TRI-STATE

May 28, 2025

Mr. Clayton Wein
Environmental Protection Specialist
Colorado Division of Reclamation, Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, CO 80203

RE: Elk Ridge Mining and Reclamation, LLC
New Horizon Mine
Permit No. C-1981-008
Phase III Bond Release Application (SL-29)

Dear Mr. Wein,

Tri-State Generation and Transmission Association, Inc. (Tri-State) is the parent company to Elk Ridge Mining and Reclamation, LLC, New Horizon Mine. Therefore, Tri-State is submitting a Phase III Bond Release Application, denoted as SL-29, on behalf of the New Horizon Mine. The New Horizon Mine operates under Permit No. C-1981-008.

The SL-29 bond release application is applying for Phase III release on 2.9 acres of irrigated pasture reclamation.

It is requested that through this application the Division calculate the reduction in bond liability for the areas included in this application. Tri-State is commencing the public notification process in accordance with Rule 3.03.2(1)(b), and once the final public notice is published in the local paper, the affidavit of publication will be provided to the Division in compliance with Rule 3.03.2(1)(b).

If you have any questions about the enclosed bond release application, please contact Tony Tennyson at (970) 824-1232 or tony.tennyson@tristategt.org.

Sincerely,

DocuSigned by:
Chris Gilbreath
D250C711D0BF450...

Chris Gilbreath
Senior Manager
Remediation and Reclamation

CG:TT

Enclosures

cc: Tony Tennyson (via email)
File: G475-11.3(21)b-6

New Horizon Mine

Permit No. C-1981-008

Application for Phase III Performance Bond Release

SL-29

Table of Contents

List of Appendices

List of Maps

I. General

Elk Ridge Mining and Reclamation LLC, New Horizon Mine, Permit No. C-1981-008, is submitting this application for Phase III performance bond release for 2.9 acres (IP-10) of irrigated pasture reclamation.

The current reclamation liability for the New Horizon Mine is $2,361,495.00, and New Horizon Mine currently holds a surety bond in the amount of $2,522,994.00. With this application, the New Horizon Mine will be requesting relinquishment of 100% of the bond held for the 2.9 acres of reclamation.

II. Summary Information

A. General Location Description

The 2.9 acres (IP-10) of irrigated pasture reclamation that is requested for Phase III bond release is located within the following locations:

Township 46 North, Range 15 West of the 6th P.M. New Mexico Principal Meridian, County of Montrose, State of Colorado
NW ¼ NE ¼ NE ¼ N ½ of Section 6;
NW ¼ NE ¼ NW ¼ NE ¼ of Section 6; and
NE ¼ NW ¼ NW ¼ NW ¼ of Section 6

Please see Map 1 for the exact locations being applied for bond release in this application.

B. Public Notice

Pursuant to the Rules and Regulation of the Colorado Mined Land Reclamation Board published August 1980, and pursuant to the Colorado Surface Coal Mining Reclamation Act 34-33-101, et seq., notice is hereby given of the filing of an application for Phase III Bond Release of a portion of the New Horizon Mine site. The application is denoted as SL-29 and pertains to the New Horizon Mine, Permit No. C-1981-008 (latest permit renewal date of October 4, 2023) by Elk Ridge Mining and Reclamation, LLC, P. O. Box 628, Nucla, Colorado 81424, filed with the Colorado Division of Reclamation, Mining and Safety (CDRMS), Colorado Department of Natural Resources, 1313 Sherman Street, Room 215, Denver, Colorado 80203. The New Horizon Mine is located approximately 2 miles west of Nucla, Colorado.

The Phase III bond release areas requested for release was reclaimed (seeded) to irrigated pasture in 2016 and contains 2.9 acres. The area being applied for bond release is shown on Map 1 in the application. The status of the reclaimed areas is consistent with the requirements of the approved reclamation plan which includes backfill and grading to the final post-mine surface (achievement of Phase I bond release), appropriate topsoil replacement (achievement of Phase II bond release), and the reclamation parcel has met the minimum period of liability, and requirements of the revegetation success criteria for two years.

The 2.9 acres being requested for Phase III bond release is located within the following locations:

Township 46 North, Range 15 West of the 6th P.M. New Mexico Principal Meridian, County of Montrose, State of Colorado

NW ¼ NE ¼ NE ¼ N ½ of Section 6;
NW ¼ NE ¼ NW ¼ NE ¼ of Section 6; and
NE ¼ NW ¼ NW ¼ NW ¼ of Section 6

The New Horizon Mine currently holds a surety bond in the amount of $2,522,994, which includes the above listed area. With this application, the New Horizon Mine will be requesting relinquishment of 100% of the bond held for these locations.

