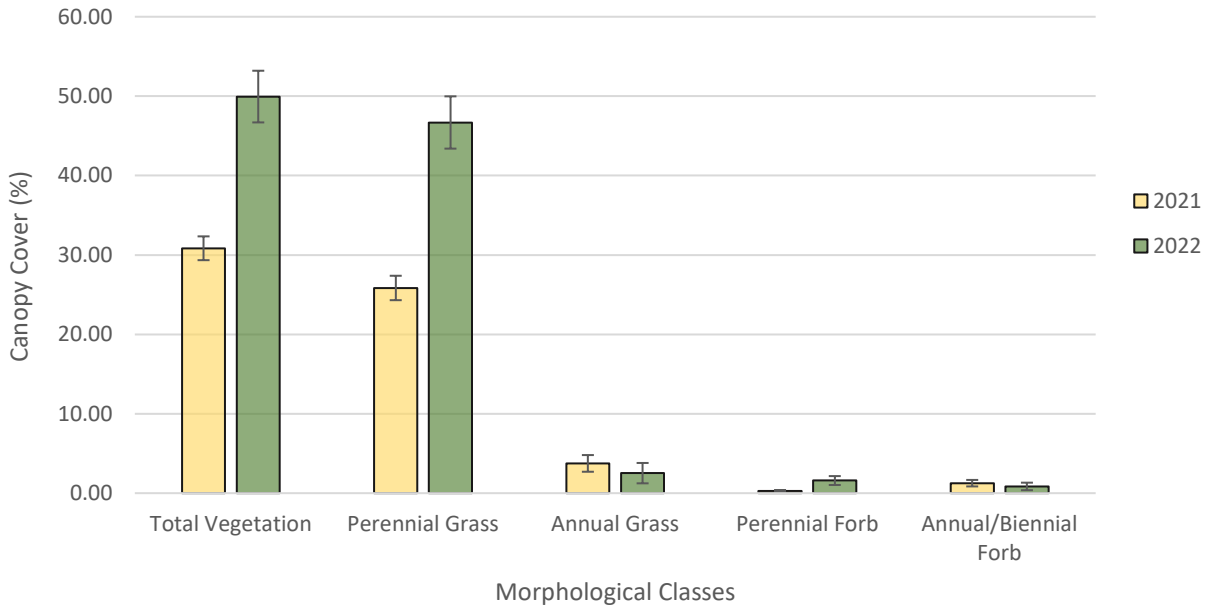


Table 7. 2022 Multiple Regression Model Results: East RDS, North East RDS, and Hillcrest RDS

Independent Variable	*p*-value	*Model Significance (F)*
Reclamation Age (years)	0.4074	0.3553
Coversoil Depth (inches)	0.1657	

Although Table 7 shows the results of running the 2021 regression model with the one-year older East RDS revegetation data in 2022, this 2021 model is not representative of results when all older typical reclamation and the Hillcrest Bench unit are included in addition to the East RDS, North East RDS, and Hillcrest RDS.

If all of the older typical reclamation sites, RDS units, and the Hillcrest Bench unit are included in a multiple regression analysis, coversoil thickness (p=0.0003) and percent organic matter (p=0.0094) are identified as significant parameters affecting perennial grass cover. Reclamation age is not a significant parameter affecting perennial grass cover (p=0.5791), nor is pH (p=0.8612) or TMI (p=0.6839) in this model that uses older reclamation sites. Further, the interaction between percent organic matter and coversoil thickness (i.e., their combined effect) is also a significant parameter affecting perennial grass cover (p=0.0026).

However, this model result is not supported by data presented in Figures 11 and 12 which show no significant difference in perennial grass cover at different coversoil depths. Similarly, data presented in Figure 15 show no significant difference in perennial grass cover at three of four organic matter levels. These contrasting results may indicate that although coversoil depth and percent organic matter may have an overall statistically significant modeled effect, they may not make a practical difference in percent cover of perennial grass. Creating more controlled combinations of coversoil depth and percent organic matter could determine if these parameters in combination have a practical effect on perennial grass cover and establishment.

4.0 Conclusions

Three primary conclusions from the 2022 reclamation monitoring data are:

1. Approximately three growing seasons are necessary for perennial grass to establish comparable cover with older reclamation stands and stable, self-sustaining vegetation.
2. Low pH and high metal concentrations likely result in poor vegetation establishment and low canopy cover within the Hot Spots sample sites.
3. All combinations of coversoil depth and percent organic matter achieve comparable perennial grass growth as undisturbed, adjacent vegetation types with the exception of Hot Spots and the North East RDS – Tree unit.
4. Because coversoil is a suitable growth medium, coversoil depth alone does not limit perennial grass establishment and perpetuation.

These conclusions are discussed more fully in the following sections.

4.1 Stable and Self-Sustaining Vegetation

The stated goal of the Reclamation Plan is to "establish a self-sustaining vegetative cover capable of supporting post-closure land use objectives". This goal is consistent with Montana Code Annotated (MCA) 82-4-336(9)(a) which states that, "the reclamation plan must provide for the reclamation of all disturbed land to comparable utility and stability as that of adjacent areas".

Vegetation on reclaimed areas has been established between 2 and 31 years on reclaimed areas at the Continental Mine. Compared to the younger East RDS where revegetation is between 2 and 4 years old, revegetation in these older units has clearly developed greater canopy cover. Further, seed heads were observed on most perennial grasses within all sample units. Revegetation development indicates a self-sustaining vegetative cover in all units, and noxious weed cover and distribution have both declined substantially in the last 3 years with aggressive management efforts.

The post-closure land use objective is to maintain stable soils and provide vegetation that may be used by wildlife. No erosion was observed in any sample unit other than the recently seeded East RDS where vegetation is establishing. Erosion that is present within the East RDS is minor and is anticipated to resolve

as canopy cover increases. Soils are stable in the other units, although they are exposed in the Hot Spots sites. However, the Hot Spots are not an intended post-closure land use.

Wildlife currently use reclaimed areas. A variety of songbirds were observed within reclaimed areas during reclamation monitoring. Similarly, numerous mule deer were observed feeding in the reclaimed areas.

The MCA states that reclaimed lands must provide for "comparable utility and stability as that of adjacent areas". There are several types of land uses adjacent to the reclaimed areas, including: native aspen woodland, lodgepole pine forest, revegetated highway shoulders, residential areas, and active mining. Compared to all of the disturbed areas, perennial grass establishment within the Continental Mine reclamation appears greater than that of the adjacent areas, and is equal to, or greater than, perennial grass cover in undisturbed, native vegetation types. Stability within reclaimed areas is also high as witnessed by the limited erosion that is present. Utility within the reclaimed areas is high given use by wildlife.

Revegetation in most units is self-sustaining and capable of supporting post-closure land use objectives. Revegetation in the small, isolated Hot Spots unit is not self-sustaining or capable of supporting post-closure land use objectives without remediation.

4.2 Low pH and High Metal Concentrations in Hot Spots

All of the parameters that were evaluated for this monitoring report, with the exception of percent organic matter, indicate that "coversoil" in the Hot Spots sample unit is unsuitable for vegetation establishment consistent with the Reclamation Plan. Remedial action is recommended to establish perennial grass, or other vegetation, on the Hot Spots sites.

4.3 Coversoil Depth and Vegetation Establishment

The proposed coversoil recipe on slopes ≥ 5 percent calls for 20 inches of coversoil, which could include only alluvium or alluvium with a top-dressing of topsoil, with 0.5 percent organic matter. Vegetation establishment data indicate that 20 inches of coversoil is not necessary to establish self-sustaining vegetative cover capable of supporting post-closure land use objectives as long as other soil parameters are suitable. In particular, several combinations of coversoil depth and organic matter result in perennial grass canopy cover that is equal to, or greater than, perennial grass canopy cover in the adjacent, undisturbed lodgepole pine and big sagebrush/Idaho fescue vegetation.

4.4 Future Monitoring

Revegetation monitoring in the future is recommended to evaluate the following topics.

1. Additional sampling could be completed at the Hillcrest Bench to determine lower limits of organic matter relative to perennial grass cover. The Hillcrest Bench is unique among sample

units in that it has the lowest percent organic matter but similar perennial grass growth to other units with higher percent organic matter.

2. A designed study could be implemented with controlled amounts of organic matter and coversoil depth to identify the lower limits of each parameter in combination that result in similar perennial grass cover.

5.0 References

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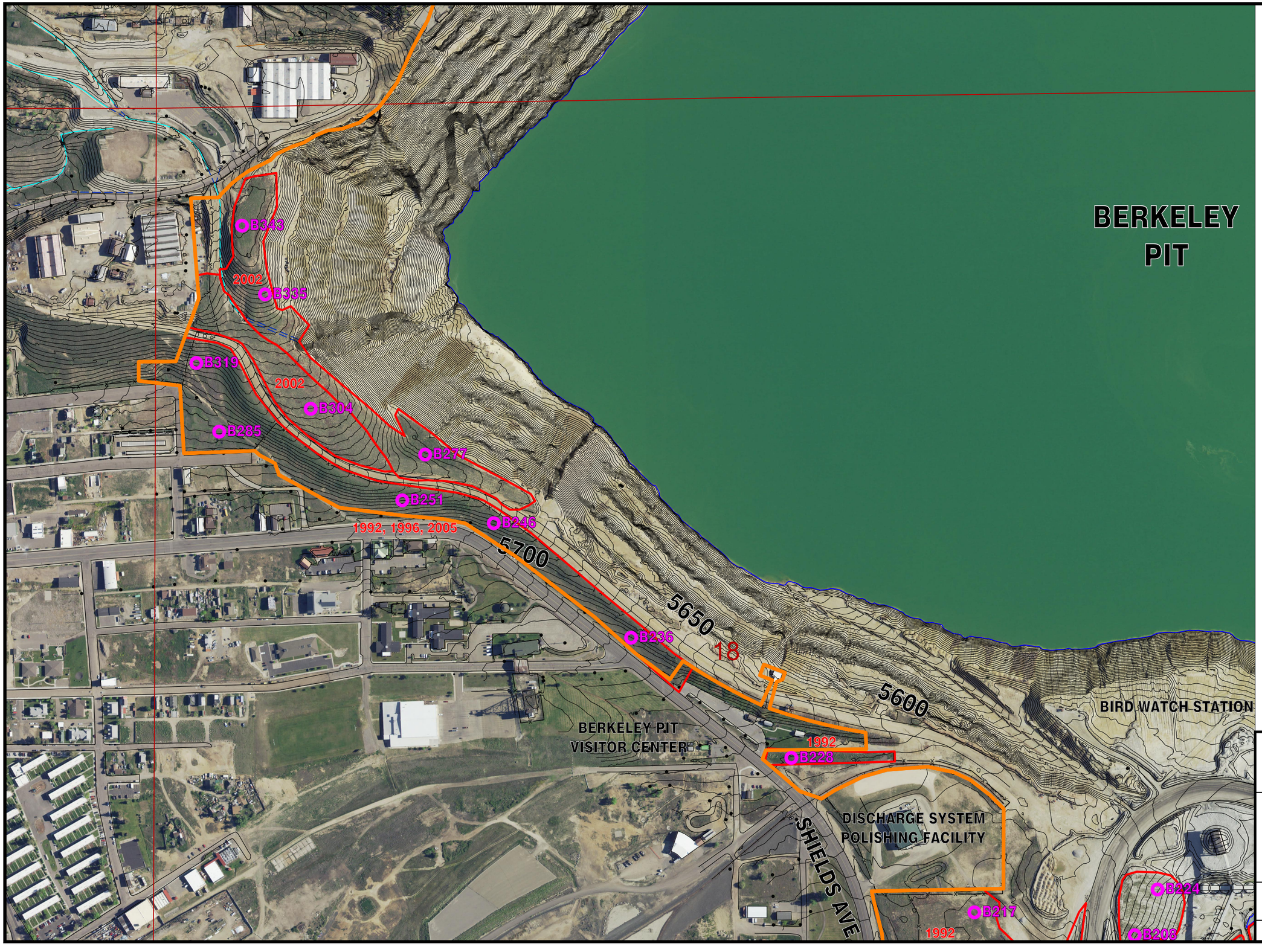
Appendix A –
Individual Sample Site Locations and Reclamation History



LEGEND

- Permit Boundary
- 2021 Vegetation Sample Site
- 2021 Vegetation / Soils Sample Site
- 2021/2022 Vegetation Sample Site
- 2021/2022 Vegetation / Soils Sample Site
- 2022 Vegetation / Soils Sample Site
- Reclamation History
- Contour 25-foot
- Contour 5-foot

Aerial: 2022

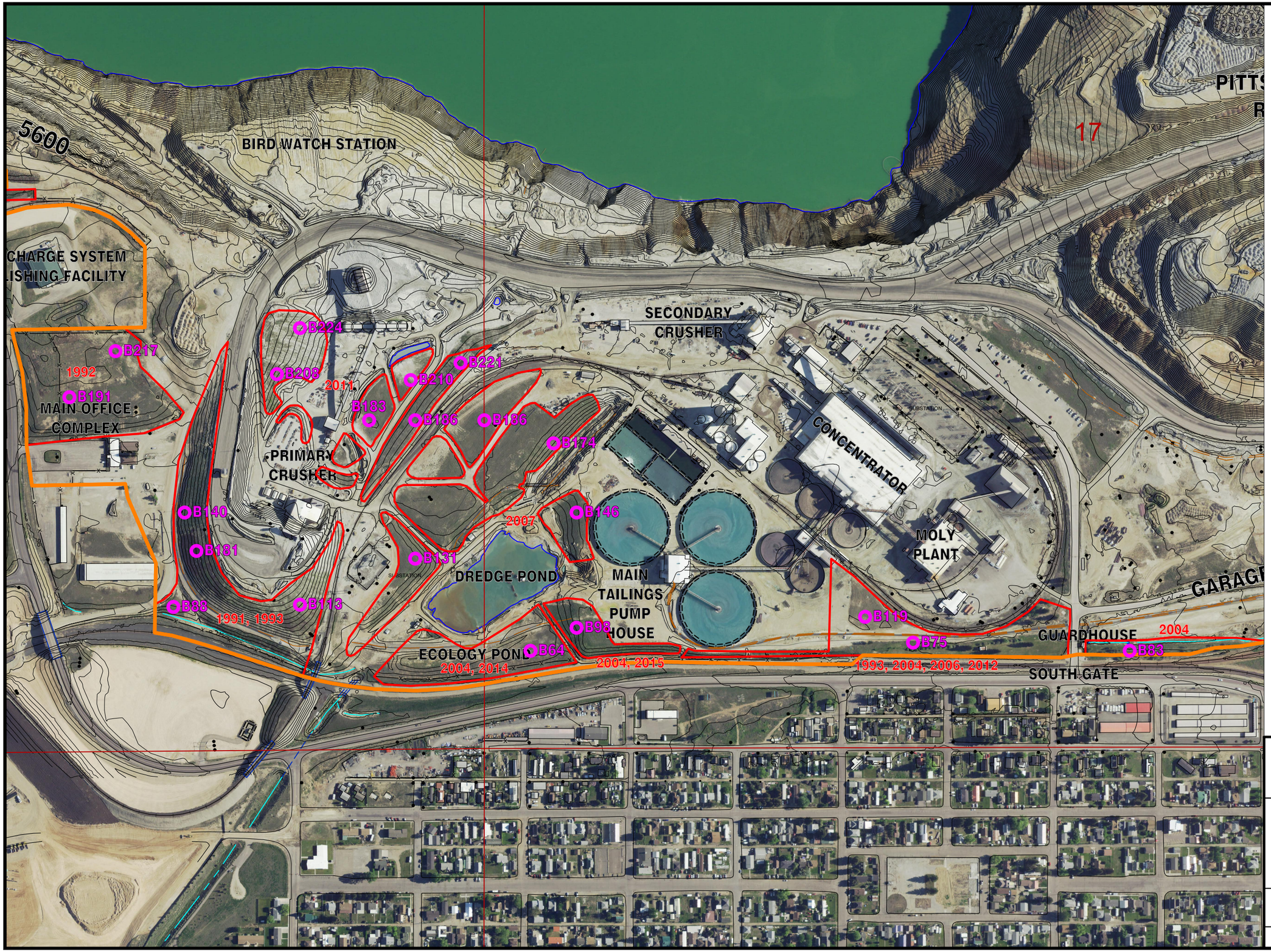
0 400 800 ft

Montana Resources
Continental Mine

Appendix A
Reclamation Sample Units
Berkeley Pit Periphery / Miscellaneous Sites

WESTECH ENVIRONMENTAL

MR22_Rec_Mon_2022_Plots_App-A.dwg | 1"=400' | 04/10/23



LEGEND

- Permit Boundary
- 2021 Vegetation Sample Site
- 2021 Vegetation / Soils Sample Site
- 2021/2022 Vegetation Sample Site
- 2021/2022 Vegetation / Soils Sample Site
- 2022 Vegetation / Soils Sample Site
- Reclamation History
- Contour 25-foot
- Contour 5-foot

Aerial: 2022

N

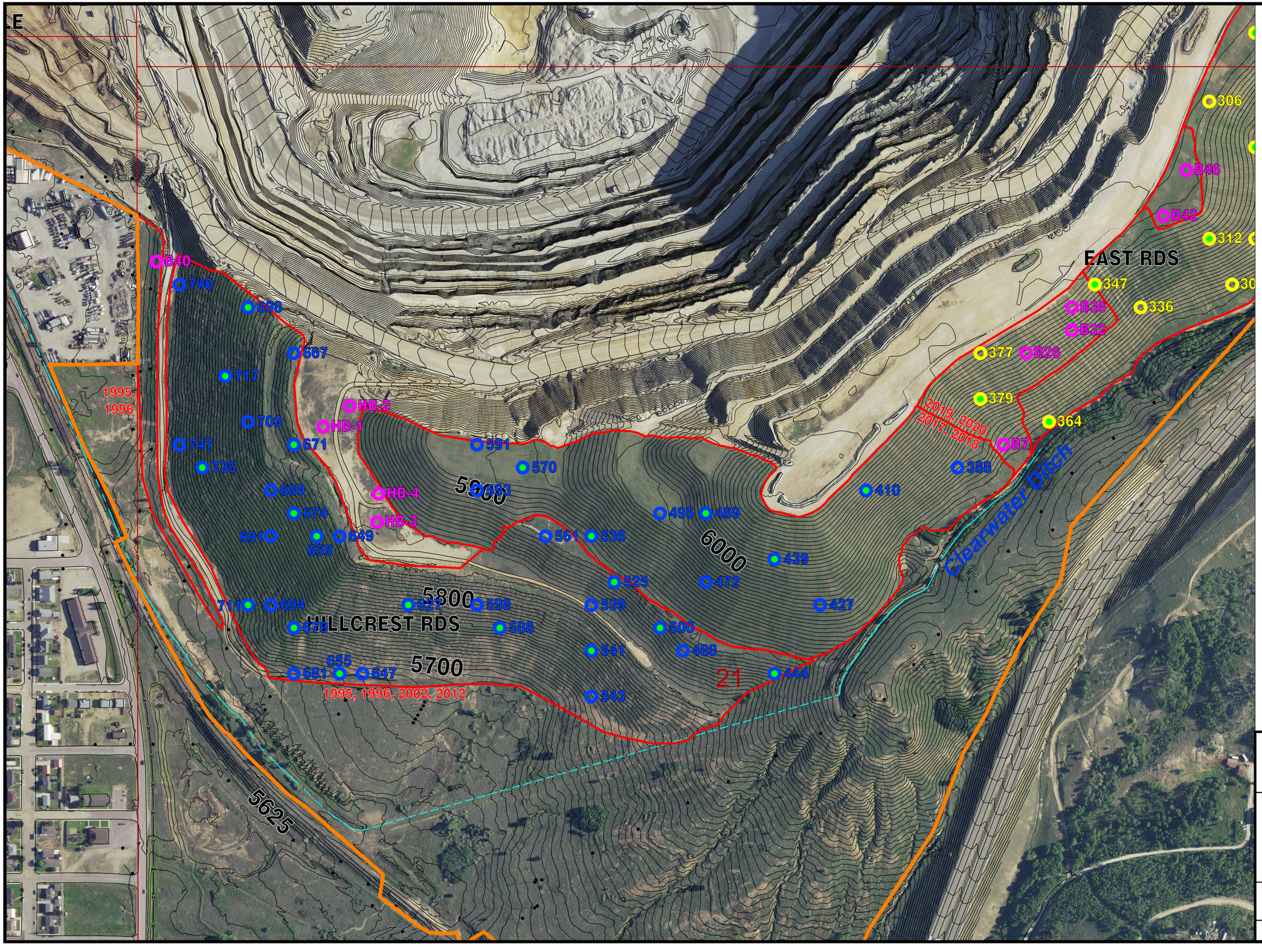
0 400 800 ft

Montana Resources
Continental Mine

Appendix A
Reclamation Sample Units
Crusher / Concentrator
Sites

WESTECH ENVIRONMENTAL

MR22_Rec_Mon_2022_Plots_App-A.dwg | 1"=400' | 04/10/23



LEGEND

- Permit Boundary
- 2021 Vegetation Sample Site
- 2021 Vegetation / Soils Sample Site
- 2021/2022 Vegetation Sample Site
- 2021/2022 Vegetation / Soils Sample Site
- 2022 Vegetation / Soils Sample Site
- Reclamation History
- Contour 25-foot
- Contour 5-foot

Aerial: 2022

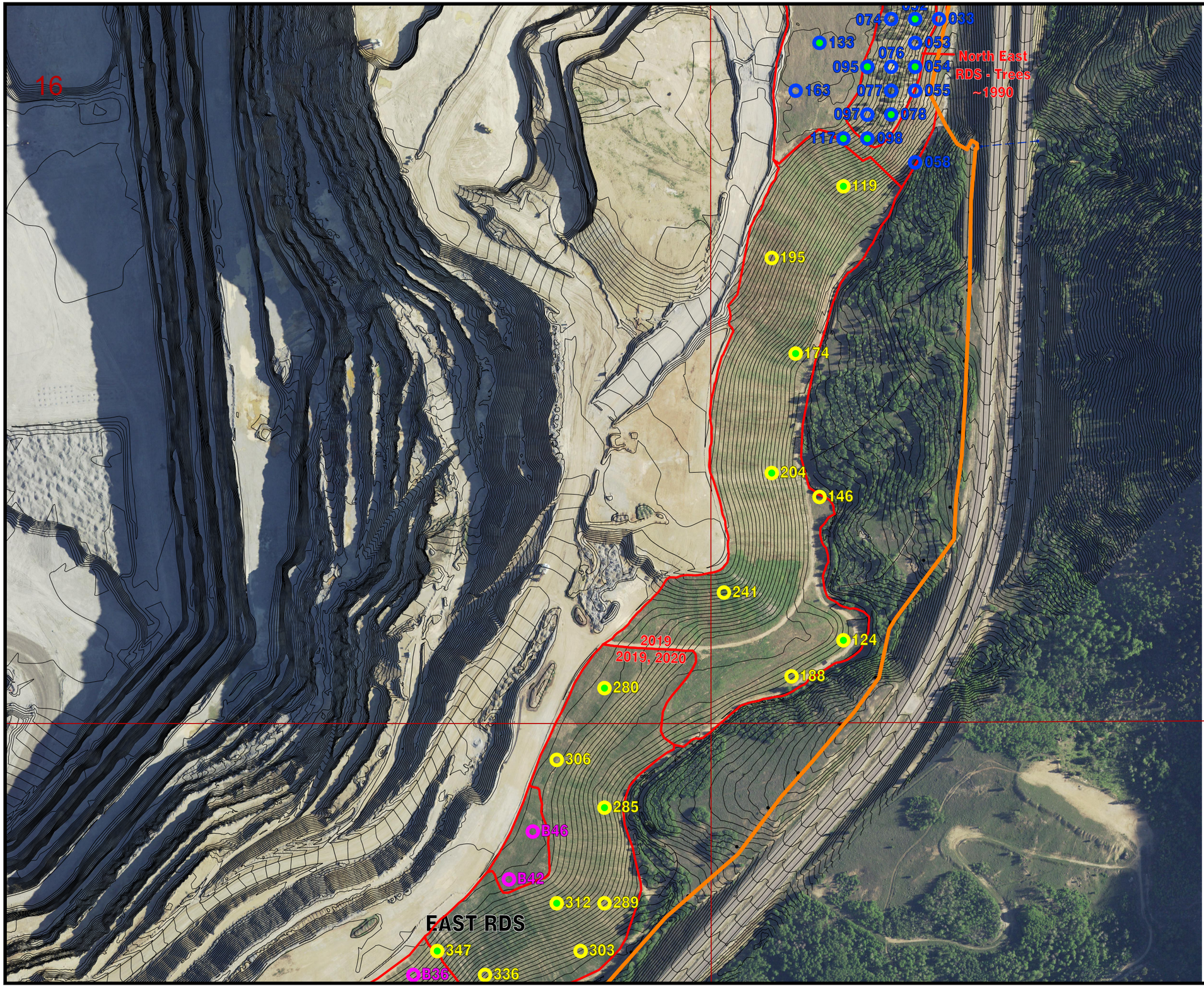
0 400 800 ft

Montana Resources
Continental Mine

Appendix A
Reclamation Sample Units
Hillcrest / Hillcrest Bench / East RDS Sites

WESTECH ENVIRONMENTAL

MR22_Rec_Mon_2022_Plots_App-A.dwg | 1"=400' | 04/10/23



LEGEND

- Permit Boundary
- 2021 Vegetation Sample Site
- 2021 Vegetation / Soils Sample Site
- 2021/2022 Vegetation Sample Site
- 2021/2022 Vegetation / Soils Sample Site
- 2022 Vegetation / Soils Sample Site
- Reclamation History
- Contour 25-foot
- Contour 5-foot

Aerial: 2022

N

0 400 800 ft

Montana Resources
Continental Mine

Appendix A
Reclamation Sample Units
East RDS Sites

WESTECH ENVIRONMENTAL

MR22_Rec_Mon_2022_Plots_App-A.dwg | 1"=400' | 04/10/23

LEGEND

- Permit Boundary
- 2021 Vegetation Sample Site
- 2021 Vegetation / Soils Sample Site
- 2021/2022 Vegetation Sample Site
- 2021/2022 Vegetation / Soils Sample Site
- 2022 Vegetation / Soils Sample Site
- Reclamation History
- Contour 25-foot
- Contour 5-foot

Aerial: 2022

N

0 400 800 ft

Montana Resources
Continental Mine

Appendix A
Reclamation Sample Units
North East RDS / Woodville RDS / Exploration / Powerline / Misc. Sites

WESTECH ENVIRONMENTAL

MR22_Rec_Mon_2022_Plots_App-A.dwg | 1"=400' | 04/10/23

Appendix B –
List of Vascular Plants Recorded within Sample Sites

Appendix B
List of Vascular Plants Recorded within Sample Sites, 2023.

Binomial	Common Name
NATIVE PERENNIAL GRAMINOIDS	
Agropyron dasystachyum	Thickspike wheatgrass
Agropyron smithii (Elymus smithii, Pascopyrum smithii)	Western wheatgrass
Agropyron spicatum (Elymus spicatus, Pseudoroegneria spicata)	Bluebunch wheatgrass
Agropyron trachycaulum (Agropyron caninum, Elymus trachycaulus)	Slender wheatgrass
Bromus carinatus (Bromus marginatus)	Mountain brome
Carex filifolia	Threadleaf sedge
Distichlis spicata	Inland saltgrass
Elymus canadensis	Canada wildrye
Elymus cinereus	Basin wildrye
Elymus elymoides (Sitanion hystrix)	Bottlebrush squirreltail
Elymus glaucus	Blue wildrye
Elymus macounii	Macoun wildrye
Elymus triticoides	Creeping wildrye
Festuca idahoensis	Idaho fescue
Festuca rubra	Red fescue
Hordeum jubatum	Foxtail barley
Koeleria macrantha (Koeleria cristata, Koeleria pyramidata)	Prairie junegrass
Oryzopsis hymenoides	Indian ricegrass
Poa secunda (Poa canbyi, Poa gracillima, Poa juncifolia, Poa nevadensis, Poa sandbergii, Poa scabrella)	Sandberg's bluegrass
INTRODUCED PERENNIAL GRAMINOIDS	
Agropyron cristatum (Agropyron desertorum)	Crested wheatgrass
Agropyron intermedium (Elymus hispidus, Thinopyrum ponticum, Agropyron elongatum)	Intermediate wheatgrass
Agropyron repens	Quackgrass
Agrostis stolonifera (Agrostis alba)	Redtop
Bromus inermis	Smooth brome
Elymus junceus	Russian wildrye
Festuca ovina	Sheep fescue
Phleum pratense	Common timothy
Poa compressa	Canada bluegrass
Poa pratensis	Kentucky bluegrass
INTRODUCED ANNUAL GRAMINOIDS	
Bromus japonicus	Japanese brome
Bromus tectorum	Cheatgrass brome
Setaria pumila	Yellow bristlegrass
Triticum aestivum	Common wheat

Appendix B
List of Vascular Plants Recorded within Sample Sites, 2023.

Binomial	Common Name
NATIVE PERENNIAL FORBS AND SUBSHRUBS	
Achillea millefolium	Common yarrow
Ambrosia psilostachya	Western ragweed
Antennaria microphylla	Littleleaf pussytoes
Antennaria parvifolia	Small-leaf pussytoes
Artemisia frigida	Fringed sagewort
Artemisia ludoviciana	Cudweed sagewort
Astragalus canadensis	Canada milkvetch
Erigeron ochroleucus	Buff fleabane
Gaura coccinea	Western showy aster
Linum lewisii (Linum perenne)	Blue flax
Lupinus sericeus	Silky lupine
Penstemon aridus	Stiff-leaf penstemon
Penstemon eriantherus	Fuzzytongue penstemon
Phacelia hastata	Silverleaf phacelia
Rumex occidentalis	Western dock
Sphaeralcea coccinea	Scarlet globemallow
Verbena bracteata	Prostrate vervain
INTRODUCED PERENNIAL FORBS	
Artemisia absinthium	Common wormwood
Astragalus cicer	Cicer milkvetch
Centaurea maculosa (Centaurea stoebe, Centaurea biebersteinii)	Spotted knapweed
Convolvulus arvensis	Field bindweed
Gypsophila paniculata	Glandular baby's breath
Lepidium draba	Heart-podded hoarycress
Linaria dalmatica	Dalmatian toadflax
Linaria vulgaris	Butter-and-eggs
Medicago sativa	Alfalfa
Rumex crispus	Curl dock
Taraxacum officinale	Common dandelion
Trifolium hybridum	Alsike clover
Trifolium pratense	Red clover
NATIVE ANNUAL/BIENNIAL FORBS	
Boechera retrofracta (Arabis holboellii var. retrofracta)	Reflexed Holboell's rockcress
Collomia linearis	Narrow leaf collomia
Descurainia pinnata	Pinnate tansymustard
Epilobium brachycarpum	Autumn willow-herb
Machaeranthera tanacetifolia	Tansyleaf aster
Orthocarpus tenuifolius	Thinleaf owl clover
Phacelia linearis	Threadleaf phacelia

Appendix B
List of Vascular Plants Recorded within Sample Sites, 2023.

Binomial	Common Name
INTRODUCED ANNUAL/BIENNIAL FORBS	
Alyssum alyssoides	Pale alyssum
Alyssum desertorum	Desert alyssum
Berteroa incana	Berteroa
Camelina microcarpa	Littlepod falseflax
Chenopodium album	Lambsquarters
Descurainia sophia	Flixweed tansymustard
Erodium cicutarium	Alfilaria
Filago arvensis	Field filago
Kochia scoparia	Belvedere summercypress
Lactuca serriola	Prickly lettuce
Medicago lupulina	Black medick
Melilotus officinalis	Yellow sweetclover
Onopordum acanthium	Scotch thistle
Sisymbrium altissimum	Tumblemustard
Sisymbrium loeselii	Loesel tumblemustard
Thlaspi arvense	Fanweed
Tragopogon dubius	Common salsify
Verbascum thapsus	Flannel mullein
NATIVE SHRUBS AND VINES	
Chrysothamnus viscidiflorus	Green rabbitbrush
Ericameria nauseosa (Chrysothamnus nauseosus)	Rubber rabbitbrush
Lonicera utahensis	Utah honeysuckle
Prunus virginiana	Common chokecherry
Rosa woodsii	Wood's rose
Symphoricarpos albus	Common snowberry
Vaccinium scoparium	Grouse whortleberry

Appendix B
List of Vascular Plants Recorded within Sample Sites, 2023.

Binomial	Common Name
INTRODUCED SHRUBS AND VINES	
Caragana arborescens	Siberian pea-shrub
NATIVE TREES	
Pinus contorta	Lodgepole pine
Populus tremuloides	Quaking aspen

Scientific nomenclature follows Lesica (2012). The more recent, most commonly used synonyms, partial synonyms/combinations, and misapplied names are given in parentheses. These, as well as common names, are taken from a variety of sources including:

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Appendix C –
Canopy Cover and Soil Parameters by Plot

Plot	Site	Reclamation Age	Monitoring Year	Bare Ground	Litter	Total Vegetation Cover (%)	Perennial Graminoid Cover (%)	Annual Graminoid Cover (%)	Perennial Forb Cover (%)	Annual/Biennial Forb Cover (%)	Coversoil Thickness (in)	Sand, %	Silt, %	Clay, %	pH Saturated Paste	Organic Matter (WB %)	As mg/kg-dry	Cd mg/kg-dry	Cu mg/kg-dry	Zn mg/kg-dry	Total Metal Index (mg/kg)
HB-3	Hillcrest Bench	5	2022	53	10	45	45	0	1	0	22	69	17	14	7.45	<0.2	5	0	628.5	106.5	740
HB-2	Hillcrest Bench	5	2022	35	20	34	31	0	0.3	3	16	60	22	18	7.6	0.75	16.5	0	1395	353.5	1765
HB-1	Hillcrest Bench	5	2022	46	10	30	24	1	0	5	14	59	22	19	7.75	0.25	19	0	1350	413	1782
HB-4	Hillcrest Bench	5	2022	88	2	10	4	4	1	1	16	73	16	11	6.15	<0.2	6	0	3265	359	3630
B356	Berkeley Pit Periphery	20	2022	1	88	73	73	0	0.3	0	18	60	25	15	5.8	2.3	33	0	289	126	448
B346	Berkeley Pit Periphery	20	2022	3	83	63	60	0	0.3	3	20	65	20	15	6.4	0.8	14.5	0	281.5	61	357
B343	Berkeley Pit Periphery	20	2022	14	55	65	64	2	2	0.3	16	70	17	13	6.8	2.7	101	8	614	2150	2865
B335	Berkeley Pit Periphery	20	2022	10	75	55	55	0	0.3	0.3	19	71	17	12	7.5	0.95	60.5	7.5	618.5	1940	2619
B277	Berkeley Pit Periphery	20	2022	5	78	76	58	0	18	0	16	70	19	11	7.8	1	13	0	1460	219	1692
B119	Concentrator Area	10	2022	43	14	28	28	0	0	0	2.5	78	12	10	5.6	0.6	15	0	295	92	402
B075	Concentrator Area	10	2022	3	76	54	54	0	0	0	12	60	25	15	7.4	2.4	47	1	291	191	529
B064	Concentrator Area	8	2022	12	8	20	20	0	0	0.3	12	74	15	11	6.3	1.4	19	0	79	56	154
B098	Concentrator Area	7	2022	8	81	52	52	0	0	1	12	62	23	15	7.6	2.3	38	1	466	221	725
B146	Concentrator Area	15	2022	18	47	66	65	0	0.3	0.3	18	73	14	13	6.9	0.9	21	0	208	115.5	344.5
B174	Concentrator Area	15	2022	48	40	47	28	3	0.3	16	22	73	14	13	6.9	0.95	25	0	422	107	554
B186	Concentrator Area	15	2022	36	20	64	64	0	0	0	16	69	16	15	7.4	1.25	16	0	469	114	599
B131	Concentrator Area	15	2022	8	58	45	45	0.3	0	0.3	4	74	14	12	7.5	0.6	18	0	269	93	380
B365	Exploration Permit	8	2022	5	42	85	61	0	45	0.3	18	64	23	13	5.3	2.5	24	0	163	38	225
B191	Miscellaneous Reclamation	30	2022	15	68	75	75	0	0.3	0	14	67	19	14	6.95	0.75	17	1	1320	492	1829
B228	Miscellaneous Reclamation	30	2022	8	82	57	56	0	0	2	16	67	22.5	10.5	7.2	2.45	61.5	4	363.5	1768	2193
B217	Miscellaneous Reclamation	30	2022	80	10	29	28	1	0.3	0.3	16	70	14	16	7.9	0.9	9	0	1370	233	1612
B319	Miscellaneous Reclamation	17	2022	26	52	27	25	3	0	0	21	66	18	16	5.9	0.6	28	1	877.5	357.5	1263
B236	Miscellaneous Reclamation	17	2022	32	56	36	35	0	1	0.3	5	74	17	9	6.9	0.8	22	0	178	112	312
B246	Miscellaneous Reclamation	17	2022	43	48	33	33	0	0	0	12	71	17	12	7	1.2	19.5	0	497	126.5	643
B285	Miscellaneous Reclamation	17	2022	5	88	56	56	0	0	0	13	68	19	13	7	1.7	52	4	176	1390	1618
B251	Miscellaneous Reclamation	17	2022	54	28	39	39	0	0	0.3	12	64	23	13	7.7	2.2	27	0	423	191	641
B040	Miscellaneous Reclamation	26	2022	20	34	70	70	0	0.3	0.3	20	69	17	14	5.85	1.45	66	0	534	255	855
B295	Miscellaneous Reclamation	20	2022	2	84	58	58	0	0.3	0.3	26	64	22	14	7.25	0.85	25.5	1	455.5	162	643
B309	Miscellaneous Reclamation	20	2022	15	71	45	45	0	0	0.3	24	66	20	14	7.65	0.85	25.5	0	503	129.5	658
B304	Miscellaneous Reclamation	20	2022	30	30	46	32	18	0	0	14	68	19	13	7.7	1.1	15	0	1500	215	1730
B362	Powerline Road	8	2022	1	86	75	75	0	0	0.3	18	58	27	15	6.5	2.5	45	0	252	67	364
B358	Powerline Road	8	2022	6	81	58	58	0	0.3	0	9	64	23	13	7.4	1.5	27	0	352	117	496
B368	Powerline Road	8	2022	53	20	37	29	0	11	0.3	10	64	23	13	7.5	1.3	25	0	475	141	641
B088	Primary Crusher Area	29	2022	27	20	35	36	0	0	0	12	64	22	14	7.15	1.8	32.5	2	1160	560.5	1753
B140	Primary Crusher Area	29	2022	38	25	34	33	1	1	0.3	10	67	17	16	7.3	0.45	26	0	585.5	205	816.5
B113	Primary Crusher Area	29	2022	83	11	37	27	7	0	5	12	66	20.5	13.5	7.9	0.85	9	0	941	147.5	1097.5
B181	Primary Crusher Area	29	2022	25	63	46	46	0	0	0.3	10	67	16	17	7.9	1.05	12	0	1160	154	1326
B183	Primary Crusher Area	11	2022	64	25	54	54	0	0.3	0.3	17	56	23	21	7.1	0.55	49	0	419	156	624
B208	Primary Crusher Area	11	2022	44	50	40	35	0	0	6	12	70	15	15	7.4	0.7	15.5	0	241.5	96.5	353.5
B210	Primary Crusher Area	11	2022	68	25	42	42	0	0	0.3	18	57	27	16	7.65	1.25	47	0	285	154.5	486.5
B184	Primary Crusher Area	11	2022	21	6	48	48	0	0	0	21	65	17	18	7.7	0.55	22.5	1	1335	304	1661.5
B221	Primary Crusher Area	11	2022	40	44	62	62	0	0.3	0	20	66	18	16	7.8	0.45	22.5	0	1660	243	1925.5
B224	Primary Crusher Area	11	2022	82	12	27	26	0	2	0.3	12	67	18	15	7.8	0.45	21	0	1780	260.5	2061.5
B036	East RDS	2	2022	74	12	38	37	0	1	0.3	19	72	16	12	5.95	0.9	33	0	184.5	95.5	313
B042	East RDS	2	2022	41	25	69	67	0	4	0	13	73	15	12	6.9	0.9	34.5	0	164.5	114.5	313.5
B026	East RDS	2	2022	67	14	44	43	0.3	1	0.3	18	72	16	12	7.2	0.85	32.5	0	146.5	83	262
B007	East RDS	2	2022	64	15	34	33	0.3	1	0.3	26	68	17	15	7.45	0.6	15.5	0	596.5	189	801
B032	East RDS	2	2022	69	16	45	42	0	3	0.3	18	69	19	12	7.55	1.95	30.5	0	159.5	114.5	304.5
B046	East RDS	2	2022	53	25	70	63	0	8	0.3	18	71	16	13	7.6	0.7	27.5	0	167.5	95	290
B375	Woodville RDS	27	2022	55	20	63	55	0	9	0	14	65	22	13	6.3	0.9	29.5	0	1203	174	1406.5
174	East RDS	2	2021	25	61	38	27	10	0	1	22	72	16	12	6.5	1.2	15	0	181	77	273
124	East RDS	2	2021	30	46	35	34	1	0	0	19	62	20	18	6.7	1.3	44	0	327	148.5	519.5
204	East RDS	2	2021	54	18	21	19	1	1	0	21	70	16	14	6.95	0.9	32	0	207	75	314
119	East RDS	2	2021	20	66	34	19	15	0	0	14	64	21	15	7.5	0.9	17	0	509.5	156	682.5
146	East RDS	2	2021	60	28	33	28	4	1	0.3	19	Not Sampled									
188	East RDS	2	2021	30	44	36	36	0.3	0.3	0	20	Not Sampled									
195	East RDS	2	2021	50	15	16	9	7	0	0	28	Not Sampled									
241	East RDS	2	2021	11	79	37	23	14	0	0	26	Not Sampled									
593	East RDS	4	2021	25	57	45	45	0	3	0.3	7	0	0	0	0	0	0	0	0	0	0
410	East RDS	4	2021	56	30	68	68	0.3	0	0	32	68	18.5	13.5	6.75	0.7	17.5	0	336	118.5	472
439	East RDS	4	2021	40	45	72	72	0.3	0	0	34	64	17.5	18.5	7.65	0.65	24.5	0	559	181.5	765