A copy of the bond release application is on file at the Montrose County Courthouse Annex, 300 Main Street, Nucla, Colorado and the Colorado Division of Reclamation Mining and Safety at Department of Natural Resources, 1313 Sherman Street, Room 215, Denver, Colorado 80203.

Written comments, objections, and requests for a public hearing or informal conference concerning this bond release application should be addressed to the Colorado Division of Reclamation Mining and Safety, Department of Natural Resources, 1313 Sherman Street, Room 215, Denver, Colorado 80203.

Comments must be filed within thirty (30) days from the last date of this publication, or within thirty (30) days of the completed inspection by the CDRMS, whichever is later.

C. Written Notifications

Prior to filing this request for bond release with the Division the following parties were notified. Copies of the letters provided are included herein as Appendix A.

Federal	Board of County Commissioners
Natural Resource Conservation Service 40785 CO State Highway 145 P. O. Box 29 Norwood, CO 81423-0488	Montrose County Board of County Commissioners 317 South 2nd Street Montrose, CO 81401

Regional Planning Commissions	Sewage and Water Treatment Authorities
Montrose County Planning Department Montrose County Courthouse 317 South 2nd Street Montrose, CO 81401	City of Nucla/Nucla Sanitation District P. O. Box 219 Nucla, CO 81424

Water Conservancy & Water Conservation Districts	Irrigation Water Control
Colorado River Water Conservation District P. O. Box 1120 Glenwood Springs, CO 81602	Colorado Cooperative Company P. O. Box 231 Nucla, CO 81424

Surface Landowners
Roseanne M. & Jimmy Ray Guire II Life Estate P.O. Box 550 Nucla, Colorado 81424

Adjoining Surface Owners	
Mr. Gregg Massini 24 Hulett Hill Road Sheffield, MA 01257	Garvey & Co. LLC P.O. Box 555 Nucla, CO 81424
Naslund & Sons Corp P.O. Box 154 Nucla, CO 81424	Mr. Dirk Richards P.O. Box 153 Nucla, CO 81424
Mr. Eric Crespin P.O. Box 251 Nucla, CO 81424	

III. Summary of Reclamation and Management

A. General Description

The area being applied for Phase III bond released was a haul road that was reclaimed in 2015 and permanently seeded in the spring of 2016, and has been designated as reclamation unit IP-10. Please see Map 1 for the location of the IP-10.

The reclamation work that on occurred IP-10 included regrading to the approved post-mining topography, topsoil replacement, seeding with the approved seed mix, and managing IP-10 in accordance with the post-mine land use for a minimum of 10 years for the initial seeding.

As noted above, the IP-10 was reclaimed (seeded) in the spring of 2016 and has met the minimum ten-year liability period in accordance with Rule 3.02.3(2)(b).

In accordance with the criteria set forth in the *"Guideline Regarding Selected Coal Mine Bond Release Issues"*, issued April 18, 1995, no rill and gully repair has occurred on IP-10 in the last five years, and normal husbandry practices have occurred through the bond liability period.

Each Phase III bond release area is required to have Phase I or Phase II bond release approvals prior to a Phase III application being approved. IP-10 was approved for Phase I bond release under multiple approvals including SL-05 approved on January 8, 1998, SL-06 approved on August 23, 1999, and SL-18 approved on June 26, 2018. IP-10 was approved for Phase II bond release on March 23, 2023, under the SL-25 bond release application.

The Phase III area applied for under this application is on one landowner's deeded property. Property boundaries are based on public records obtained from the Montrose County website.

B. Revegetation Success Demonstration

IP-10 has been shown to meet the Phase III criteria as set forth by the *"Guideline Regarding Selected Coal Mine Bond Release Issues"*, issued April 18, 1995, and New Horizon's permit, Permit C-1981-008, Section 2.05.4(2)(e). Please see Appendix B for a detailed report on revegetation success for IP-10.

C. Post-Mining Land Use

The post mine land use for IP-10 is irrigated pasture. Please refer to Map 2.05.4-5 in the permit that documents the post mine land use for the IP-10 area. Irrigated pasture receives irrigation by side rolls, annual fertilization, grazing, and the area is harvested (baled) by the landowner at least once annually, but typically multiple harvests per irrigation season. IP-10 reclamation area consists of primarily grasses but can have some alfalfa also. Seed mixture #5 was utilized to seed IP-10 in the spring of 2016 and the mixture species can been found in Section 2.05.4(2)(e) in the permit.

Please see past annual Reclamation Reports, submitted to the Colorado Division of Reclamation Mining and Safety (DRMS), which document grazing activities for this IP-10 and annual field production as provided by the landowner. Annual reclamation reports also provide documentation on fertilization, grazing, irrigation, and annual field production for the Irrigated Pasture reference area. Documentation of these activities in the annual Reclamation Reports demonstrates that through normal husbandry practices, irrigation, fertilization, and grazing activities the post-mine land use of IP-10 has been achieved and the Irrigated Pasture reference area was managed in a similar manner as IP-10.

D. Surface and Groundwater Impact Analysis

IP-10 area included in this Phase III Bond Release Application has been shown to meet the Phase III criteria as set forth by the *"Guideline Regarding Selected Coal Mine Bond Release Issues"*, issued April 18, 1995, for groundwater only. Please see Appendix C for a groundwater impact analysis.

Surface water was not analyzed as part of this Phase III bond release application for IP-10 as New Horizon Mine does not monitor at any upgradient or downgradient surface water locations downstream of IP-10 on Calamity Draw. DRMS approved relinquishment of surface water monitoring on Calamity Draw under technical revision 103 (TR-103) which was approved on May 18. 2021.

The larger property associated with IP-10, which is now outside of the mine permit boundary, was disturbed by mining and reclaimed, and a surface water hydrology analysis evaluation occurred as part of the SL-19 Phase III application on the larger disturbed and reclaimed area associated with IP-10. DRMS approved SL-19 on June 26, 2018.

Following the SL-19 approval, the New Horizon Mine reduced the mine permit boundary under technical revision 85 (approved February 5, 2019) to remove the Phase III areas approved under SL-19. Included in the technical revision 85 (TR-85) application, was a grass filter demonstration for sediment control on a small area directly south of IP-10, which the New Horizon Mine managed until Phase II bond release (SL-25) was approved on IP-10.

The SL-25 Phase II bond release, approved by DRMS on March 23,2023, demonstrated that sediment levels from surface water runoff from IP-10 are less than or equal to pre-mining levels for IP-10. Following the approval of SL-25, New Horizon submitted under technical revision 106 (TR-106) which was approved on May 2, 2023, to remove the grass filter area from the mine permit boundary.

Given the small parcel size of IP-10 and previous approvals by DRMS for SL-19, TR-85, TR-103 and TR-106, a surface water analysis for IP-10 under the SL-29 Phase III bond release application is not necessary to be included in this application, and the referenced documents and approvals demonstrated surface water impacts have been minimized as required.

IV. Notarized Statement

Pursuant to Rule 3.03.2(1)(e) each bond release application is required to provide a notarized statement that the reclamation activities have been accomplished in accordance with the requirements of the act and the approved reclamation plan.

I, Chris Gilbreath, Senior Manager Remediation and Reclamation, Tri-State Generation and Transmission Association, Inc., hereby certify that the information contained within this application is correct and true to the best of my knowledge.

Signed: ____________________
Name: Chris Gilbreath
Title: Senior Manager Remediation and Reclamation
Tri-State Generation and Transmission Association, Inc.

State of Colorado

County of Adams

The foregoing instrument was acknowledged before me this 20 day of May, 2025 by Chris Gilbreath, as the Senior Manager Remediation and Reclamation of Tri-State Generation and Transmission Association, Inc., a Colorado cooperative corporation, on behalf of the corporation.

____
Notary Public
Print Name: Faith Warner

Witness my hand and official seal
My commission expires:

9/7/2026

FAITH WARNER
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20184035614
MY COMMISSION EXPIRES 09/07/2026

Appendix A

Notification Letters for SL-29 Bond Release Application

TRI-STATE

May 22, 2025

Roseanne M. & Jimmy Ray Guire II Life Estate
P. O. Box 550
Nucla, CO 81424

RE: New Horizon Mine
Permit No. C-1981-008
Notice of Intent to Seek Phase III Bond Release

To Whom It May Concern,

Tri-State Generation and Transmission Association Inc. (Tri-State), is the parent company to Elk Ridge Mining and Reclamation, LLC, New Horizon Mine. Therefore, Tri-State on behalf of the New Horizon Mine is notifying you that New Horizon Mine is submitting an application for Phase III bond release for 2.9 acres of irrigated pasture reclamation. This application for Phase III bond release, when submitted, will be designated as SL-29.

This written notice is sent to you pursuant to Colorado Division of Reclamation, Mining and Safety (CDRMS) Rule 3.03.2(1). Prior to filing a request for the bond release, New Horizon Mine must send written notices of intention to seek bond release to you as the surface landowner of the property associated with the SL-29 bond release application. Additionally, enclosed please find a copy of the Public Notice, which will be published in the San Miguel Basin Forum in the near future.

If you should have any questions regarding this letter of notice for the SL-29 bond release application, please contact Tony Tennyson at your convenience at (970) 824-1232 or at tony.tennyson@tristategt.org.