Plot	Site	Reclamation Age	Monitoring Year	Bare Ground	Litter	Total Vegetation Cover (%)	Perennial Graminoid Cover (%)	Annual Graminoid Cover (%)	Perennial Forb Cover (%)	Annual/Biennial Forb Cover (%)	Coversoil Thickness (in)	Sand, %	Silt, %	Clay, %	pH Saturated Paste	Organic Matter (WB %)	As mg/kg-dry	Cd mg/kg-dry	Cu mg/kg-dry	Zn mg/kg-dry	Total Metal Index (mg/kg)
469	East RDS	4	2021	15	72	73	73	0.3	0	0	27	65	19.5	15.5	7.65	0.9	21.5	0	447	177	645.5
570	East RDS	4	2021	18	74	65	65	0.3	0	0	6	63	20	17	7.7	2.5	31	0	560	179	770
536	East RDS	4	2021	40	24	35	36	0	0	0	14	70	15	15	7.75	0.7	14.5	0	596	124	734.5
388	East RDS	4	2021	38	45	45	45	0	0	0	16	Not Sampled									
427	East RDS	4	2021	10	87	78	78	0	0.3	0	23	Not Sampled									
472	East RDS	4	2021	12	78	45	45	0.3	0	0	24	Not Sampled									
495	East RDS	4	2021	5	84	80	80	0.3	0	0.3	25	Not Sampled									
591	East RDS	4	2021	4	91	58	49	10	0.3	0	14	Not Sampled									
347	East RDS	1	2021	88	2	32	28	1	0	3	18	61	22	17	6.1	2.9	29.5	0	225.5	105	360
285	East RDS	1	2021	65	18	23	20	3	0	0	18	69	16	15	6.65	0.9	26	0	140	100.5	266.5
280	East RDS	1	2021	70	20	32	28	1	0	3	16	71	16	13	6.75	1.2	18.5	0	225.5	108	352
364	East RDS	1	2021	87	3	32	30	0.3	1	1	22	68	18	14	7.05	0.65	31.5	0	221.5	135	388
312	East RDS	1	2021	84	4	29	23	3	0	3	17	65	20	15	7.35	0.95	34.5	0	253.5	154	442
289	East RDS	1	2021	84	2	19	17	1	0.3	1	24	Not Sampled									
303	East RDS	1	2021	85	2	33	28	5	1	2	22	Not Sampled									
306	East RDS	1	2021	70	20	34	31	3	0	0.3	18	Not Sampled									
336	East RDS	1	2021	74	4	29	28	0.3	0	0.3	20	Not Sampled									
379	East RDS	1	2021	81	2	39	32	1	0	7	17	67	19	14	7.2	0.95	26.5	0.5	433.5	222	682
377	East RDS	1	2021	84	2	34	31	0.3	1	2	14	Not Sampled									
HS-5	Hot Spot	0	2021	55	0.3	1	0.3	0	0	0	18	52.5	25	22.5	3.15	0.9	97	0	1433	343	1873
HS-4	Hot Spot	0	2021	65	0.3	0.3	0.3	0	0.3	0	24	62	18.5	19.5	3.65	0.65	65	4	1351	896	2312
HS-2	Hot Spot	0	2021	79	3	8	8	0	0.3	0.3	22	60.5	20.5	19	4.65	0.9	32.5	1.5	1418	560.5	2011
HS-3	Hot Spot	0	2021	56	25	36	35	1	0	0	27	62.5	19	18.5	5.4	0.85	41.5	2.5	896	603.5	1541
HS-1	Hot Spot	0	2021	89	1	4	2	0	0.3	0	25	58.5	22.5	19	6.3	2.95	29.5	1.5	2200	397.5	2627
539	Hillcrest RDS	9	2021	10	29	55	55	0	0	0	14	0	0	0	0	0	0	0	0	0	0
655	Hillcrest RDS	9	2021	30	45	16	15	0	0	0.3	7	66	19	15	5.6	1.1	37	2	592	401	1030
525	Hillcrest RDS	9	2021	8	20	65	65	0	0	0.3	16	63	20	17	6.4	1.4	25	0	956	233	1214
541	Hillcrest RDS	9	2021	35	0	45	45	0	0	0	20	65.5	17	17.5	6.45	1.15	30	1.5	1235	500	1765
588	Hillcrest RDS	9	2021	19	74	54	54	0	0.3	0	13	65	17.5	17.5	6.6	0.2	37.5	0	359	145.5	542
717	Hillcrest RDS	9	2021	10	40	50	50	0	2	3	12	65	22	13	6.7	1.9	15	0	707.5	122	844.5
711	Hillcrest RDS	9	2021	22	30	45	40	3	0.3	0.3	6	66.5	21	12.5	6.7	2.25	18	0	635	108	761
698	Hillcrest RDS	9	2021	8	66	68	67	0.3	0	0.3	12	64.5	20.5	15	6.8	2.35	27	0	597.5	115	739.5
500	Hillcrest RDS	9	2021	20	25	60	60	0	0	0.3	12	54	25.5	20.5	7	2.1	40.5	0	514.5	226	781
659	Hillcrest RDS	9	2021	2	88	68	68	0	0.3	0.3	13	66	20	14	7	1.45	26.5	0	514	102	642.5
674	Hillcrest RDS	9	2021	5	83	62	62	0	0	1	15	67.5	21	11.5	7.15	2.3	15.5	0	829.5	134	979
444	Hillcrest RDS	9	2021	20	24	58	58	0	0	0	12	60.5	21	18.5	7.2	1.8	27.5	0	687	219	933.5
679	Hillcrest RDS	9	2021	15	15	51	35	15	0	0	10	65	20.5	14.5	7.2	3.15	18.5	0	590	133	741.5
671	Hillcrest RDS	9	2021	4	73	48	48	0	0	0.3	12	65	21.5	13.5	7.25	1.25	25	0	530	113.5	668.5
735	Hillcrest RDS	9	2021	19	30	39	28	6	0.3	0.3	7	67	19	14	7.3	5.1	24.5	0	637.5	163	825
488	Hillcrest RDS	9	2021	12	27	35	35	0	0	0.3	8	Not Sampled									
543	Hillcrest RDS	9	2021	20	19	51	51	0	0	0.3	14	Not Sampled									
561	Hillcrest RDS	9	2021	25	52	37	29	7	1	0.3	22	Not Sampled									
598	Hillcrest RDS	9	2021	16	78	64	61	0	0.3	0.3	20	Not Sampled									
647	Hillcrest RDS	9	2021	25	32	48	48	0	1	0	10	Not Sampled									
649	Hillcrest RDS	9	2021	12	75	60	59	0	1	0	9	Not Sampled									
667	Hillcrest RDS	9	2021	1	35	65	65	0	0	0.3	24	Not Sampled									
681	Hillcrest RDS	9	2021	30	30	42	42	0	0	0	16	Not Sampled									
689	Hillcrest RDS	9	2021	7	78	64	64	0	0	0.3	13	Not Sampled									
691	Hillcrest RDS	9	2021	4	74	48	48	0	20	0	14	Not Sampled									
694	Hillcrest RDS	9	2021	10	27	65	45	0	0	0.3	14	Not Sampled									
703	Hillcrest RDS	9	2021	8	65	55	54	0.3	0	4	12	Not Sampled									
740	Hillcrest RDS	9	2021	20	5	45	45	0	0	5	12	Not Sampled									
747	Hillcrest RDS	9	2021	10	24	39	9	25	2	0	12	Not Sampled									
HS-627	Hot Spot	9	2021	45	52	32	10	22	0	0	23	60	22.5	17.5	6.8	1.45	38.5	2	1529	615.5	2183
7	North East RDS	7	2021	4	82	60	60	0	0	0	11	Not Sampled									
19	North East RDS	7	2021	3	33	43	42	0	1	0	7	Not Sampled									
61	North East RDS	7	2021	15	29	30	30	0	0	0	12	Not Sampled									
85	North East RDS	7	2021	2	84	50	50	0	0	0.3	24	Not Sampled									
91	North East RDS	7	2021	7	50	72	71	0	1	0.3	22	Not Sampled									
190	North East RDS	7	2021	10	55	52	50	0	0.3	3	12	Not Sampled									
20	North East RDS	7	2021	10	25	65	72	0	0	0	7	62	22	16	5.5	2.8	41	1	351	250	642
35	North East RDS	7	2021	25	35	40	22	18	0	0	7	56	26	18	5.8	2.8	70	1	338	125	533
43	North East RDS	7	2021	20	66	48	48	0	0	0	36	53	22	25	5.85	0.6	2.5	0	321	26	349.5

Plot	Site	Reclamation Age	Monitoring Year	Bare Ground	Litter	Total Vegetation Cover (%)	Perennial Graminoid Cover (%)	Annual Graminoid Cover (%)	Perennial Forb Cover (%)	Annual/Biennial Forb Cover (%)	Coversoil Thickness (in)	Sand, %	Silt, %	Clay, %	pH Saturated Paste	Organic Matter (WB %)	As mg/kg-dry	Cd mg/kg-dry	Cu mg/kg-dry	Zn mg/kg-dry	Total Metal Index (mg/kg)
1	North East RDS	7	2021	5	88	60	54	6	0	0.3	24	56	26	18	6	2.2	34	1	393	237	664
17	North East RDS	7	2021	57	10	25	23	2	0	0	24	61	22	17	6.4	0.15	6	0	693.5	52.5	752
24	North East RDS	7	2021	18	75	55	54	0	0	1	14	61	22	17	6.7	1.4	14	0	658	122.5	794.5
126	North East RDS	7	2021	1	83	52	51	0	1	0.3	14	64	21	15	6.7	0.8	8	0	994.5	155.5	1158
31	North East RDS	7	2021	7	46	60	60	0	0.3	0.3	14	63	21	16	7.05	0.95	21.5	0	615	166	802.5
22	North East RDS	7	2021	15	80	40	40	0	1	0	10	58	22	20	7.2	1.8	6	0	412	45	463
131	North East RDS	7	2021	20	77	49	49	0	0	0	22	68	18	14	7.3	0.5	13.5	0	1154	142.5	1310
86	North East RDS	7	2021	8	7	51	49	0.3	2	0.3	25	67	19	14	7.4	0.65	11	0	854	130.5	995.5
157	North East RDS	7	2021	20	52	46	46	0	1	0.3	12	65	22	13	7.4	0.9	11.5	0	779.5	121	912
48	North East RDS	7	2021	17	57	58	54	0	5	0.3	13	70	12	18	7.45	0.7	16.5	0	607.5	171.5	795.5
117	North East RDS	7	2021	15	81	34	14	20	0	0	12	64	21	15	7.65	0.55	17	0	1019	195	1231
133	North East RDS	7	2021	15	45	53	48	2	2	1	22	68	17	15	7.9	0.55	7	0	931.5	106	1044.5
4	North East RDS	7	2021	19	66	45	45	0	1	0	14	Not Sampled									
14	North East RDS	7	2021	24	60	54	54	0	0	0	36	Not Sampled									
33	North East RDS	7	2021	20	50	40	39	0	1	0	12	Not Sampled									
46	North East RDS	7	2021	18	73	60	60	0	0	0.3	36	Not Sampled									
55	North East RDS	7	2021	20	54	28	15	10	1	2	24	Not Sampled									
58	North East RDS	7	2021	35	40	36	5	0	25	1	24	Not Sampled									
107	North East RDS	7	2021	20	52	58	55	0	4	0	22	Not Sampled									
111	North East RDS	7	2021	8	46	67	64	0	3	1	22	Not Sampled									
163	North East RDS	7	2021	10	40	50	50	0	0.3	0.3	22	Not Sampled									
053 - Tree	North East RDS - Tree	7	2021	25	44	32	12	0	0.3	0	16	Not Sampled									
074 - Tree	North East RDS - Tree	7	2021	45	15	25	16	0	0.3	0	18	Not Sampled									
076 - Tree	North East RDS - Tree	7	2021	64	1	4	0	0	0	0	26	Not Sampled									
077 - Tree	North East RDS - Tree	7	2021	5	51	70	6	0	2	1	18	Not Sampled									
097 - Tree	North East RDS - Tree	7	2021	35	25	40	40	0	0.3	0.3	38	Not Sampled									
095 - Tree	North East RDS - Tree	7	2021	30	60	67	10	0	4	0	32	56	20	24	4.9	0.4	3	0	827	33	863
054 - Tree	North East RDS - Tree	7	2021	25	44	26	8	0	2	0	24	58	22	20	6.6	0.8	25	0	935	132	1092
078 - Tree	North East RDS - Tree	7	2021	35	24	40	36	0	6	0	15	56	22	22	7.2	0.8	19	0	635	41	695
052 - Tree	North East RDS - Tree	7	2021	18	48	52	48	0	0.3	0.3	16	64	20	16	7.6	0.4	52	0	379	73	504
098 - Tree	North East RDS - Tree	7	2021	35	39	45	35	0	18	3	18	62	18	20	7.6	0.5	4	0	1020	45	1069

Appendix D –
Noxious Weeds Recorded within Study Area

LEGEND

- Permit Boundary
- Baby's breath
- Dalmatian toadflax
- Hoary alyssum
- Kochia
- Spotted knapweed
- Whitetop
- Yellow toadflax

N

0 500 1,000 2,000 ft

Montana Resources
Continental Mine

Appendix D
State and County-Listed
Noxious Weed Locations
2022 Reclamation
Monitoring

WESTECH ENVIRONMENTAL

1 inch = 1,250 feet	4/20/2023

3.0 Material Characterization

3.1 Alluvium

No alluvium was stockpiled in 2022.

3.2 Leached Capping

No leached capping material was stockpiled in 2022.

3.3 Material Characterization Program

During construction of the 6450-lift to the YDTI, an ABA sample is collected every 40,000 cubic yards of zone D1 material, every 400,000 cubic yards of zone U material and every 10,000 cubic yards of zone UA material. Results from these samples analyzed in 2022 are contained in the construction reports prepared per the Construction Management Plan.

None of the leached capping from the D East pushback will be used as reclamation material. All leached capping material was used for tailings embankment construction. The purpose of sampling this material used for construction is to segregate the material relatively so that when the material balance allows, the higher quality leached capping can be placed in the downstream side of the embankment and the material of lesser quality can be placed to the center or to the upstream side of the embankment.

Quarterly tailing composite samples were collected in 2022. The results from the 2022 quarterly tailings samples are included in Table 3.1.

Table 3.1 Tailings Geochemistry

Sample Site/No. → Constituent ↓	2022			
	1st Qtr M.T.P.H. 22Q1	2nd Qtr M.T.P.H. 22Q2	3rd Qtr M.T.P.H. 22Q3	4th Qtr M.T.P.H. 22Q4
ppm Cu	456	753	676	611
ppm Mo	62	68	78	57
% Fe	1.83	2.32	1.97	2.18
% Al	1.16	1.49	1.37	1.55
ppm Sb	<1	<1	<1	<1
ppm As	4	12	4	3
ppm Ba	69	85	84	88
ppm Bi	2	2	<1	<1
ppm Cd	<1	<1	<1	<1
% Ca	0.838	0.648	0.707	0.760
ppm Cr	11	12	13	12
ppm Co	8	13	12	13
ppm Pb	24	89	46	45
% Mg	0.650	0.525	0.561	0.697
ppm Mn	413	242	257	259
ppm Ni	6	7	7	8
ppm P	403	479	394	453
% K	0.655	0.545	0.608	0.737
% Si	0.0501	0.0736	0.0698	0.6890
% Na	0.0176	0.0152	0.0186	0.0209
ppm Sr	29	41	29	41
ppm Sn	<5	<5	<5	<5
ppm Ti	694	554	663	807
ppm V	43	43	49	55
ppm Zn	143	95	70	79
ppm Se	<1	1	1	<1
pH	9.2	9.4	9.9	9.8
ABP T/THO	-18	-58	-36	-36
% S-N-EX	0.08	0.09	0.08	0.09
% S-PYR	1.2	2.2	1.5	1.4
% S-SO_4	0.05	0.06	0.09	0.21
% S-Tot.	1.3	2.4	1.8	1.8
AGP T/THO	41	76	55	56
ANP T/THO	22	18	20	20

4.0 Water Quality

During 2022, MR continued the water quality sampling program. Attached is a report which includes a summary and trend analysis of the water monitoring conducted in 2022.

Water Quantity:

The average freshwater make-up flow from the Silver Lake Water System (SLWS) in 2022 was 1.2 million gallons per day (MGD). Tailings are pumped as a slurry to the YDTI at an average rate of approximately 18,000 gpm. The tailings slurry is approximately 35% solids by mass. Water returned from the YDTI to the mill was not measured in 2022 but is estimated to be an average rate of approximately 21 MGD[1]. The average flow in the Clear Water Ditch as measured by MBMG at a flume near the guard shack was 351 gpm in 2022. Flow from the Continental Pit is not monitored but is estimated to average approximately 0.5 MGD. Approximately 1.3 billion gallons were treated at the Horseshoe Bend Water Treatment Plant; 1.3 billion gallons of Berkeley Pit water was extracted and treated; and 1.9 billion gallons were discharged to Silver Bow Creek by the BMFOU Pilot Project in 2022. Also, approximately 7.9 million gallons of water were pumped to the MR Dredge Pond from the Parrot Tailings Removal Project in 2022.

[1] This includes water delivered to the Polishing Plant for discharge to Silver Bow Creek.

MONTANA RESOURCES

2022 BASELINE AND OPERATIONAL

WATER RESOURCES MONITORING REPORT

Prepared for:

Montana Resources, LLC
600 Shields Avenue
Butte, MT 59701

Prepared by:

Hydrometrics, Inc.
3020 Bozeman Avenue
Helena, MT 59601

May 2023

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LIST OF ACRONYMS

DI	Deionized water
DO	Dissolved Oxygen
FSAP	Field Sampling and Analysis Plan
GWE	Groundwater Elevation
MR	Montana Resources, LLC
PRDL	Project Required Detection Limit
QC	Quality Control
RPD	Relative Percent Difference
SC	Specific Conductance
SOP	Standard Operating Procedure
SWL	Static Water Level
VWP	Vibrating Wire Piezometer
WED	West Embankment Drain
YDTI	Yankee Doodle Tailings Impoundment

MONTANA RESOURCES

2022 BASELINE AND OPERATIONAL

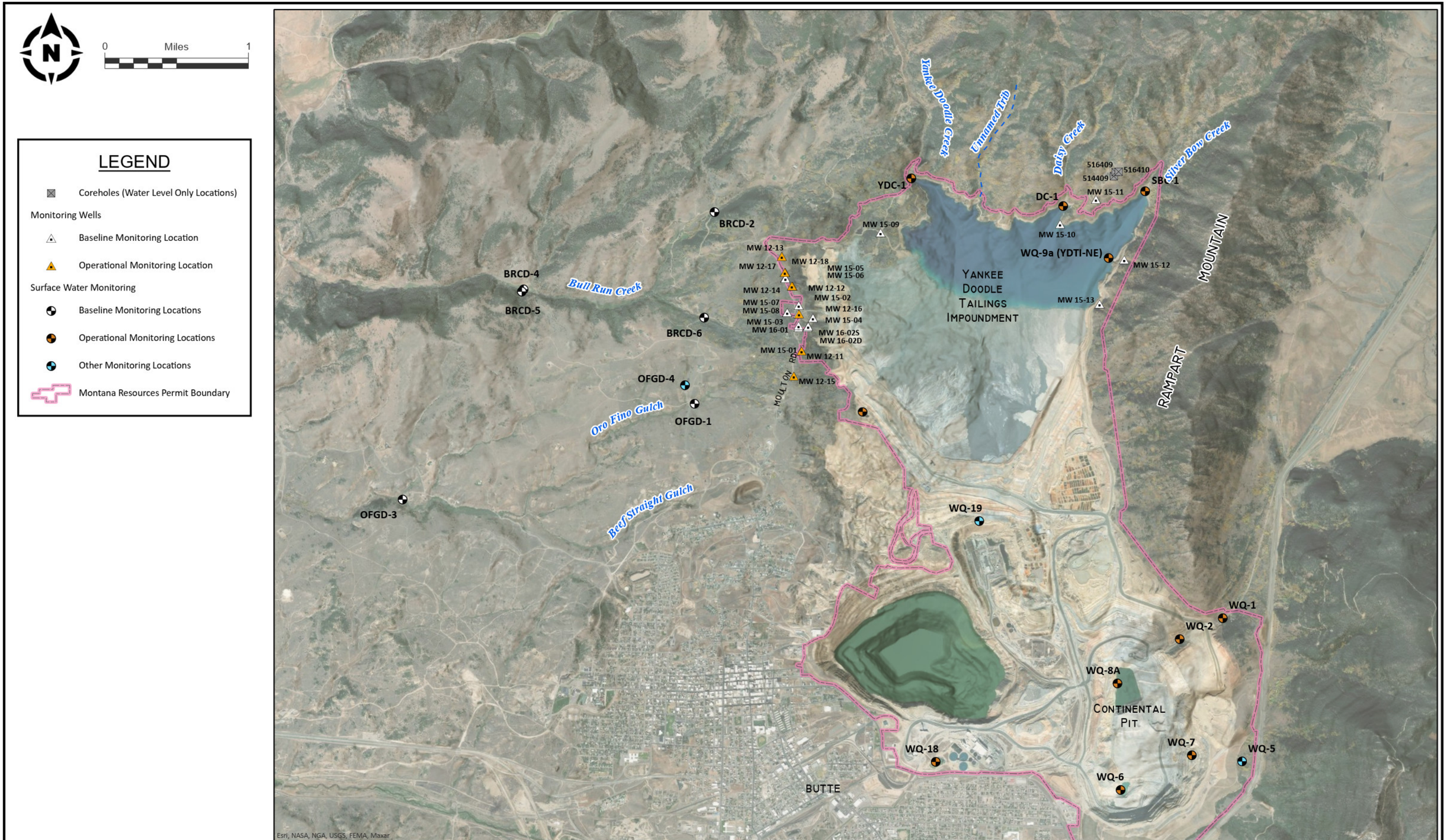
WATER RESOURCES MONITORING REPORT

1.0 INTRODUCTION

At the request of Montana Resources, LLC (MR), Hydrometrics conducted hydrologic monitoring in the vicinity of the Continental Mine in 2022. The 2022 monitoring program included semi-annual (spring and fall) groundwater and surface water sampling. Monitoring activities were focused on the Yankee Doodle Tailings Impoundment (YDTI) and Moulton Reservoir Road area, with additional monitoring sites located throughout the active mine site (Figure 1-1). The 2022 monitoring program is a continuation of the water resources monitoring implemented the past several years and contributes to establishment of an extensive water quality database for the YDTI and Continental Mine area, and satisfies certain Continental Mine operating permit requirements. Objectives of the monitoring program include:

1. Continue baseline surface water and groundwater quality monitoring as initiated under MR's prior mine permitting programs; and
2. Provide operational water quality data as required by the Continental Mine operating permit(s).

This report documents the scope and results of 2022 water resources monitoring activities conducted by Hydrometrics at the Continental Mine. Also included is an analysis of water quality trends for the monitoring period of record. Besides documenting current water quality conditions and trends, information provided in this report will be used in design and planning of future water resources monitoring programs.



MONTANA RESOURCES WATER RESOURCES MONITORING REPORT	MONTANA RESOURCES PROJECT AREA AND SURFACE WATER & GROUNDWATER MONITORING LOCATIONS	FIGURE 1-1

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2.0 MONITORING PROGRAM SCOPE

This section describes the scope and details of the 2022 monitoring program including monitoring locations, schedules, and analytical parameters. The sampling methodology is also summarized below with additional detail provided in the 2022 Field Sampling and Analysis Plan (FSAP; Hydrometrics, 2022).

2.1 SURFACE WATER MONITORING

The 2022 surface water monitoring program included 20 sites (Table 2-1). Eleven of these sites are included in MR's operational monitoring program designated for seasonal sampling in the current mine operating permit (MR, 2021). Six sites are considered baseline monitoring sites established during 2012 to 2016 to document surface water quality west of the YDTI as part of the YDTI Amendment 10 permitting activities. Water quality data from these sites documents current hydrologic conditions around the YDTI for comparison to future water quality data. Three sites are neither operational nor baseline and were sampled at MR's request for general information. Table 2-1 provides a description of each site by program with site locations shown in Figure 2-1.

Two sampling events were conducted in 2022, one in June during high flow conditions, and the second in October during the low flow season. The two sampling events are meant to document surface water quality conditions under varying flow regimes.

Monitoring at each surface water site included field measurements of streamflow (where conditions allowed), pH, specific conductance (SC), dissolved oxygen (DO), and water temperature. Water samples were also collected at each site for laboratory analyses of a suite of major constituent, nutrient, and trace metal concentrations at Energy Laboratories in Helena (Table 2-2). With the exception of aluminum, all metals were analyzed for the total recoverable fraction. Aluminum samples were filtered through a 0.45 µm disposable filter in the field prior to preservation for dissolved fraction analysis. Details of surface water sampling procedures, sample handling and preservation, and analytical methods are included in the 2022 FSAP (Hydrometrics, 2022).

2.2 GROUNDWATER MONITORING

The 2022 groundwater monitoring program included water quality sampling at 24 monitoring wells (Table 2-3). The majority of sites (22) are part of the operational monitoring program (MR, 2021) with the remaining two sites monitored to further document baseline water quality conditions. All wells were monitored during spring (June) and fall (October) to document groundwater characteristics under variable hydrologic conditions. Monitoring well locations are shown on Figure 2-2.

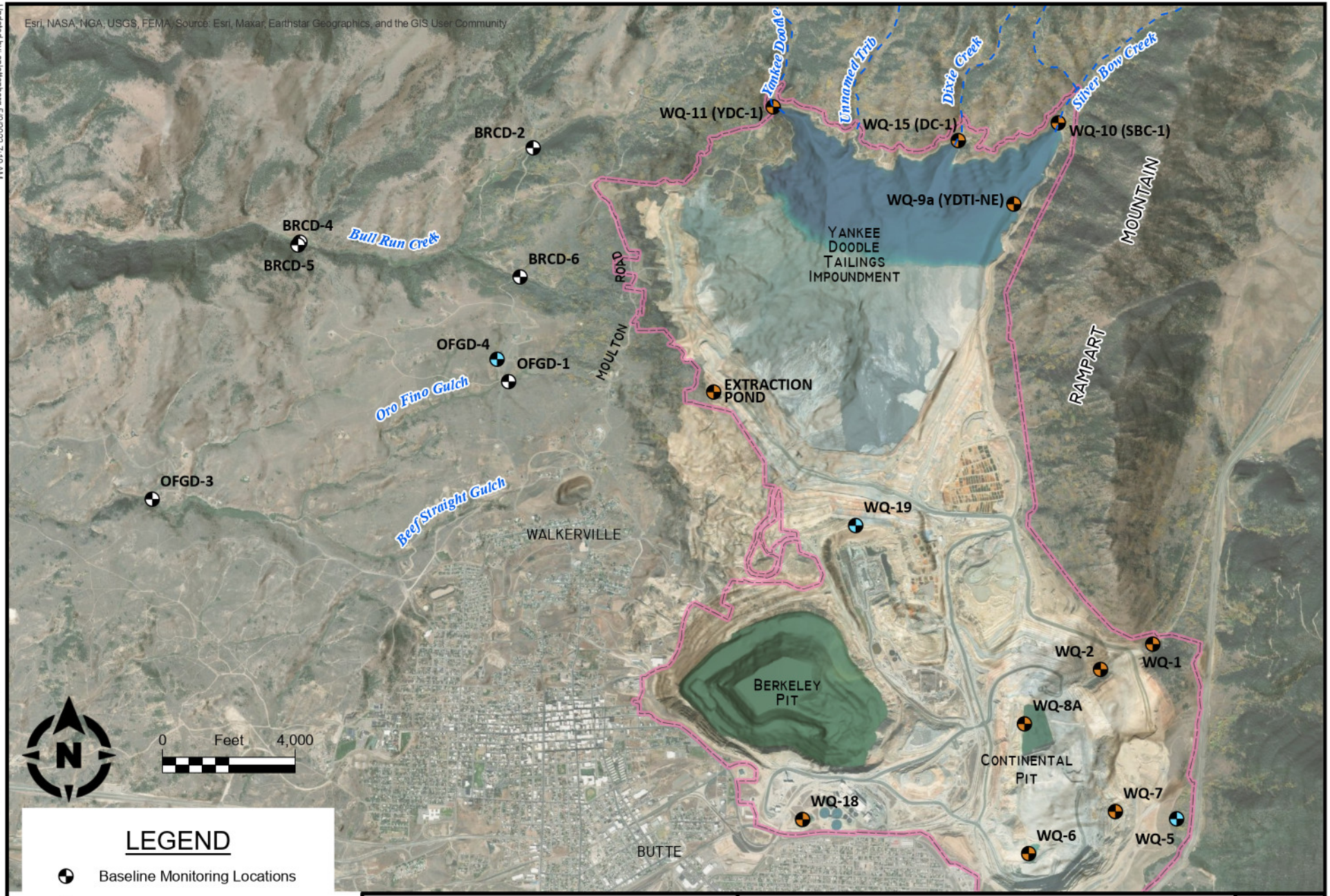
TABLE 2-1. 2022 MONTANA RESOURCES SURFACE WATER MONITORING SITES

Site ID	Latitude (°N)	Longitude (°W)	Description
BRCD-2[(1)]	46.0608	-112.5433	Upper Bull Run Creek drainage downstream of BRCD-1 at Poorman Rd crossing.
BRCD-4[(1)]	46.0523	-112.5705	Bull Run Creek at end of Frog Pond Rd, downstream of BRCD-3.
BRCD-5[(1)]	46.0520	-112.5707	Tributary to Bull Run Creek entering from the south immediately downstream of BRCD-4.
BRCD-6[(1)]	46.0501	-112.5442	South Fork of BRC upstream of Bull Run Road crossing. Very little flow.
OFGD-1[(1)]	46.0414	-112.5451	Head of Frog Pond at junction of Bull Run Creek Rd and Frog Pond Rd (east of Bull Run Creek road).
OFGD-3[(1)]	46.0306	-112.5869	Downstream Oro Fino Gulch in Section 10.
OFGD-4[(3)]	46.0433	-112.5467	Spring/seep in Oro Fino Gulch drainage downstream of OFGD-1. Sampled upgradient of house.
DC-1 (WQ-15)[(2)]	46.0627	-112.4929	Lower Dixie Creek at impoundment immediately upstream of metal culvert.
SBC-1 (WQ-10)[(2)]	46.0645	-112.4811	Silver Bow Creek immediately upstream of tailings pond.
YDC-1 (WQ-11)[(2)]	46.0650	-112.5150	Yankee Doodle Creek immediately upstream of tailings pond.
YDTI-NE (WQ-9a)[(2)]	46.0617	-112.4869	Tailings pond near decant barge.
Extraction Pond[(2)]	46.0414	-112.5207	West Embankment Drain extraction pond.
WQ-1[(2)]	Woodville East: upstream of the previously reclaimed Woodville waste rock dump.		
WQ-2[(2)]	Woodville West: southwest side of the Woodville waste rock dump.		
WQ-6[(2)]	Continental Pit South: southern end of the active Continental Pit.		
WQ-7[(2)]	Pavilion Seep: on the 5840 bench of the Continental Pit below the old Columbia Gardens Pavilion.		
WQ-8A[(2)]	Continental Pit North: northern end of the Continental Pit.		
WQ-18[(2)]	Emergency/Ecology Pond: Southwest corner of the property north of Texas Avenue.		
WQ-5[(3)]	Clear Water Ditch near southeastern property boundary, upstream of waste rock facilities.		
WQ-19[(3)]	No. 10 Seep on East-West Embankment at weir.		

(1) Baseline Monitoring Sites

(2) Operational Monitoring Site

(3) Other monitoring site.



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MONTANA RESOURCES
WATER RESOURCES MONITORING REPORT

SURFACE WATER MONITORING LOCATIONS

FIGURE
2-1

TABLE 2-2. 2022 SURFACE WATER AND GROUNDWATER ANALYTICAL PARAMETER LIST

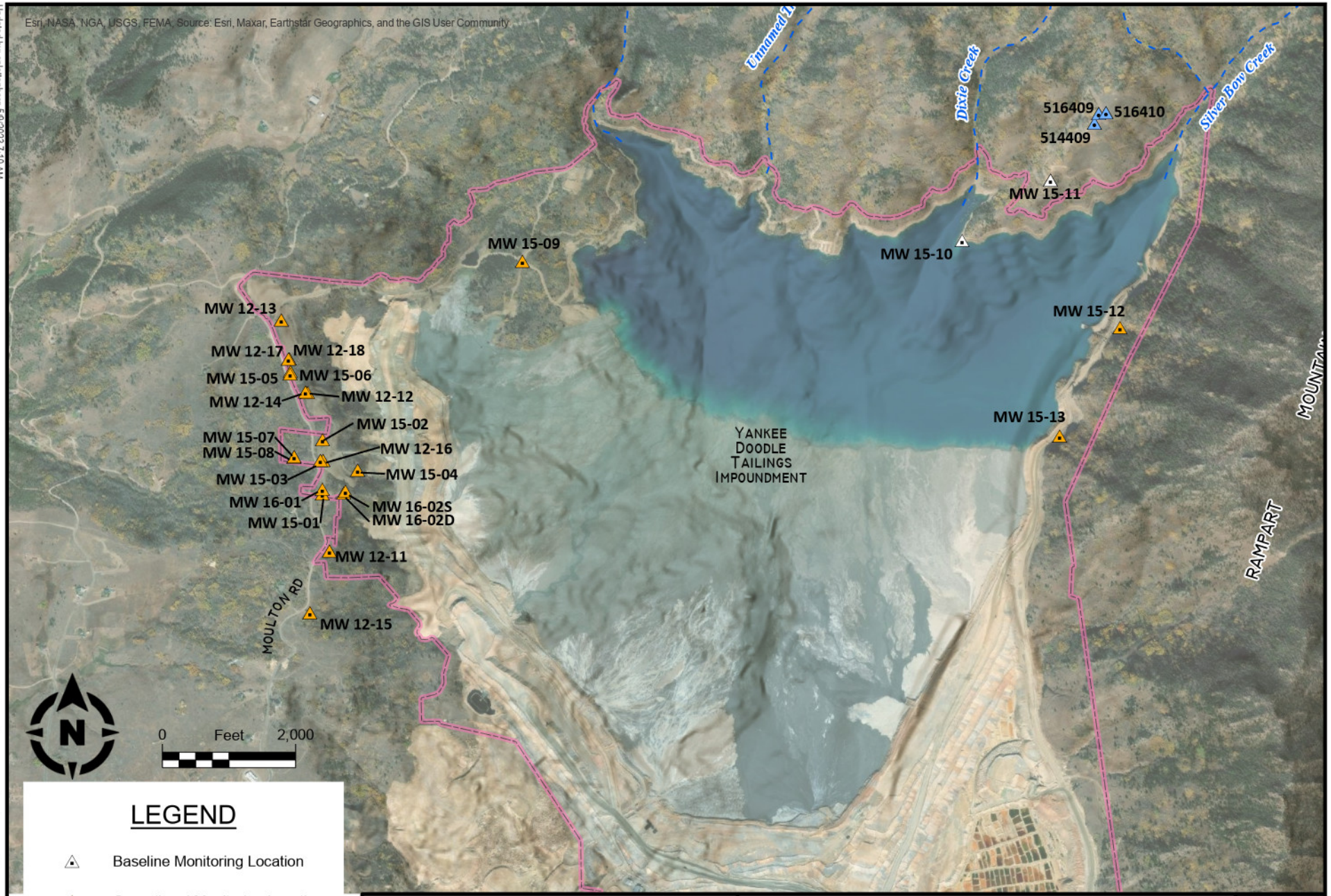
Parameter	Analytical Method [1]	Project Required Detection Limit (mg/L)
Physical Parameters		
pH	150.2/SM 4500H-B	0.1 s.u.
Specific Conductance	120.1/SM 2510B	1 µmhos/cm
TDS	SM 2540C	10
TSS	SM 2540D	10
Common Ions		
Alkalinity	SM 2320B	1
Acidity as CaCO3 (if pH<5)	A2310B	1
Bicarbonate	SM 2320B	1
Carbonate	SM 2320B	1
Sulfate	300	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A 4500 F-C	0.1
Nutrients - Operational Surface Water Samples Only		
Nitrate + Nitrite as N	E353.2	0.03
Total Phosphorous as P	E365.1	0.05
Metals: Surface Water-Total Recoverable (except dissolved for aluminum); Groundwater - Dissolved		
Aluminum (Al) (dissolved)	200.7/200.8	0.005
Antimony (Sb)	200.8/200.9	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Boron (B)	200.7/200.8	0.1
Cadmium (Cd)	200.7/200.8	0.00003
Calcium	215.1/200.7	5
Chromium (Cr)	200.7/200.8	0.001
Copper (Cu)	200.7/200.8	0.001
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Lithium (Li)	200.8/200.9	0.1
Magnesium	242.1/200.7	5
Manganese (Mn)	200.7/200.8	0.01
Mercury (Hg)	245.1/245.7/200.8/SW7470	0.00001
Molybdenum (Mo)	E246.2/200.7/200.8	0.0001
Nickel (Ni)	200.7/200.8/200.9	0.002
Potassium	258.1/200.7	5
Rubidium (Rb)	200.8/200.9	0.0001
Selenium (Se)	200.7/200.8/SM 3114B	0.001
Silicon (Si)	200.7/200.8	0.1
Silver (Ag)	200.7/200.8	0.0002
Sodium	273.1/200.7	5
Strontium (Sr)	200.7/200.8	0.02
Tungsten (W)	200.7/200.8	0.0001
Thallium (Tl)	200.8/200.9	0.0002
Uranium	200.8	0.0002
Vanadium (V)	E286.2200.7/200.8	0.1
Zinc (Zn)	200.7/200.8	0.008
Field Parameters		
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.01 mg/L
pH	HF-SOP-20	0.01 pH standard unit
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983). Equivalent methods may be substituted.

TABLE 2-3. 2022 GROUNDWATER MONITORING SITES

Monitor Well	Location	Top of Casing Elevation	Screen Interval feet bgs
MW 12-11	South ridge near ridge crest	6521.41	145-195
MW 12-12	North ridge near ridge crest	6475.87	165-200
MW 12-13	North ridge near ridge crest	6490.28	150-200
MW 12-14	North ridge near ridge crest	6476.47	100-150
MW 12-15	South ridge near ridge crest	6518.90	150-200
MW 12-16	Central ridge, groundwater potentiometric low	6487.58	141-191
MW 12-17	North ridge near ridge crest	6472.97	155-195
MW 12-18	North ridge near ridge crest	6472.65	80-115
MW 15-01	Central ridge near ridge crest	6504.13	182-222
MW 15-02	Central ridge near ridge crest	6483.34	147-197
MW 15-03	Central ridge, groundwater potentiometric low	6487.41	345-385
MW 15-04	Central ridge on east ridge flank	6435.98	170-220
MW 15-05	North ridge near ridge crest	6468.72	240-290
MW 15-06	North ridge near ridge crest	6468.97	350-400
MW 15-07	Central ridge near ridge crest	6464.65	162.5-202.5
MW 15-08	Central ridge near ridge crest	6464.57	81.5-101.5
MW 15-09	North of tailings impoundment	6455.25	92-142
MW 15-10*	North of tailings impoundment	6369.00	84-99
MW 15-11*	North of tailings impoundment	6536.30	161-201
MW 15-12	East of tailings impoundment	6436.18	68.5-98.5
MW 15-13	East of tailings impoundment	6420.83	81-101
MW 16-01	Central ridge, deep fracture system	6502.09	485-517
MW 16-02D	Central ridge, deep fracture system	6499.41	489-549
MW 16-02S	Central ridge near ridge crest	6499.33	244-264

* Denotes baseline monitoring sites; all other sites are operational monitoring sites.
bgs - below ground surface
Elevations relative to Anaconda mine grid datum.



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Hydrometrics, Inc.

MONTANA RESOURCES
WATER RESOURCES MONITORING REPORT

GROUNDWATER SAMPLING LOCATIONS

FIGURE
2-2

Groundwater monitoring included field measurements of static water level (SWL), pH, SC, DO, and water temperature. Groundwater samples were collected at each well for laboratory analyses of major constituent, nutrient, and trace metal concentrations at Energy Laboratories in Helena (Table 2-2). Samples for metals analyses were filtered through a disposable 0.45 µm filter prior to preservation for analysis of the dissolved metals fraction. Details on groundwater sampling procedures, sample handling and preservation, and analytical methods are included in the 2022 FSAP (Hydrometrics, 2022).

In addition to seasonal water quality monitoring, SWLs were recorded monthly at most YDTI wells throughout 2022. Groundwater level monitoring, particularly along the ridge west of the impoundment (the West Ridge) is an important component of the YDTI monitoring program since the groundwater levels along the ridge are of interest in maintaining hydraulic containment along the west side of the YDTI (MR, 2021). The monitoring wells are also instrumented with vibrating wire piezometers (VWPs) for continuous water level monitoring. All manual water level data is maintained in a spreadsheet database by Hydrometrics with the VWP data maintained by MR.

2.3 FIELD QUALITY CONTROL SAMPLES

In accordance with the 2022 FSAP, field quality control (QC) samples were collected during all sampling events to assess data quality and representativeness. QC samples were collected at a minimum frequency of one set (one duplicate, one deionized water (DI) blank, one equipment rinsate blank for groundwater; one duplicate, one DI blank for surface water) per 20 field samples during each monitoring event. A total of 20 QC samples were collected in 2022 with the QC sample results utilized for data validation as described in Section 4.0.

3.0 MONITORING RESULTS

Results of the 2022 surface water and groundwater monitoring programs are discussed below. Water quality results from each program are evaluated with a focus on key parameters of interest based on their frequency of occurrence (arsenic, uranium), their relevance to the Continental Mine orebody or metal mines in general (i.e., copper, iron, manganese), and for their potential to serve as indicators of YDTI process water (molybdenum, tungsten, rubidium, fluoride, sulfate). Although concentrations of these five "indicator parameters" are not exceptionally high in the tailings pond (with the possible exception of molybdenum and sulfate), they are an order of magnitude or more greater than in the surrounding surface water and groundwater, leading to their use as indicators of potential mixing of surrounding groundwater and surface water with tailings impoundment water. It should be noted that the presence of these indicator parameters in surface water and groundwater is not in itself an indication of mixing with tailings water. These parameters are elevated in the tailings pond due to their enrichment in the local bedrock, and therefore are expected to occur naturally in local surface water and groundwater as well. However, abnormally high concentrations or consistent trends of increasing concentrations can be used to identify areas that may warrant further evaluation.

3.1 SURFACE WATER MONITORING RESULTS

The 2022 surface water monitoring database is included in Appendix A with select 2022 results summarized in Table 3-1. Concentration trend plots for the five indicator parameters molybdenum, tungsten, rubidium, fluoride, and sulfate for Bull Run Creek, Oro Fino Gulch, and the Yankee Doodle Tailings Pond monitoring sites are included in Appendix B[1]. The Table 3-1 summary includes average 2022 concentrations (average of the June and October results) for the select parameters noted above. Key points of interest in the 2022 surface water dataset are outlined below.

Upgradient Drainages

As described in previous reports (MR, 2018), surface water in upstream drainages Silver Bow, Dixie and Yankee Doodle Creeks is a calcium-bicarbonate type water with 2022 field-measured pH values ranging from 7.02 to 8.20 and averaging 7.77 (Table 3-1, Appendix A). Trace metal concentrations are generally low with antimony, boron, cadmium, lithium, mercury, nickel, selenium, silver, thallium, vanadium, and zinc at or less than the project required detection limits (PRDLs) in all 2022 samples. Concentrations of the YDTI indicator parameters fluoride, sulfate, molybdenum, rubidium, and tungsten are all one to three orders of magnitude lower than the tailings pond concentrations (Table 3-1). The 2022 sample results for the upstream drainages are consistent with past sampling results dating back several years.

[1] When viewing the trend plots, note that a number of anomalous analytical results recorded in 2019 are believed to be due to the use of a different analytical laboratory; all other analyses were performed by Energy Laboratories.