Sincerely,

DocuSigned by:
Chris Gilbreath
D250C711D0BF450
Chris Gilbreath
Senior Manager
Remediation and Reclamation

CG:TT

Enclosure

Cc: Tony Tennyson (via email)
Clayton Wein (w/o attachments)
C.F. 11.1 - G474-11.3(21)c-9

TRI-STATE

May 22, 2025

City of Nucla/Nucla Sanitation District
P. O. Box 219
Nucla, CO 81424

RE: New Horizon Mine
Permit No. C-1981-008
Notice of Intent to Seek Phase III Bond Release

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Tri-State Generation and Transmission Association Inc. (Tri-State), is the parent company to Elk Ridge Mining and Reclamation, LLC, New Horizon Mine. Therefore, Tri-State on behalf of the New Horizon Mine is notifying you that New Horizon Mine is submitting an application for Phase III bond release for 2.9 acres of irrigated pasture reclamation. This application for Phase III bond release, when submitted, will be designated as SL-29.

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Chris Gilbreath
D250C711D0BF450...
Chris Gilbreath
Senior Manager
Remediation and Reclamation

CG:TT:der

Enclosure

Cc: Tony Tennyson (via email)
Clayton Wein (w/o attachments)
C.F. 11.1 - G474-11.3(21)c-9

TRI-STATE

May 22, 2025

Colorado Cooperative Company
P. O. Box 231
Nucla, CO 81424

RE: New Horizon Mine
Permit No. C-1981-008
Notice of Intent to Seek Phase III Bond Release

To Whom It May Concern,

Tri-State Generation and Transmission Association Inc. (Tri-State), is the parent company to Elk Ridge Mining and Reclamation, LLC, New Horizon Mine. Therefore, Tri-State on behalf of the New Horizon Mine is notifying you that New Horizon Mine is submitting an application for Phase III bond release for 2.9 acres of irrigated pasture reclamation. This application for Phase III bond release, when submitted, will be designated as SL-29.

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Enclosure

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Clayton Wein (w/o attachments)
C.F. 11.1 - G474-11.3(21)c-9

TRI-STATE

May 22, 2025

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

RE: New Horizon Mine
Permit No. C-1981-008
Notice of Intent to Seek Phase III Bond Release

To Whom It May Concern,

Tri-State Generation and Transmission Association Inc. (Tri-State), is the parent company to Elk Ridge Mining and Reclamation, LLC, New Horizon Mine. Therefore, Tri-State on behalf of the New Horizon Mine is notifying you that New Horizon Mine is submitting an application for Phase III bond release for 2.9 acres of irrigated pasture reclamation. This application for Phase III bond release, when submitted, will be designated as SL-29.

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Remediation and Reclamation

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Enclosure

Cc: Tony Tennyson (via email)
Clayton Wein (w/o attachments)
C.F. 11.1 - G474-11.3(21)c-9

TRI-STATE

May 22, 2025

Mr. Eric Crespin
P. O. Box 154
Nucla, CO 81424

RE: New Horizon Mine
Permit No. C-1981-008
Notice of Intent to Seek Phase III Bond Release

Dear Mr. Crespin:

Tri-State Generation and Transmission Association Inc. (Tri-State), is the parent company to Elk Ridge Mining and Reclamation, LLC, New Horizon Mine. Therefore, Tri-State on behalf of the New Horizon Mine is notifying you that New Horizon Mine is submitting an application for Phase III bond release for 2.9 acres of irrigated pasture reclamation. This application for Phase III bond release, when submitted, will be designated as SL-29.

This written notice is sent to you pursuant to Colorado Division of Reclamation, Mining and Safety (CDRMS) Rule 3.03.2(1). Prior to filing a request for the bond release, New Horizon Mine must send written notices of intention to seek bond release to you as an *adjoining surface landowner*. Additionally, enclosed please find a copy of the Public Notice, which will be published in the San Miguel Basin Forum in the near future.

If you should have any questions regarding this letter of notice for the SL-29 bond release application, please contact Tony Tennyson at your convenience at (970) 824-1232 or at tony.tennyson@tristategt.org.

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Enclosure

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Clayton Wein (w/o attachments)
C.F. 11.1 - G474-11.3(21)c-9

TRI-STATE

May 22, 2025

Garvey & Co. LLC
P. O. Box 555
Nucla, CO 81424

RE: New Horizon Mine
Permit No. C-1981-008
Notice of Intent to Seek Phase III Bond Release

To Whom It May Concern:

Tri-State Generation and Transmission Association Inc. (Tri-State), is the parent company to Elk Ridge Mining and Reclamation, LLC, New Horizon Mine. Therefore, Tri-State on behalf of the New Horizon Mine is notifying you that New Horizon Mine is submitting an application for Phase III bond release for 2.9 acres of irrigated pasture reclamation. This application for Phase III bond release, when submitted, will be designated as SL-29.