TABLE 3-1. 2022 SURFACE WATER AVERAGE PARAMETER CONCENTRATIONS

Drainage/Area	Flow	pH	Sulfate	Fluoride	Molybdenum	Tungsten	Rubidium	Arsenic	Uranium	Copper	Iron	Manganese
	gpm	*S.U.*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
West Ridge and Upstream Drainages												
Bull Run Ck	16.6	7.79	76	0.16	0.0022	0.00012	0.0031	0.0200	0.0012	0.0049	0.61	0.075
Oro Fino Gulch	22	7.67	215	0.30	0.0037	0.00057	0.0018	0.0290	0.0025	0.0036	3.12	5.140
Upstream Drainages	180	7.77	19.3	0.10	0.0017	0.00011	0.0011	0.0054	0.0048	0.0025	0.29	0.020
Active Mine Site												
WQ-1-Woodville East	54	7.52	196	0.2	0.0009	0.00005	0.0020	0.0008	0.0019	0.088	0.280	0.111
WQ-2-Woodville West	62.5	6.75	222	0.45	0.1900	0.00005	0.0040	0.0005	0.0003	0.061	0.030	0.005
WQ-5-Clearwater Ditch[1]	21	8.04	30	0.1	0.0015	0.00005	0.0013	0.0010	0.0001	0.034	0.110	0.011
WQ-6-Cont Pit South[1]	Ponded	5.85	936	1.80	0.5120	0.00070	0.0260	0.0020	0.2080	0.134	0.010	1.82
WQ-7-Pavillion Seep	56	3.24	1183	2.50	0.0040	0.00005	0.0340	0.0013	0.0610	43.2	13.30	14.1
WQ-8A-Cont Pit North	Ponded	3.95	1780	2.70	0.0400	0.00008	0.0350	0.0010	0.1640	27.9	2.44	14.0
WQ-18-Ecology Pond	Ponded	11.78	1590	2.15	0.9200	0.0100	0.0700	0.0020	0.0027	0.199	0.490	0.150
WQ-19-No. 10 Seep	111	3.01	2775	0.30	0.0082	0.00023	0.0189	0.0140	0.1600	27.600	40.5	40.1
WQ-9A Tailings Pond	Ponded	10.4	1960	2.25	1.08	0.01680	0.0650	0.0020	0.0028	0.009	0.13	0.030
Extraction Pond Inflow	850	3.34	1970	0.75	0.0009	0.00008	0.0434	0.0013	0.0467	27.0	8.1	17.1

Upstream Drainages include Silver Bow, Dixie, and Yankee Doodle Creeks; Individual sites described in Table 2-1 and shown on Figure 2-1.

Concentrations are average of June and October results; Below detect values replaced with 1/2 DL.

1 - Site dry or inaccessible in October 2022, sampled in June only.

All metals concentrations are total recoverable fraction.

West Ridge Drainages

The 2022 monitoring program included two mainstem sites (BRCD-2 and BRCD-4) and two spring sites (BRCD-5 and BRCD-6) in Bull Run Creek drainage, and two mainstem sites (OFGD-1 and OFGD-3) and one spring site (OFGD-4) in Oro Fino Gulch along the west flank of West Ridge (Figure 2-1). Similar to the upstream sites, surface water in these drainages is a calcium-bicarbonate type water with alkaline pH. Trace metal concentrations are generally low at these sites although some concentrations are higher than in the upstream drainages due to increased bedrock mineralization, and possibly historic mining disturbances, southward along the West Ridge. Boron, lithium, selenium, silver, thallium, and vanadium concentrations were equal to or less than the PRDL in all samples from these drainages in 2022. Similar to the upgradient drainages, concentrations of YDTI indicator parameters fluoride, sulfate, molybdenum, rubidium, and tungsten in the West Ridge drainage samples are all one to three orders of magnitude lower than the tailings pond concentrations (Table 3-1). As shown in Appendix B, concentrations of the YDTI indicator parameters show no consistent increasing trends for the period of record at all West Ridge surface water sites. While molybdenum, rubidium and tungsten concentrations increased at downstream Oro Fino Gulch site OFGD-3 in October 2022, sulfate and fluoride concentrations did not. The minor increases in certain indicator parameters are attributed to mineralized bedrock in the vicinity of OFGD-3 coupled with the lower than average flows. OFGD-3 will be sampled in 2023 to assess ongoing concentration trends in Oro Fino Gulch.

Yankee Doodle Tailings Pond

The tailings pond water (site WQ-9A) is a calcium-sulfate type water with a 2022 average field-measured pH of 10.42 as measured from the active decant barge. Compared to the upgradient and West Ridge drainages, the tailings pond water is enriched in sulfate, fluoride, molybdenum, tungsten, and rubidium (Table 3-1), making these potential indicators of tailings pond-influenced waters. The 2022 tailings pond concentrations are similar to past sampling results for the indicator and other parameters with the October field pH measurement slightly higher than past results (11.21) and fluoride decreasing to more typical values (2.5 and 2.0 mg/L in June and October, respectively) after exhibiting a moderate increase over the previous few years (Appendix A and Appendix B).

Extraction Pond

The Extraction Pond receives drainage from the west embankment drain (WED) and was added to the operational monitoring program in 2020. Extraction Pond water samples are collected from the WED discharge flow before entering the pond and as such represents the WED discharge water quality. Water quality trends for the Extraction Pond inflow since initiation of sampling are shown in Table 3-2.

Field-measured pH of the Extraction Pond inflow water ranged from 3.24 to 3.44 and averaged 3.34 in 2022. Concentrations of some metals, including aluminum, cadmium, copper, iron, lead, manganese, uranium, and zinc, are enriched in the Extraction Pond as compared to the tailings pond. The Extraction Pond water also differs significantly from the tailings pond in general chemistry, with average 2022 magnesium concentrations in the Extraction Pond and tailings pond 83 and 9.5 mg/L,

respectively. As shown in Table 3-2, the WED flow into the extraction pond increased in 2022, believed attributable to an increase in tailings slurry discharge along the West Embankment and increased infiltration/recharge to the WED. Overall, metals concentrations have decreased since 2020 while pH has remained relatively stable. The Extraction Pond is a lined facility with the captured water contained and pumped to the YDTI.

TABLE 3-2. EXTRACTION POND INFLOW WATER QUALITY TRENDS

Date	Field pH S.U.	Flow gpm	Fluoride mg/L	Sulfate mg/L	Aluminum mg/L	Copper mg/L	Iron mg/L	Zinc mg/L
6/24/2020	3.97	424	0.1	1,970	49.6	52.7	15.8	48.1
10/21/2020	3.06	280	0.2	2,030	38.2	47.9	8.77	38.8
6/24/2021	3.24	296	0.2	1,930	35.6	31.0	19.8	36.3
10/19/2021	3.38	302	0.3	1,820	31.0	28.5	14.1	35.9
6/16/2022	3.24	831	0.8	1,870	25.6	24.8	3.89	28.0
10/25/2022	3.44	838	0.7	2,070	26.0	29.1	12.3	32.7

Metals concentrations are total recoverable.

Active Mine Site

Water quality at the active mine site monitoring locations is variable with some sites exhibiting highly elevated metals concentrations, consistent with past sampling results (Appendix A). The affected waters at the mine site monitoring locations are all treated and/or contained within the Continental Mine process circuit.

3.2 GROUNDWATER MONITORING RESULTS

The 2022 groundwater monitoring results are summarized in Table 3-3 with the complete 2022 water quality database included in Appendix A. Concentration trend plots for the indicator parameters molybdenum, tungsten, rubidium, fluoride, and sulfate are included in Appendix B.

Table 3-3 includes average concentrations of select parameters from the June and October 2022 groundwater sampling events. Parameters presented in Table 3-3 are the same indicator and general interest parameters as presented in Section 3.1 for surface water, plus groundwater elevations and nitrate plus nitrite as nitrogen concentrations. Also shown are the average 2022 concentrations for the tailings pond (site WQ-9A) for comparison to the groundwater concentrations. Key points of interest in the 2022 dataset include:

- As described in previous reports (MR, 2018), groundwater in most of the West Ridge area is a calcium-bicarbonate type water with some calcium-sulfate type waters in the south portion of the ridge, corresponding to an increase in bedrock mineralization.

TABLE 3-3. 2022 MONITORING WELL AVERAGE PARAMETER CONCENTRATIONS

Monitoring Well	GWE	Field pH	N+N	Sulfate	Fluoride	Molybdenum	Tungsten	Rubidium	Arsenic	Uranium	Copper	Iron	Manganese
	feet	*S.U.*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
MW12-11	6462.70	7.36	0.400	30	0.05	0.0028	0.00005	0.00125	0.0075	0.0171	0.0008	0.020	0.0005
MW12-12	6426.96	8.29	0.010	41.5	0.20	0.0082	0.00010	0.00040	0.009	0.0876	0.0005	0.010	0.0135
MW12-13	6459.80	6.80	0.415	49	0.05	0.0022	0.00005	0.00110	0.005	0.0073	0.0005	0.010	0.0030
MW12-14	6433.28	7.44	0.785	4.5	0.05	0.0002	0.00005	0.00060	0.002	0.0012	0.0005	0.010	0.0005
MW12-15	6486.29	7.56	4.650	165	0.05	0.0036	0.00005	0.00180	0.006	0.0232	0.0025	0.020	0.003
MW12-16	6394.60	7.45	0.98	53	0.10	0.0029	0.00008	0.00070	0.004	0.0042	0.0005	0.010	0.0013
MW12-17	6431.84	7.99	0.185	48	0.15	0.0054	0.00015	0.00115	0.010	0.0216	0.0005	0.010	0.005
MW12-18	6433.50	6.85	0.925	20	0.05	0.0005	0.00005	0.00055	0.002	0.0016	0.0005	0.010	0.00075
MW15-01	6443.74	7.74	1.080	33.5	0.08	0.0005	0.00005	0.00050	0.005	0.0016	0.0005	0.010	0.0005
MW15-02	6416.24	7.24	0.495	9.5	0.05	0.0006	0.00005	0.00050	0.004	0.0047	0.0005	0.010	0.0005
MW15-03	6389.26	7.74	1.03	56.5	0.10	0.0059	0.00005	0.00075	0.007	0.0133	0.0008	0.030	0.0055
MW-15-04	6386.61	7.19	0.460	41	0.05	0.0009	0.00005	0.00090	0.0008	0.0024	0.0005	0.045	0.0015
MW-15-05	6433.31	8.06	0.355	49	0.20	0.0098	0.00005	0.00085	0.006	0.0246	0.0018	0.010	0.0110
MW-15-06	6428.10	8.11	0.005	8	0.20	0.0099	0.00005	0.00095	0.014	0.0255	0.0005	0.004	0.0355
MW-15-07	6401.28	7.09	0.355	9.0	0.08	0.0004	0.00005	0.00035	0.0008	0.0011	0.0005	0.010	0.0005
MW-15-08	6404.84	6.50	0.330	8	0.05	0.0005	0.00005	0.00110	0.0008	0.0001	0.0015	0.010	0.0070
MW-15-09	6416.76	6.87	0.250	36	0.10	0.0016	0.00005	0.00090	0.003	0.0010	0.0005	0.010	0.0100
MW-15-10	6358.92	6.13	0.370	21	0.05	0.0001	0.00005	0.00050	0.0005	0.0013	0.0005	0.010	0.0080
MW-15-11	6379.64	7.57	0.175	48	0.10	0.0024	0.00005	0.00095	0.0005	0.0196	0.0005	0.010	0.0005
MW-15-12	No Access												
MW-15-13	No Access												
MW-16-01	6401.90	7.38	0.008	66	0.50	0.0161	0.00525	0.00155	0.073	0.0110	0.0005	0.010	0.0230
MW-16-02D	6403.52	7.63	0.023	60	0.20	0.0049	0.00055	0.00195	0.008	0.0024	0.0018	0.010	0.0170
MW-16-02S	6443.15	7.96	5.48	133	0.10	0.0046	0.00105	0.00100	0.072	0.0135	0.0020	0.010	0.0005
WQ-9A-Tailings Pond	NA	10.42	0.38	1960	2.25	1.0800	0.01680	0.06500	0.002	0.0028	0.0090	0.130	0.0300

Concentrations shown are average of June and October 2022 sample results. Less than detect values relplaced with 1/2 detection limit.

N+N - Nitrate plus Nitrite as N

Individual sites described in Table 2-3 and shown on Figure 2-2.

All metals concentrations are dissolved fraction.

GWE - Groundwater Elevation

- Concentrations of several trace metals were near or less than the analytical detection limits in most 2022 samples. Parameters with concentrations less than the laboratory reporting limits in all 2022 groundwater samples include boron, chromium, lithium, nickel, silver, thallium, and vanadium (Appendix A). Trace metals detected on the most frequent basis (>90% of samples) include molybdenum, rubidium, strontium, and uranium.
- Concentrations of potential indicator parameters fluoride, sulfate, tungsten, rubidium, and molybdenum are all one to three orders of magnitude lower in the groundwater samples than in the tailings pond water (Table 3-3). As shown in the Appendix B trend graphs, none of the monitoring wells exhibit consistent increasing concentration trends for these parameters. A number of wells show a modest increase in molybdenum concentrations in October 2022 (i.e., MW12-11, MW12-16, MW12-18), but with the exception of MW12-16, these values are within the range of prior concentrations. The October 2022 molybdenum concentration at MW12-16 (0.0033 mg/L) is higher than previous maximum concentrations (0.0024 mg/L), although indicator parameters sulfate and rubidium concentrations deceased in October 2022 indicating some cause other than YDTI water for the molybdenum increase. Conversely, molybdenum and sulfate concentrations decreased at a number of wells in October 2022 including MW 16-02D, completed in the deep fracture system, where the molybdenum concentration decreased from 0.0069 mg/L to 0.0029 mg/L from June to October 2022. These varying concentration trends in the West Ridge monitoring wells are indicative of various non-YDTI related geochemical processes within the bedrock groundwater system. The lack of consistent indicator parameter concentration trends in the YDTI-area groundwater is consistent with the West Ridge groundwater levels being 30 feet or more higher than the tailings pond level.

With few exceptions, the 2022 groundwater samples represent high quality groundwater with low to non-detect concentrations of most trace metals and potential indicator parameters. The 2022 groundwater monitoring results are consistent with previous groundwater monitoring results dating back as far as 2012 for some of the West Ridge monitoring wells.

3.3 GROUNDWATER ELEVATION DATA

Groundwater elevation monitoring is an important component of the tailings impoundment monitoring program since long-term hydrodynamic containment, particularly along the West Ridge, is dependent, in part, on maintaining the existing hydrologic divide beneath the ridge crest, as well as engineered controls and components of the YDTI operations and management program (MR, 2018). The 2022 monitoring program included periodic manual water level measurements and continuous monitoring with VWPs in the 24 monitoring wells shown in Figure 2-2. Table 3-4 includes the monthly manual data for each well and the corresponding tailings pond (site WQ-9A) elevations for comparison; groundwater elevations are also included in the Appendix B trend graphs. Appendix C includes hydrographs for each well based on the continuous water level data. Note that all elevations presented below are relative to the local Anaconda Mine Grid datum.

TABLE 3-4. 2022 MONITORING WELL MANUAL WATER LEVEL DATA

Well	Measuring Point Elev.	Depth to Water									
		12/17/21	4/27/22	5/16/22	6/10/22	7/19/22	8/18/22	9/23/22	10/19/22	11/21/22	12/9/22
MW 12-11	6521.41	55.42	57.2	57.52	57.89	58.29	58.62	58.97	59.39	59.94	60.13
MW 12-12	6475.87	47.09	48.53	48.08	48.69	48.16	48.35	49.02	49.58	49.65	49.72
MW 12-13	6490.28	27.09	29.72	30.02	29.48	27.37	27.57	28.44	29.17	29.83	30.12
MW 12-14	6476.47	41.13	42.8	43.14	42.9	41.74	42.01	42.9	43.35	43.92	44.16
MW 12-15	6518.91	29	30.98	31.31	31.55	32.6	32.35	32.93	33.34	33.85	34
MW 12-16	6487.58	90.21	93.32	92.62	92.84	92.92	92.64	92.13	92.78	93.38	93.43
MW 12-17	6472.97	37.22	38.78	39.00	39.10	38.58	38.58	38.85	39.24	39.54	39.48
MW 12-18	6472.65	37.74	38.64	39.07	38.98	37.99	38.21	38.7	39.35	39.85	40.07
MW 15-01	6504.13	56.95	59.10	59.41	59.72	59.97	59.44	60.68	60.88	61.35	61.51
MW 15-02	6483.34	64.4	66.81	67.16	67.26	66.12	66.58	67.4	67.98	68.3	68.6
MW 15-03	6487.41	95.88	97.48	97.74	97.85	97.79	97.7	97.4	98.02	98.31	98.2
MW 15-04	6435.98	47.65	48.68	48.98	49.2	48.45	48.03	48.86	49.28	49.61	49.8
MW 15-05	6468.72	33.78	35.05	35.22	35.04	34.75	36.97	35.36	35.6	36.81	36.03
MW 15-06	6468.97	39.28	40.4	40.05	40.55	40.15	40.42	40.96	41.23	41.4	41.45
MW 15-07	6464.65	61.27	62.54	63.04	62.99	62.47	62.91	63.29	63.7	64.25	64.33
MW 15-08	6464.57	57.2	58.72	58.97	58.90	58.51	59.15	59.76	60.11	60.54	60.67
MW 15-09	6455.25	NM	38.1	38.44	39.09	37.53	37.49	NM	38.55	NM	NM
MW 16-01	6501.53	99.65	101.81	101.43	101.77	101.7	101.4	94.08	97.46	98.3	98.02
MW 16-02S	6499.33	52.79	54.82	55.15	55.46	55.75	55.98	56.5	56.77	57.19	57.3
MW 16-02D	6499.41	95.3	96.55	97.27	97.48	97.02	97.05	91.06	93.99	94.31	93.87
Well	**Screened Interval**	**Groundwater Elevation**									
		12/17/21	4/27/22	5/16/22	6/10/22	7/19/22	8/18/22	9/23/22	10/19/22	11/21/22	12/9/22
MW 12-11	145-195	6465.99	6464.21	6463.89	6463.52	6463.12	6462.79	6462.44	6462.02	6461.47	6461.28
MW 12-12	160-195	6428.78	6427.34	6427.79	6427.18	6427.71	6427.52	6426.85	6426.29	6426.22	6426.15
MW 12-13	145-195	6463.19	6460.56	6460.26	6460.80	6462.91	6462.71	6461.84	6461.11	6460.45	6460.16
MW 12-14	100-150	6435.34	6433.67	6433.33	6433.57	6434.73	6434.46	6433.57	6433.12	6432.55	6432.31
MW 12-15	150-200	6490.34	6488.36	6488.03	6487.79	6486.74	6486.99	6486.41	6486.00	6485.49	6485.34
MW 12-16	140-190	6397.37	6394.26	6394.96	6394.74	6394.66	6394.94	6395.45	6394.80	6394.20	6394.15
MW 12-17	155-195	6435.75	6434.19	6433.97	6433.87	6434.39	6434.39	6434.12	6433.73	6433.43	6433.49
MW 12-18	80-115	6434.91	6434.01	6433.58	6433.67	6434.66	6434.44	6433.95	6433.30	6432.80	6432.58
MW 15-01	182-222	6447.18	6445.03	6444.72	6444.41	6444.16	6444.69	6443.45	6443.25	6442.78	6442.62
MW 15-02	147-197	6418.94	6416.53	6416.18	6416.08	6417.22	6416.76	6415.94	6415.36	6415.04	6414.74
MW 15-03	345-385	6391.53	6389.93	6389.67	6389.56	6389.62	6389.71	6390.01	6389.39	6389.10	6389.21
MW 15-04	170-220	6388.33	6387.30	6387.00	6386.78	6387.53	6387.95	6387.12	6386.70	6386.37	6386.18
MW 15-05	240-290	6434.94	6433.67	6433.50	6433.68	6433.97	6431.75	6433.36	6433.12	6431.91	6432.69
MW 15-06	350-400	6429.69	6428.57	6428.92	6428.42	6428.82	6428.55	6428.01	6427.74	6427.57	6427.52
MW 15-07	162.5-202.5	6403.38	6402.11	6401.61	6401.66	6402.18	6401.74	6401.36	6400.95	6400.40	6400.32
MW 15-08	81.5-101.5	6407.37	6405.85	6405.60	6405.67	6406.06	6405.42	6404.81	6404.46	6404.03	6403.90
MW 15-09	92-142	NM	6417.15	6416.81	6416.16	6417.72	6417.76	NM	6416.70	NM	NM
MW 16-01	485-517	6401.88	6399.72	6400.10	6399.76	6399.83	6400.13	6407.45	6404.07	6403.23	6403.51
MW 16-02S	489-549	6446.54	6444.51	6444.18	6443.87	6443.58	6443.35	6442.83	6442.56	6442.14	6442.03
MW 16-02D	244-264	6404.11	6402.86	6402.14	6401.93	6402.39	6402.36	6408.35	6405.42	6405.10	6405.54
WQ-9A	Tailings Pond	6358	6360	6360	6360	6359	6359	6358	6358	6357	6357

NM - Not Measured
All measurements in feet from top of well casing
All elevations ACM Datum (USGS=ACM-52.6 ft)

Water levels at most West Ridge monitoring wells decreased from December 2021 to December 2022 (Table 3-5). Water level declines were greatest in the central and south ridge area where groundwater recharge is most reliant on incident precipitation as opposed to groundwater inflow from the north. Southernmost well MW12-15 showed the largest decline at 5.00 feet, with wells MW12-11, MW15-01, MW16-02S, and MW15-02 all declining more than four feet. Most other wells declined between 2.15 and 3.47 feet. Monitoring well MW12-16, located in an area referred to as the groundwater potentiometric low where West Ridge groundwater elevations are the lowest, showed a decline of 3.22 feet. Groundwater levels at monitoring wells MW16-01 and MW16-02D, both completed in a deep fracture system, exhibited water level increases of 1.63 and 1.43 feet, respectively.

The 2022 (and 2021) groundwater level declines follow steady increases experienced over the past few years at most wells (see continuous water level hydrographs in Appendix C). For example, water levels at the groundwater potentiometric low (MW12-16 and MW15-03) and the deep fracture system (MW16-01 and MW16-02D) increased between 8.5 and 18.4 feet from 2017 to the end of 2020. The 2021/2022 declines are likely due to the dry conditions experienced the past two years, reflecting the importance of incident precipitation recharge on the West Ridge groundwater levels. Annual precipitation for the last five water years (2018 through 2022) as measured at the Burt Mooney Airport in Butte, include 13.63 inches, 13.64 inches, 9.45 inches, 6.69 inches and approximately 10.65 inches, respectively. At the end of 2022, groundwater elevations along the crest of West Ridge ranged from 29 feet (at groundwater potentiometric low well MW 15-03) to 125 feet (at south ridge well MW 12-15) higher than the tailings pond water level.

3.4 DEVIATIONS FROM SAMPLING PLAN

The 2022 water resources monitoring was conducted in accordance with the 2022 MR sampling and analysis plan (Hydrometrics, 2022) with the following exceptions:

- Surface water monitoring sites OFGD-1 and OFGD-4 (Oro Fino Gulch), BRCD-6 (Bull Run drainage) and WQ-5 (Clearwater Ditch) were dry in the fall and could not be sampled during the October sampling event.
- Monitoring wells MW15-12 and MW15-13 (both located along the east side of the tailings pond) could not be sampled in the spring or fall due to road construction blocking vehicle access.

All other sampling protocol was consistent with the 2022 FSAP.

TABLE 3-5. 2022 GROUNDWATER LEVEL DECLINES

Monitoring Well	Well Location	Total Well Depth feet	Water Level Decline - feet
MW 12-15	Southern West Ridge near ridge crest	200	-5.00
MW 12-11	Southern West Ridge near ridge crest	200	-4.71
MW 15-01	Central West Ridge near ridge crest	230	-4.56
MW 16-02S	Central West Ridge near ridge crest	264	-4.51
MW 15-02	Central West Ridge near ridge crest	197	-4.20
MW 15-08	Central West Ridge near ridge crest	102	-3.47
MW 12-16	Central ridge, groundwater potentiometric low	191	-3.22
MW 15-07	Central West Ridge near ridge crest	203	-3.06
MW 12-13	Northern West Ridge near ridge crest	200	-3.03
MW 12-14	Northern West Ridge near ridge crest	150	-3.03
MW 12-12	Northern West Ridge near ridge crest	200	-2.63
MW 12-18	Northern West Ridge near ridge crest	115	-2.33
MW 15-03	Central ridge, groundwater potentiometric low	386	-2.32
MW 12-17	Northern West Ridge near ridge crest	195	-2.26
MW 15-05	Northern West Ridge near ridge crest	240	-2.25
MW 15-06	Northern West Ridge near ridge crest	400	-2.17
MW 15-04	Central ridge on east ridge flank	220	-2.15
MW 16-02D	Central ridge, deep fracture system	552	+1.43
MW 16-01	Central ridge, deep fracture system	517	+1.63

4.0 DATA VALIDATION RESULTS

All 2022 groundwater and surface water samples were validated in accordance with the EPA's data validation guidelines (EPA, 2017) and the 2022 project FSAP (Hydrometrics, 2022). The data validation process includes a review of sampling procedures to ensure consistency with the project FSAP and Standard Operating Procedures (SOPs), and detailed review of all field measurement and laboratory analytical results. All field QC sample analytical results were reviewed for compliance with appropriate criteria (DI and rinsate blank results less than PRDLs; field duplicate results within +/-20% relative percent difference or RPD) and qualified with appropriate flagging if noncompliant. Laboratory QC samples (laboratory blanks, duplicates, spikes) were also reviewed with exceedances noted in the validation reports although no data flagging occurs for laboratory QC exceedances at the "Standard" level of validation. Following validation and flagging, the data were uploaded to the Montana Resources Project EnviroData database.

The number of field samples, QC samples, and validation results are summarized in Table 4-1. As shown, molybdenum exceeded the 20% RPD QC criteria in the October surface water event duplicate sample. As a result, 11 of the molybdenum results associated with the duplicate sample were flagged with a "J". During the October groundwater monitoring event, one duplicate sample exceeded the RPD for aluminum resulting in 25 results being flagged "J". All other 2022 QC sample results were within the associated QC criteria. These few QC exceedances are all minor in magnitude and do not adversely affect the usability of the data for its intended purposes, which is to further document current water quality conditions and concentration trends in the YDTI West Ridge area groundwater and surface water.

TABLE 4-1. 2022 QC SAMPLE COLLECTION AND DATA VALIDATION SUMMARY

Monitoring Event	No. Field Samples	Field QC Samples			QC Exceedances
		DI Blanks	*Rinsate Blanks*	*Dupli-cates*	
June Surface Water	20	1	0	2	DI Blank: None Duplicate: None
October Surface Water	16	2	0	2	DI Blanks: None Duplicates: Mo exceeded 20% RPD, 11 results flagged "J".
June Groundwater	22	2	2	2	DI Blanks: None Rinsate Blanks: None Duplicates: None
October Groundwater	22	2	2	3	DI Blanks: None Rinsate Blanks: None Duplicates: Al exceeded 20% RPD, 25 results flagged "J".

5.0 2022 MONITORING SUMMARY

The 2022 MR groundwater and surface water monitoring results are consistent with the 2021 and prior years monitoring results. Groundwater chemistry in the West Ridge and upgradient groundwater and surface water is primarily a calcium-bicarbonate type water of good quality with very low or nondetectable trace metal concentrations. Groundwater and surface water in the southern portion of the ridge transitions to a calcium-sulfate type water due to the increased bedrock mineralization in that area. Concentrations of potential tailings pond water indicator parameters, including fluoride, sulfate, molybdenum, rubidium, and tungsten, show no increasing trends in area groundwater or surface water, indicating a lack of mixing with tailings pond water. Groundwater elevations at most West Ridge monitoring wells declined two to five feet during 2022, likely in response to the dry conditions. Conversely, water levels at deep fracture system wells MW16-01 and MW16-02D increased more than one foot. Groundwater levels throughout the West Ridge remain 29 to 125 feet higher than the tailings pond water level, thus maintaining hydrodynamic containment along the West Ridge. Groundwater level and water quality monitoring will continue in 2023 in accordance with the MR operating permit.

6.0 REFERENCES

EPA, 2017. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-540-R-2017-001. Office of Superfund Remediation and Technology Innovation. January 2017.

Hydrometrics, Inc., 2022. Montana Resources 2022 Field Sampling and Analysis Plan. Prepared for Montana Resources, LLP. June 2021.

Montana Resources, LLP (MR), 2021. Montana Resources Continental Mine Operations Plan. December 2021.

APPENDIX A

2022 BASELINE AND OPERATIONAL WATER RESOURCES MONITORING DATABASE

Montana Resources June 2022 Groundwater Analysis Summary Report

Station Name	Reporting	MW-16-01	MW-15-06	MW-16-02D	MW-15-09	MW-12-13	MW-12-17	MW-12-15	MW-12-14	MW-15-08	MW-15-07	MW-12-11	MW-15-05	RINSATE BLANK
Sample Date	Units	2022/06/13 11:55	2022/06/13 13:30	2022/06/13 14:50	2022/06/13 18:10	2022/06/14 08:45	2022/06/14 09:45	2022/06/14 11:40	2022/06/14 10:45	2022/06/14 11:25	2022/06/14 12:20	2022/06/14 13:20	2022/06/14 13:40	2022/06/14 14:00
FieldSampleId		MR-2206-200	MR-2206-201	MR-2206-202	MR-2206-203	MR-2206-204	MR-2206-205	MR-2206-206	MR-2206-207	MR-2206-208	MR-2206-209	MR-2206-210	MR-2206-211	MR-2206-212
Lab		Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
														Blank
Field Parameters														
Depth to Water	Feet	101.72	40.52	97.58	38.37	29.11	39.03	31.75	42.73	58.71	62.89	57.89	35.2	
Dissolved Oxygen	mg/L	0.37	0.4	0.32	1.02	0.84	1.36	3.06	7.72	6.5	9.84	4.44	0.24	
Field pH	s.u.	6.75	7.84	7.57	6.87	6.5	7.67	7.5	7.41	6.47	7.01	7.1	7.92	
Field Specific Conductivity	umhos/cm	264	317	297	195	402	348	716	217	215	238	352	476	
Oxidation Reduction Potential	Millivolts	100.9	-188.5	46.9	110.9	103.3	88	-8.4	97.3	146	117.5	99	-128.2	
Water Temperature	Deg C	7.4	7.3	7.7	7.8	8	7.9	7.8	7.8	7.8	8.2	8.5	8.3	
Physical Parameters														
pH	s.u.	7.8	8.2	7.7	7.0	7.2	8.1	7.6	7.5	6.7	7.2	7.4	7.9	7.0
Specific Conductivity	umhos/cm	269	324	305	204	416	360	726	227	223	252	370	480	<5
Total Dissolved Solids	mg/L	157	184	186	130	259	209	467	137	155	154	207	284	<10
Total Suspended Solids	mg/L	<10	10	<10	<10	<10	12	36	<10	19	46	<10	<10	<10
Major Constituents - Commons Ions														
Alkalinity as CaCO3	mg/L	47 D	150 D	56 D	58 D	130 D	120 D	170 D	89 D	58 D	80 D	91 D	190 D	<3
Bicarbonate as HCO3	mg/L	57 D	190 D	68 D	70 D	160 D	140 D	200 D	110 D	70 D	96 D	110 D	230 D	<3
Carbonate as CO3	mg/L	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Chloride	mg/L	6	4	6	1	19	6	20	10	23	20	33	5	<1
Fluoride	mg/L	0.5	0.2	0.2	0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1
Sulfate	mg/L	65	8	74	35	48	53	159	4	8	9	30	55	<1
Nutrients														
Nitrate + Nitrite as N	mg/L	0.01	<0.01	<0.01	0.25	0.38	0.27	4.4 D	0.79 D	0.33	0.36	0.46	0.47	<0.01
Phosphorus (TOT)	mg/L	0.06	0.04	<0.01	0.03	0.03	0.05	0.1	0.05	0.32	0.11	0.13	0.05	<0.01
Metals - Trace Constituents														
Aluminum (DIS)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.026	0.005	<0.005	<0.005
Antimony (DIS)	mg/L	0.001	<0.0005	<0.0005	<0.0005	0.0014	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (DIS)	mg/L	0.071	0.013	0.007	0.002	0.004	0.008	0.005	0.002	<0.001	<0.001	0.007	0.004	<0.001
Boron (DIS)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cadmium (DIS)	mg/L	<0.00003	<0.00003	<0.00003	0.00013	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Calcium (DIS)	mg/L	30	45	35	17	51	43	99	26	21	25	40	64	<1
Chromium (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
Iron (DIS)	mg/L	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02
Lead (DIS)	mg/L	0.0003	<0.0003	0.0003	0.0004	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Lithium (DIS)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Magnesium (DIS)	mg/L	3	4	5	8	10	11	20	6	6	8	10	13	<1
Manganese (DIS)	mg/L	0.021	0.035	0.018	0.011	0.003	0.005	0.003	<0.001	0.004	<0.001	<0.001	0.015	<0.001
Mercury (DIS)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (DIS)	mg/L	0.0162 D	0.01 D	0.0069 D	0.0017 D	0.0022 D	0.0059 D	0.0035 D	<0.0002	0.0004 D	0.0003 D	0.0026 D	0.0112 D	<0.0003
Nickel (DIS)	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Potassium (DIS)	mg/L	4	4	3	3	4	5	5	3	4	3	3	5	<1
Rubidium (DIS)	mg/L	0.0016	0.001	0.0021	0.0009	0.0011	0.0009	0.0017	0.0006	0.0011	0.0004	0.0013	0.0008	<0.0001
Selenium (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001
Silicon (DIS)	mg/L	3.3	5.2	5.6	10.6	11.2	6.2	7.2	11.5	17.1	12.6	9.3	5.9	<0.1
Silver (DIS)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sodium (DIS)	mg/L	13	12	11	7	11	8	12	6	7	7	9	13	<1
Strontium (DIS)	mg/L	0.51	0.45	0.51	0.09	0.28	0.2	0.43	0.12	0.14	0.16	0.14	0.54	<0.01
Thallium (DIS)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tungsten (DIS)	mg/L	0.0055	<0.0001	0.0005	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Uranium (DIS)	mg/L	0.0106	0.0243	0.0027	0.0009	0.0074	0.0232	0.0227	0.0011	<0.0002	0.001	0.0199	0.0352	<0.0002
Vanadium (DIS)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc (DIS)	mg/L	<0.008	<0.008	0.504	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008

D - Laboratory reporting limit increased
due to sample matrix interference.

Montana Resources June 2022 Groundwater Analysis Summary Report

Station Name	Reporting	MW-12-18	MW-12-12	MW-15-02	DI BLANK	MW-15-01	MW-15-01	MW-15-10	MW-15-11	MW-15-11	MW-15-03	MW-15-04	DI BLANK	RINSATE BLANK
Sample Date	Units	2022/06/14 14:50	2022/06/14 16:35	2022/06/14 16:15	2022/06/14 17:00	2022/06/15 09:40	2022/06/15 10:20	2022/06/15 10:10	2022/06/15 11:55	2022/06/15 12:20	2022/06/15 12:40	2022/06/15 13:35	2022/06/15 15:00	2022/06/15 13:30
FieldSampleId		MR-2206-213	MR-2206-214	MR-2206-215	MR-2206-216	MR-2206-217	MR-2206-218	MR-2206-219	MR-2206-220	MR-2206-221	MR-2206-224	MR-2206-225	MR-2206-226	MR-2206-227
Lab		Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
					Blank		Duplicate			Duplicate			Blank	Blank
Field Parameters														
Depth to Water	Feet	38.9	48.69	66.38		59.85		8.86	156.38		98.2	49.7		
Dissolved Oxygen	mg/L	6.47	0.1	7.19		8.59		6.63	2.94		0.92	5.87		
Field pH	s.u.	6.73	8.18	7.17		7.66		5.93	7.38		7.74	7.13		
Field Specific Conductivity	umhos/cm	454	286	585		225		132	317		374	240		
Oxidation Reduction Potential	Millivolts	31.6	73.7	7.1		106.1		140.9	94.4		-137.7	37.5		
Water Temperature	Deg C	7.7	8.3	8.2		8.4		8.7	9.2		10.2	7.9		
Physical Parameters														
pH	s.u.	6.9	8.1	7.3	6.4	7.6	7.7	6.5	7.7	7.7	7.7	7.4	6.3	6.5
Specific Conductivity	umhos/cm	460	298	593	<5	230	229	138	326	326	382	244	5	<5
Total Dissolved Solids	mg/L	295	174	368	<10	149	149	115	193	200	238	164	<10	<10
Total Suspended Solids	mg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	15	<10	<10	<10
Major Constituents - Commons Ions														
Alkalinity as CaCO3	mg/L	96 D	96 D	160 D	<3	69 D	69 D	42 D	110 D	110 D	110 D	73 D	<3	<3
Bicarbonate as HCO3	mg/L	120 D	120 D	200 D	<3	84 D	83 D	50 D	140 D	140 D	140 D	88 D	<3	<3
Carbonate as CO3	mg/L	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Chloride	mg/L	63	5	76	<1	3	3	<1	1	1	4	2	<1	<1
Fluoride	mg/L	<0.1	0.2	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	18	41	9	<1	32	32	20	46	47	64	40	<1	<1
Nutrients														
Nitrate + Nitrite as N	mg/L	1.19 D	0.01	0.52	<0.01	1.11	1.09 D	0.37	0.18	0.19	1.31 D	0.46	<0.01	<0.01
Phosphorus (TOT)	mg/L	0.07	<0.01	0.04	<0.01	0.11	0.11	<0.01	<0.01	<0.01	0.06	0.04	<0.01	<0.01
Metals - Trace Constituents														
Aluminum (DIS)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.005	<0.005	<0.005
Antimony (DIS)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0005
Arsenic (DIS)	mg/L	0.001	0.008	0.003	<0.001	0.004	0.004	<0.001	<0.001	<0.001	0.006	<0.001	<0.001	<0.001
Boron (DIS)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cadmium (DIS)	mg/L	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Calcium (DIS)	mg/L	50	37	74	<1	25	25	11	41	42	44	23	<1	<1
Chromium (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron (DIS)	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.06	<0.02	<0.02
Lead (DIS)	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Lithium (DIS)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Magnesium (DIS)	mg/L	13	4	15	<1	7	7	2	7	8	13	7	<1	<1
Manganese (DIS)	mg/L	<0.001	0.012	<0.001	<0.001	<0.001	<0.001	0.008	<0.001	<0.001	0.002	0.002	<0.001	<0.001
Mercury (DIS)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (DIS)	mg/L	0.0004 D	0.008 D	0.0006 D	<0.0002	0.0005 D	0.0005 D	<0.0002	0.0024 D	0.0024 D	0.0056 D	0.0009 D	<0.0002	<0.0003
Nickel (DIS)	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Potassium (DIS)	mg/L	5	3	4	<1	3	3	2	2	2	4	4	<1	<1
Rubidium (DIS)	mg/L	0.0005	0.0004	0.0005	<0.0001	0.0005	0.0005	0.0005	0.0009	0.0009	0.0007	0.0009	<0.0001	<0.0001
Selenium (DIS)	mg/L	<0.001	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silicon (DIS)	mg/L	13.1	4.6	10.8	<0.1	12.2	12.2	18.7	8.1	8.2	9.8	14.8	<0.1	<0.1
Silver (DIS)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sodium (DIS)	mg/L	9	11	9	<1	6	6	10	9	9	8	10	<1	<1
Strontium (DIS)	mg/L	0.19	0.32	0.25	<0.01	0.12	0.12	0.08	0.14	0.15	0.31	0.14	<0.01	<0.01
Thallium (DIS)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tungsten (DIS)	mg/L	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Uranium (DIS)	mg/L	0.0021	0.0842	0.0046	<0.0002	0.0015	0.0015	0.0011	0.0187	0.0186	0.0176	0.0026	<0.0002	<0.0002
Vanadium (DIS)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc (DIS)	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008

D - Laboratory reporting limit increased
due to sample matrix interference.

Montana Resources June 2022 Groundwater Analysis Summary Report

Station Name	Reporting Units	MW-12-16	MW-16-02S
Sample Date		2022/06/15 15:15	2022/06/15 16:45
FieldSampleId		MR-2206-228	MR-2206-229
Lab		Energy Labs	Energy Labs
Field Parameters			
Depth to Water	Feet	93.11	55.55
Dissolved Oxygen	mg/L	6.39	0.94
Field pH	s.u.	7.35	7.89
Field Specific Conductivity	umhos/cm	359	566
Oxidation Reduction Potential	Millivolts	98.2	82
Water Temperature	Deg C	8.9	8.3
Physical Parameters			
pH	s.u.	7.5	8.0
Specific Conductivity	umhos/cm	368	576
Total Dissolved Solids	mg/L	232	382
Total Suspended Solids	mg/L	<10	<10
Major Constituents - Commons Ions			
Alkalinity as CaCO3	mg/L	86 D	130 D
Bicarbonate as HCO3	mg/L	100 D	150 D
Carbonate as CO3	mg/L	<4	<4
Chloride	mg/L	13	6
Fluoride	mg/L	0.1	0.1
Sulfate	mg/L	65	128
Nutrients			
Nitrate + Nitrite as N	mg/L	1.49 D	5.5 D
Phosphorus (TOT)	mg/L	0.05	0.69
Metals - Trace Constituents			
Aluminum (DIS)	mg/L	<0.005	0.018
Antimony (DIS)	mg/L	<0.0005	0.0006
Arsenic (DIS)	mg/L	0.003	0.076
Boron (DIS)	mg/L	<0.05	<0.05
Cadmium (DIS)	mg/L	<0.00003	<0.00003
Calcium (DIS)	mg/L	36	52
Chromium (DIS)	mg/L	<0.001	<0.001
Copper (DIS)	mg/L	<0.001	0.002
Iron (DIS)	mg/L	<0.02	<0.02
Lead (DIS)	mg/L	<0.0003	<0.0003
Lithium (DIS)	mg/L	<0.1	<0.1
Magnesium (DIS)	mg/L	13	14
Manganese (DIS)	mg/L	<0.001	<0.001
Mercury (DIS)	mg/L	<0.0001	<0.0001
Molybdenum (DIS)	mg/L	0.0024 D	0.0049 D
Nickel (DIS)	mg/L	<0.002	<0.002
Potassium (DIS)	mg/L	5	6
Rubidium (DIS)	mg/L	0.0008	0.001
Selenium (DIS)	mg/L	<0.001	<0.001
Silicon (DIS)	mg/L	11.1	11.3
Silver (DIS)	mg/L	<0.0002	<0.0002
Sodium (DIS)	mg/L	9	37
Strontium (DIS)	mg/L	0.21	0.28
Thallium (DIS)	mg/L	<0.0002	<0.0002
Tungsten (DIS)	mg/L	<0.0001	0.0011
Uranium (DIS)	mg/L	0.0071	0.0132
Vanadium (DIS)	mg/L	<0.01	<0.01
Zinc (DIS)	mg/L	<0.008	<0.008

D - Laboratory reporting limit increased due to sample matrix interference.