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Remediation and Reclamation

CG:TT

Enclosure

Cc: Tony Tennyson (via email)
Clayton Wein (w/o attachments)
C.F. 11.1 - G474-11.3(21)c-9

TRI-STATE

May 22, 2025

Mr. Gregg Massini
24 Hulett Hill Road
Sheffield, MA 01257

RE: New Horizon Mine
Permit No. C-1981-008
Notice of Intent to Seek Phase III Bond Release

Dear Mr. Massini,

Tri-State Generation and Transmission Association Inc. (Tri-State), is the parent company to Elk Ridge Mining and Reclamation, LLC, New Horizon Mine. Therefore, Tri-State on behalf of the New Horizon Mine is notifying you that New Horizon Mine is submitting an application for Phase III bond release for 2.9 acres of irrigated pasture reclamation. This application for Phase III bond release, when submitted, will be designated as SL-29.

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TRI-STATE

May 22, 2025

Montrose County Board of County Commissioners
317 South 2nd Street
Montrose, CO 81401

RE: New Horizon Mine
Permit No. C-1981-008
Notice of Intent to Seek Phase III Bond Release

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TRI-STATE

May 22, 2025

Montrose County Planning Department
Montrose County Courthouse
317 South 2nd Street
Montrose, CO 81401

RE: New Horizon Mine
Permit No. C-1981-008
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P. O. Box 154
Nucla, CO 81424

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C.F. 11.1 - G474-11.3(21)c-9

TRI-STATE

May 22, 2025

Natural Resource Conservation Service
102 Par Place, Suite 4
Montrose, CO 81401-4144

RE: New Horizon Mine
Permit No. C-1981-008
Notice of Intent to Seek Phase III Bond Release

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Clayton Wein (w/o attachments)
C.F. 11.1 - G474-11.3(21)c-9

TRI-STATE

May 22, 2025

Mr. Dirk Richards
P. O. Box 153
Nucla, CO 81424

RE: New Horizon Mine
Permit No. C-1981-008
Notice of Intent to Seek Phase III Bond Release

Dear Mr. Richards,

Tri-State Generation and Transmission Association Inc. (Tri-State), is the parent company to Elk Ridge Mining and Reclamation, LLC, New Horizon Mine. Therefore, Tri-State on behalf of the New Horizon Mine is notifying you that New Horizon Mine is submitting an application for Phase III bond release for 2.9 acres of irrigated pasture reclamation. This application for Phase III bond release, when submitted, will be designated as SL-29.

This written notice is sent to you pursuant to Colorado Division of Reclamation, Mining and Safety (CDRMS) Rule 3.03.2(1). Prior to filing a request for the bond release, New Horizon Mine must send written notices of intention to seek bond release to you as an *adjoining surface landowner*. Additionally, enclosed please find a copy of the Public Notice, which will be published in the San Miguel Basin Forum in the near future.

If you should have any questions regarding this letter of notice for the SL-29 bond release application, please contact Tony Tennyson at your convenience at (970) 824-1232 or at tony.tennyson@tristategt.org.

Sincerely,

DocuSigned by:
Chris Gilbreath
D250C711D0BF450
Chris Gilbreath
Senior Manager
Remediation and Reclamation

CG:TT

Enclosure

Cc: Tony Tennyson (via email)
Clayton Wein (w/o attachments)
C.F. 11.1 - G474-11.3(21)c-9

Appendix B

2024-2025 Phase III Revegetation Evaluation Report

2024-2025 Phase III Revegetation Evaluation Report

NEW HORIZON MINE

PERMIT NO. C-1981-008

MAY, 2025

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ACRONYMS AND ABBREVIATIONS

Cedar Creek Associates, Inc. .... Cedar Creek

Colorado Division of Reclamation, Mining, and Safety .... CDRMS

Global Positioning System .... GPS

National Resources Conservation Service .... NRCS

New Horizon Mine .... New Horizon

Reference Area .... RA

Irrigated Pastureland .... IP

1.0 INTRODUCTION

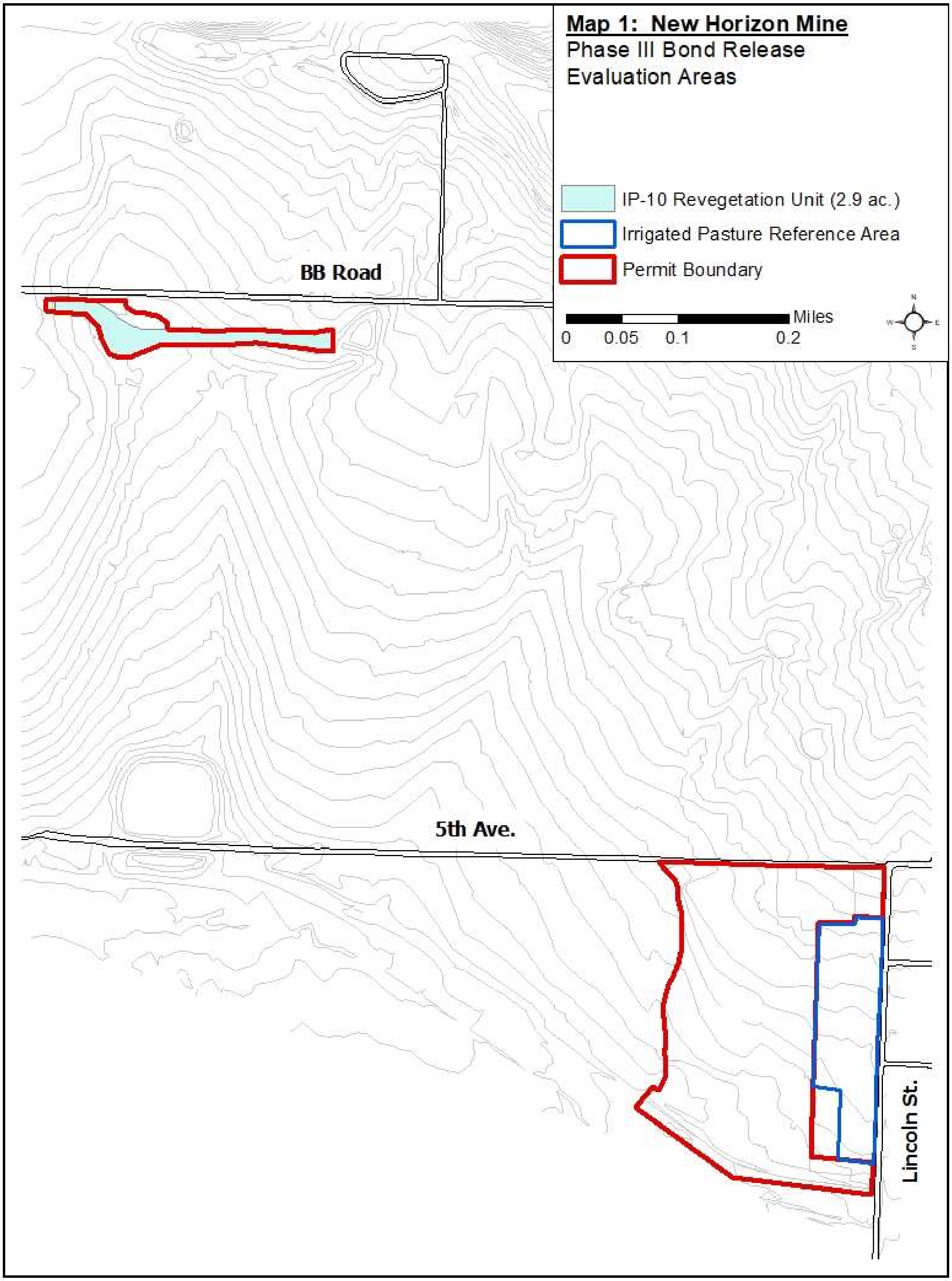
1.1 General

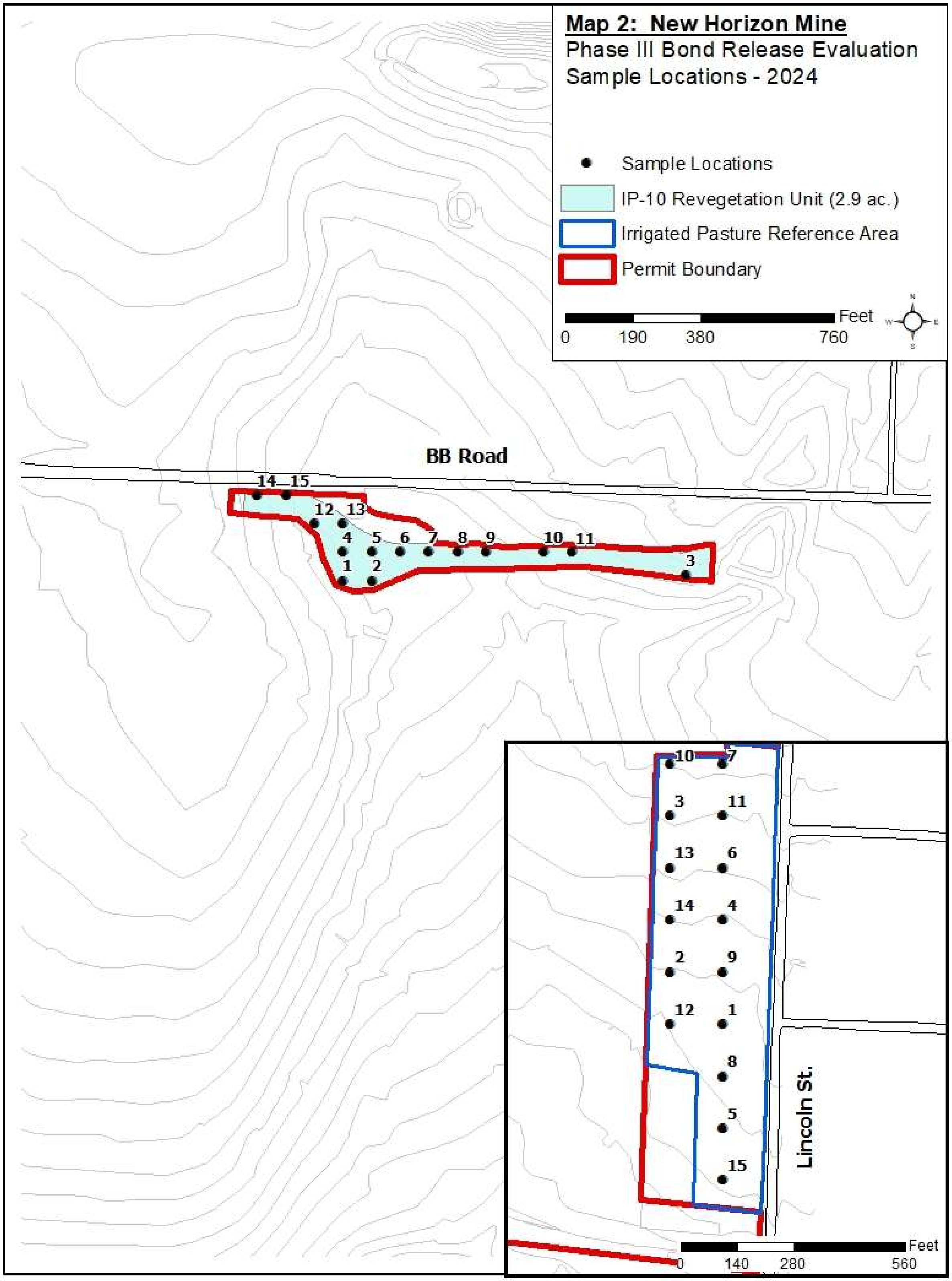
Cedar Creek Associates, Inc. (Cedar Creek) was contracted in 2024 and 2025 by New Horizon Mine (New Horizon) to evaluate one revegetated unit (IP-10) in support of Phase III bond release. In addition, one reference area (Irrigated Pasture) was sampled to provide cover and production comparison values to facilitate an evaluation of success for the reclaimed unit. Data collection was performed in accordance with Permit Section 2.05.4(2)(e) and Colorado Division of Reclamation Mining and Safety Regulations of the Colorado Mined Land Reclamation Board for Coal Mining (Section 4.15). Sampling on the revegetated units and reference areas occurred June 4-7, 2024, and April 30-May 10, 2025, by or under the direct supervision of Cedar Creek's Senior Reclamation Ecologist, Mr. Jesse Dillon. The location of IP-10 and the Irrigated Pasture reference area is shown on Map 1. The sample points for Phase III bond release and reference areas evaluated in 2024 are shown on Map 2, and the 2025 sampling locations are shown on Map 3.