Montana Resources October 2022 Groundwater Analysis Summary Report

Station Name	Reporting Units	MW-16-02S	MW-16-02D	MW-15-06	MW-16-01	MW-12-15	MW-15-05	MW-12-18	MW-15-02	MW-15-01	MW-15-03	MW-15-03	MW-15-04
Sample Date		2022/10/24 12:50	2022/10/24 13:55	2022/10/24 14:50	2022/10/24 15:55	2022/10/25 13:00	2022/10/25 14:25	2022/10/25 15:40	2022/10/26 09:35	2022/10/26 11:30	2022/10/26 14:25	2022/10/26 14:50	2022/10/26 15:30
FieldSampleId		MR-2210-200	MR-2210-201	MR-2210-202	MR-2210-203	MR-2210-204	MR-2210-205	MR-2210-206	MR-2210-207	MR-2210-208	MR-2210-209	MR-2210-210	MR-2210-211
Lab		Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
												Duplicate	
Field Parameters													
Depth to Water	Feet	56.82	94.2	41.23	97.54	33.5	35.62	39.4	67.83	60.94	98.1		49.05
Dissolved Oxygen	mg/L	0.99	4.55	0.24	1.06	3.56	2.76	6.68	6.62	8.32	1.98		4.31
Field pH	s.u.	8.02	7.68	8.38	8.01	7.63	8.21	6.97	7.3	7.82	7.74		7.24
Field Specific Conductivity	umhos/cm	578	280	316	260	722	300	327	586	226	274		237
Oxidation Reduction Potential	Millivolts	155.7	76.8	-79.5	3.8	13.6	13.8	39.2	16	30.9	5.7		24.4
Water Temperature	Deg C	8.1	7	7	6.6	7.7	8.3	7.8	8.2	8.3	9.9		7.7
Physical Parameters													
pH	s.u.	8.0	7.6	8.2	7.9	7.6	8.0	6.9	7.3	7.7	7.6	7.6	7.2
Specific Conductivity	umhos/cm	551	215	307	253	687	292	315	566	220	268	266	231
Total Dissolved Solids	mg/L	388	125	175	147	460	176	201	378	154	177	174	163
Total Suspended Solids	mg/L	<10	<10	20	<10	12	15	<10	<10	<10	25	26	<10
Major Constituents - Commons Ions													
Alkalinity as CaCO3	mg/L	120	54	150	46	150	110	80	160	67	79	80	72
Bicarbonate as HCO3	mg/L	150	66	180	55	190	130	97	200	81	96	98	87
Carbonate as CO3	mg/L	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Chloride	mg/L	6	4	5	6	23	4	38	80	3	3	3	2
Fluoride	mg/L	0.1	0.2	0.2	0.5	<0.1	0.2	<0.1	<0.1	0.1	0.1	0.1	<0.1
Sulfate	mg/L	137	45	8	66	170	42	22	10	35	49	49	42
Nutrients													
Nitrate + Nitrite as N	mg/L	5.47	0.04	<0.01	<0.01	4.91	0.24	0.66	0.47	1.05	0.74	0.75	0.46
Phosphorus (TOT)	mg/L	0.62	0.13	0.04	0.06	0.05	0.11	0.1	0.04	0.11	0.17	0.17	0.04
Metals - Trace Constituents													
Aluminum (DIS)	mg/L	<0.005 J	<0.005 J	<0.005 J	0.005 J	<0.005 J	0.007 J	<0.005 J	<0.005 J	<0.005 J	0.025 J	0.014 J	0.01 J
Antimony (DIS)	mg/L	0.0005	<0.0005	<0.0005	0.0009	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	0.0006	0.0006	0.0007
Arsenic (DIS)	mg/L	0.068	0.009	0.014	0.075	0.006	0.007	0.002	0.004	0.005	0.008	0.008	0.001
Boron (DIS)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cadmium (DIS)	mg/L	0.00012	0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Calcium (DIS)	mg/L	55	22	45	29	99	36	35	74	25	30	30	22
Chromium (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper (DIS)	mg/L	0.002	0.003	<0.001	<0.001	0.003	0.003	0.001	<0.001	<0.001	0.001	0.001	<0.001
Iron (DIS)	mg/L	<0.02	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.04	0.03
Lead (DIS)	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Lithium (DIS)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Magnesium (DIS)	mg/L	16	4	4	3	21	8	9	16	7	9	9	8
Manganese (DIS)	mg/L	<0.001	0.016	0.036	0.025	0.003	0.007	0.001	<0.001	<0.001	0.009	0.009	0.001
Mercury (DIS)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (DIS)	mg/L	0.0043	0.0029	0.0097	0.0159	0.0036	0.0083	0.0006	0.0006	0.0005	0.0062	0.0064	0.0009
Nickel (DIS)	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Potassium (DIS)	mg/L	6	3	4	4	6	4	4	5	3	4	4	4
Rubidium (DIS)	mg/L	0.001	0.0018	0.0009	0.0015	0.0018	0.0009	0.0006	0.0005	0.0005	0.0008	0.0008	0.0009
Selenium (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silicon (DIS)	mg/L	11.8	7.3	5.3	3.4	7.3	6.6	12.6	10.8	12.4	9.7	9.7	14.9
Silver (DIS)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sodium (DIS)	mg/L	36	11	12	13	13	11	9	9	6	8	9	11
Strontium (DIS)	mg/L	0.32	0.23	0.48	0.53	0.47	0.31	0.15	0.27	0.12	0.21	0.21	0.15
Thallium (DIS)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tungsten (DIS)	mg/L	0.001	0.0006	<0.0001	0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Uranium (DIS)	mg/L	0.0138	0.002	0.0266	0.0114	0.0237	0.014	0.0011	0.0047	0.0017	0.009	0.0093	0.0021
Vanadium (DIS)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc (DIS)	mg/L	<0.008	0.128	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008

D - Laboratory reporting limit increased
due to sample matrix interference.

J - Field duplicate QC sample RPD exceedance.

Montana Resources October 2022 Groundwater Analysis Summary Report

Station Name	Reporting Units	DI BLANK	MW-12-13	MW-12-17	MW-12-14	MW-15-07	MW-15-08	MW-12-11	MW-15-09	MW-15-09	RINSATE BLANK	DI BLANK	MW-12-12	MW-12-16
Sample Date		2022/10/26 16:45	2022/10/25 10:20	2022/10/25 11:20	2022/10/25 12:05	2022/10/25 13:15	2022/10/25 14:05	2022/10/25 14:50	2022/10/25 09:25	2022/10/25 10:00	2022/10/25 15:45	2022/10/25 16:30	2022/10/26 10:30	2022/10/26 13:05
FieldSampleId		MR-2210-212	MR-2210-220	MR-2210-221	MR-2210-222	MR-2210-223	MR-2210-224	MR-2210-225	MR-2210-226	MR-2210-227	MR-2210-228	MR-2210-229	MR-2210-230	MR-2210-231
Lab		Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
		Blank								Duplicate	Blank	Blank		
Field Parameters														
Depth to Water	Feet		31.85	43.23	43.65	63.85	60.76	59.52	38.62	38.62			49.14	92.84
Dissolved Oxygen	mg/L		0.64	2.57	7.37	8.99	7.53	5.12	0.93	0.93			0.06	7.69
Field pH	s.u.		7.11	8.3	7.47	7.17	6.52	7.63	6.87	6.87			8.4	7.55
Field Specific Conductivity	umhos/cm		412	295	223	248	227	323	199	200			294	234
Oxidation Reduction Potential	Millivolts		179.1	170.6	190.8	175.8	195	177.4	173.2	173.3			192.3	153.4
Water Temperature	Deg C		8.2	8.1	7.8	8.3	7.7	8.1	7.7	7.7			8.3	8.9
Physical Parameters														
pH	s.u.	5.8	7.2	8.2	7.5	7.3	6.6	7.6	7.0	7.0	6.1	5.7	8.2	7.5
Specific Conductivity	umhos/cm	<5	392	282	214	238	212	309	192	192	5	5	283	213
Total Dissolved Solids	mg/L	<20	258	176	137	156	163	198	128	126	<20	<20	173	143
Total Suspended Solids	mg/L	<10	<10	<10	<10	31	17	<10	<10	<10	<10	<10	<10	<10
Major Constituents - Commons Ions														
Alkalinity as CaCO3	mg/L	<3	120	96	87	77	56	79	57	57	<3	<3	96	50
Bicarbonate as HCO3	mg/L	<3	150	120	110	93	68	96	69	69	<3	<3	120	60
Carbonate as CO3	mg/L	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Chloride	mg/L	<1	22	5	11	22	28	30	1	1	<1	<1	5	8
Fluoride	mg/L	<0.1	<0.1	0.2	<0.1	0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	0.2	0.1
Sulfate	mg/L	<1	49	43	5	9	8	30	37	37	<1	<1	42	41
Nutrients														
Nitrate + Nitrite as N	mg/L	<0.01	0.45	0.1	0.78	0.35	0.33	0.34	0.25	0.25	<0.01	<0.01	0.01	0.46
Phosphorus (TOT)	mg/L	<0.01	0.03	0.1	0.05	0.1	0.32	0.17	0.03	0.03	<0.01	<0.01	<0.01	0.15
Metals - Trace Constituents														
Aluminum (DIS)	mg/L	<0.005	<0.005 J	0.005 J	<0.005 J	0.006 J	<0.005 J	<0.005 J	<0.005 J	<0.005 J	<0.005	<0.005	<0.005 J	<0.005 J
Antimony (DIS)	mg/L	<0.0005	0.0014	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (DIS)	mg/L	<0.001	0.005	0.011	0.002	0.001	0.001	0.008	0.003	0.003	<0.001	<0.001	0.009	0.004
Boron (DIS)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cadmium (DIS)	mg/L	<0.00003	0.00013	0.00004	0.00005	0.00007	0.0001	0.00007	0.0002	0.00018	<0.00003	<0.00003	<0.00003	0.00005
Calcium (DIS)	mg/L	<1	50	33	25	26	21	35	17	16	<1	<1	38	21
Chromium (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Iron (DIS)	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Lead (DIS)	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Lithium (DIS)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Magnesium (DIS)	mg/L	<1	10	9	6	8	7	9	8	8	<1	<1	5	7
Manganese (DIS)	mg/L	<0.001	0.003	0.005	<0.001	<0.001	0.01	<0.001	0.009	0.009	<0.001	<0.001	0.015	0.002
Mercury (DIS)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (DIS)	mg/L	<0.0003	0.0021	0.0049	0.0002	0.0004	0.0005	0.0029	0.0015	0.0015	<0.0003	<0.0003	0.0084	0.0033
Nickel (DIS)	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Potassium (DIS)	mg/L	<1	5	4	3	3	4	3	3	3	<1	<1	4	3
Rubidium (DIS)	mg/L	<0.0001	0.0011	0.0014	0.0006	0.0003	0.0011	0.0012	0.0009	0.0009	<0.0001	<0.0001	0.0004	0.0006
Selenium (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	<0.001
Silicon (DIS)	mg/L	<0.1	11.8	5.7	11.5	12.8	16.8	10	10.8	10.8	<0.1	<0.1	4.8	10.9
Silver (DIS)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sodium (DIS)	mg/L	<1	11	9	7	8	7	10	7	7	<1	<1	12	9
Strontium (DIS)	mg/L	<0.01	0.29	0.16	0.13	0.17	0.15	0.14	0.09	0.09	<0.01	<0.01	0.35	0.12
Thallium (DIS)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tungsten (DIS)	mg/L	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001
Uranium (DIS)	mg/L	<0.0002	0.0071	0.02	0.0012	0.0011	<0.0002	0.0144	0.001	0.001	<0.0002	<0.0002	0.091	0.0013
Vanadium (DIS)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc (DIS)	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008

D - Laboratory reporting limit increased
due to sample matrix interference.

J - Field duplicate QC sample RPD exceedance.

Montana Resources October 2022 Groundwater Analysis Summary Report

Station Name	Reporting Units	MW-15-10	MW-15-11	MW-15-11	RINSATE BLANK
Sample Date		2022/10/26 15:20	2022/10/26 16:50	2022/10/26 17:30	2022/10/27 08:45
FieldSampleId		MR-2210-232	MR-2210-233	MR-2210-234	MR-2210-235
Lab		Energy Labs	Energy Labs	Energy Labs	Energy Labs
				Duplicate	Blank
Field Parameters					
Depth to Water	Feet	11.3	156.94	156.94	
Dissolved Oxygen	mg/L	7.39	3.47	3.46	
Field pH	s.u.	6.33	7.77	7.77	
Field Specific Conductivity	umhos/cm	133	325	324	
Oxidation Reduction Potential	Millivolts	202.3	170.4	100.3	
Water Temperature	Deg C	8.3	9.2	9.2	
Physical Parameters					
pH	s.u.	6.4	7.8	7.8	6.4
Specific Conductivity	umhos/cm	129	309	306	6
Total Dissolved Solids	mg/L	109	202	196	<20
Total Suspended Solids	mg/L	<10	<10	<10	<10
Major Constituents - Commons Ions					
Alkalinity as CaCO3	mg/L	40	110	110	<3
Bicarbonate as HCO3	mg/L	49	130	130	<3
Carbonate as CO3	mg/L	<4	<4	<4	<4
Chloride	mg/L	<1	1	1	<1
Fluoride	mg/L	<0.1	0.1	0.1	<0.1
Sulfate	mg/L	21	49	49	<1
Nutrients					
Nitrate + Nitrite as N	mg/L	0.37	0.17	0.17	<0.01
Phosphorus (TOT)	mg/L	<0.01	<0.01	<0.01	<0.01
Metals - Trace Constituents					
Aluminum (DIS)	mg/L	<0.005 J	0.029 J	<0.005 J	<0.005
Antimony (DIS)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001
Boron (DIS)	mg/L	<0.05	<0.05	<0.05	<0.05
Cadmium (DIS)	mg/L	0.00027	<0.00003	0.00003	<0.00003
Calcium (DIS)	mg/L	11	41	41	<1
Chromium (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001
Copper (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001
Iron (DIS)	mg/L	<0.02	<0.02	<0.02	<0.02
Lead (DIS)	mg/L	<0.0003	<0.0003	<0.0003	<0.0003
Lithium (DIS)	mg/L	<0.1	<0.1	<0.1	<0.1
Magnesium (DIS)	mg/L	3	8	8	<1
Manganese (DIS)	mg/L	0.008	<0.001	<0.001	<0.001
Mercury (DIS)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum (DIS)	mg/L	<0.0003	0.0024	0.0023	<0.0003
Nickel (DIS)	mg/L	<0.002	<0.002	<0.002	<0.002
Potassium (DIS)	mg/L	2	2	2	<1
Rubidium (DIS)	mg/L	0.0005	0.001	0.0009	<0.0001
Selenium (DIS)	mg/L	<0.001	<0.001	<0.001	<0.001
Silicon (DIS)	mg/L	19.4	8.5	8.5	<0.1
Silver (DIS)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Sodium (DIS)	mg/L	10	10	10	<1
Strontium (DIS)	mg/L	0.08	0.16	0.16	<0.01
Thallium (DIS)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Tungsten (DIS)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Uranium (DIS)	mg/L	0.0014	0.0204	0.02	<0.0002
Vanadium (DIS)	mg/L	<0.01	<0.01	<0.01	<0.01
Zinc (DIS)	mg/L	<0.008	<0.008	<0.008	<0.008

D - Laboratory reporting limit increased due to sample matrix interference.

J - Field duplicate QC sample RPD exceedance.

Montana Resources June 2022 Surface Water Analysis Summary Report

Station Name	Reporting	WQ-15	WQ-10	WQ-9A	WQ-2	WQ-5	WQ-8A	WQ-7	WQ-7	WQ-6	WQ-18	WQ-19	Extraction Pond
Sample Date	Units	2022/06/16 09:40	2022/06/16 10:15	2022/06/16 11:05	2022/06/16 12:10	2022/06/16 13:00	2022/06/16 14:05	2022/06/16 14:45	2022/06/16 15:00	2022/06/16 15:10	2022/06/16 15:25	2022/06/16 16:00	2022/06/16 16:30
FieldSample Id		MR-2206-100	MR-2206-101	MR-2206-102	MR-2206-103	MR-2206-104	MR-2206-105	MR-2206-106	MR-2206-107	MR-2206-108	MR-2206-109	MR-2206-110	MR-2206-111
Lab		Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
		DC-1	SBC-1	YDTI-NE					Duplicate			Seep 10	
Field Parameters													
Dissolved Oxygen	mg/L	8.63	8.13	4.28	9	7.89	5.23	4.8		1.3	5.58	5.11	2.04
Field pH	s.u.	7.02	7.76	9.62	8.02	8.04	3.61	3.28		5.85	11.35	2.98	3.24
Field Specific Conductivity	umhos/cm	217	131	3,088	504	109.2	2,724	1,612		1,831	2,717	3,918	2,956
Flow	gpm	46	87	Ponded	100	42	Ponded	61		No Access	Ponded	97	No Access
Oxidation Reduction Potential	Millivolts												
Water Temperature	Deg C	7.2	8.2	11.5	6.7	10.2	15.9	13.9		11.4	16.7	19.8	7.8
Physical Parameters													
pH	s.u.	8.0	8.0	9.8	6.9	7.3	3.5	3.3	3.3	7.3	11.5	2.9	3.4
Specific Conductivity	umhos/cm	224	239	3,110	514	113	2,770	1,640	1,640	1,860	2,860	3,980	2,990
Total Dissolved Solids	mg/L	146	152	3,060	373	94	2,720	1,370	1,370	1,590	2,420	3,970	2,820
Total Suspended Solids	mg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	32	<10	<10
Major Constituents - Commons Ions													
Alkalinity as CaCO3	mg/L	92	100	32	26	16	<3	<3	<3	150	140	<3	<3
Bicarbonate as HCO3	mg/L	110	130	25	31	19	<3	<3	<3	180	<3	<3	<3
Carbonate as CO3	mg/L	<3	<3	7	<3	<3	<3	<3	<3	<3	47	<3	<3
Chloride	mg/L	<1	<1	16	10	1	8	11	11	13	18	16	28
Fluoride	mg/L	0.1	0.1	2.5	0.5	0.1	2.7	2.2	2.2	1.8	1.9	0.3	0.8
Sulfate	mg/L	21	18	1,940	197	30	1,750	846	850	936	1,490	2,710	1,870
Total Acidity as CaCO3	mg/L						260	190	180			820	270
Nutrients													
Nitrate + Nitrite as N	mg/L	<0.01	<0.01	0.57	0.18	<0.01	0.14	0.23	0.23	0.53	0.85	<0.01	0.17
Phosphorus (TOT)	mg/L	0.02	0.01	0.03	0.04	0.01	0.01	0.01	0.02	<0.01	0.02	0.07	0.01
Metals - Trace Constituents													
Aluminum (DIS)	mg/L	<0.005	<0.005	0.087	0.039	0.048	21.8	11.4	11.3	<0.03	0.06	70.7	25.6
Antimony (TRC)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	<0.0005	<0.0005	0.0026	<0.0005	<0.0005	<0.0005
Arsenic (TRC)	mg/L	0.006	0.002	0.002	<0.001	0.001	0.001	<0.001	<0.001	0.002	0.001	0.013	<0.001
Boron (TRC)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cadmium (TRC)	mg/L	<0.00003	<0.00003	0.0002	0.0015	0.00069	0.532	0.1	0.1	0.00242	0.0022	0.342	0.19
Calcium (TRC)	mg/L	29	31	716	60	10	463	169	167	364	578	462	451
Chromium (TRC)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.012	0.002
Copper (TRC)	mg/L	0.004	0.002	0.012	0.089	0.034	33.1	36.5	36.2	0.134	0.314	28.4	24.8
Iron (TRC)	mg/L	0.16	0.14	0.11	<0.02	0.11	3.66	5.11	5.08	<0.02	0.68	36.1	3.89
Lead (TRC)	mg/L	<0.0003	<0.0003	0.0006	<0.0003	0.0003	0.0029	0.0193	0.0191	0.0003	0.0025	<0.0003	0.0043
Lithium (TRC)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Magnesium (TRC)	mg/L	6	7	17	16	3	81	56	55	29	2	110	83
Manganese (TRC)	mg/L	0.036	0.018	0.05	0.01	0.011	16.8	9.67	9.57	1.82	0.275	42.4	16.7
Mercury (TRC)	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (TRC)	mg/L	0.0018	0.0021	1.06	0.216	0.0015	0.0173	0.0045	0.0045	0.512	0.856	0.0072	0.0002
Nickel (TRC)	mg/L	<0.002	<0.002	<0.002	0.002	<0.002	0.113	0.067	0.067	0.009	<0.002	0.164	0.094
Potassium (TRC)	mg/L	2	3	40	3	1	8	6	6	10	35	14	19
Rubidium (TRC)	mg/L	0.0006	0.0016	0.06	0.0036	0.0013	0.0372	0.0237	0.0233	0.026	0.0578	0.0199	0.0413
Selenium (TRC)	mg/L	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	0.002	0.002	0.002	0.005	0.001	<0.001
Silicon (TRC)	mg/L	11.4	9.5	2.3	14.5	11.9	13	22.7	22.6	7.2	5.6	18.4	16
Silver (TRC)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sodium (TRC)	mg/L	7	6	108	13	5	39	22	22	36	82	92	84
Strontium (TRC)	mg/L	0.17	0.21	3.38	0.34	0.07	2.97	0.74	0.75	1.75	2.48	1.25	1.84
Thallium (TRC)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004
Tungsten (TRC)	mg/L	<0.0001	<0.0001	0.0184	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0007	0.0092	<0.0001	<0.0001
Uranium (TRC)	mg/L	0.006	0.0034	0.0054	0.0003	<0.0002	0.166	0.0409	0.0414	0.208	0.005	0.167	0.0372
Vanadium (TRC)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Zinc (TRC)	mg/L	<0.008	<0.008	<0.008	0.424	0.201	25.5	12.4	12.4	0.313	0.313	109	28

D - Laboratory reporting limit increased
due to sample matrix interference.

Montana Resources June 2022 Surface Water Analysis Summary Report

Station Name	Reporting	WQ-11	BRCD-2	BRCD-6	OFGD-1	OFGD-4	BRCD-4	BRCD-5	OFGD-3	BLANK	WQ-1	WQ-1
Sample Date	Units	2022/06/16 09:55	2022/06/16 10:30	2022/06/16 10:50	2022/06/16 11:10	2022/06/16 11:30	2022/06/16 12:00	2022/06/16 12:15	2022/06/16 13:00	2022/06/16 13:45	2022/06/16 14:30	2022/06/16 15:00
FieldSample Id		MR-2206-120	MR-2206-121	MR-2206-122	MR-2206-123	MR-2206-124	MR-2206-125	MR-2206-126	MR-2206-127	MR-2206-128	MR-2206-129	MR-2206-130
Lab		Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
		YDC-1								Blank		Duplicate
Field Parameters												
Dissolved Oxygen	mg/L	10.08	10.4	4.41	6.99	6.31	8.61	6.94	9.88		9.18	9.18
Field pH	s.u.	7.41	7.54	7.34	7.37	7.5	7.82	7.77	7.82		7.36	7.36
Field Specific Conductivity	umhos/cm	159	252	783	907	683	345	393	635		519	519
Flow	gpm		31.0	0.5	0.2	1.00	70.0	0.3	54		63	63
Oxidation Reduction Potential	Millivolts	197	74	180	162	29	103	89	113		91	91
Water Temperature	Deg C	8.8	7.3	8.3	10.5	10	13.7	17.7	10		11.8	11.8
Physical Parameters												
pH	s.u.	7.6	7.6	6.9	7.2	6.8	7.8	7.7	7.9	7.1	7.4	7.5
Specific Conductivity	umhos/cm	159	254	782	908	677	348	171	680	6	523	525
Total Dissolved Solids	mg/L	125	184	557	672	463	238	143	460	<10	367	364
Total Suspended Solids	mg/L	<10	<10	19	66	<10	<10	21	<10	<10	<10	<10
Major Constituents - Commons Ions												
Alkalinity as CaCO3	mg/L	43	52	74	97	62	76	55	160	<3	54	54
Bicarbonate as HCO3	mg/L	52	62	89	120	75	93	67	200	<3	65	65
Carbonate as CO3	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Chloride	mg/L	7	10	39	9	30	9	5	23	<1	14	14
Fluoride	mg/L	<0.1	<0.1	0.2	0.2	0.2	0.2	0.2	0.4	<0.1	0.2	0.2
Sulfate	mg/L	16	47	242	357	214	74	18	149	<1	170	172
Total Acidity as CaCO3	mg/L											
Nutrients												
Nitrate + Nitrite as N	mg/L	<0.01	0.75	<0.01	<0.01	0.06	<0.01	0.11	<0.01	<0.01	0.02	0.03
Phosphorus (TOT)	mg/L	0.06	0.22	0.18	0.3	0.07	0.13	0.06	0.1	<0.01	0.02	0.01
Metals - Trace Constituents												
Aluminum (DIS)	mg/L	0.054	0.026	<0.005	<0.005	0.02	0.006	0.018	<0.005	<0.005	0.064	0.066
Antimony (TRC)	mg/L	<0.0005	<0.0005	0.0017	0.0007	0.001	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (TRC)	mg/L	0.006	0.016	0.045	0.019	0.009	0.028	0.006	0.011	<0.001	0.001	0.001
Boron (TRC)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cadmium (TRC)	mg/L	<0.00003	<0.00003	0.00019	0.00013	0.00014	<0.00003	0.00004	<0.00003	<0.00003	0.00179	0.00173
Calcium (TRC)	mg/L	17	25	94	130	81	40	16	89	<1	64	64
Chromium (TRC)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001
Copper (TRC)	mg/L	0.005	0.003	0.009	0.003	0.005	0.005	0.004	<0.001	<0.001	0.11	0.102
Iron (TRC)	mg/L	0.64	0.2	0.42	5.52	0.95	0.57	0.67	0.03	<0.02	0.46	0.33
Lead (TRC)	mg/L	0.0004	0.0004	0.001	0.0008	0.0011	0.0009	0.0015	<0.0003	<0.0003	0.0014	0.001
Lithium (TRC)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Magnesium (TRC)	mg/L	4	7	22	28	17	9	5	19	<1	15	15
Manganese (TRC)	mg/L	0.023	0.026	0.205	6.14	0.952	0.105	0.021	0.059	<0.001	0.161	0.133
Mercury (TRC)	mg/L	<0.00001	<0.00001	0.00001	0.00001	0.00003	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (TRC)	mg/L	0.0009	0.0011	0.0034	0.0021	0.0025	0.0037	0.0013	0.004	<0.0002	0.0009	0.0009
Nickel (TRC)	mg/L	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Potassium (TRC)	mg/L	2	4	9	6	6	5	3	6	<1	3	3
Rubidium (TRC)	mg/L	0.0009	0.0014	0.0018	0.0013	0.0024	0.0024	0.0041	0.001	<0.0001	0.0021	0.0021
Selenium (TRC)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silicon (TRC)	mg/L	14.2	18.7	16.4	12.4	14.1	16.4	27.2	14.2	<0.1	15.2	15.2
Silver (TRC)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sodium (TRC)	mg/L	6	9	26	19	25	11	9	22	<1	14	14
Strontium (TRC)	mg/L	0.09	0.16	0.64	0.75	0.67	0.23	0.15	0.74	<0.01	0.43	0.44
Thallium (TRC)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tungsten (TRC)	mg/L	0.0004	<0.0001	0.0004	0.0006	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Uranium (TRC)	mg/L	0.0007	0.0009	0.0005	0.0027	0.0012	0.0018	0.0003	0.003	<0.0002	0.0017	0.0017
Vanadium (TRC)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc (TRC)	mg/L	<0.008	<0.008	0.021	0.028	0.028	<0.008	<0.008	<0.008	<0.008	0.398	0.407

D - Laboratory reporting limit increased
due to sample matrix interference.

Montana Resources October 2022 Surface Water Analysis Summary Report

Station Name	Reporting Units	WQ-15 (DC-1)	WQ-10 (SBC-1)	WQ-9A (YDTI-NE)	Extraction Pond	Extraction Pond	WQ-19	WQ-7	WQ-8A	WQ-2	WQ-18	DI Blank	WQ-5	WQ-11
Sample Date		2022/10/25 09:45	2022/10/25 10:25	2022/10/25 10:45	2022/10/25 11:30	2022/10/25 11:40	2022/10/25 12:00	2022/10/25 13:00	2022/10/25 13:25	2022/10/25 14:00	2022/10/25 14:40	2022/10/25 16:00	2022/10/25 00:00	2022/10/27 10:00
FieldSampleId		MR-2210-100	MR-2210-101	MR-2210-102	MR-2210-103	MR-2210-104	MR-2210-105	MR-2210-106	MR-2210-107	MR-2210-108	MR-2210-109	MR-2210-111	MR-2210-112	MR-2210-120
Lab		Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Hydro	Energy Labs
						Duplicate	Seep 10	Pavilon Seep	Cont Pit North	Woodville West		Blank	Clearwater Ditch	YDC-1
Field Parameters														
Staff Gauge	Feet													0.25
Depth to Water	Feet													
Dissolved Oxygen	mg/L	11.32	9.58	5.41	3.45		6.97	9.41	8.93	9.35	8.8			11.54
Field pH	s.u.	8.2	8.05	11.21	3.44		3.03	3.2	4.5	6.53	12.2			8.16
Field Specific Conductivity	umhos/cm	246.2	257	3,007	3,069		3,791	943	2,524	535	3,511			193
Flow	gpm	6.6	20	Ponded	No Meas		125	51	Ponded	25	Ponded		Dry	148
Oxidation Reduction Potential	Millivolts													1.3
Water Temperature	Deg C	3.1	2.9	11	8		8.4	5.9	9	7.6	12.1			0.3
Physical Parameters														
pH	s.u.	8	8	10.7	3.5	3.5	3	3.2	4.4	6.6	11.7	7.4		7.9
Specific Conductivity	umhos/cm	259	269	3,030	3,080	3,080	3,780	2,300	2,540	553	3,370	9		190
Total Dissolved Solids	mg/L	158	158	2,890	2,880	2,960	3,840	2,110	2,510	417	2,640	<20		140
Total Suspended Solids	mg/L	<10	<10	15	<10	<10	<10	<10	<10	<10	21	<10		<10
Major Constituents - Commons Ions														
Alkalinity as CaCO3	mg/L	100	120	58	<3	<3	<3	<3	<3	22	290	4		72
Bicarbonate as HCO3	mg/L	120	140	<3	<3	<3	<3	<3	<3	26	<3	4		87
Carbonate as CO3	mg/L	<3	<3	34	<3	<3	<3	<3	<3	<3	47	<3		<3
Chloride	mg/L	1	1	20	65	64	17	7	9	9	17	<1		5
Fluoride	mg/L	0.1	0.1	2.00	0.7	0.6	0.3	2.8	2.7	0.4	2.4	<0.1		0.1
Sulfate	mg/L	29	19	1,980	2,070	2,060	2,840	1,520	1,810	247	1,690	<1		13
Total Acidity as CaCO3	mg/L				310	300	810	380	150					
Nutrients														
Nitrate + Nitrite as N	mg/L	<0.03	<0.03	0.19	<0.03	<0.03	<0.03	<0.03	<0.03	0.21	0.59	<0.03		<0.01
Phosphorus (TOT)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05	<0.05	<0.05	<0.05	<0.05		0.09
Metals - Trace Constituents														
Aluminum (DIS)	mg/L	0.006	<0.005	0.034	26	24.9	78.3	29	14.4	<0.005	0.052	<0.005		0.007
Antimony (TRC)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		<0.0005
Arsenic (TRC)	mg/L	0.004	0.002	0.002	0.002	0.002	0.014	0.002	0.001	<0.001	0.002	<0.001		0.009
Boron (TRC)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1
Cadmium (TRC)	mg/L	<0.00003	<0.00003	0.00012	0.259	0.257	0.361	0.265	0.35	0.0023	0.00027	<0.00003		<0.00003
Calcium (TRC)	mg/L	32	33	659	460	459	429	246	463	62	643	<1		24
Chromium (TRC)	mg/L	0.002	<0.001	<0.001	0.002	0.002	0.014	0.002	<0.001	<0.001	<0.001	<0.001		<0.001
Copper (TRC)	mg/L	0.001	0.001	0.006	29.1	28.9	26.9	49.8	22.8	0.034	0.084	<0.001		0.002
Iron (TRC)	mg/L	0.06	0.07	0.14	12.3	12.3	44.8	21.5	1.22	0.04	0.3	<0.02		0.66
Iron, Ferrous (DIS)	mg/L			<0.02	9.56	9.27								
Lead (TRC)	mg/L	<0.0003	<0.0003	0.0005	0.0056	0.0055	<0.0003	0.0277	0.0021	<0.0003	0.0064	<0.0003		<0.0003
Lithium (TRC)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1
Magnesium (TRC)	mg/L	7	8	2	84	83	112	84	64	17	<1	<1		5
Manganese (TRC)	mg/L	0.016	0.009	0.004	17.5	17.4	37.9	18.6	11.1	<0.001	0.019	<0.001		0.02
Mercury (TRC)	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001
Molybdenum (TRC)	mg/L	0.0025 J	0.0019 J	1.1 J	0.0016 J	0.0003 J	0.0092 J	0.0035 J	0.063 J	0.161 J	0.974 J	<0.0002		0.0011
Nickel (TRC)	mg/L	<0.002	<0.002	<0.002	0.104	0.105	0.183	0.124	0.079	0.003	<0.002	<0.002		<0.002
Potassium (TRC)	mg/L	3	4	41	21	21	15	7	8	4	41	<1		2
Rubidium (TRC)	mg/L	0.0008	0.002	0.0709	0.0454	0.0455	0.0178	0.0442	0.0335	0.0045	0.089	<0.0001		0.0004
Selenium (TRC)	mg/L	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.004	<0.001		<0.001
Silicon (TRC)	mg/L	10.4	9.2	5.4	17.3	17.5	17.6	28.2	11.6	15.3	5.3	<0.1		12.9
Silver (TRC)	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002		<0.0002
Sodium (TRC)	mg/L	9	7	109	84	83	93	27	42	14	91	<1		7
Strontium (TRC)	mg/L	0.23	0.23	2.86	1.85	1.84	1.24	0.91	3.03	0.38	2.28	<0.01		0.13
Thallium (TRC)	mg/L	<0.0002	<0.0002	<0.0002	0.0004	0.0004	<0.0002	0.0003	0.0002	<0.0002	<0.0002	<0.0002		<0.0002
Tungsten (TRC)	mg/L	<0.0001	<0.0001	0.0152	0.0001	<0.0001	0.0004	<0.0001	0.0001	<0.0001	0.01	<0.0001		<0.0001
Uranium (TRC)	mg/L	0.0116	0.0047	<0.0002	0.0562	0.0553	0.152	0.0809	0.162	0.0003	0.0003	<0.0002		0.0019
Vanadium (TRC)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1
Zinc (TRC)	mg/L	<0.008	<0.008	<0.008	32.7	33	106	28.8	15.6	0.56	0.024	<0.008		<0.008

D - Laboratory reporting limit increased
due to sample matrix interference.
J - Field duplicate QC sample RPD exceedance.

Montana Resources October 2022 Surface Water Analysis Summary Report

Station Name	Reporting Units	WQ-11	BRCD-2	BRCD-6	OFGD-1	OFGD-4	BRCD-4	BRCD-5	OFGD-3	WQ-1	DI Blank
Sample Date		2022/10/27 10:20	2022/10/27 10:45	2022/10/27 11:00	2022/10/27 11:10	2022/10/27 11:15	2022/10/27 11:40	2022/10/27 12:00	2022/10/27 12:40	2022/10/27 14:00	2022/10/27 15:00
FieldSampleId		MR-2210-121	MR-2210-122	MR-2210-123	MR-2210-124	MR-2210-125	MR-2210-126	MR-2210-127	MR-2210-128	MR-2210-129	MR-2210-130
Lab		Energy Labs	Energy Labs	Hydro	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
		Duplicate		No Sample	No Sample	No Sample					Blank
Field Parameters											
Staff Gauge	Feet										
Depth to Water	Feet										
Dissolved Oxygen	mg/L		10.11				11.8	10.81	9.36	9.2	
Field pH	s.u.		7.94				8.21	7.89	7.99	7.68	
Field Specific Conductivity	umhos/cm		269				367	174	692	613	
Flow	gpm		5	Dry	Dry	Dry	6.73	2.44	30.97	44.88	
Oxidation Reduction Potential	Millivolts		9.2				26.8	12.7	9	57.5	
Water Temperature	Deg C		0.8				0.4	2.6	2	4.6	
Physical Parameters											
pH	s.u.	7.9	7.6				8	7.7	7.8	7.6	5.7
Specific Conductivity	umhos/cm	191	255				350	168	655	584	6
Total Dissolved Solids	mg/L	135	178				243	136	450	431	<20
Total Suspended Solids	mg/L	<10	<10				<10	86	<10	<10	<10
Major Constituents - Commons Ions											
Alkalinity as CaCO3	mg/L	78	56				85	51	170	60	<3
Bicarbonate as HCO3	mg/L	94	68				100	62	210	73	<3
Carbonate as CO3	mg/L	<3	<3				<3	<3	<3	<3	<3
Chloride	mg/L	5	11				8	6	25	12	<1
Fluoride	mg/L	0.1	<0.1				0.2	0.2	0.4	0.2	<0.1
Sulfate	mg/L	12	49				81	19	139	222	<1
Total Acidity as CaCO3	mg/L										
Nutrients											
Nitrate + Nitrite as N	mg/L	<0.01	0.57				<0.01	1.13	<0.01	<0.01	<0.01
Phosphorus (TOT)	mg/L	0.09	0.21				0.08	0.16	0.12	<0.01	<0.01
Metals - Trace Constituents											
Aluminum (DIS)	mg/L	0.007	0.009				0.006	0.013	<0.005	0.037	<0.005
Antimony (TRC)	mg/L	<0.0005	0.0005				<0.0005	<0.0005	0.0006	<0.0005	<0.0005
Arsenic (TRC)	mg/L	0.009	0.016				0.02	0.008	0.077	<0.001	<0.001
Boron (TRC)	mg/L	<0.1	<0.1				<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium (TRC)	mg/L	<0.00003	<0.00003				<0.00003	0.00018	0.00015	0.00219	<0.00003
Calcium (TRC)	mg/L	24	28				46	17	95	79	<1
Chromium (TRC)	mg/L	<0.001	<0.001				<0.001	0.006	<0.001	<0.001	<0.001
Copper (TRC)	mg/L	0.002	0.002				0.001	0.01	0.006	0.065	<0.001
Iron (TRC)	mg/L	0.68	0.09				0.11	2.21	5.97	0.1	<0.02
Iron, Ferrous (DIS)	mg/L										
Lead (TRC)	mg/L	<0.0003	<0.0003				<0.0003	0.006	0.0024	<0.0003	<0.0003
Lithium (TRC)	mg/L	<0.1	<0.1				<0.1	<0.1	<0.1	<0.1	<0.1
Magnesium (TRC)	mg/L	5	8				10	5	20	19	<1
Manganese (TRC)	mg/L	0.02	0.02				0.09	0.06	13.4	0.06	<0.01
Mercury (TRC)	mg/L	<0.00001	<0.00001				<0.00001	0.00002	0.00003	<0.00001	<0.00001
Molybdenum (TRC)	mg/L	0.0012	0.0008				0.0035	0.0013	0.0064	0.0008	<0.0002
Nickel (TRC)	mg/L	<0.002	<0.002				<0.002	0.003	<0.002	<0.002	<0.002
Potassium (TRC)	mg/L	2	4				4	5	6	3	<1
Rubidium (TRC)	mg/L	0.0004	0.001				0.0016	0.0094	0.0024	0.0019	<0.0001
Selenium (TRC)	mg/L	<0.001	<0.001				<0.001	<0.001	<0.001	<0.001	<0.001
Silicon (TRC)	mg/L	12.7	16.9				13.6	30.3	17.2	14.7	<0.1
Silver (TRC)	mg/L	<0.0002	<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sodium (TRC)	mg/L	7	8				10	8	22	13	<1
Strontium (TRC)	mg/L	0.13	0.18				0.25	0.16	0.92	0.54	<0.02
Thallium (TRC)	mg/L	<0.0002	<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tungsten (TRC)	mg/L	0.0002	<0.0001				<0.0001	0.0002	0.0016	<0.0001	<0.0001
Uranium (TRC)	mg/L	0.002	0.0009				0.0027	0.001	0.003	0.0021	<0.0002
Vanadium (TRC)	mg/L	<0.1	<0.1				<0.1	<0.1	<0.1	<0.1	<0.1
Zinc (TRC)	mg/L	<0.008	<0.008				<0.008	0.019	0.02	0.513	<0.008

D - Laboratory reporting limit increased
due to sample matrix interference.

J - Field duplicate QC sample RPD exceedance.

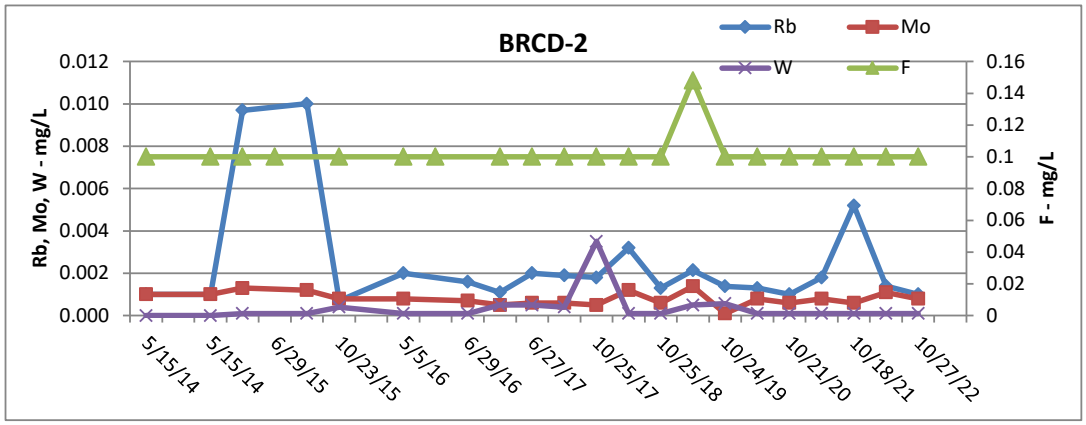
APPENDIX B

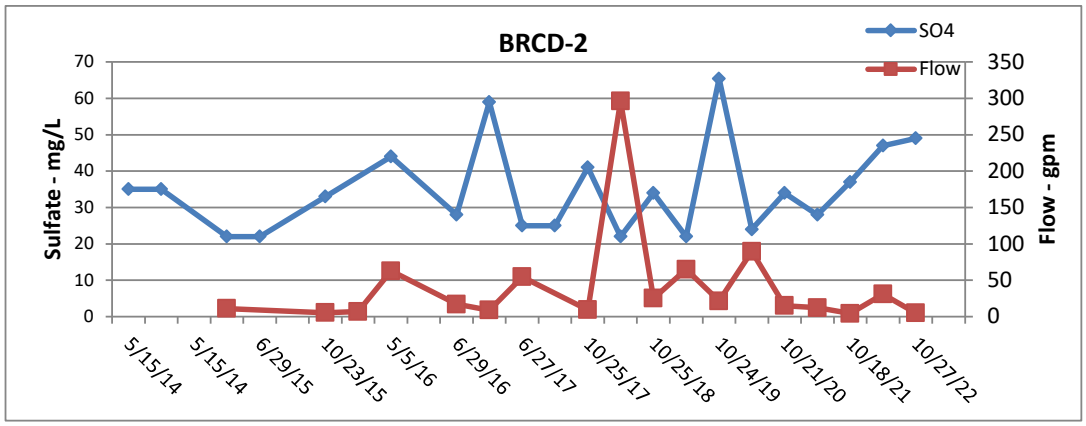
GROUNDWATER AND SURFACE WATER

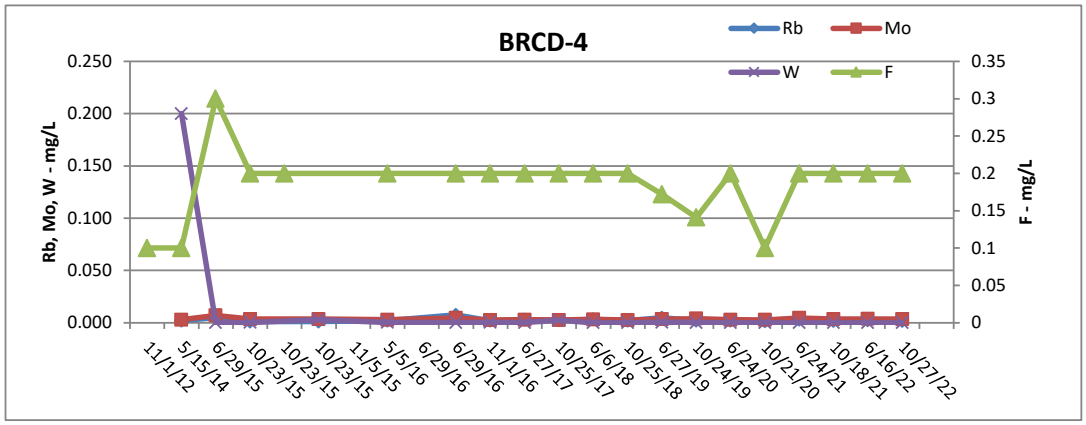
CONCENTRATION TREND PLOTS FOR SELECT PARAMETERS

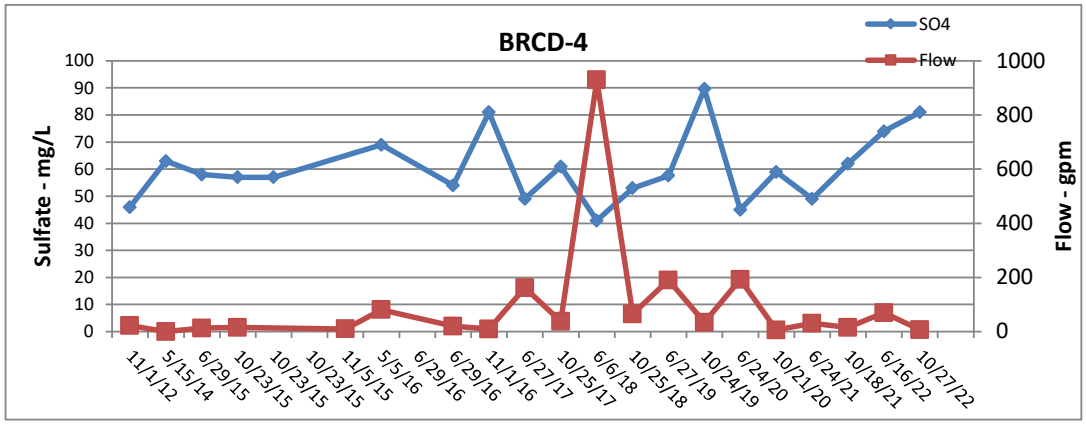
B-1 SURFACE WATER TREND PLOTS

Appendix B. Surface Water Trend Plots

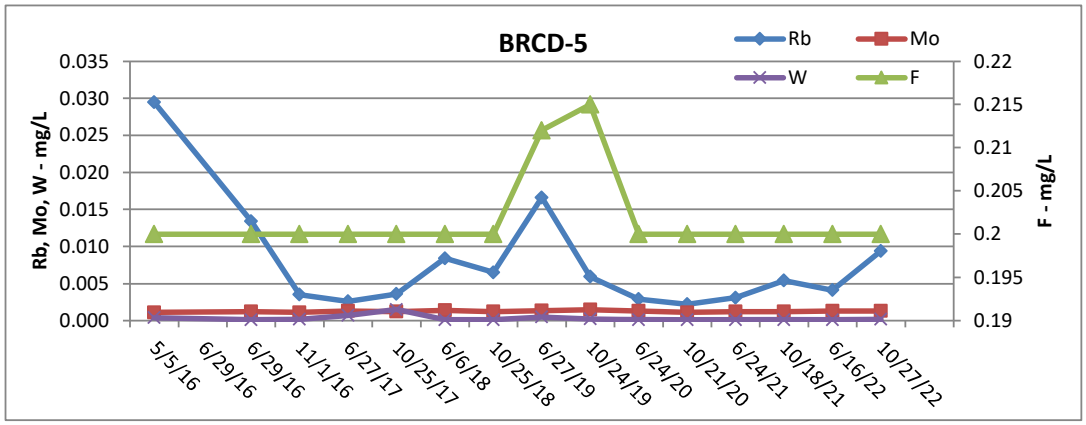


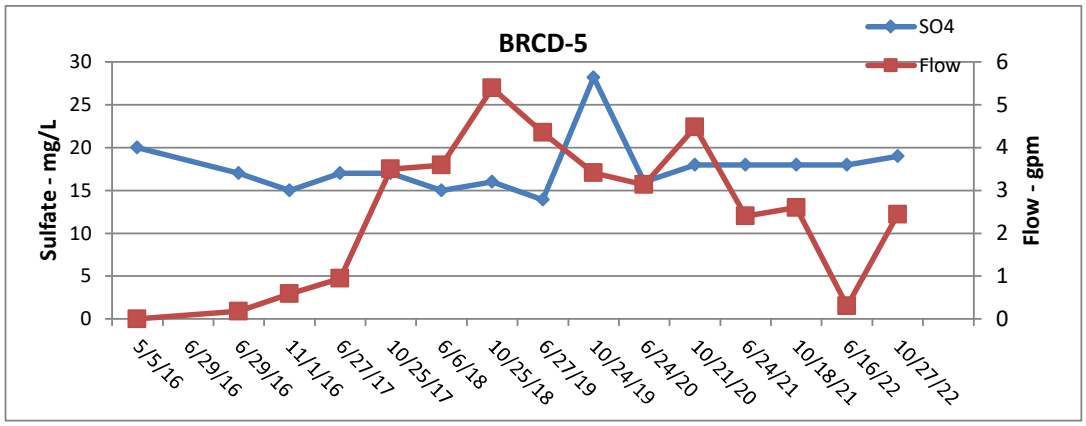


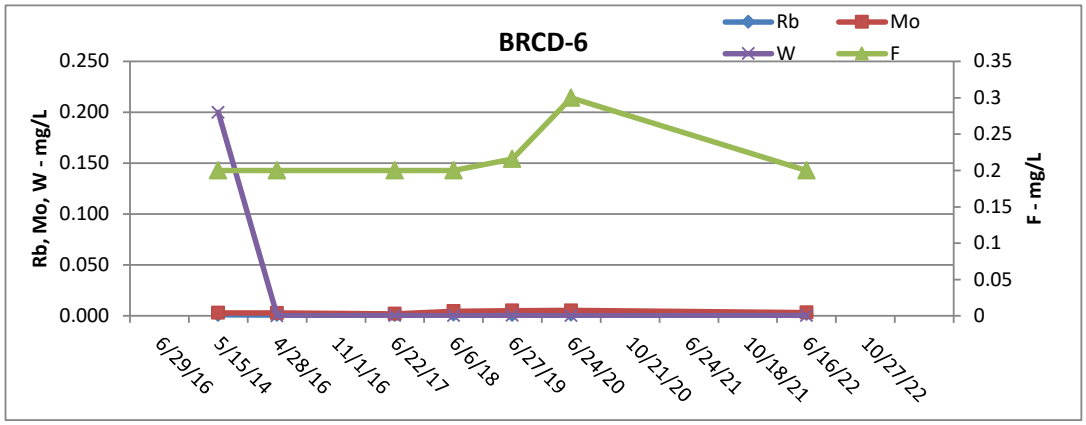


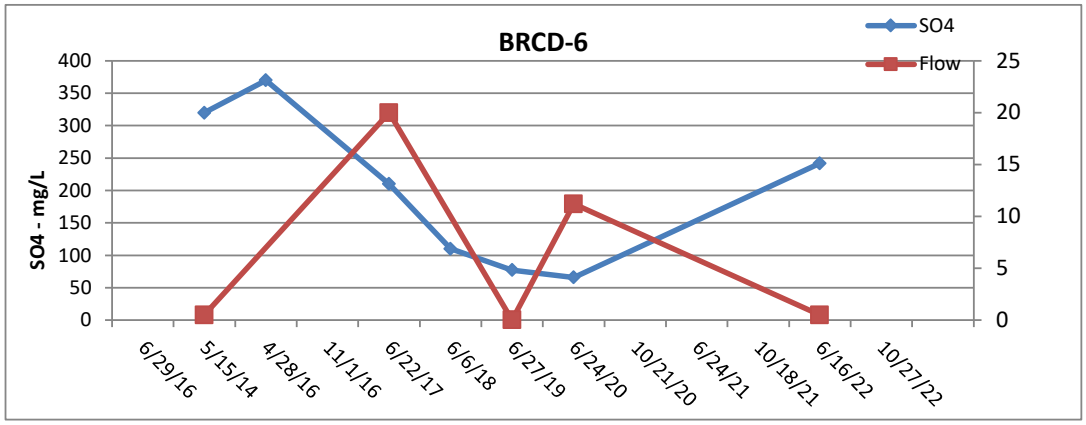


Appendix B. Surface Water Trend Plots

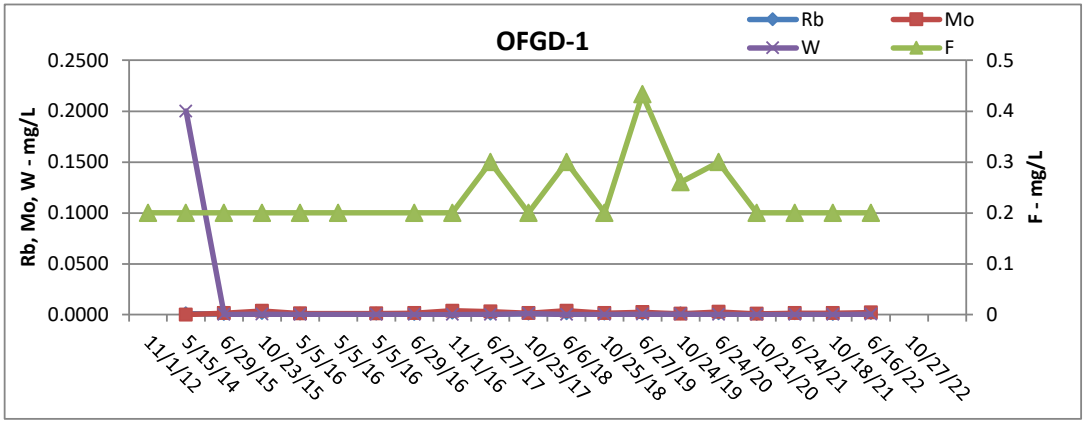


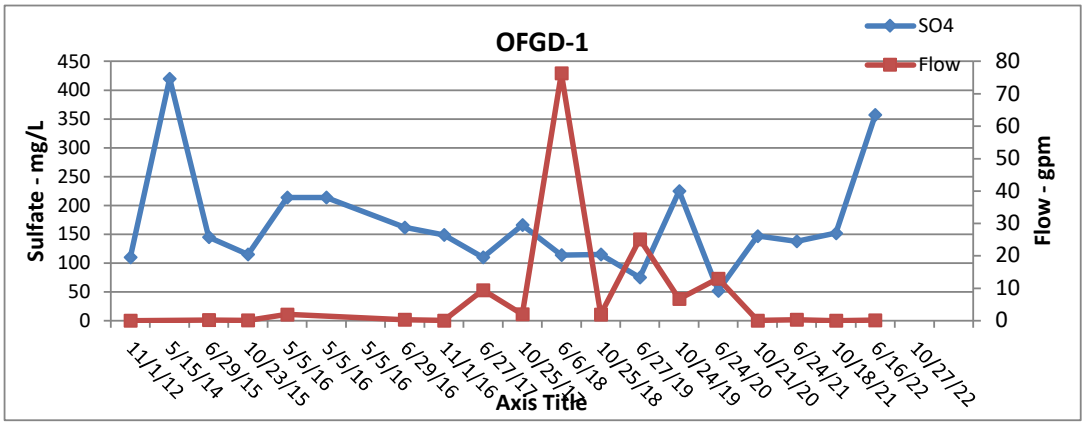


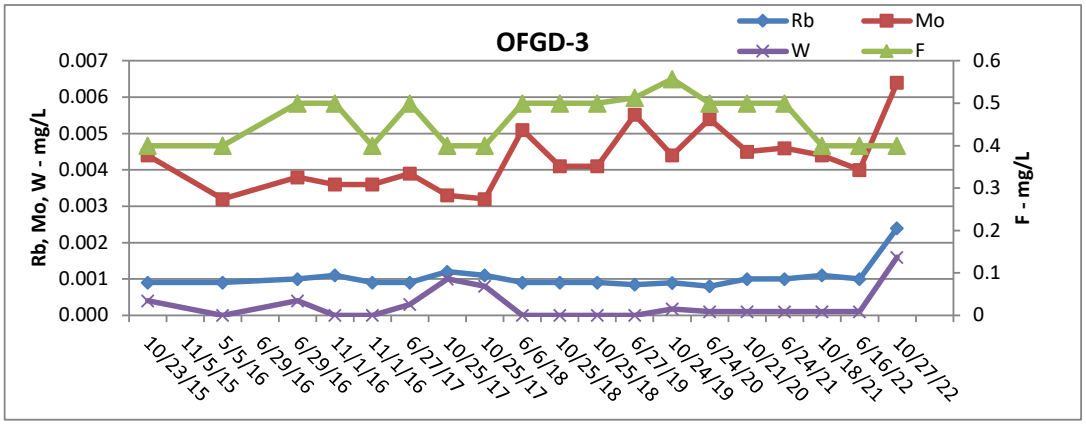


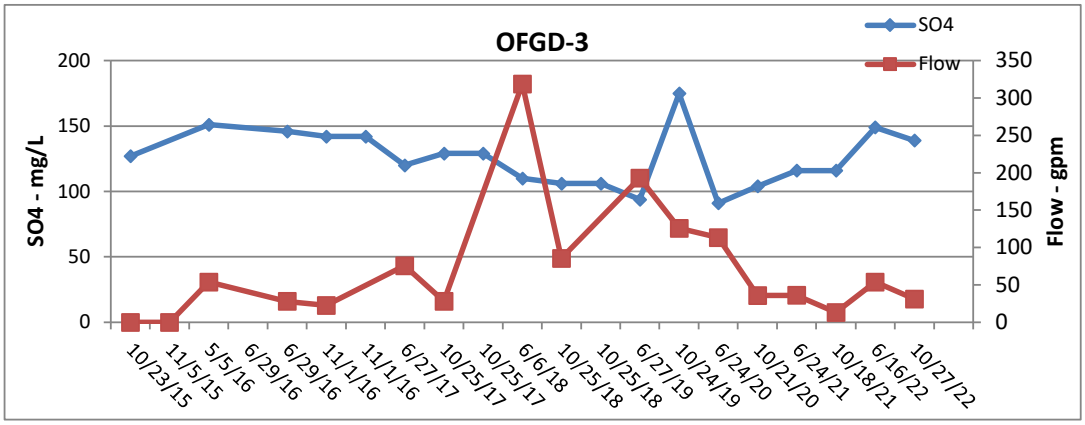


Appendix B. Surface Water Trend Plots

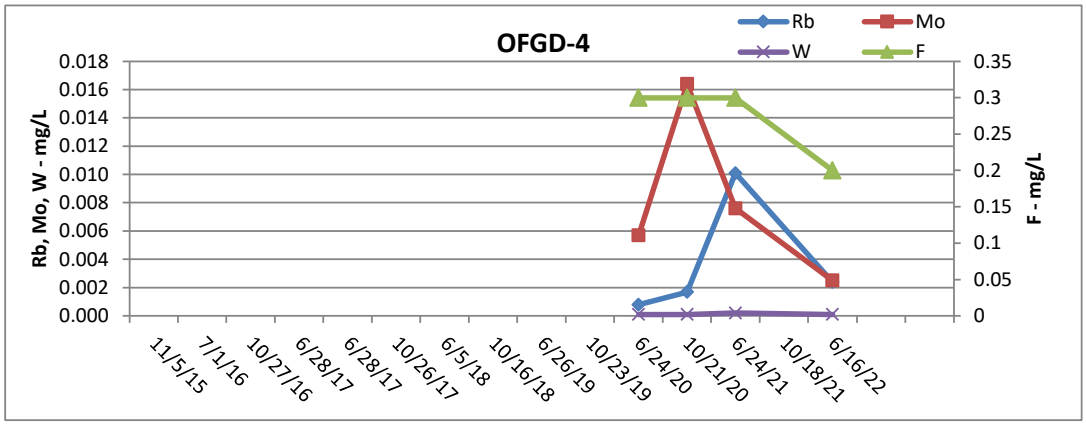


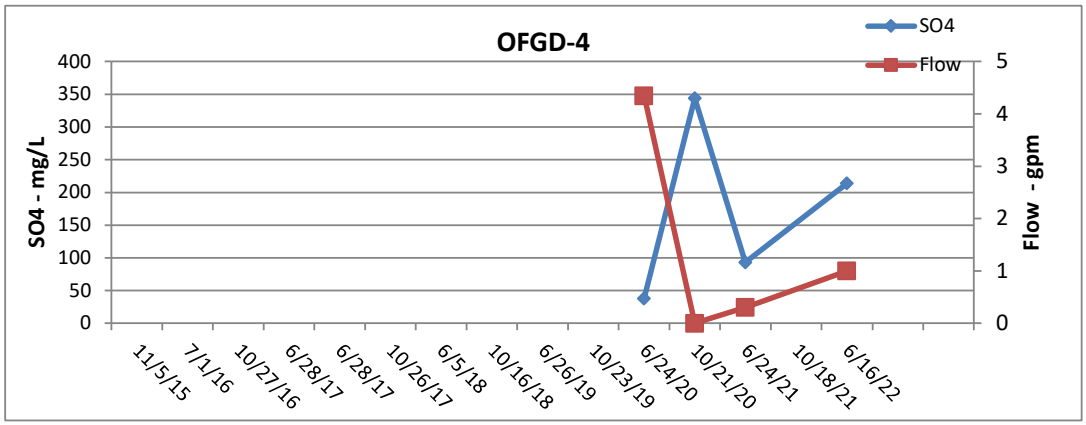




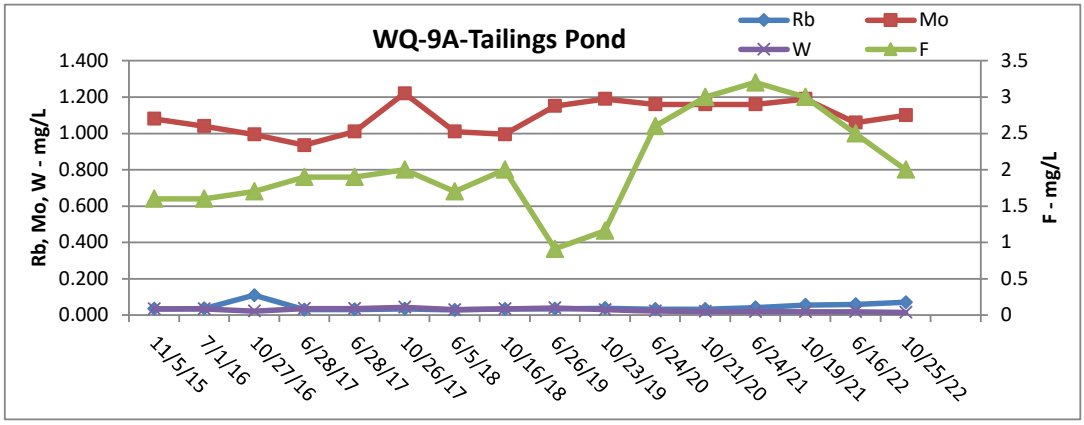


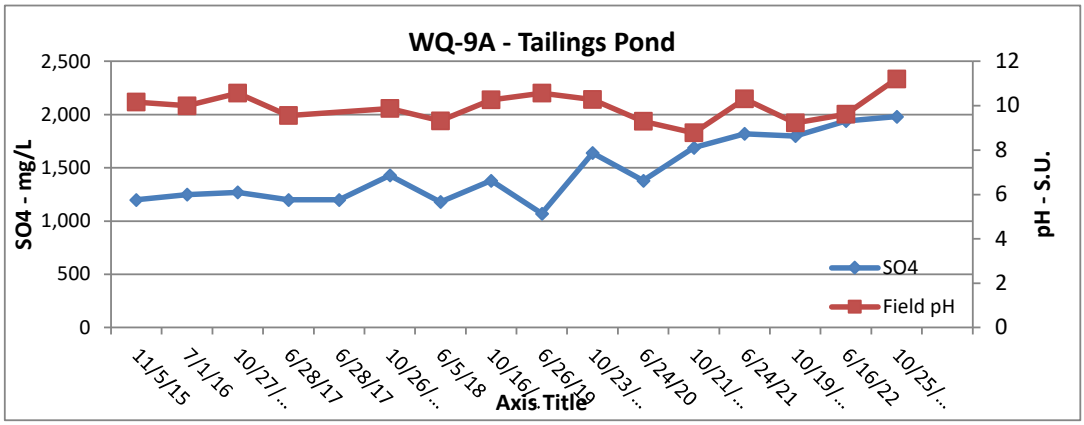
Appendix B. Surface Water Trend Plots

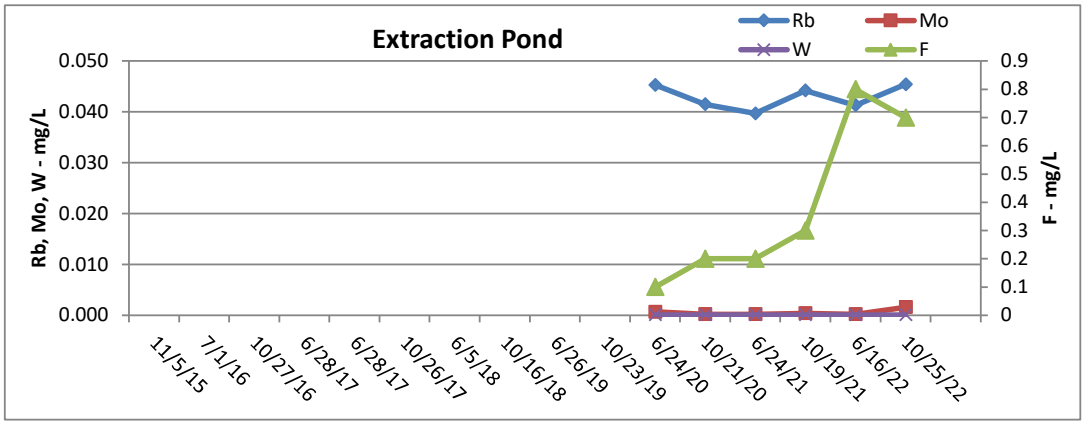


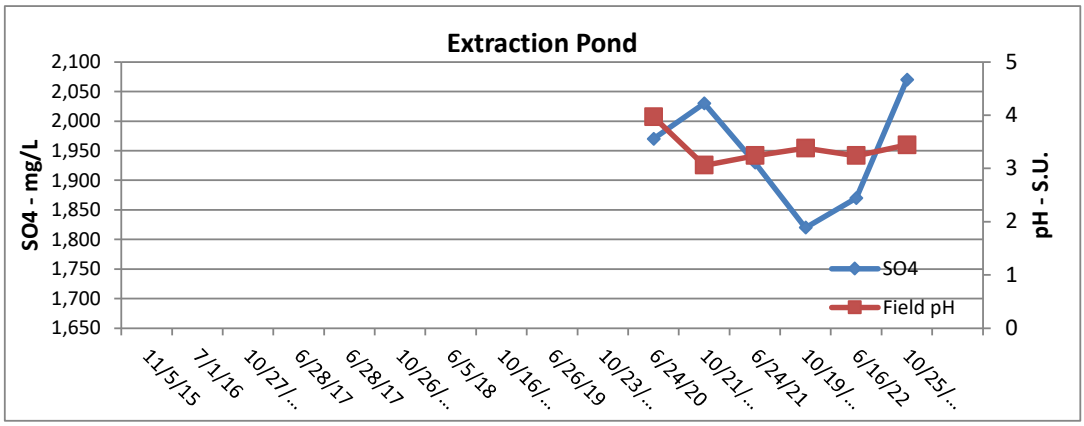


Appendix B. Surface Water Trend Plots



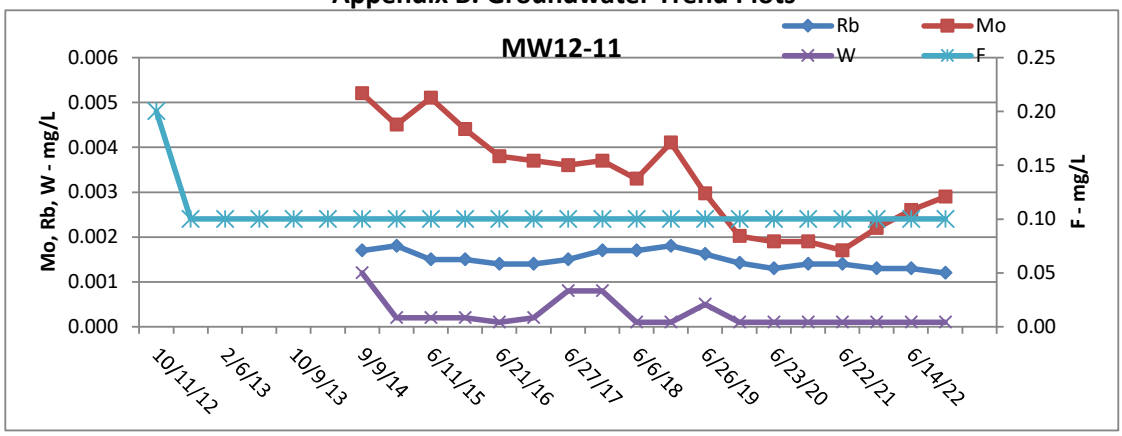


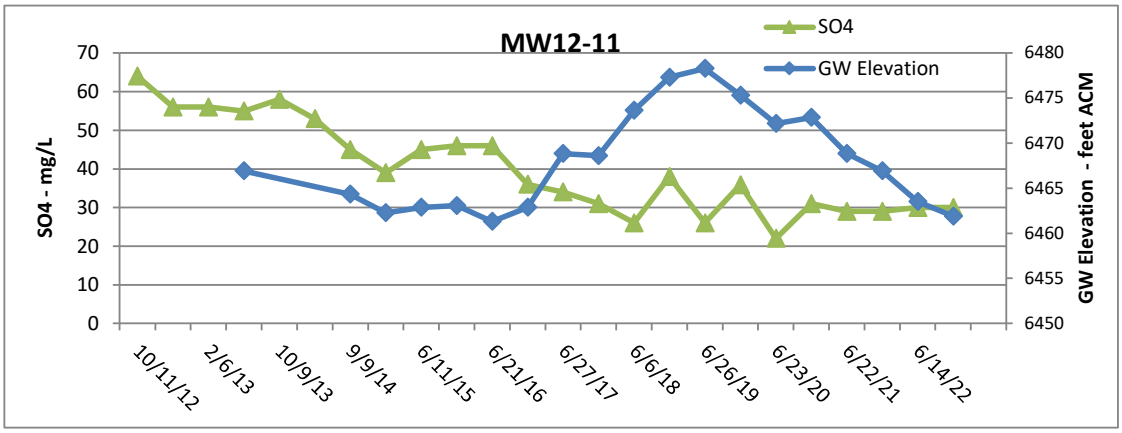


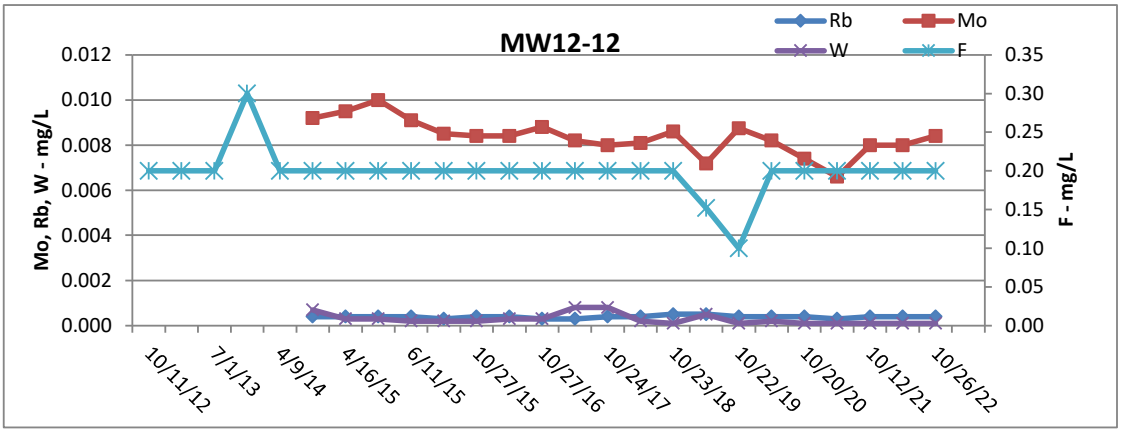


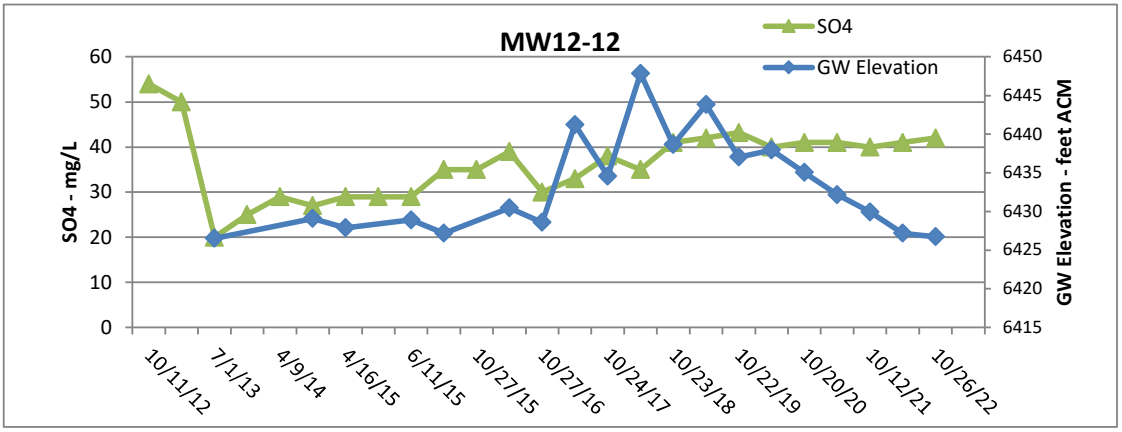
B-2 GROUNDWATER TREND PLOTS

Appendix B. Groundwater Trend Plots

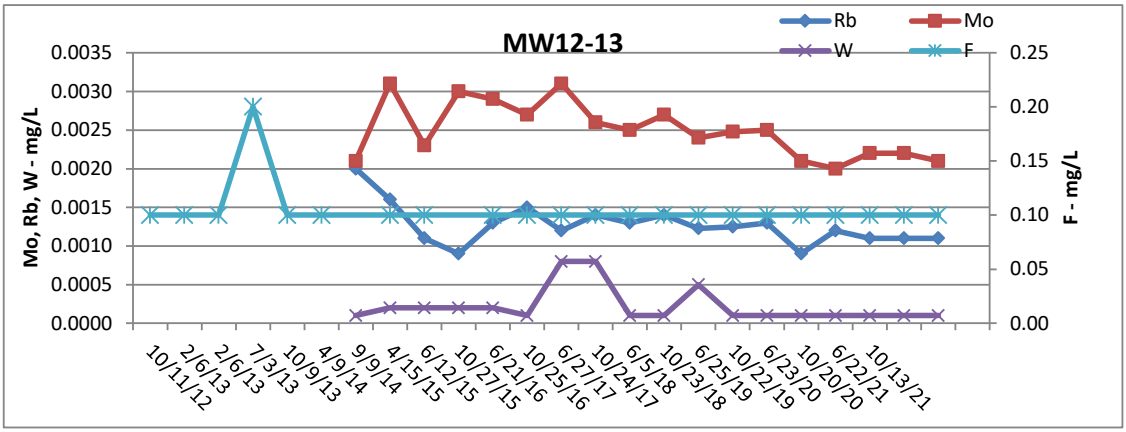


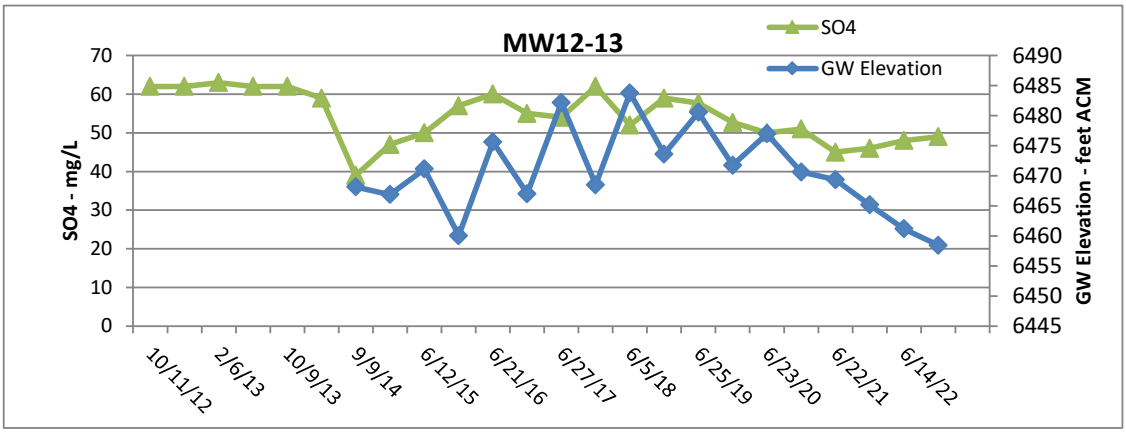


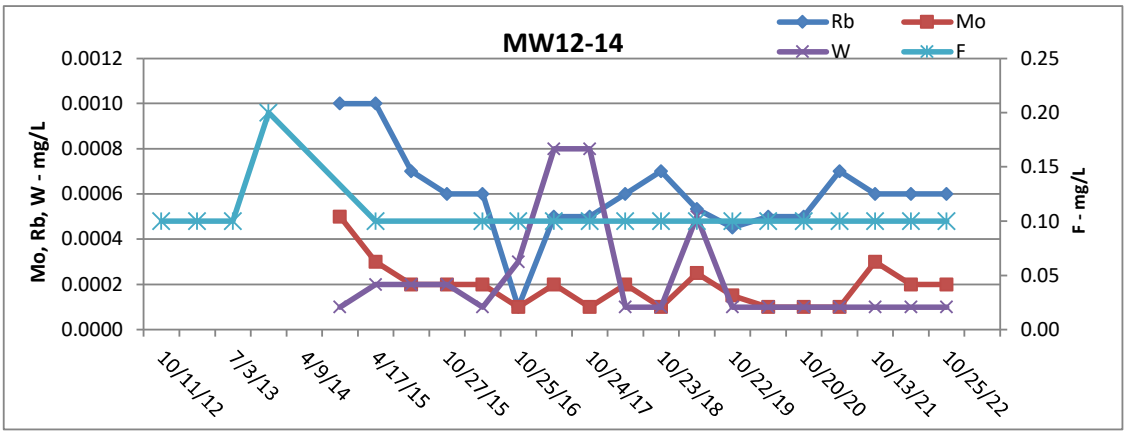


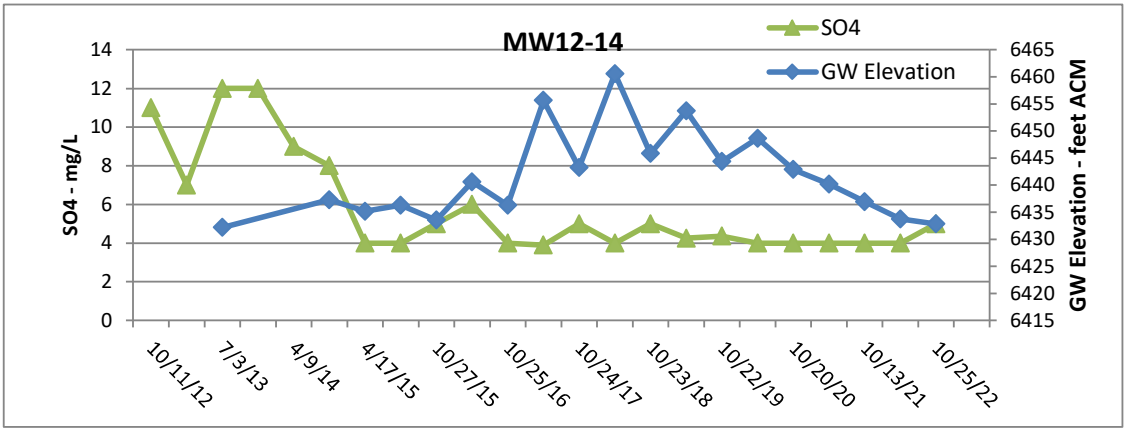


Appendix B. Groundwater Trend Plots

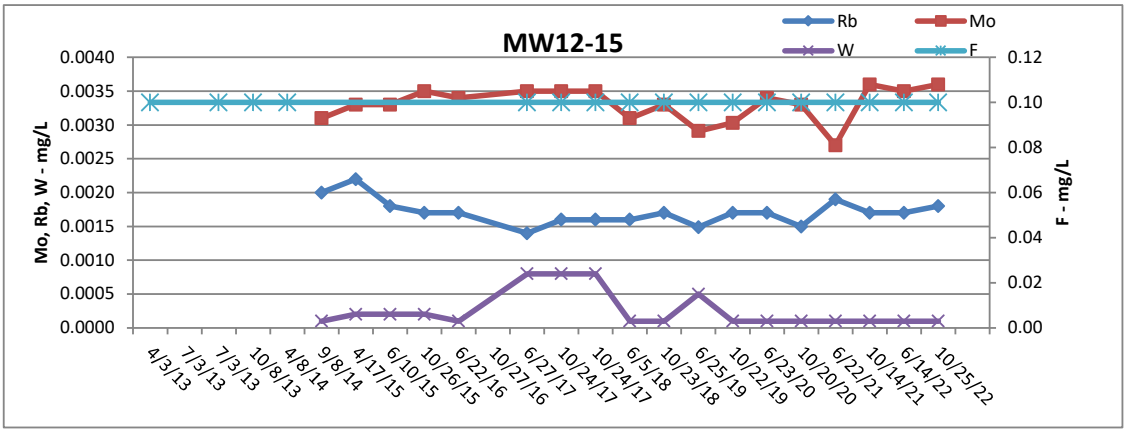


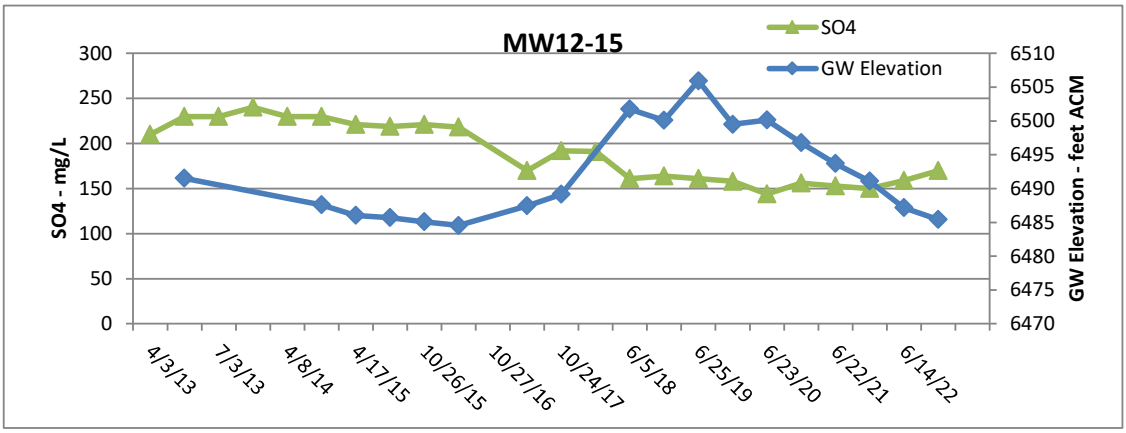


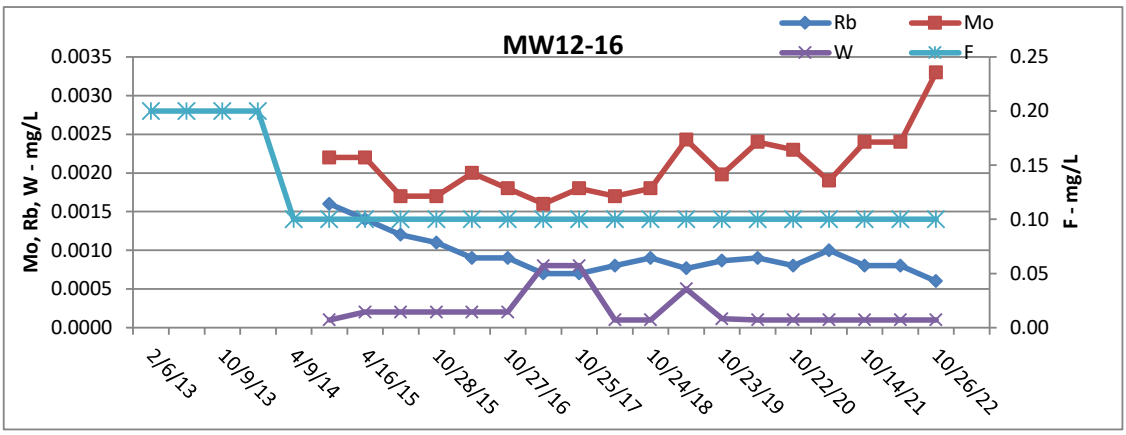


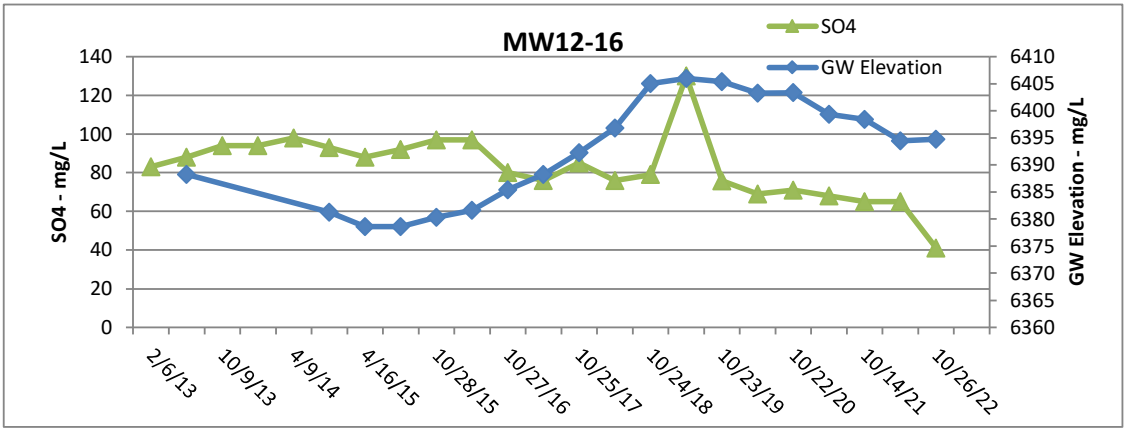


Appendix B. Groundwater Trend Plots

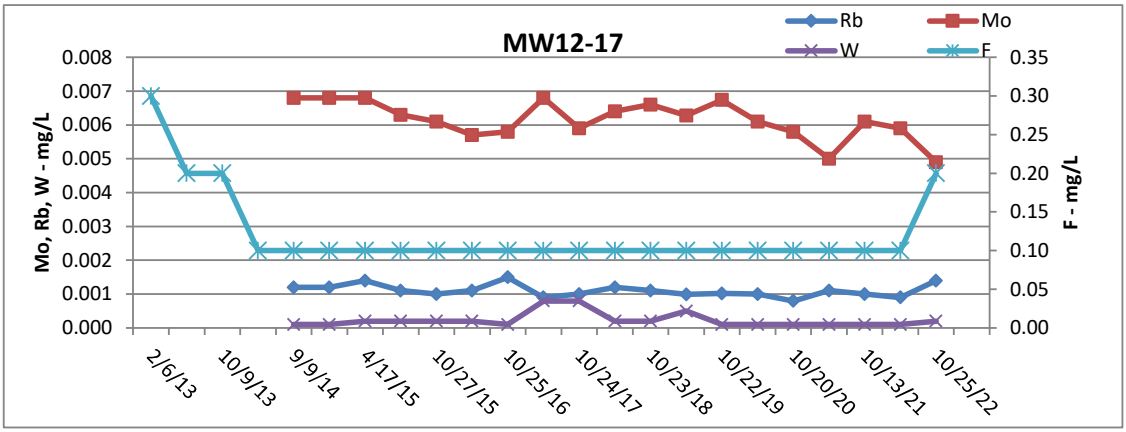


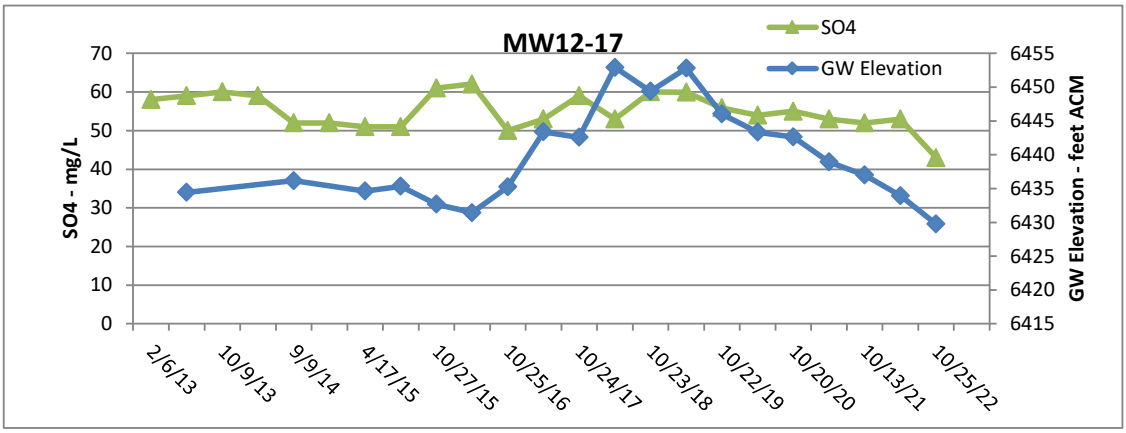


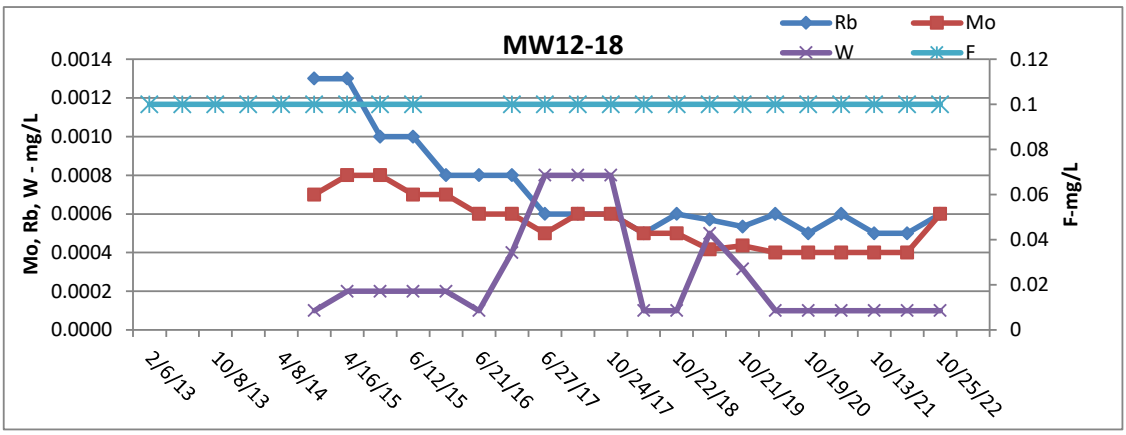


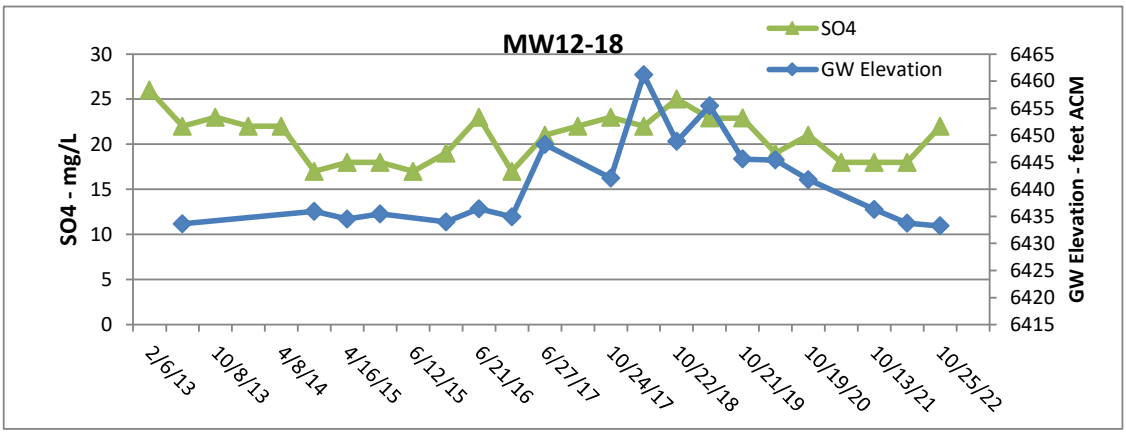


Appendix B. Groundwater Trend Plots

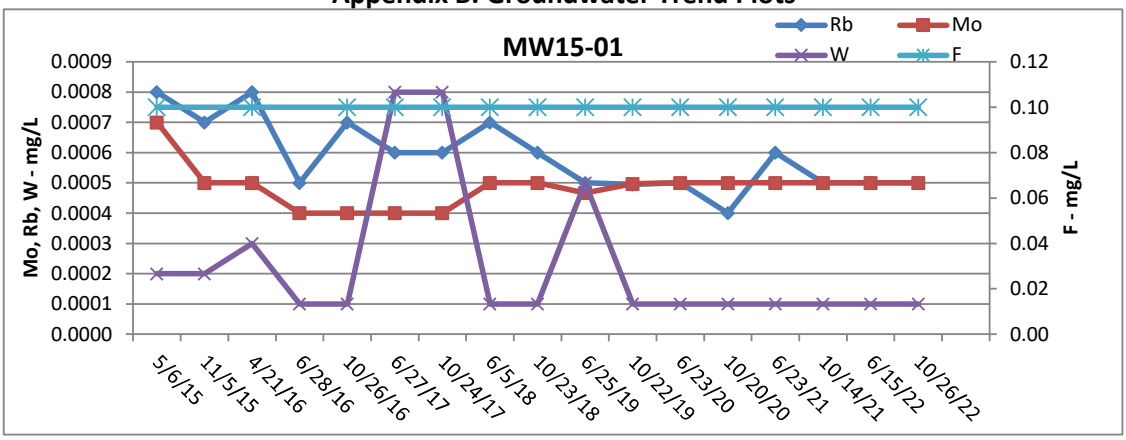


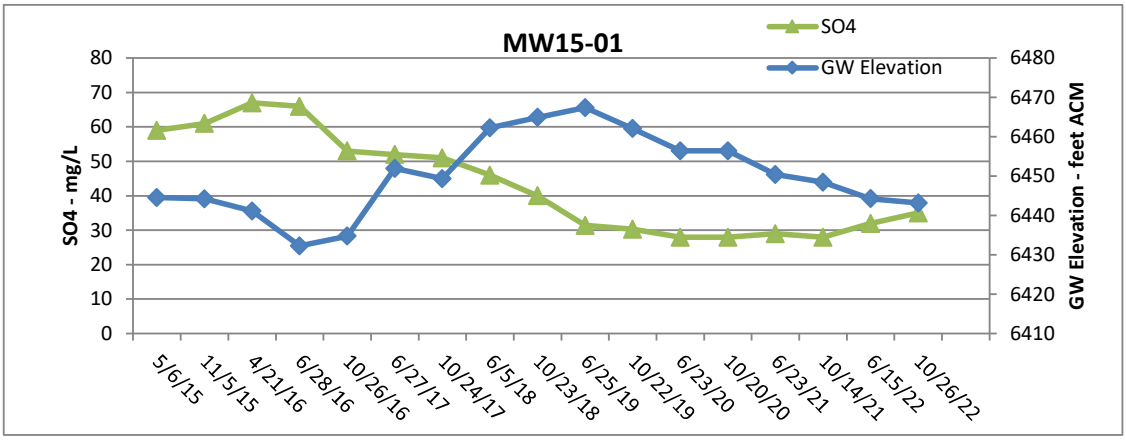


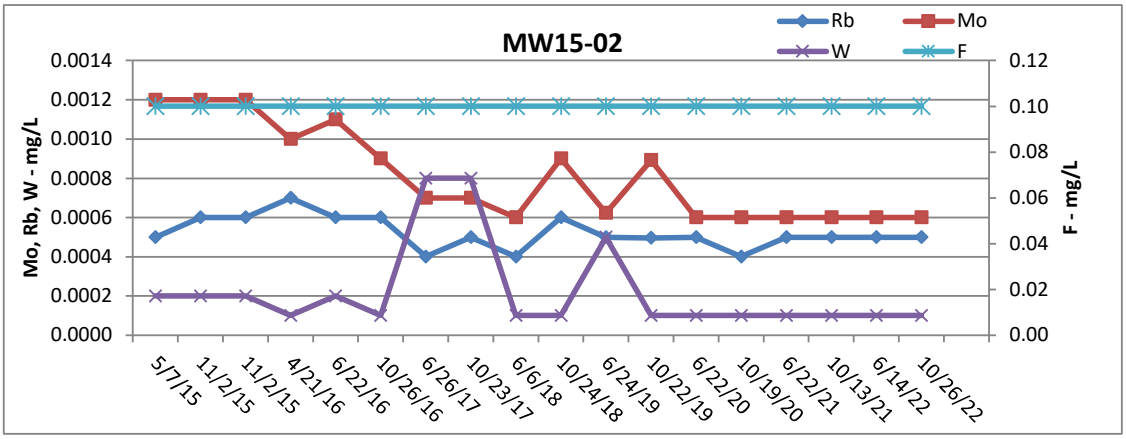


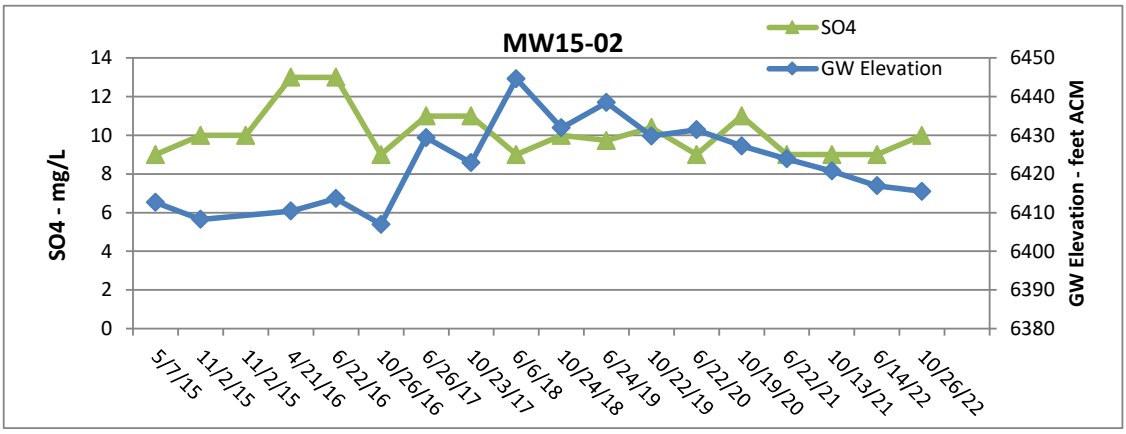


Appendix B. Groundwater Trend Plots

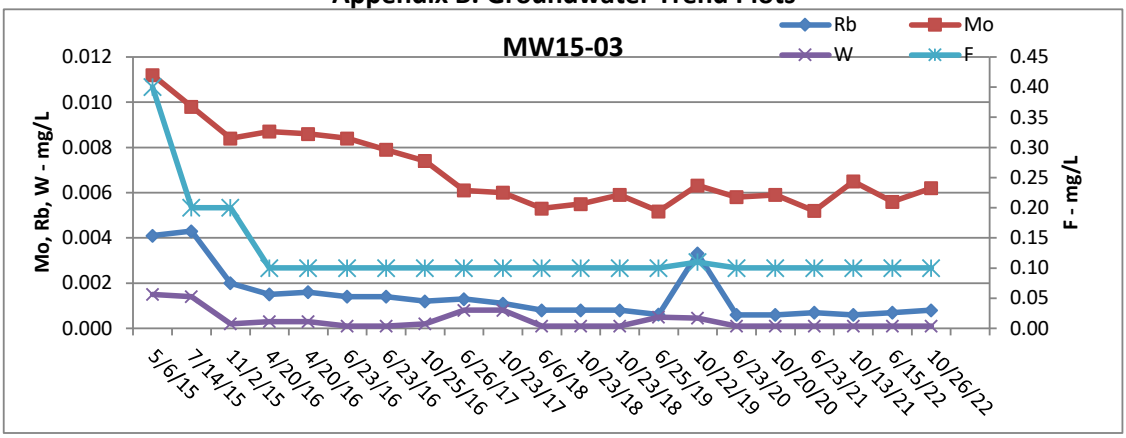


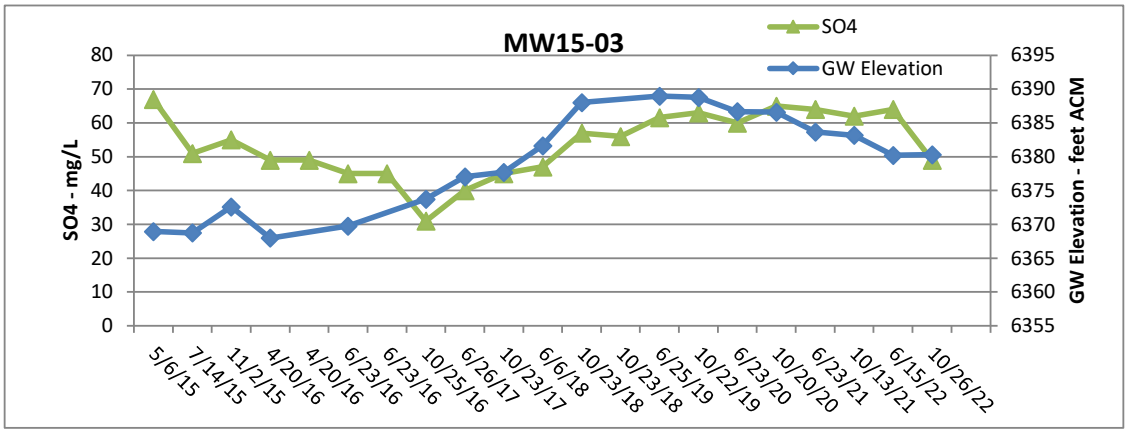


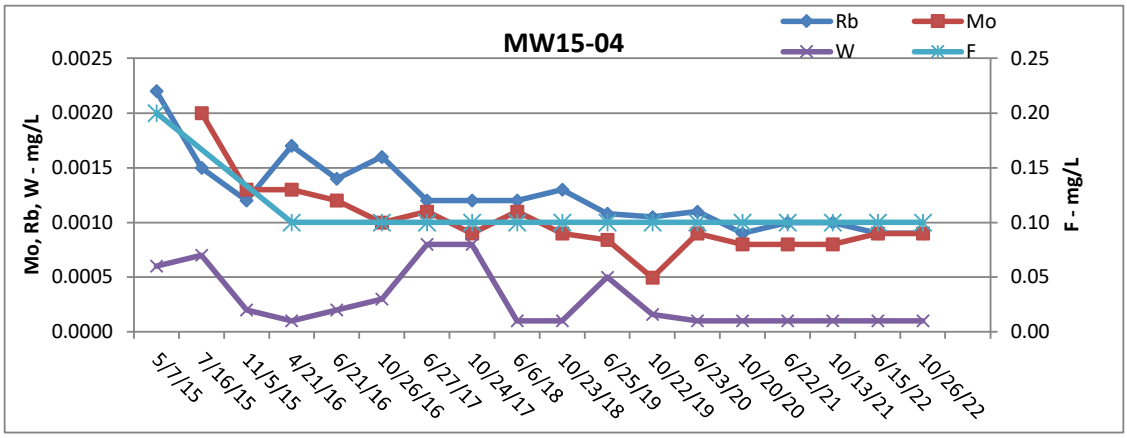


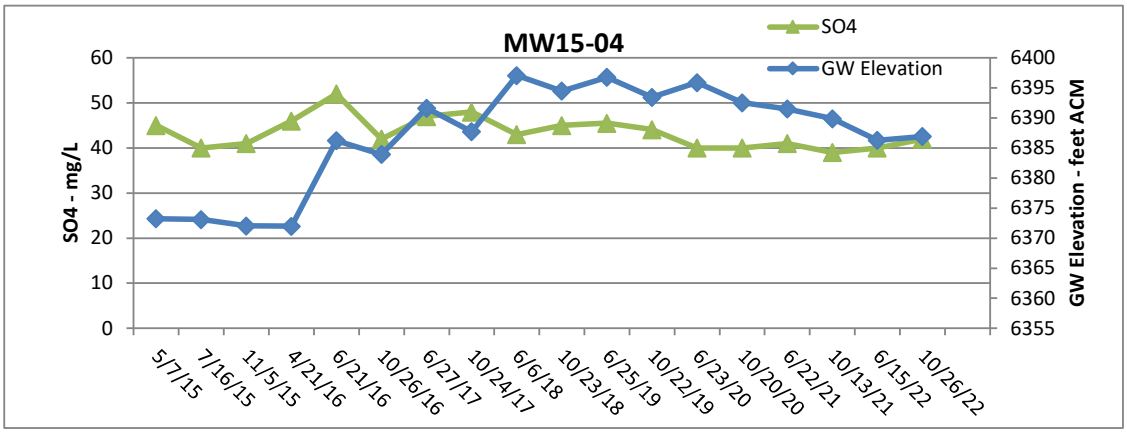


Appendix B. Groundwater Trend Plots

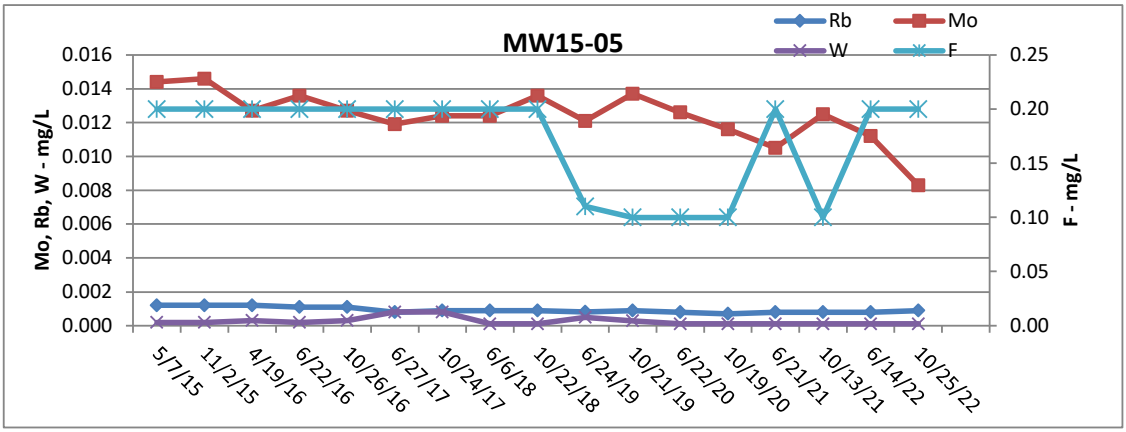


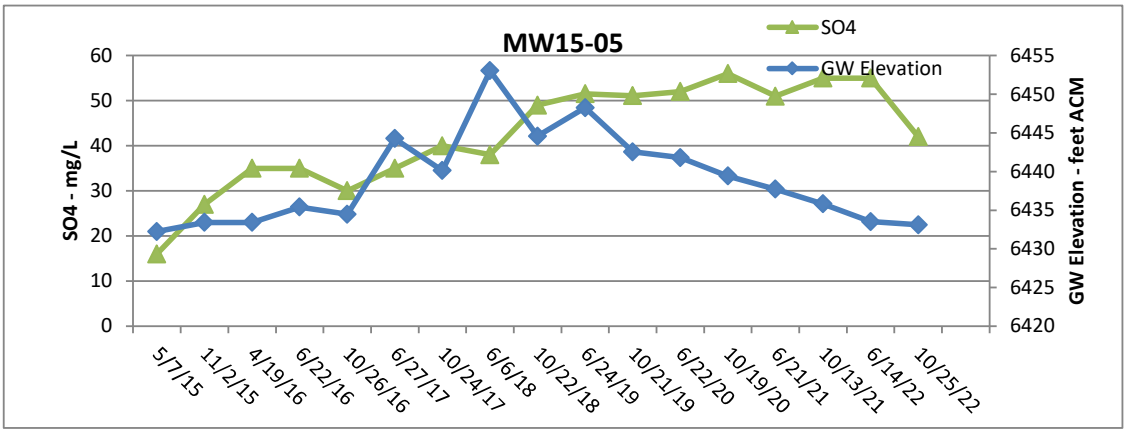


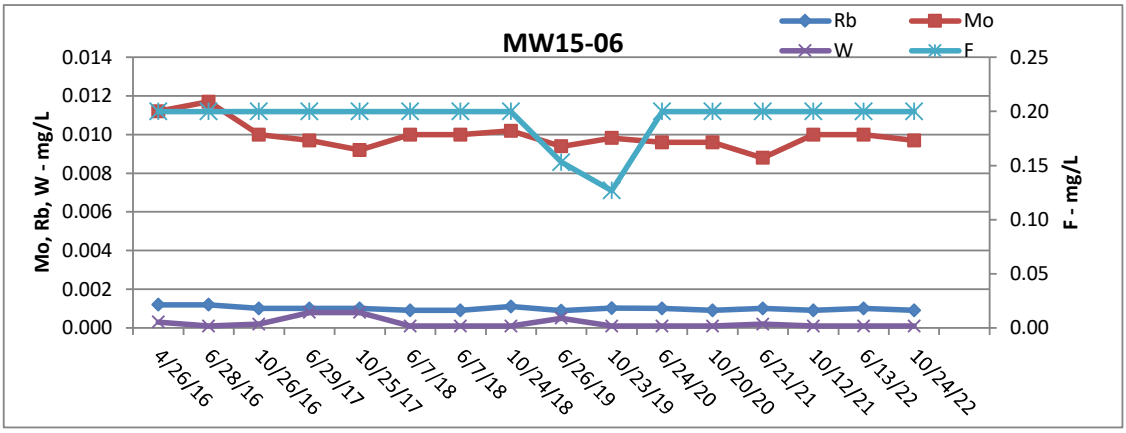


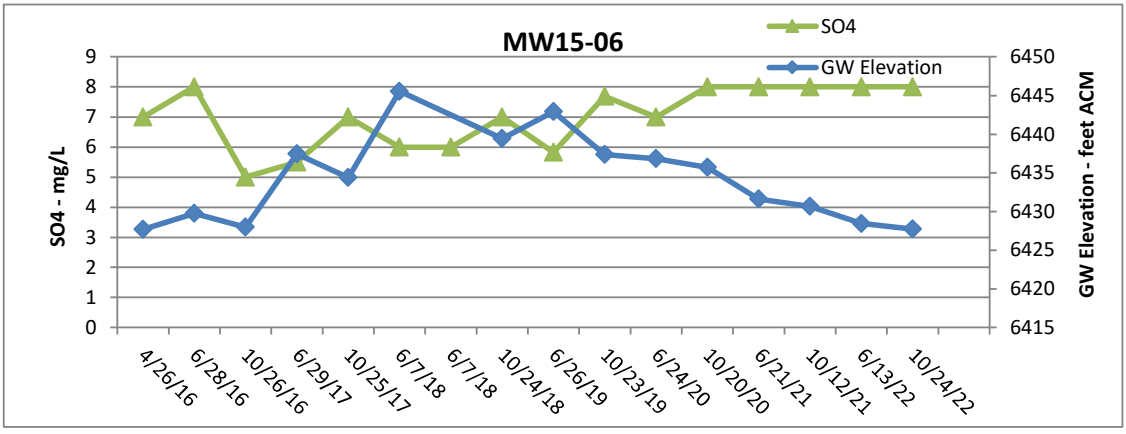


Appendix B. Groundwater Trend Plots

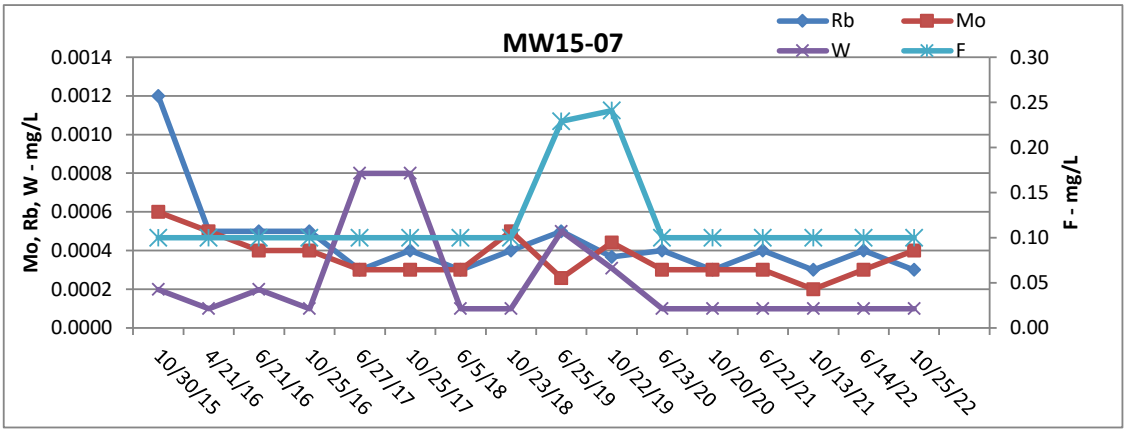


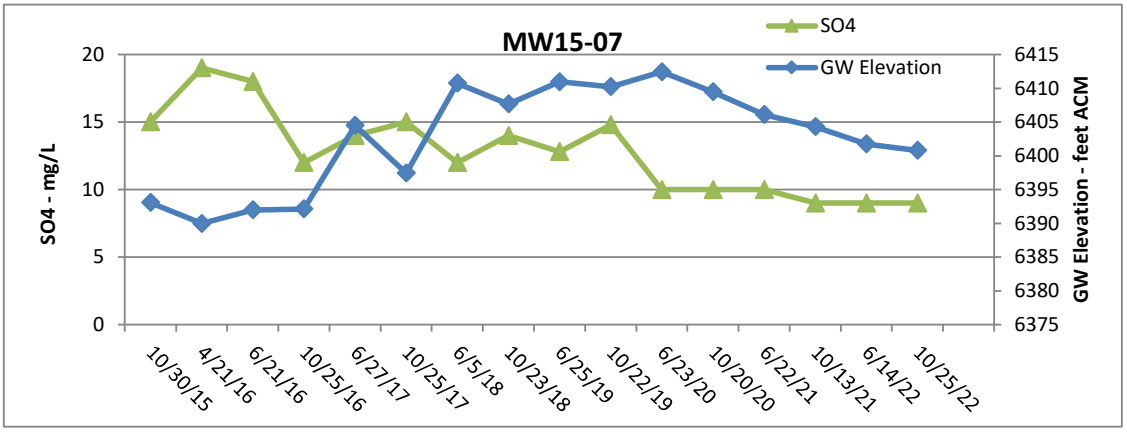


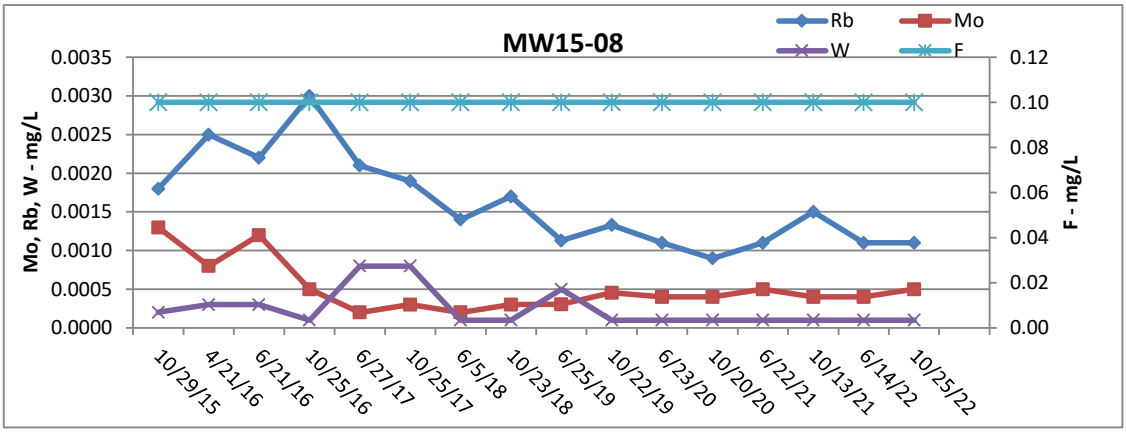


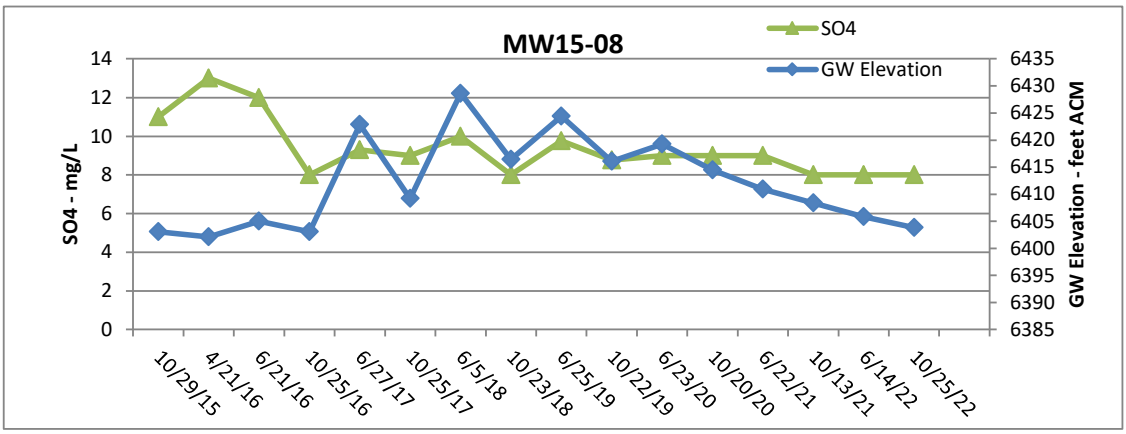


Appendix B. Groundwater Trend Plots

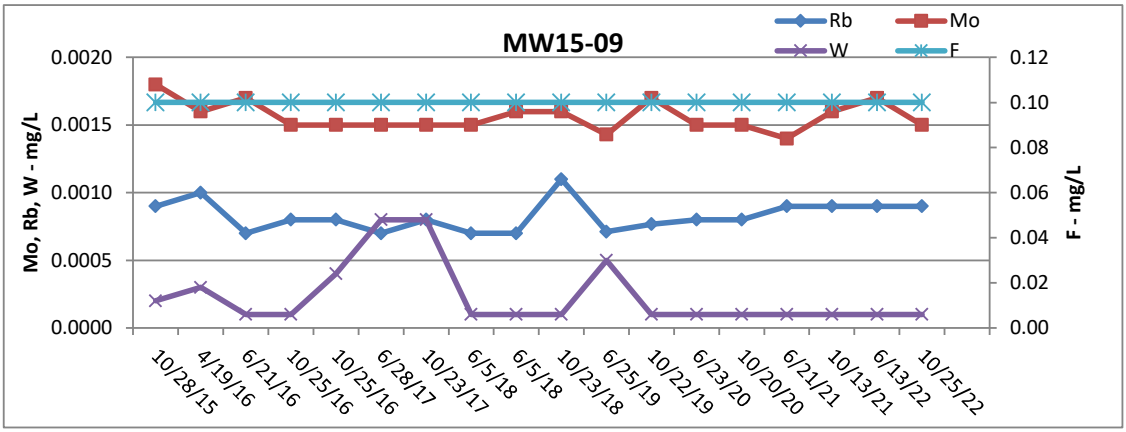


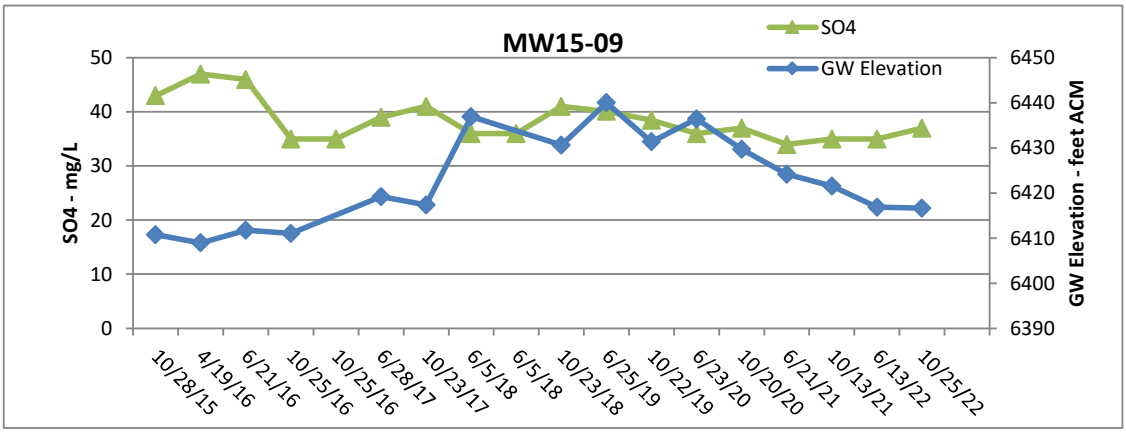


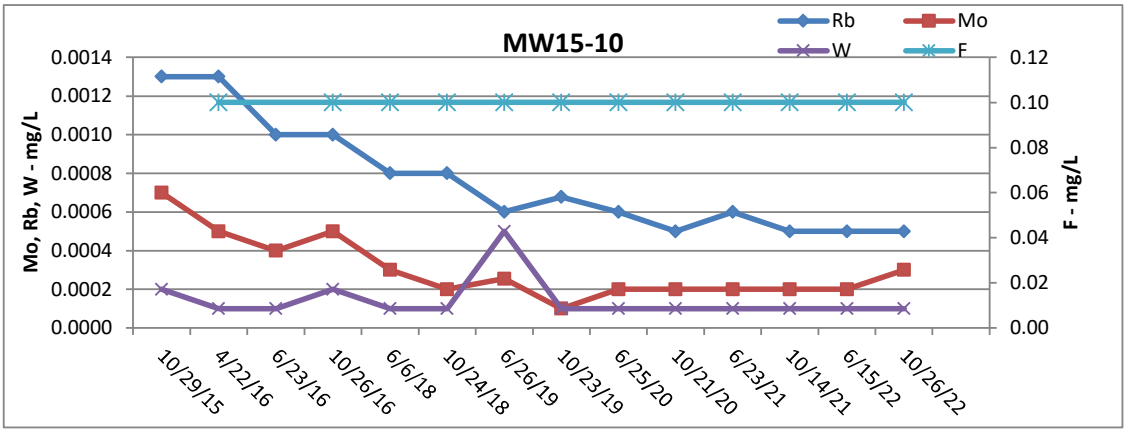


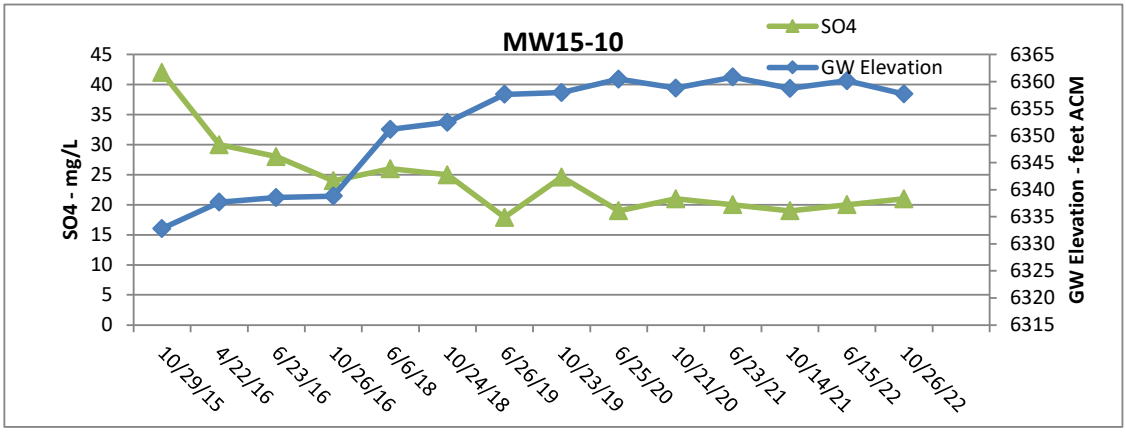


Appendix B. Groundwater Trend Plots

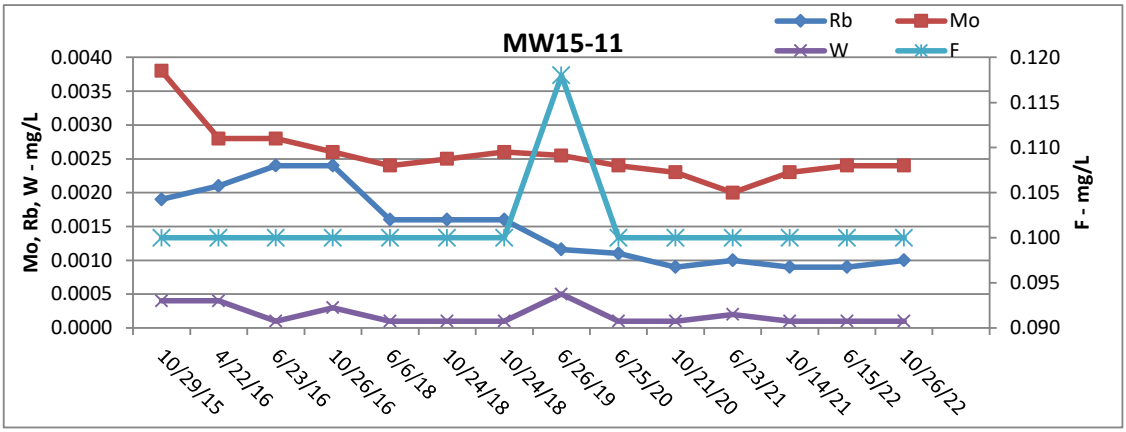


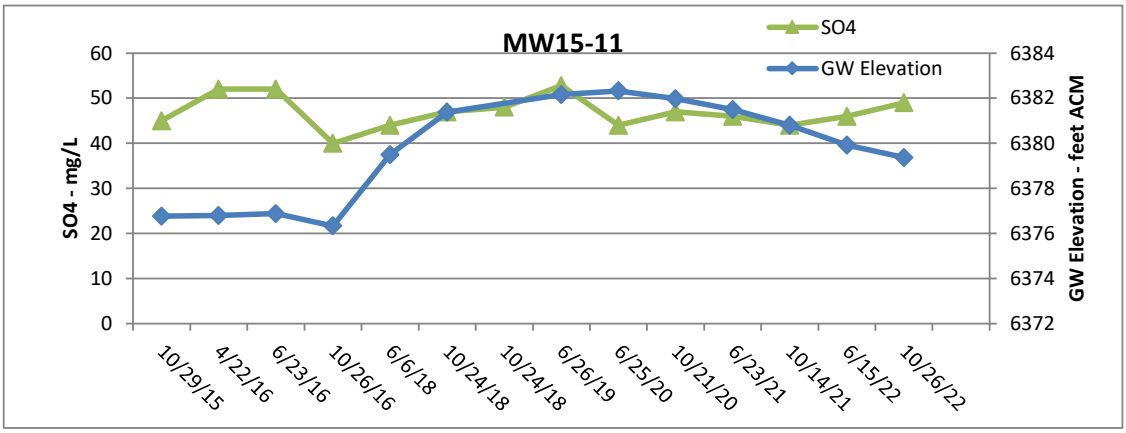


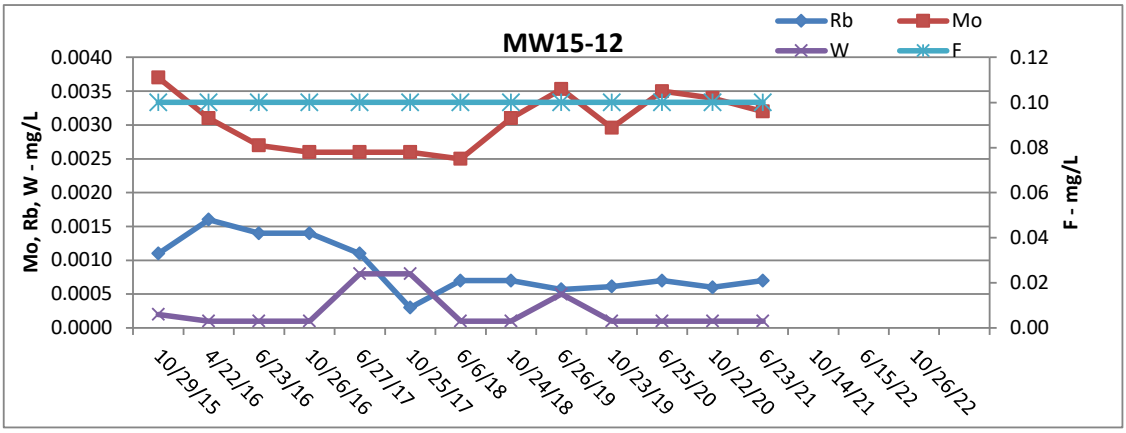


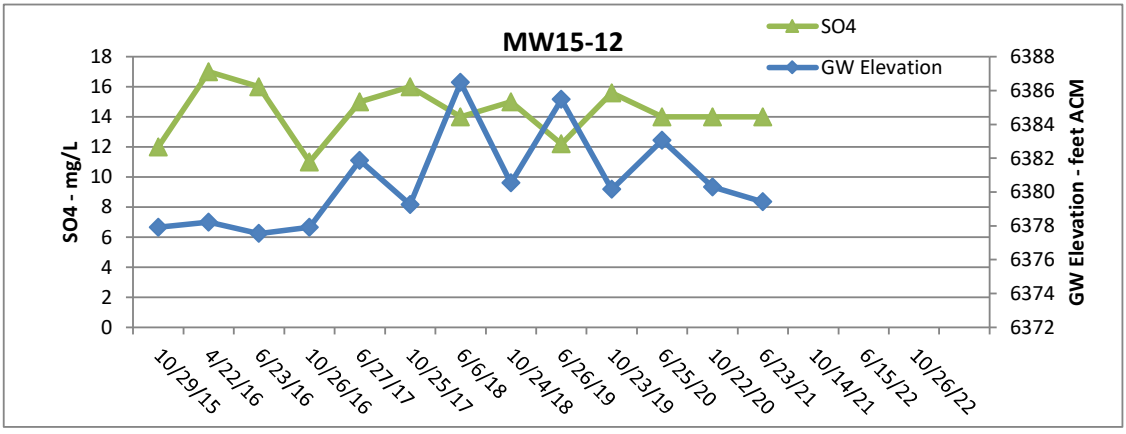


Appendix B. Groundwater Trend Plots

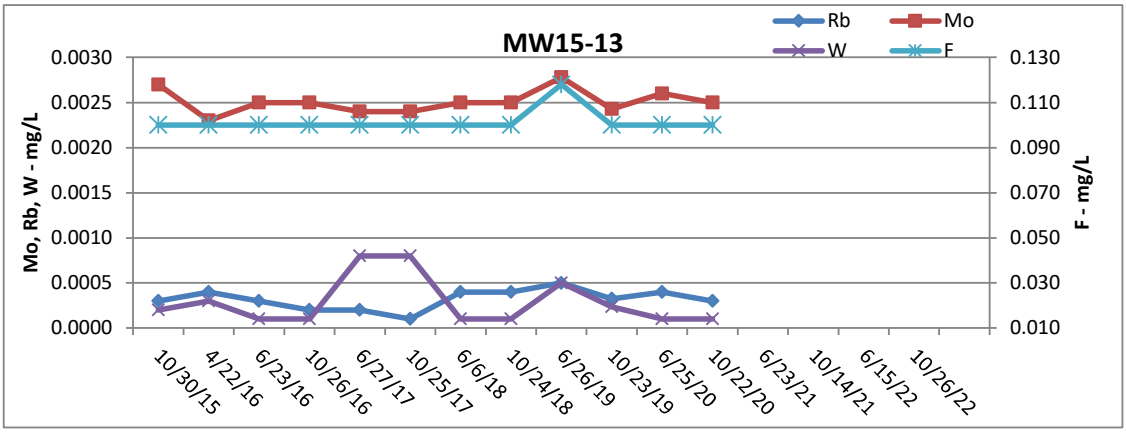


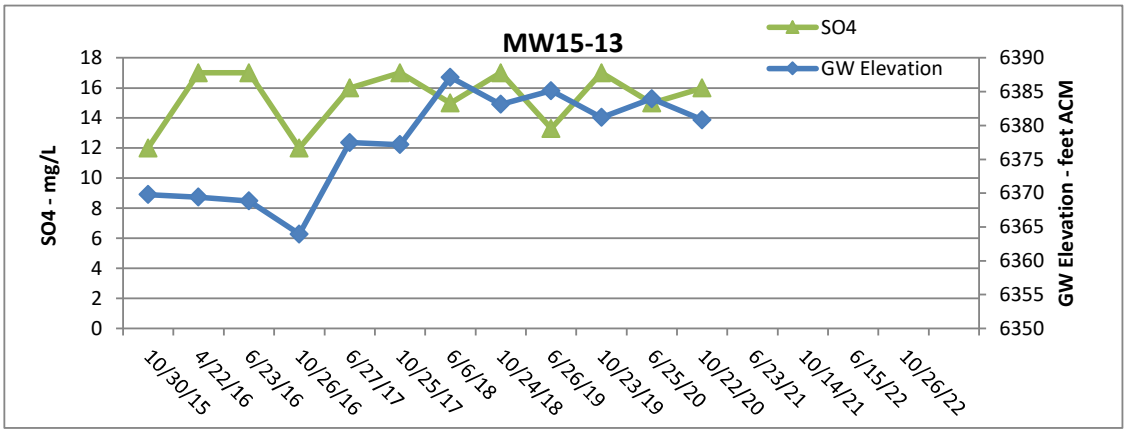


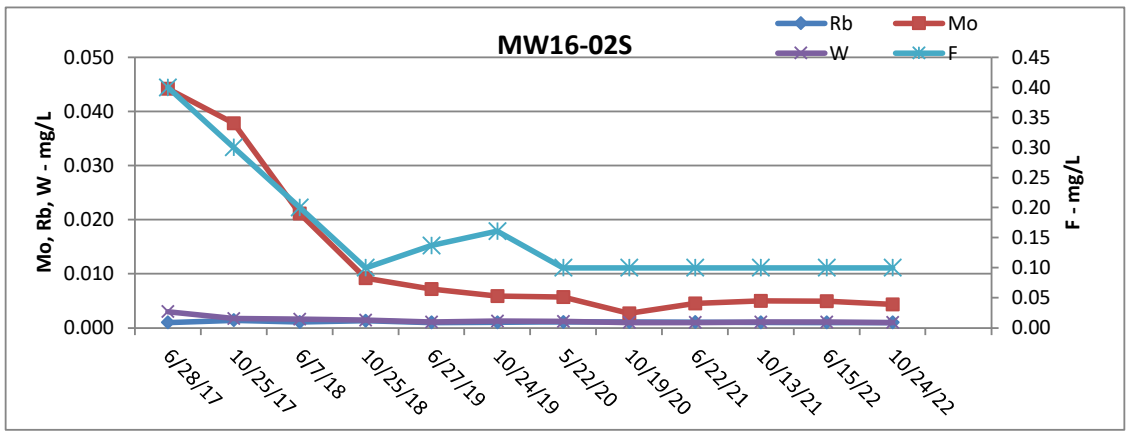


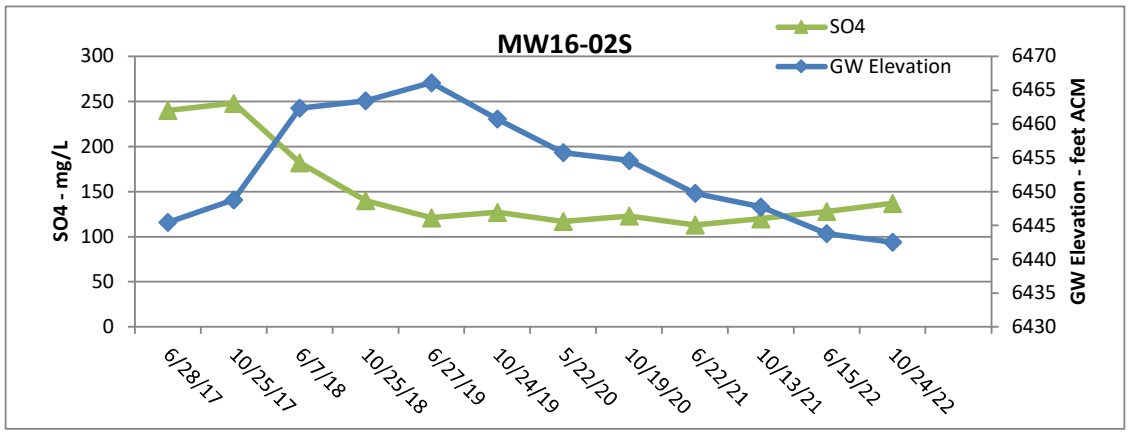


Appendix B. Groundwater Trend Plots

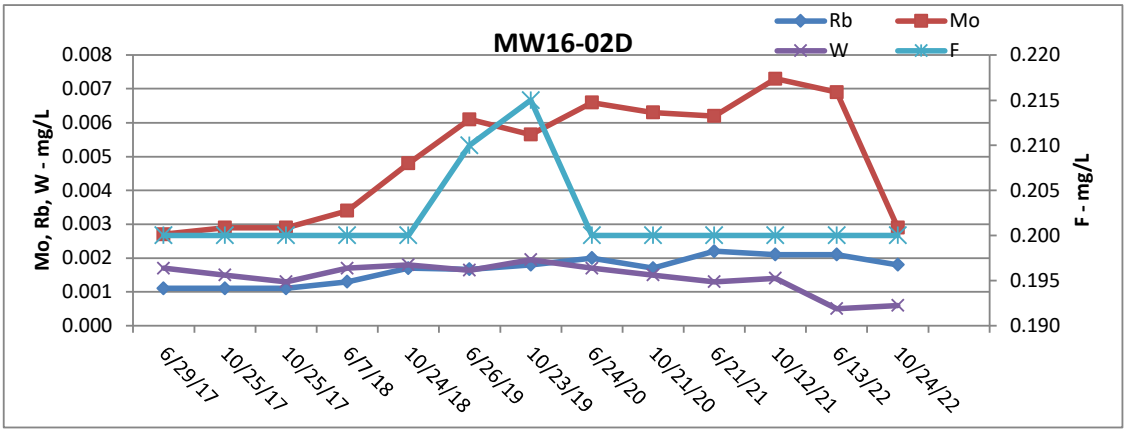


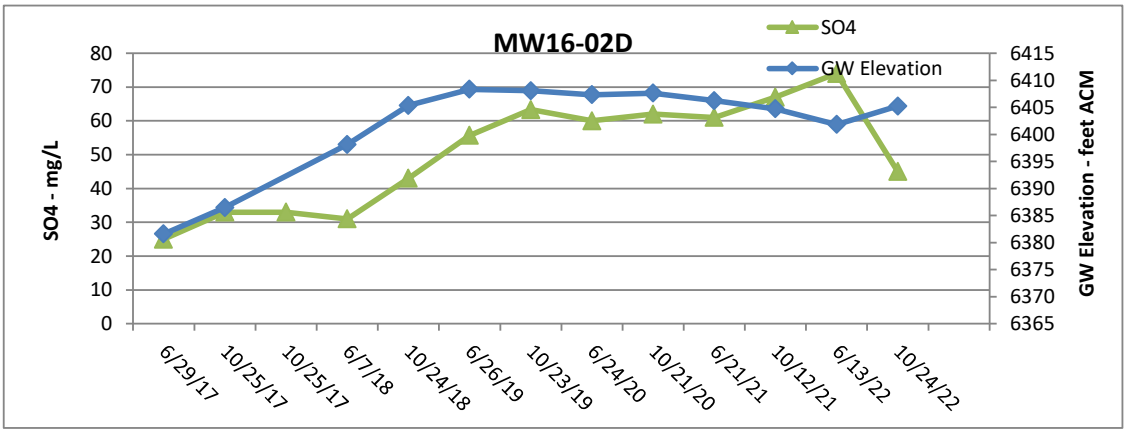


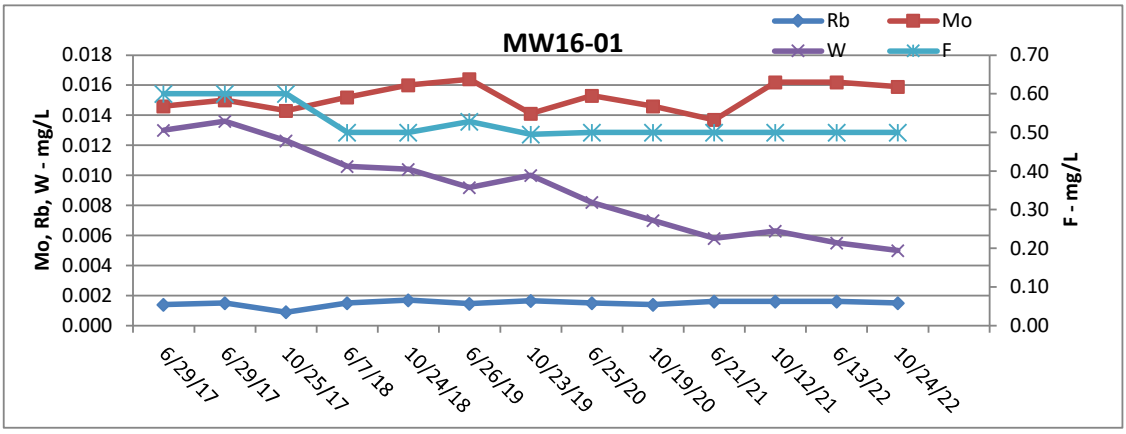


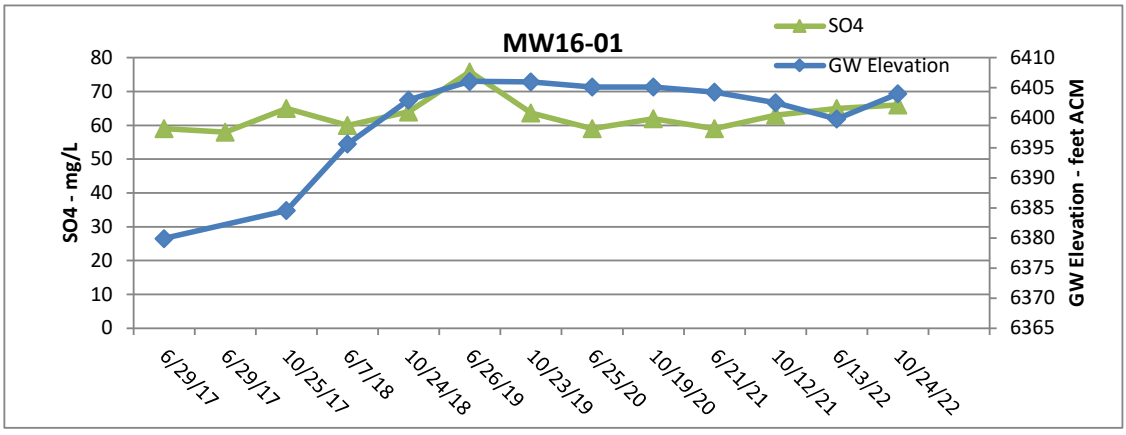


Appendix B. Groundwater Trend Plots



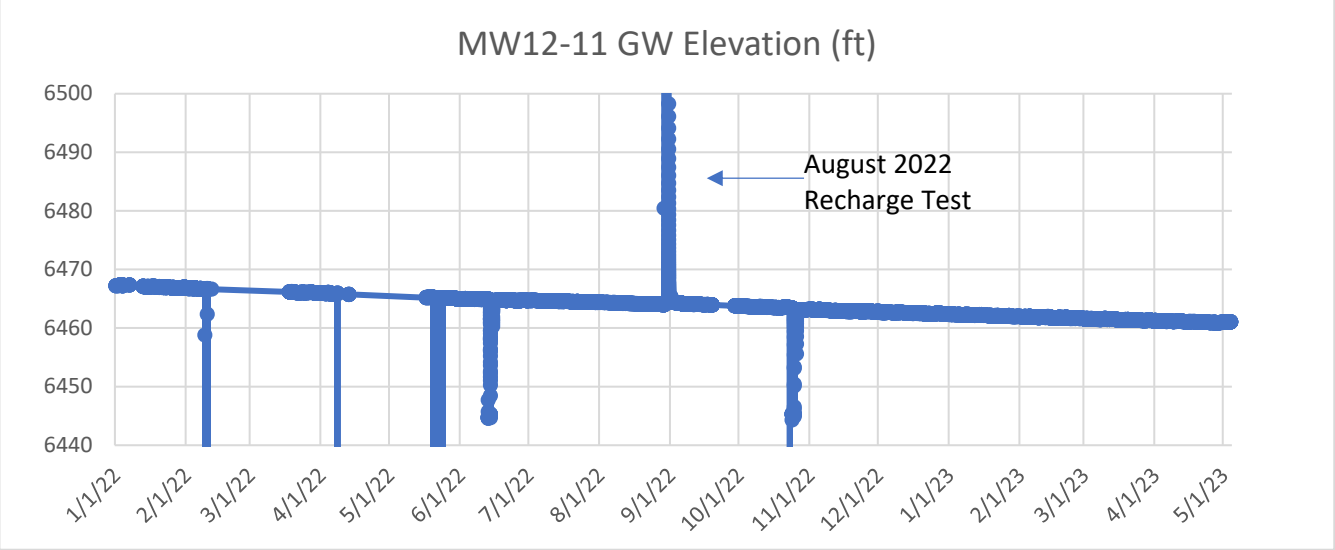






APPENDIX C

2022 WATER LEVEL HYDROGRAPHS FOR IMPOUNDMENT AREA MONITORING WELLS


MW12-11 GW Elevation (ft)
6500
6490
6480
6470
6460
6450
6440
August 2022
Recharge Test
1/1/22
2/1/22
3/1/22
4/1/22
5/1/22
6/1/22
7/1/22
8/1/22
9/1/22
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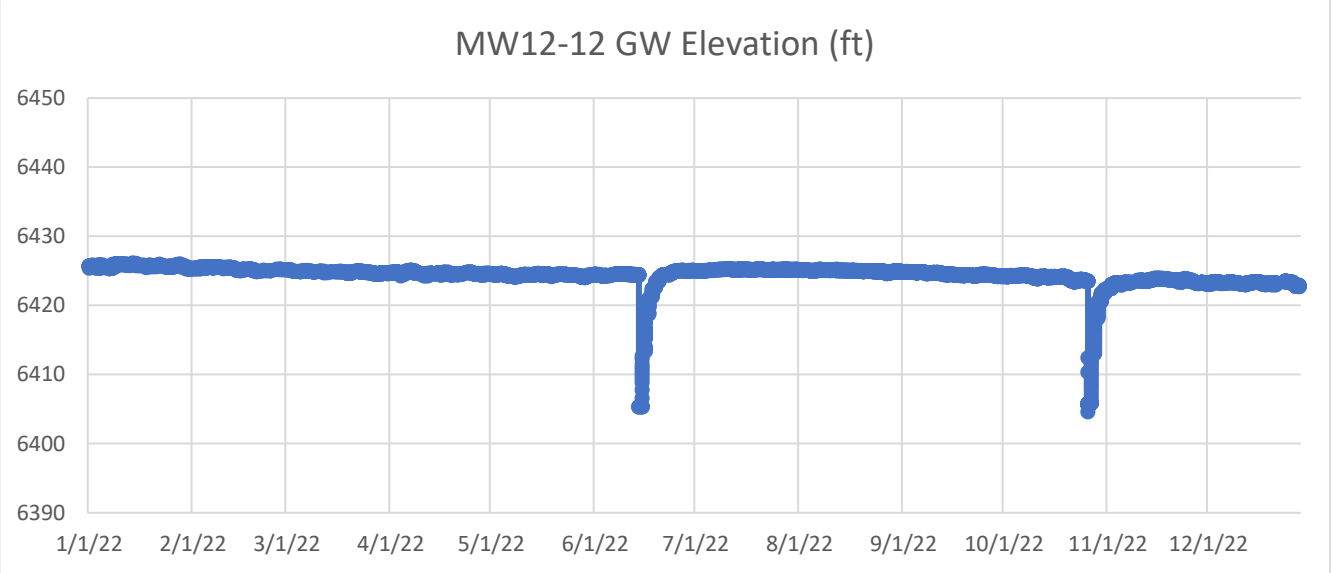
2/1/23
3/1/23
4/1/23
5/1/23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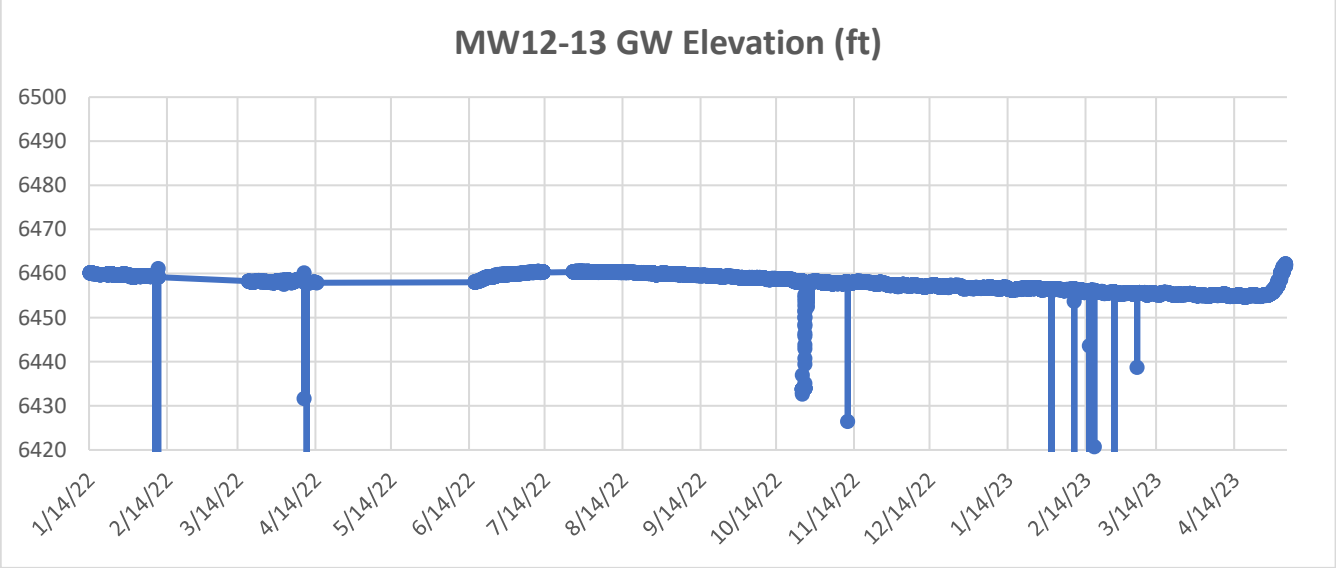
9/1/22
10/1/22
11/1/22
12/1/22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6480
6470
6460
6450
6440
6430
6420
1/14/22
2/14/22
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4/14/22
5/14/22
6/14/22
7/14/22
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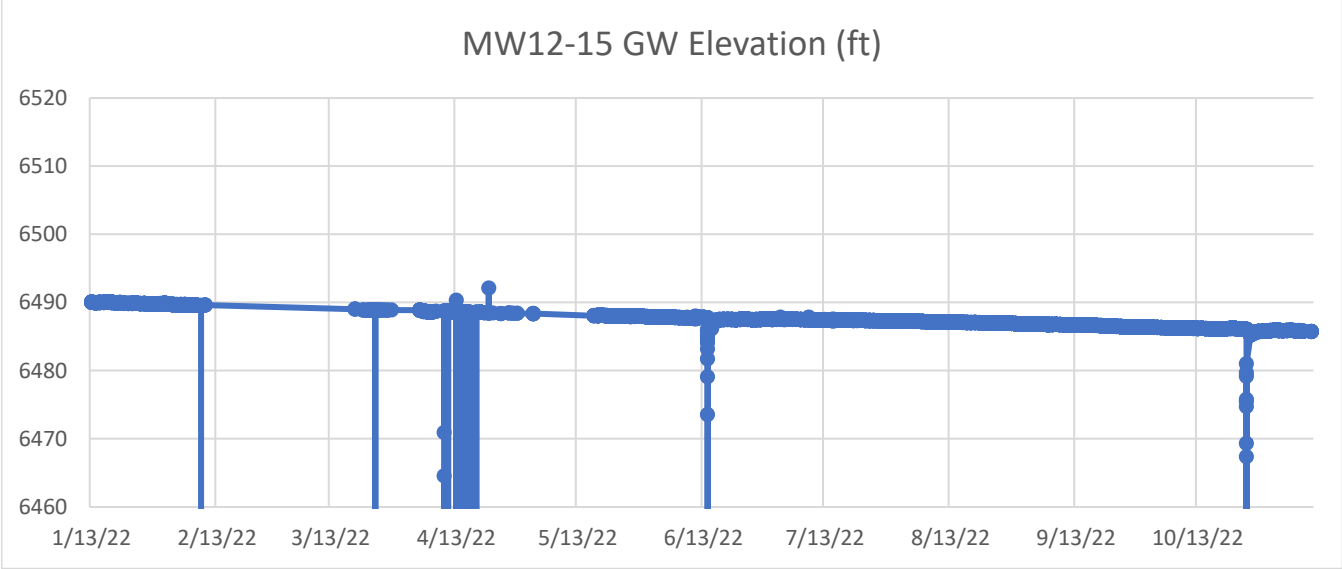
1/14/23
2/14/23
3/14/23
4/14/23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6510
6500
6490
6480
6470
6460
1/13/22
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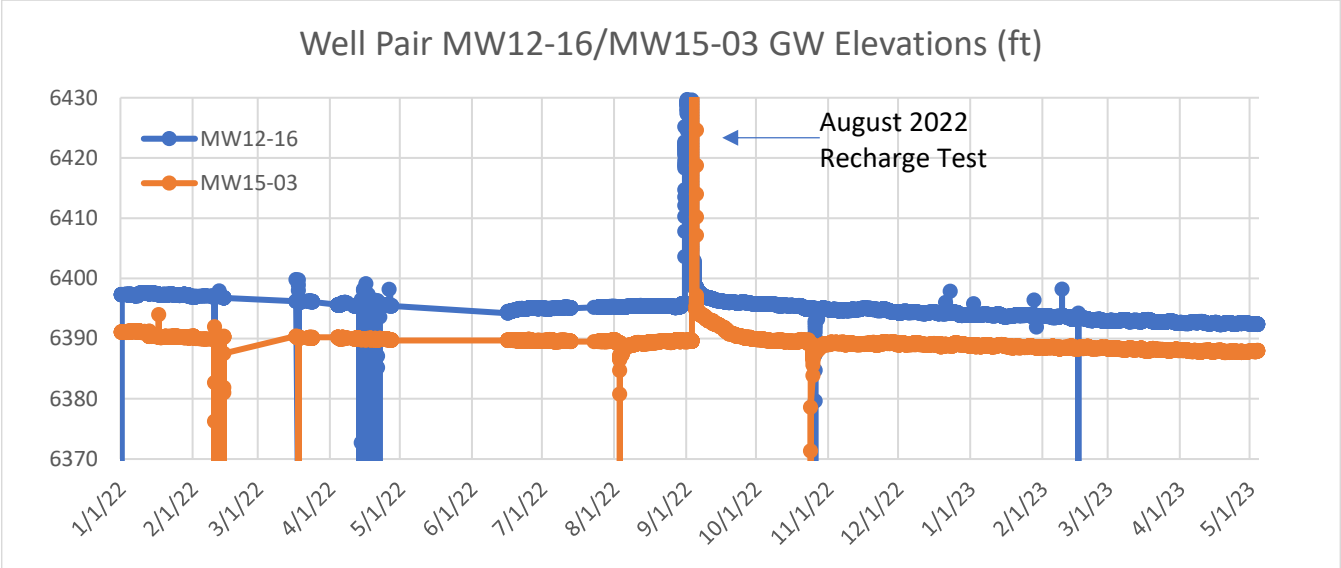
8/13/22
9/13/22
10/13/22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MW12-16
MW15-03
August 2022
Recharge Test
6430
6420
6410
6400
6390
6380
6370
1/1/22
2/1/22
3/1/22
4/1/22
5/1/22
6/1/22
7/1/22
8/1/22
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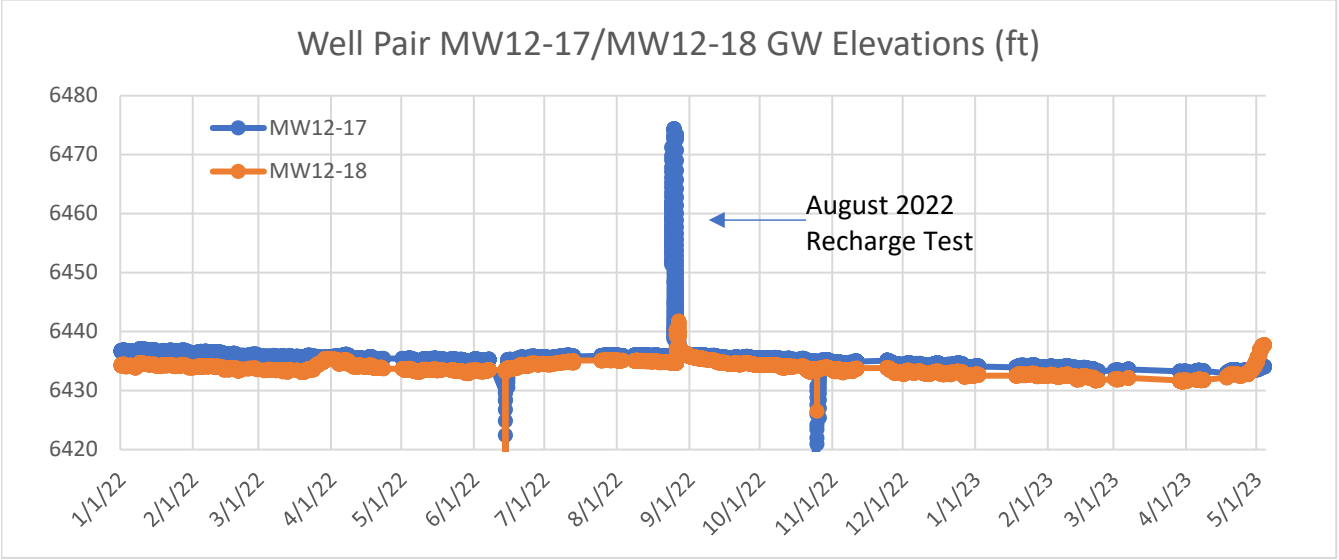
3/1/23
4/1/23
5/1/23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MW12-18
August 2022
Recharge Test
6480
6470
6460
6450
6440
6430
6420
1/1/22
2/1/22
3/1/22
4/1/22
5/1/22
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7/1/22
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3/1/23
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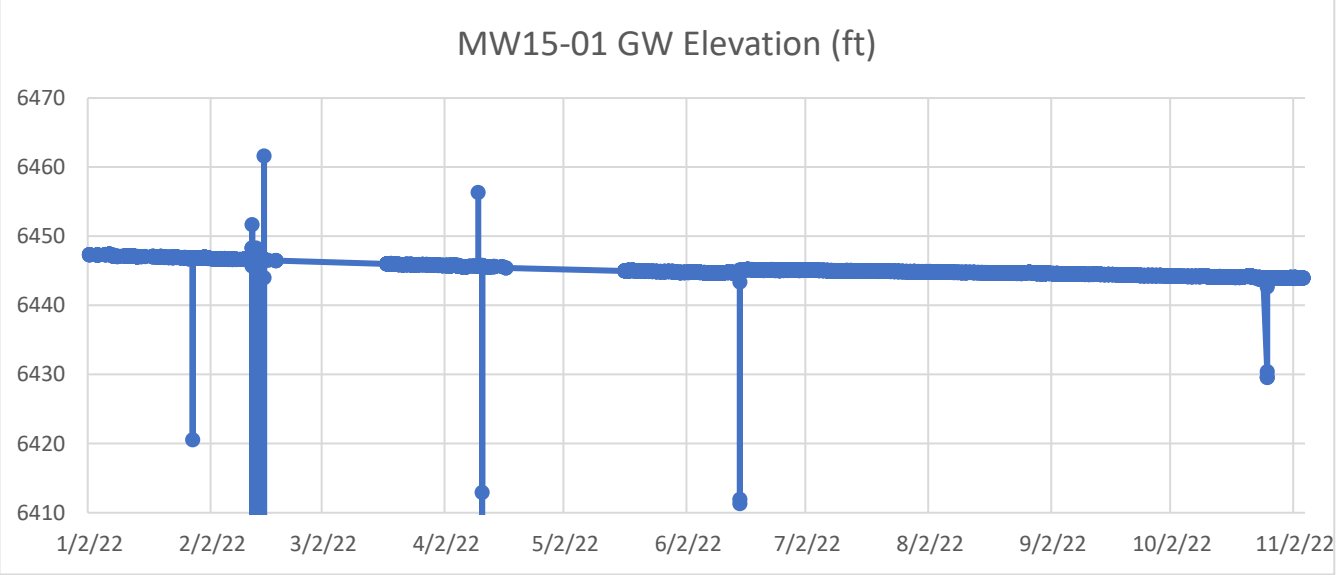
5/1/23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6440
6430
6420
6410
1/2/22
2/2/22
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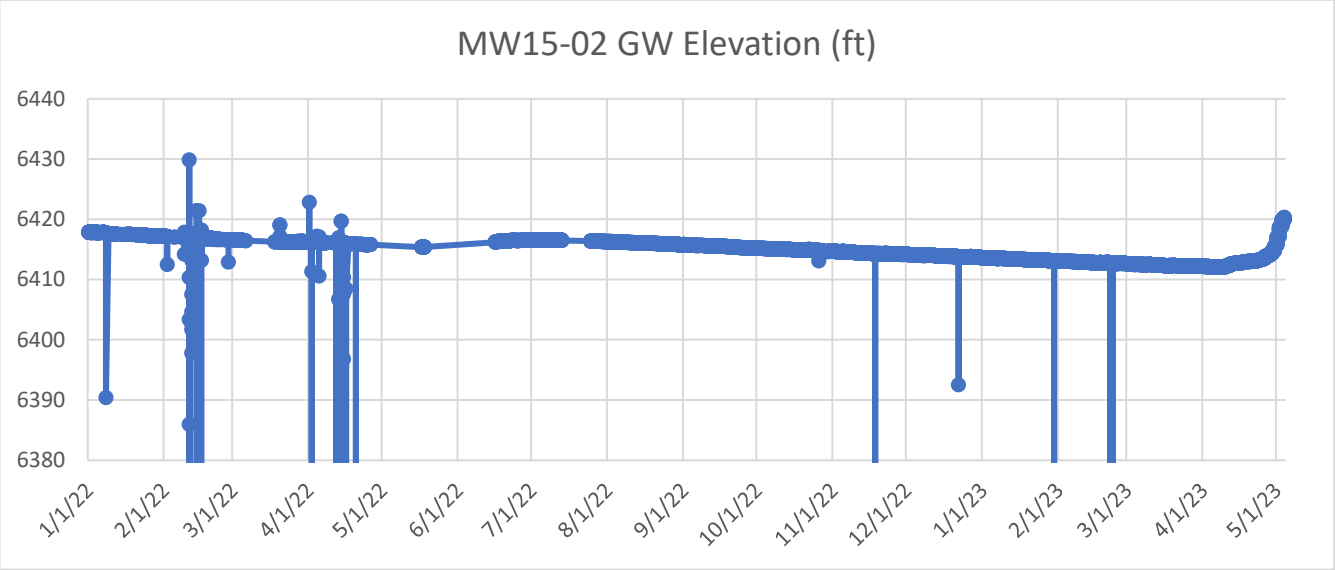
8/2/22
9/2/22
10/2/22
11/2/22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6430
6420
6410
6400
6390
6380
1/1/22
2/1/22
3/1/22
4/1/22
5/1/22
6/1/22
7/1/22
8/1/22
9/1/22
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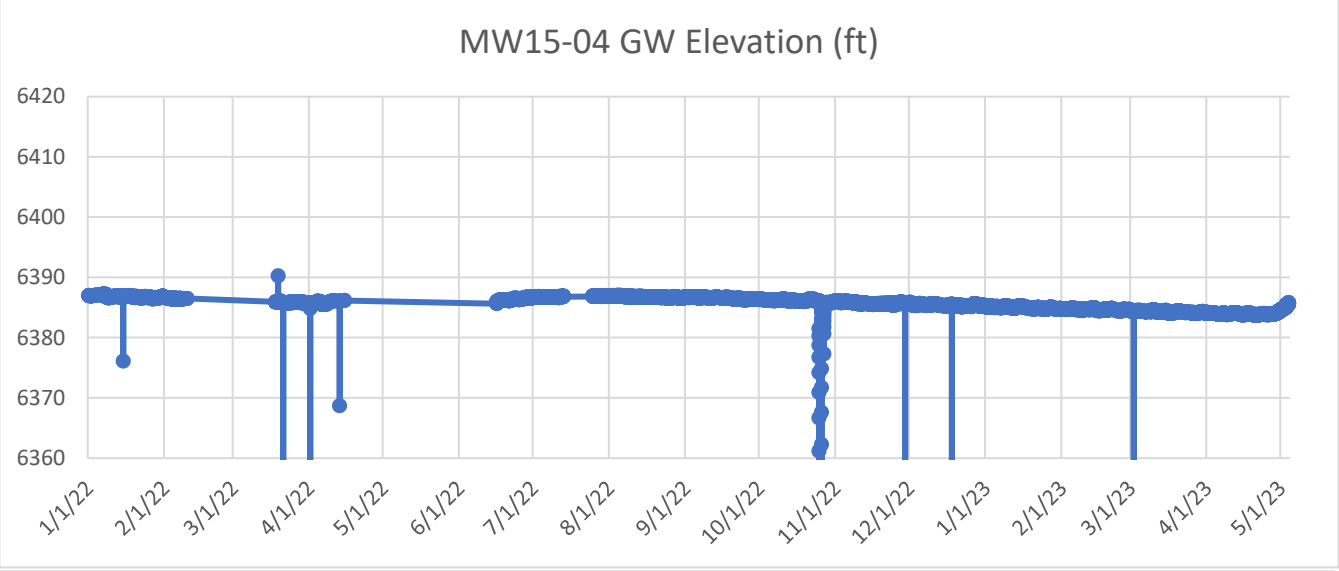
2/1/23
3/1/23
4/1/23
5/1/23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6410
6400
6390
6380
6370
6360
1/1/22
2/1/22
3/1/22
4/1/22
5/1/22
6/1/22
7/1/22
8/1/22
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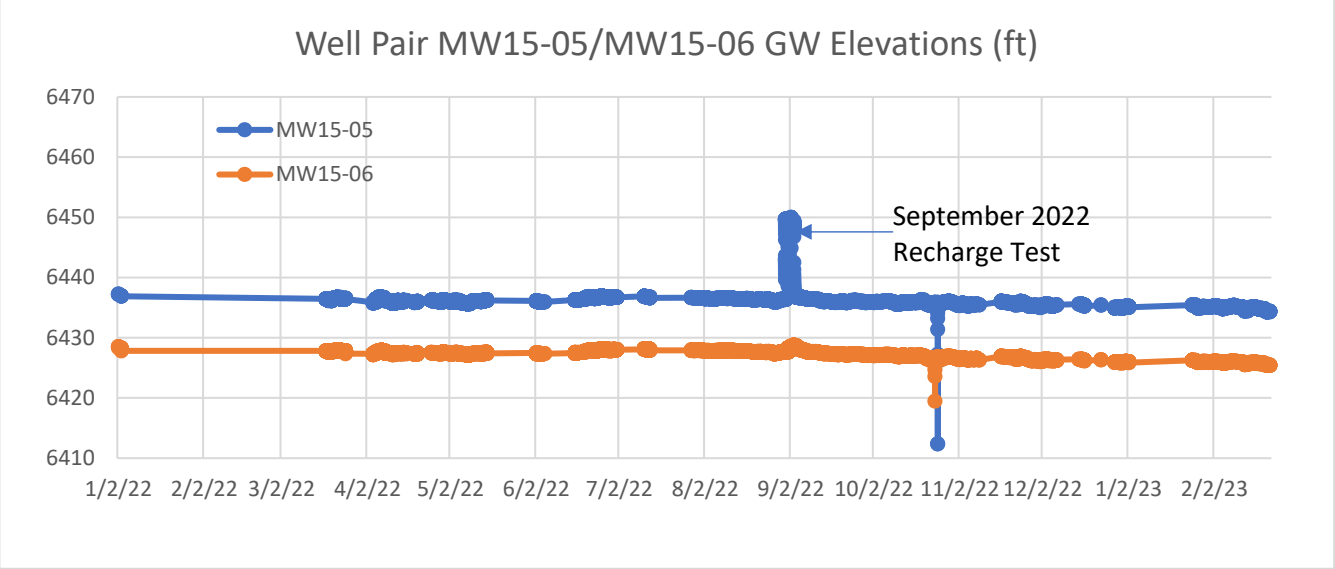
2/1/23
3/1/23
4/1/23
5/1/23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MW15-05
MW15-06
September 2022
Recharge Test
6470
6460
6450
6440
6430
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6410
1/2/22
2/2/22
3/2/22
4/2/22
5/2/22
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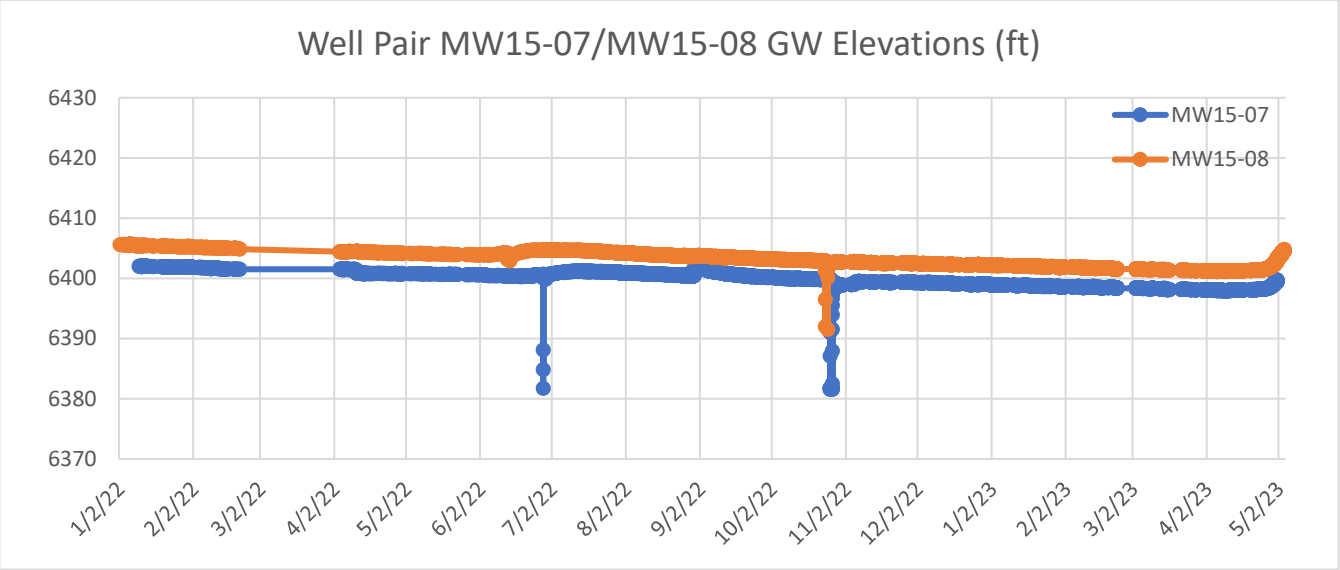
11/2/22
12/2/22
1/2/23
2/2/23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MW15-07
MW15-08
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6420
6410
6400
6390
6380
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1/2/22
2/2/22
3/2/22
4/2/22
5/2/22
6/2/22
7/2/22
8/2/22
9/2/22
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11/2/22
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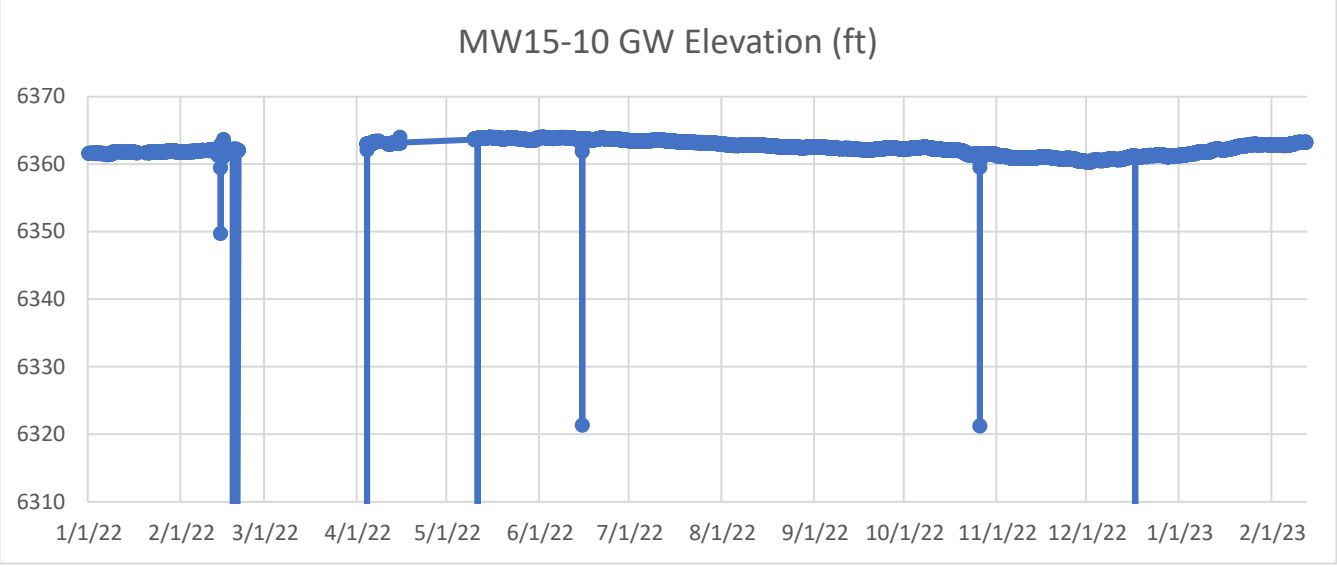
1/2/23
2/2/23
3/2/23
4/2/23
5/2/23


MW15-10 GW Elevation (ft)
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6350
6340
6330
6320
6310
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4/1/22
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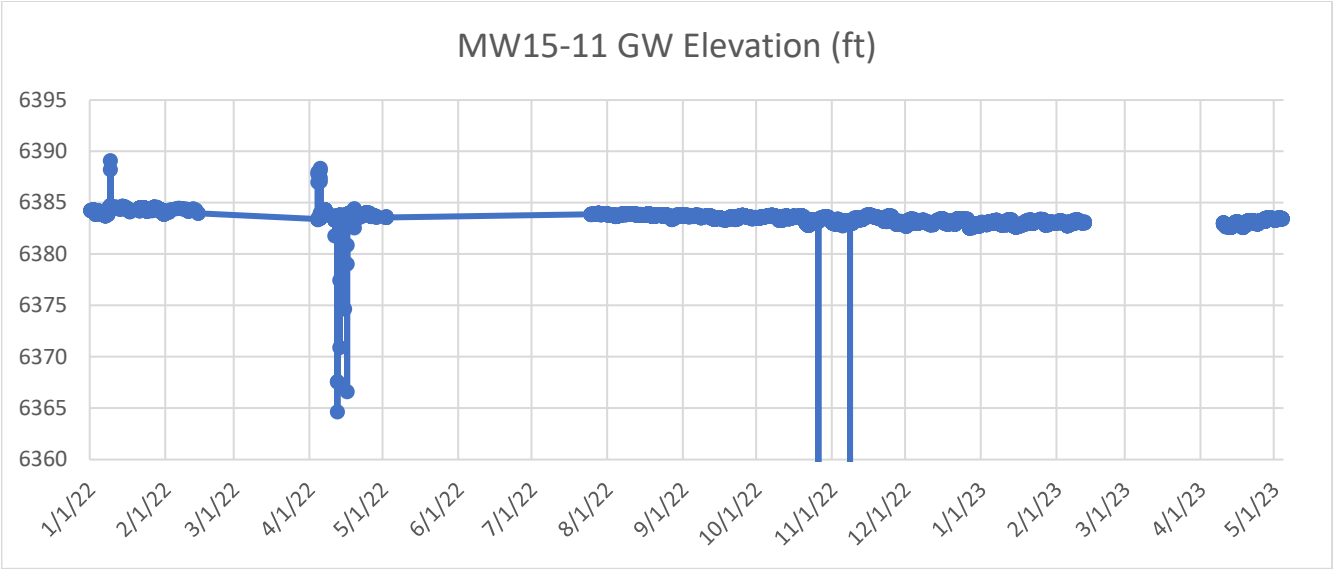
11/1/22
12/1/22
1/1/23
2/1/23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6390
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6380
6375
6370
6365
6360
1/1/22
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5/1/22
6/1/22
7/1/22
8/1/22
9/1/22
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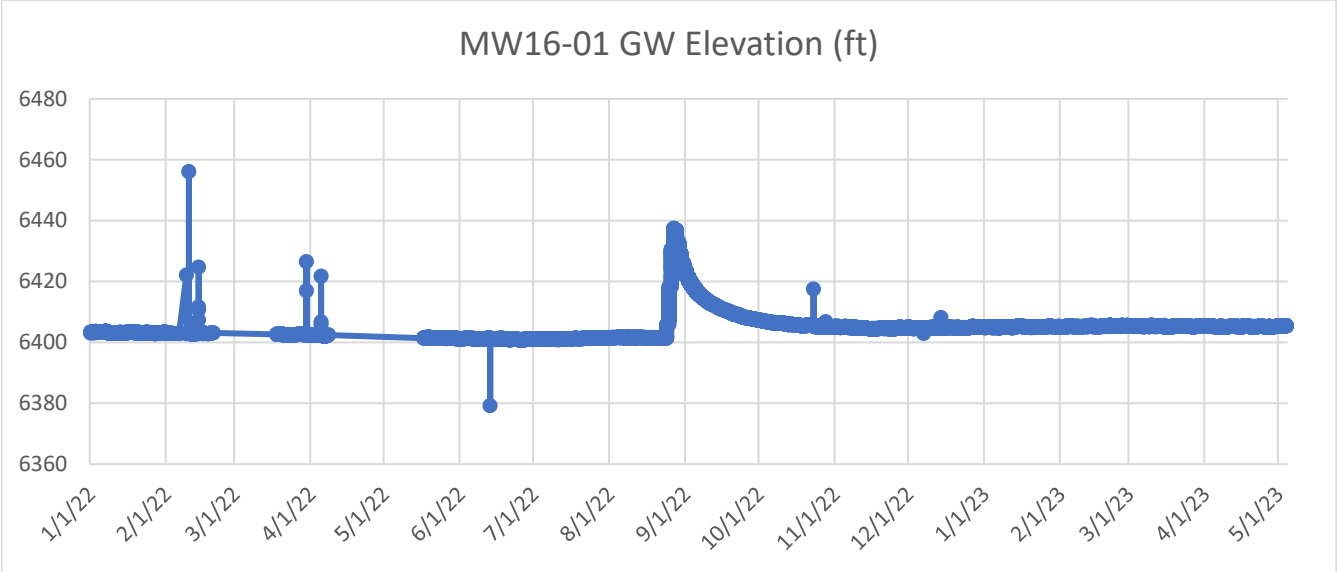
12/1/22
1/1/23
2/1/23
3/1/23
4/1/23
5/1/23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6380
6360
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6/1/22
7/1/22
8/1/22
9/1/22
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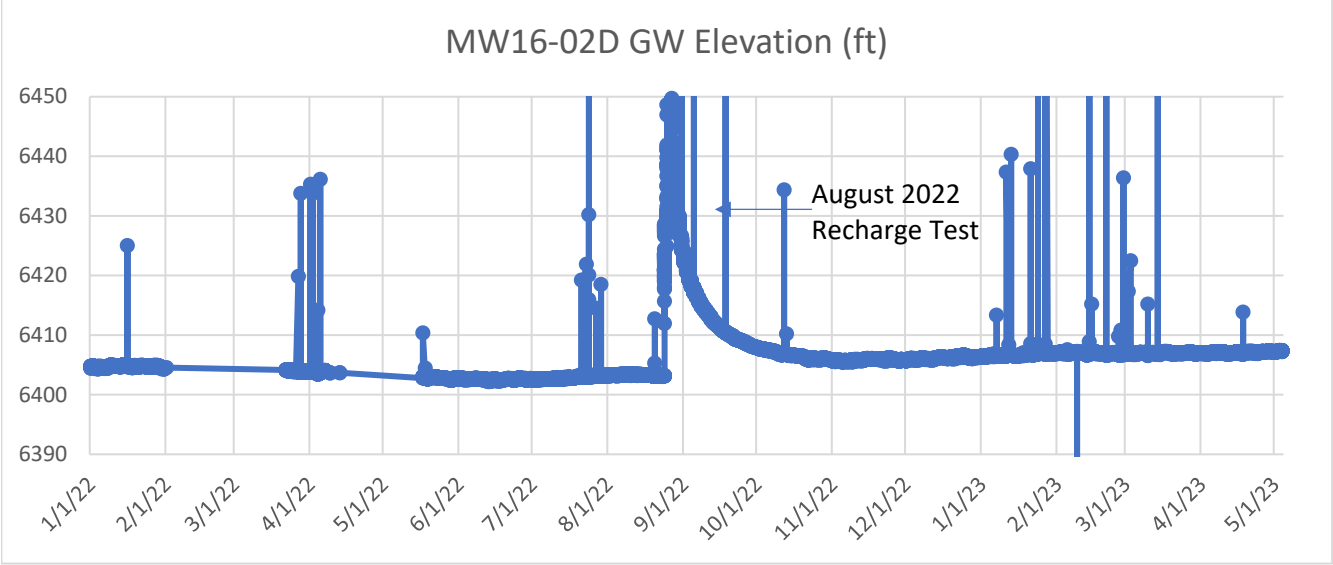
2/1/23
3/1/23
4/1/23
5/1/23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6430
6420
6410
6400
6390
August 2022
Recharge Test
1/1/22
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3/1/22
4/1/22
5/1/22
6/1/22
7/1/22
8/1/22
9/1/22
10/1/22
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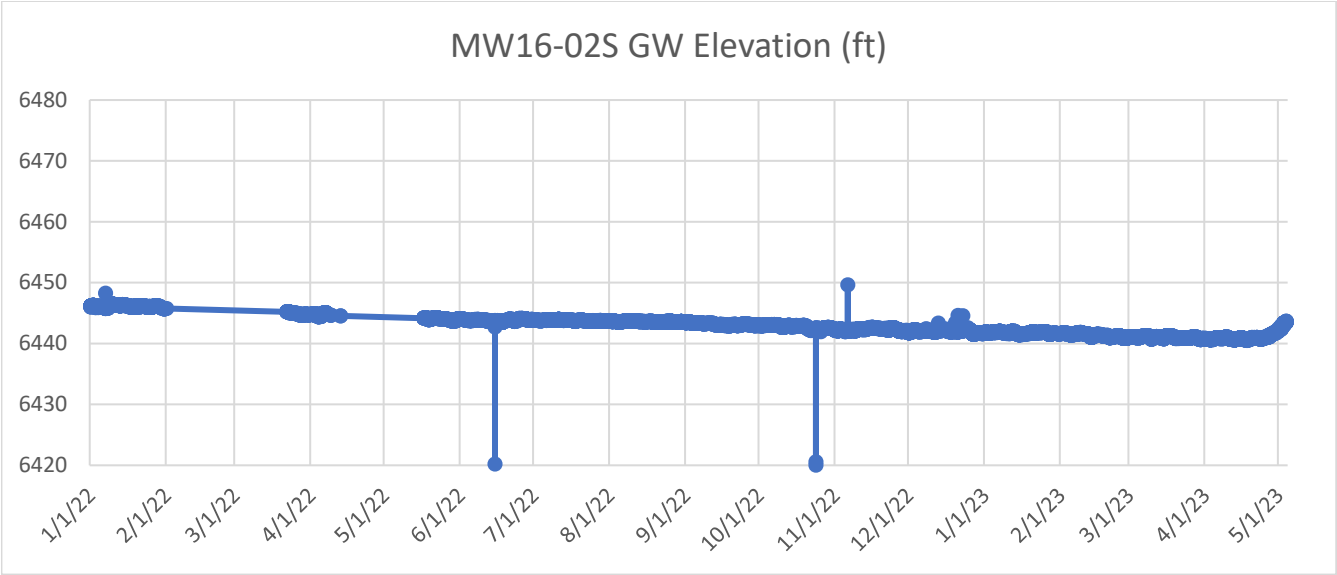
2/1/23
3/1/23
4/1/23
5/1/23


MW16-02S GW Elevation (ft)
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6470
6460
6450
6440
6430
6420
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2/1/22
3/1/22
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6/1/22
7/1/22
8/1/22
9/1/22
10/1/22
11/1/22
12/1/22
1/1/23
2/1/23
3/1/23
4/1/23
5/1/23

5.0 Materials Inventory

5.1 Topsoil

Soil was salvaged in 2022 in association with Revision 22-002 and placed in a temporary stockpile. Soil salvage in this area continued into 2023 and final volumes and stockpile location will be reported in the 2023 Annual Report.

Table 5.1 contains the current topsoil inventory by stockpile. A history of topsoil stockpile activity can be found in the 2014 Annual Report and subsequent annual reports.

In 2023, topsoil will be salvaged in association with the D-East highwall remediation project (Revision 22-002) and near the tailings pond waterline as needed.

Table 5.1. Soil Stockpile Inventory through 2020

Stockpile	Cubic Yards - 2020	Cubic Yards – 2021
Bunker[1]	95,900	95,900
Mouton Road	474,700	474,700
Bumtown II	37,420	37,420
Total	**608,020**	**608,020**

5.2 Alluvium

Approximately 20 million cubic yards of suitable reclamation material has been identified in the Central Zone/McQueen area.

MR provide the State NRDP program with approximately 182,000 cubic yards of alluvium from the Lunchroom Stockpile for backfill at the Parrot Tailings removal site. Approximately 1,363,000 cubic yards of alluvium remain in the Lunchroom Stockpile.

Approximately 1,067,000 cubic yards of alluvium are currently contained in a temporary stockpile near four-corners. This material will be used for Zone F for the 6450-lift of the YDTI.

No new stockpiling of alluvium is anticipated in 2023.

5.3 Leached Capping

All leached capping mined in 2022 was used for tailing embankment construction.

[1] Sometimes referred to as the Four Corners Stockpile.

All leached capping mined in 2023 will be used for tailings embankment construction. No stockpiling of leach capping is anticipated in 2023.

5.4 Parrot Tailings

Approximately 78,000 cubic yards of mine wastes from the historic Parrot Smelter area were brought to MR by Montana Natural Resource Damage Program (NRDP) in 2022. It is anticipated that material haulage has been completed from the Parrot Smelter area to MR and there will be no material brought to or taken from MR in 2023.

Water from the Parrot Smelter project area was pumped to MR in 2022 (see Section 4). It is unknown if water will be pumped to MR in 2023.

5.5 Compost

MR stockpiled approximately 5,670 cubic yards of compost on the YDTI West Embankment.

To: Mark Thompson, Montana Resources Inc.

From: Stephen Frazee, PE, Water & Environmental Technologies

CC: Josh Vincent PE, Water & Environmental Technologies
Jim Ford, State of Montana – Natural Resource Damage Program

Date: June 5, 2023

Re: **Montana Resources (MR) Lunchroom Dump Borrow Material Sample Summary**

Per Montana Resources' (MR's) request, this memo summarizes sampling results from the property as shown on **Figure 1,** known as the "Lunchroom Dump". Material from this area was utilized as an alternative backfill source for the Parrot Tailings Waste Removal Project.

ICS began importing backfill from the Lunchroom Dump in January 2022 and concluded in December 2022. The total import volume over that period was 182,400 cubic yards (measured as compacted cubic yards at the Parrot Site).

WET utilized a field portable X-ray Fluorescence (FPXRF) spectrometer to screen soils from the Lunchroom Dump to ensure the soils were below action levels (per the Parrot QAPP) for the five constituents of concern (Arsenic, Cadmium, Lead, Copper, and Zinc) prior to importing them to the Parrot Site. Any soil that tested above action levels was set aside and not imported to the Parrot Site. Table 1 below summarizes the sampling results.

Table 1: Lunchroom XRF Sample Results

	Soil Concentration (ppm)				
	Arsenic	**Cadmium**	**Lead**	**Copper**	**Zinc**
Parrot Project Action Level	200	20	1000	1000	1000
Lunchroom Dump Sample Average	37	0	389	216	215

Attachments:

Figure 1 – Site Locations

Water & Environmental TECHNOLOGIES

Phase IIB, IIC, and III
Parrot Site and MR Proposed Borrow Site

Parrot Tailings Removal Project
Butte MT, Silver Bow County

Job#: NRDPM15 Task 2

Date: 1/7/2022

Path: E:\NRDPM15\GIS\Figure1_Memo.mxd, Author: sampletech

FIGURE 1

To: Mark Thompson, Montana Resources

From: Jim Ford, Montana Department of Justice, NRDP

CC: Josh Vincent, PE, Water & Environmental Technologies, Inc.
Stephen Frazee, PE, Water & Environmental Technologies, Inc.

Date: April 10th, 2023

RE: Montana Resources Access Agreement – March 2023 Construction Records

Per the agreement signed December 13, 2016, and subsequent modifications between the State and Montana Resources (MR) on the Parrot Tailings, the State is required to provide construction records (Agreement Section I) for the following items:

- (i) the volume of all Parrot Tailings transported across MR Property and placed at the Stockpile Location;
- (ii) the amount, date and location of all Construction Dewatering Water delivered to the Construction Dewatering Access Points;
- (iii) the vehicle miles traveled by the State, Contractor(s), and Subcontractor(s) on the Mine Permitted Area; and
- (iv) all documentation associated with storm water management and discharge, including requirements of a general permit for storm water discharge related to construction activity on the Mine Permitted Area.

The following sections provide the information per Section I.

Tailings Volume (i)

A quantity of zero (0) cyds of waste were hauled from the Parrot site to MR during March 2023. Therefore, the Stockpile and Placement Location's did not receive any material in March 2023. Table 1 summarizes the waste volume hauled to MR through March 2023.

ICS reached the Phase IIC Volume Cap at the Stockpile location in December 2021. The December 2021, MR Construction Record Memo dated January 17, 2022, addressed the Stockpile capacity overage. Additional waste material will only be hauled to the Stockpile Location with written approval from Montana Resources.

Table 1. Parrot Waste Volume Summary

Month	Stockpile Location Volume (BCYD)	Placement Location Volume (BCYD)	Total
May-21	634	0	634
June-21	6,497	0	6,497
July-21	17,832	16,856	34,688
August-21	30,081	17,668	47,749
September-21	34,242	11,386	45,628
October-21	34,020	22,076	56,096
November-21	51,867	1,080	52,947
December-21	14,532	41,569	56,101
January-22	0	24,387	24,387
February-22	0	0	0
March-22	0	0	0
April-22	0	0	0
May-22	0	180	180
June-22	0	5,986	5,986
July-22	0	0	0
August-22	0	18,461	18,461
September-22	0	60	60
October-22	0	3,809	3,809
November-22	0	25,085	25,085
December-22	0	0	0
January-23	0	0	0
February-23	0	0	0
March-23	0	0	0
Total	189,705	188,603	378,308
Phase IIC Volume Cap	179,719	200,000	379,719
Remaining Volume	-9,986	11,397	1,411

Dewatering Volume (ii)

ICS started discharging water from the construction dewatering system to MR on March 11, 2021. Table 2 summarizes the flow and total volume through March 31st, 2023. On November 13th, 2022, the dewatering pump and system froze, forcing ICS to shut down the system in its entirety for the winter months. Therefore, no water was discharged to MR in March 2023. A total of 19.69 MGal has been pumped to MR through March 31st, 2023. While the system was operating, the average flow rate was 27 gpm. No additional construction dewatering is anticipated at this time.

Water has not been hauled to the alternative water disposal location.

Table 2. Construction Dewatering Flow Summary

Month	Volume Discharged (MG)
March-21	1.23
April-21	1.41
May-21	1.17
Jun-21	1.37
Jul-21	1.08
Aug-21	1.19
Sep-21	1.08
Oct-21	0.86
Nov-21	1.28
Dec-21	1.07
Jan-22	1.09
Feb-22	0.93
Mar-22	1.01
Apr-22	0.92
May-22	0.44
Jun-22	0.75
Jul-22	0.61
Aug-22	0.89
Sep-22	0.56
Oct-22	0.4
Nov-22	0.34
Dec-22	0
Jan-23	0
Feb-23	0
Mar-23	0
Total	19.69
Average Flow	27

MR Mileage (iii)

ICS recorded zero (0) miles driven on MR property from the Parrot Excavation to the waste Stockpile and Placement Locations in March 2023, and 20,485 miles total for the project. Table 3 summarizes the MR mileage.

Table 3. ICS Mileage Summary

Month	MR Mileage
May-21	127
June-21	100
July-21	2,022
August-21	2,052
September-21	1,949
October-21	1,649
November-21	914
December-21	3,799
January-22	2,140
February-22	0
March-22	0
April-22	0
May-22	5
June-22	692
July-22	0
August-22	411
September-22	2
October-22	354
November-22	2,693
December-22	0
January-23	1,576
February-23	0
March-23	0
Total	20,485

Water & Environmental Technologies (WET) recorded zero miles driven on MR property in March 2023, and 76-miles total for the project. Table 4 summarizes WET's mileage.

Table 4. WET Mileage Summary

Month	MR Mileage
December-21	3
January-22	12
February-22	8
March-22	16
April-22	11
May-22	7
June-22	3
July-22	0
August-22	4
September-22	2
October-22	0
November-22	2
December-22	1
January-23	7
February-23	0
March-23	0
Total	76

Storm Water Management Documentation (iv)

The Storm Water Pollution Prevention Plan (SWPPP) was transferred to ICS in February 2021. ICS is currently managing the SWPPP according to MDEQ requirements. A copy of the transfer memo and transfer approval was provided with the March 2021 memo. In January 2023, ICS provided the State with their 2022 annual SWPPP documentation. This includes SWPPP inspection records and maps. The January 2023 Construction Records Memo dated February 24th, 2023, included this information.

6.0 Disturbance and Bonding Status

6.1 2022 Disturbance Summary

Approximately 33 acres of new disturbance was added within the permitted disturbance boundary at MR in 2022.

Montana Resources mined 15.3 million tons of non-ore rock in 2022. This rock was predominately used for constructing the Yankee Doodle Tailings Impoundment (YDTI).

The bottom of the Continental Pit is at the 5160’ elevation in the North Pit and at the 5280’ elevation in the South Pit.

A total of 14.4 million tons of ore were mined in 2022.

It is anticipated that approximately 50 acres of new disturbance will occur in 2023, mostly associated with topsoil salvage and stockpiling, YDTI construction, and activities associated with Revision 22-002.

6.2 Bond and Permit Status

Present Bond Review

The last 5-year bond review was completed in 2021 and the bond was increased from $114,602,575 to $116,477,500.

Bond determination for Amendment 11 to Permit 30 was an increase of $36,500. This increment was posted in 2022 for a total bonded amount of $116,514,000.

Bond determination for Revision 22-001 to Permit 30 was an increase of $391,203. This increment was posted in 2022 for a total bonded amount of $116,905,203.

Bond determination for Revision 22-002 to Permit 30 resulted in no increase; however, it is anticipated that surplus bond may be available following Revision 22-022. This could be resolved during a subsequent bond determination or at the next 5-year bond review.

Operating Permit Amendments and Revisions

The mine operating permit (00030) is active.

One minor Amendment to the Operating Permit was approved during 2022:

- Minor Amendment 011 - Horseshoe Bend Rock Disposal Site and associated drainage system.

Two minor Revisions to the Operating permit were approved during 2022:

- Revision 22-001 – Precipitation Plant Relocation;

- Revision 22-002 – D East Disturbance Boundary Adjustment.

For Operating Permit Number: 00030:

- Total Permit Area 6132 Acres
- Total Acreage Currently Disturbed 5566 Acres
- Amount of Bond $116,905,203
- Amount of Obligated Bond $116,905,203

Table 6.1 is a more detailed table of facility acreages. Within the permit boundary there are areas subject to differing bonding requirements. Table 6.2 identifies these areas by designation. Plate II illustrates their locations.

MR, DEQ, and others have collaboratively developed mapping and planimetry to define the various areas and acreages and developed a methodology for annually updating these areas. Areas identified in this annual report generally agree with the areas utilized in the most recent 5-year bond review.

Table 6.1. Acreage Covered by Operating Permit

Description	**Area (Acres)**
Continental Pit	1000
Berkeley Pit	684
Primary Crusher	44
Concentrator Area	95
YDTI Embankments	697
YDTI Beach	1028
YDTI Pond	480
Associated Facilities	1328
Reclamation	210
Undisturbed	566
Total	**6132**

Table 6.2. Areas Subject to Various Bonding Requirements

Bond Status		Area (Acres)
Exempt from Bonding	BMFOU	1001
	GMMIA	17
	Pre-1971 Process Facilities	139
Bond Status	Pre-1974	1756
	Bond by Calculation	3219
	Total	**6132**

7.0 Yankee Doodle Tailings Impoundment

The Yankee Doodle Tailings Impoundment (YDTI) is located entirely within Montana Resources' property. The embankment is currently being constructed to a permitted elevation of 6450 feet, ACM datum. The tailings pond had a 2022 year-end elevation of 6358 feet.

7.1 *Inspection*

The YDTI was visually inspected monthly, throughout 2022 in conjunction with routine monitoring of instrumentation.

The Engineer of Record (EOR) annual inspection of the YDTI was conducted on September 28, 2022. The Annual Inspection Report (AIR) was submitted to DEQ on January 20, 2023. The AIR provides detailed information regarding the operation, maintenance, monitoring, and construction of the YDTI.

Also submitted with the AIR were the Corrective Action Plans associated with the EOR recommendations. Those plans are attached.

7.2 *Ongoing Disturbance*

The YDTI Pond typically increases its area of inundation by 18-25 acres annually with normal milling operations. As the elevation of the pond rises, undisturbed ground at the north end of the pond is inundated by the pond. However, in 2022, the pond elevation remained relatively static as a result of the BMFOU Pilot Project.

7.3 *Site Investigation*

In 2022, a multi-year site investigation of the YDTI continued with additional borings in the embankments. The reports and data will be made available to DEQ and the IRP.

Montana Resources

600 Shields Ave.
Butte, Montana 59701

January 20, 2023

Montana Department of Environmental Quality
Hard Rock Mining Bureau
Attn: Garrett Smith
P.O. Box 200901
Helena, MT 59620

Re: 2022 Annual Inspection Report for Yankee Doodle Tailings Impoundment and Corrective Action Plan for Recommendations

Dear Mr. Smith:

The Engineer of Record (EOR) annual inspection of the Montana Resources, LLC (MR) Yankee Doodle Tailings Impoundment (YDTI) was conducted on September 28, 2022, by Mr. Daniel Fontaine, P.E., the Engineer of Record (EOR). Mr. Fontaine was accompanied during the site inspection by Mr. Mike Harvie (Manager of Engineering and Geology) and Mr. Travis Birkenbuel (Mine Engineer) of MR.

The EOR annual inspection is required under Section 82-4-381 of the Montana Code Annotated (MCA), which also requires the mine operator to prepare a Corrective Action Plan (CAP) summarizing the recommendations of the EOR and an implementation schedule for the corrective actions. KP prepared the 'Yankee Doodle Tailings Impoundment – 2022 Annual Inspection Report (AIR) (KP, 2023), following the inspection.

This letter documents MR's CAP in response to the four recommendations presented by the EOR:

1. Maintain reductions in freshwater use from the Silver Lake Water System to the extent reasonably practicable and continue the Pilot Project to incrementally reduce the water inventory in the YDTI supernatant pond towards the target of approximately 15,000 acre-ft (continuation of 2021 recommendation).

2. Modify the tailings distribution system by extending Line 2 to allow discharge at location Discharge 3-2 (NS-1) and add a discharge location between the current locations of Discharge 3-1 (EW-1) and Discharge 3-2 (NS-1) when the EL. 6,450 ft raise of the embankment is completed. Use of 12-inch discharge lines along the extension of Line 2 to location Discharge 3-2 (NS-1) would satisfy the recommendation (modification of 2021 recommendation).

3. Regrade the upstream slope of the embankment during relocation of the tailings delivery pipelines (Lines 2 and 3) to the tailings pipeline corridor for EL. 6,450 ft lift. Regrade the embankment upstream slope to cover and incorporate the tailings pipeline bench along the EL. 6,400 ft lift. Implement the alluvium facing layer between the crest of the pipeline corridor along the EL. 6,450 ft lift and the upstream alluvial facing of the EL. 6,400 ft lift along the regraded upstream slope prior to cutting off access with placement of the tailings pipelines. The intent is to create a continuous layer of alluvium between the EL. 6,450 pipeline corridor and the alluvium facing previously placed as part of the EL. 6,400 ft lift construction. This recommendation

applies to the portion of the East-West Embankment in the Central Pedestal Area to the east of approximately Section 23+00NW (Discharge location EW-1) and the entire North South Embankment.

4. Develop and implement a new system to collect flows along the Seep 10 bench and convey these flows to the HsB Pond (continuation of 2021 recommendation).

MR has developed the following CAP that is expected to effectively address the recommendations contained in the AIR.

1. **Maintain reductions in freshwater use from the Silver Lake Water System to the extent reasonably practicable and continue the Pilot Project to incrementally reduce the water inventory in the YDTI supernatant pond towards the target of approximately 15,000 acre-ft (continuation of 2021 recommendation).**

MR continued to operate with reduced freshwater use in 2022 (in comparison to pre-2017 years), with an average SLWS flowrate for MR mine operations of approximately 1.2 MGPD (January through December inclusive). This is comparable with the average flowrate since mid-2017. MR anticipates comparable average use of freshwater in 2023.

Since commissioning the Pilot Project in September 2019, the net YDTI water deficit is approximately 2,730 million gallons (8,390 ac-ft), through 2022. MR is optimistic that the YDTI supernatant pond target inventory of approximately 15,000 acre-ft can be achieved over the next two years through a combination of the discharging water from the YDTI using the Pilot Project and continuing to operate with reduced SLWS freshwater use. The Pilot Project is not entirely within MR's control and due to these external factors and Polishing Plant interruptions, it is possible that the timeline could be impacted.

2. **Modify the tailings distribution system by extending Line 2 to allow discharge at location Discharge 3-2 (NS 1) and add a discharge location between the current locations of Discharge 3-1 (EW-1) and Discharge 3-2 (NS-1) when the EL. 6,450 ft raise of the embankment is completed. Use of 12-inch discharge lines along the extension of Line 2 to location Discharge 3-2 (NS-1) would satisfy the recommendation (modification of 2021 recommendation).**

In December 2022 MR issued a 2021 CAP deferral letter (MR, 2022) to request the recommended extension of Line 2 to occur once the EL. 6,450 ft lift construction is completed. Construction of the EL. 6,450 ft lift is still in progress and MR will extend Line 2 shortly after completion of the lift (including implementation of Recommendation 3 below). MR anticipates EL. 6,450 ft lift construction will be completed in 2023 or early in 2024 (see Recommendation 3 CAP below).

MR installed 18 new discharge locations around the YDTI consisting of single or twinned 12-inch pipelines from Q2 through Q3 2022. The addition of the 12-inch discharge pipelines has provided additional coverage around the YDTI; however, the existing Line 2 was not fitted with additional 12-inch discharge locations in 2022. As part of the extension of Tailings Delivery Line 2, MR will consider the addition of 12-inch discharge locations on

Line 2 to provide additional tailings deposition coverage in the area between Discharge 3-1 (EW-1) and Discharge 3-2 (NS-1).

3. **Regrade the upstream slope of the embankment during relocation of the tailings delivery pipelines (Lines 2 and 3) to the tailings pipeline corridor for EL. 6,450 ft lift. Regrade the embankment upstream slope to cover and incorporate the tailings pipeline bench along the EL. 6,400 ft lift. Implement the alluvium facing layer between the crest of the pipeline corridor along the EL. 6,450 ft lift and the upstream alluvial facing of the EL. 6,400 ft lift along the regraded upstream slope prior to cutting off access with placement of the tailings pipelines. The intent is to create a continuous layer of alluvium between the EL. 6,450 pipeline corridor and the alluvium facing previously placed as part of the EL. 6,400 ft lift construction. This recommendation applies to the portion of the East-West Embankment in the Central Pedestal Area to the east of approximately Section 23+00NW (Discharge location EW-1) and the entire North South Embankment.**

MR and KP discussed the methodology for placement of alluvium materials (Zone F) along the upstream slope of the embankment during the EOR annual inspection. The EL. 6,450 ft Issued for Construction (IFC) drawings indicate that the upstream slope of the Zone U and Zone F placement are to be field fit to maintain separation between the future tailings mass and the embankment rockfill zone, with a minimum nominal thickness of 3 ft alluvium.

The process of regrading the upstream slope and placing the alluvium by dozer (instead of dumping) is expected to enhance performance of this layer, particularly along the interface between the EL. 6,400 ft crest and base of the EL. 6,450 ft lift where segregated coarse rockfill is typically present due to the method of construction. Following construction of the EL. 6,450 ft embankment and tailings discharge corridor, MR will systematically relocate the tailings delivery pipelines from EL. 6,400 to EL. 6,450 ft allowing for additional U (rockfill) or F (alluvium) materials to be placed along the upstream face of the embankment. Figure 1 below outlines the proposed placement of materials, maintaining a minimum nominal thickness of 3 ft of alluvium along the entire upstream face.

MR will initiate sloping and placement of Zone F in Q1 of 2023, across the Central Pedestal Area east of Discharge 3-1. This will result in Discharge 3-1 temporarily being the furthest east discharge location. Upon completion of facing material along the Central Pedestal Area, MR in consultation with the EOR will determine if sloping and Zone F placement can be continued without snow cover on the tailings beach to control fugitive dust emissions, or if Line 3 is reconnected and the discharge line continues to be operated along the North-South Embankment on the EL. 6,400 pipe bench until site conditions are suitable to continue construction.

Montana Resources

600 Shields Ave.
Butte, Montana 59701

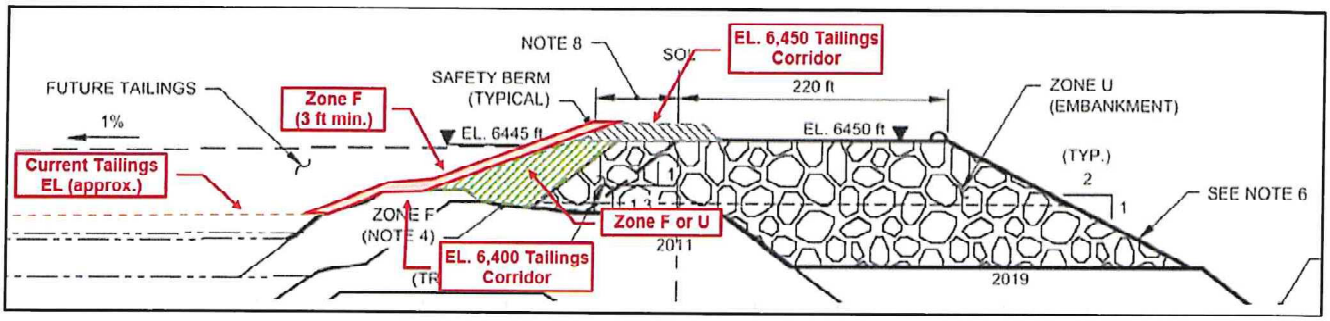


Figure 1 Proposed Alluvium Facing

4. **Develop and implement a new system to collect flows along the Seep 10 bench and convey these flows to the HsB Pond (continuation of 2021 recommendation).**

MR has prepared the area along the Seep 10 bench (EL. 5,900 ft) in advance of construction of the new Seep 10 drainage system proposed as part of the HsB Rock Disposal Site Stage 1 Drainage System (KP, 2021), as outlined in the 2021 CAP Deferral letter (MR, 2022). The Seep 10 drainage design concepts include the relocation of the Seep 10 pond and weir to the west, and a drainage pipeline to HsB Pond along the 7 percent Ramp.

MR will initiate construction of the Seep 10 drainage works shortly after the Issued-for-Construction (IFC) design drawings and associated technical specifications are developed by KP. The duration of construction will be dependent on the detailed design and the availability of materials (supply chain) specified in the design.

If there are any questions or concerns regarding the CAP and schedule please contact me at (406) 496-3211.

Sincerely,

Mark Thompson

Vice President of Environmental Affairs
Montana Resources, LLC

Montana Resources

600 Shields Ave.
Butte, Montana 59701

Attachments:

A. Engineer of Record – Verification

References:

Knight Piésold Ltd. (KP) 2021, Horseshoe Bend Rock Disposal Site – Stage 1 Drainage System Report, KP Ref . No. VA101-126/25-3 Rev. 0, December 6, 2021.

Knight Piésold Ltd. (KP) 2023, Yankee Doodle Tailings Impoundment 2022 Annual Inspection Report, KP Ref. No. VA101-126/27-2 Rev. 0, January 20, 2023.

Montana Resources, LLP. (MR) 2022. 2021 Yankee Doodle Tailings Impoundment Corrective Action Pan – Corrective Action Deferral Notification, December 16, 2022

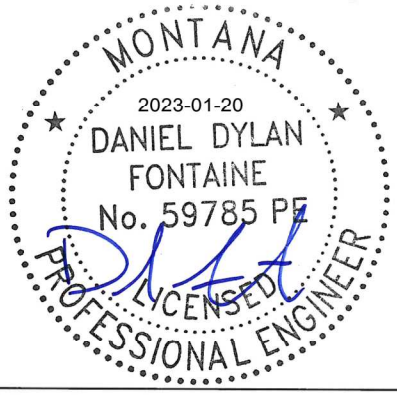
Montana Resources

600 Shields Ave.
Butte, Montana 59701

ATTACHMENT A:

Engineer of Record (EOR) Verification

I have reviewed and verify that the corrective actions proposed by MR should reasonably be expected to effectively address the recommendations contained in the 2022 Annual Inspection Report.



Reviewed: _____

Daniel Fontaine, P.E.
Specialist Engineer | Associate
Knight Piésold Ltd.
YDTI Engineer of Record

130000
135000
140000
145000
150000
145000
140000
135000
130000
125000

Yankee Doodle Tailings Impoundment
WED
GMMIA
HsB WTP
Berkeley Pit
Continental Pit
Crusher
Concentrator Area

Legend

- Permit Boundary - 6132 Acres
- Post-July, 1 1974 - 3219 Acres
- Pre-July, 1 1974 - 1756 Acres
- Butte Mine Flooding Operable Unit (BMFOU) - 1001 Acres
  - 2022 Continental Pit below 5410' NGVD29 or 5466' ACM - 307 Ac.
  - Berkeley Pit - 684 Acres
  - Horseshoe Bend Water Treatment Plant - 9 Acres
  - West Embankment Drain - 1 Acre
- Pre-1971 Exempt Areas - 139 Acres
  - Concentrator Area - 95 Acres
  - Primary Crusher - 44 Acres
- Granite Mountain Memorial Interpretive Area (GMMIA) - 17 Acres

N

0 1,000 2,000 4,000
Feet

Aerial Photography: 2022

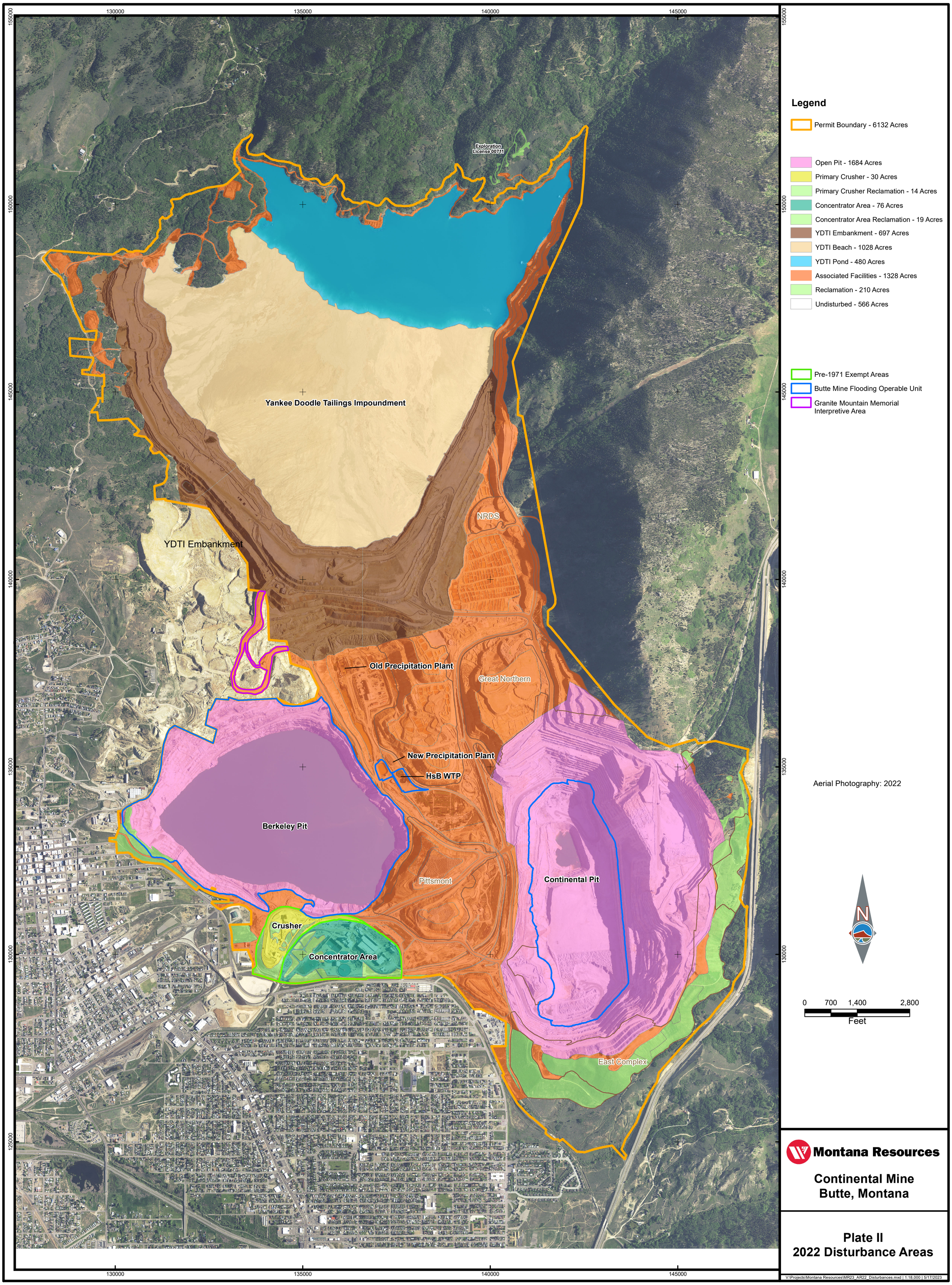
WESTECH ENVIRONMENTAL HELENA·MONTANA

Montana Resources

Continental Mine
Butte, Montana

Plate I
Consolidated Permit Area and Bonding Level Map

MR23_AR22_Bond_Levels.mxd | 1:24,000 | 5/17/2023



Legend

- Permit Boundary - 6132 Acres
- Open Pit - 1684 Acres
- Primary Crusher - 30 Acres
- Primary Crusher Reclamation - 14 Acres
- Concentrator Area - 76 Acres
- Concentrator Area Reclamation - 19 Acres
- YDTI Embankment - 697 Acres
- YDTI Beach - 1028 Acres
- YDTI Pond - 480 Acres
- Associated Facilities - 1328 Acres
- Reclamation - 210 Acres
- Undisturbed - 566 Acres
- Pre-1971 Exempt Areas
- Butte Mine Flooding Operable Unit
- Granite Mountain Memorial Interpretive Area

Aerial Photography: 2022

N

0 700 1,400 2,800
Feet

Montana Resources

Continental Mine
Butte, Montana

Plate II
2022 Disturbance Areas

V:\Projects\Montana Resources\MR23_AR22_Disturbances.mxd | 1:18,000 | 5/17/2023

130000 135000 140000 145000

150000 145000 140000 135000 130000 125000

Bumtown II
Soil Stockpile

Moulton Road
Soil Stockpiles

Yankee Doodle Tailings Impoundment

Four Corners
Alluvium Stockpile

GMMIA

Bunker
Soil Stockpile

HsB WTP

Berkeley Pit

Continental Pit

Crusher

Concentrator Area

Lunch Room
Alluvium Stockpile &
Compost

130000 135000 140000 145000

Legend

- Permit Boundary
- Reclamation Material Stockpile

N

0 1,000 2,000 4,000
Feet

Aerial Photography: 2022

WESTECH ENVIRONMENTAL HELENA·MONTANA

Montana Resources

Continental Mine
Butte, Montana

Plate III
2022 Reclamation Material Stockpile Areas

MR23_AR22_Stockpiles.mxd | 1:24,000 | 5/17/2023

130000
135000
140000
145000
135000
130000
125000

Berkeley Pit
HsB WTP
Continental Pit
Crusher
Concentrator Area

1995
2014
2014
2002
2002
2002, 2012, 2014
2019
2020
2019
2020
2017
1995, 1996
1995, 1996, 2002, 2012
2002
2002
1992, 1996, 2005
1992
1992
2011
2011
2011
2011
2011
2011
2007
2007
2007
2007
2007
2002
1991, 1993
2014
2015
1993, 2004, 2006, 2012
2004

Legend

Permit Boundary
Reclamation - 249 Acres

Aerial Photography: 2022

0 400 800 1,600
Feet

Montana Resources

Continental Mine
Butte, Montana

Plate IV

Reclaimed Areas

WESTECH ENVIRONMENTAL HELENA-MONTANA

MR23_AR22_Reclamation.mxd | 1:9,600 | 5/17/2023