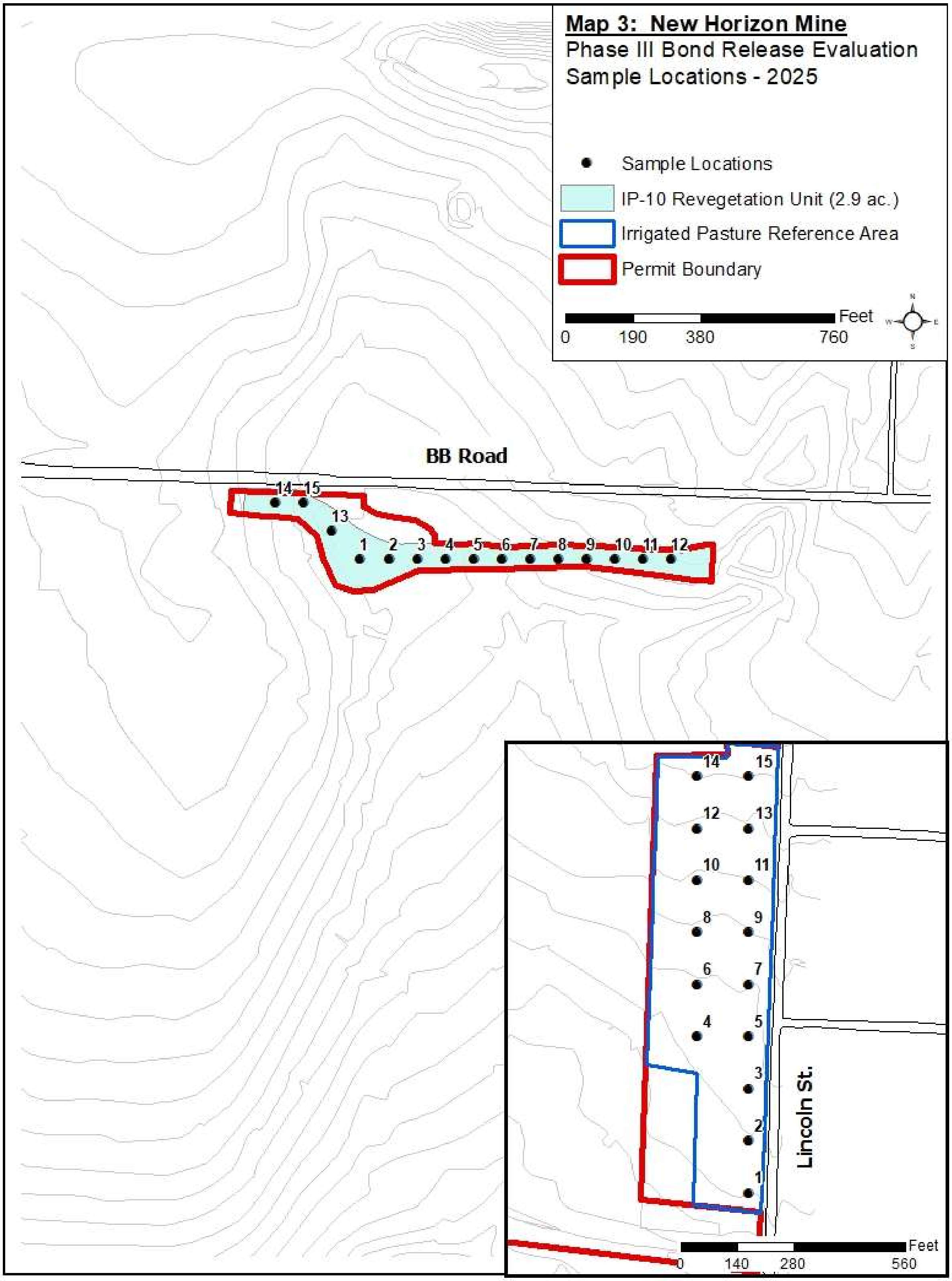
Field sampling for the directly measurable variables of ground cover and production was systematically conducted across the entire Phase III bond release lands and reference areas. Statistical comparisons of revegetation on IP-10 were made against the Irrigated Pasture reference area. All statistical procedures followed were those approved per Permit Section 2.05.4(2)(e). Evaluated areas were sampled to meet or exceed the minimal sample size as established by the Permit and meet statistical adequacy for pertinent variables. Acreages presented in this document were determined by New Horizon.

1.2 Background

The IP-10 unit is comprised of 2.9 acres and was seeded in the spring of 2016. The post-mining land use is Irrigated Pasture, with goals to provide winter forage for livestock and to provide cut hay. The Irrigated Pasture standards will be based on the Irrigated Pasture reference area, which is located directly adjacent to the permit boundary. Sampling was conducted prior to any growing season livestock grazing and prior to the first cut harvest of the reclaimed fields. Irrigation in the Irrigated Pasture reference area was regulated to simulate the similar application rate and conditions of irrigation in the Irrigation Pasture bond release block.


Map 1: New Horizon Mine
Phase III Bond Release
Evaluation Areas
IP-10 Revegetation Unit (2.9 ac.)
Irrigated Pasture Reference Area
Permit Boundary
Miles
0
0.05
0.1
0.2
BB Road
5th Ave.
Lincoln St.


Map 2: New Horizon Mine
Phase III Bond Release Evaluation
Sample Locations - 2024
Sample Locations
IP-10 Revegetation Unit (2.9 ac.)
Irrigated Pasture Reference Area
Permit Boundary
Feet
0 190 380 760
BB Road
14 15
12 13
4 5 6 7 8 9 10 11
1 2
3
10 7
3 11
13 6
14 4
2 9
12 1
8
5
15
Lincoln St.
Feet
0 140 280 560


Map 3: New Horizon Mine
Phase III Bond Release Evaluation
Sample Locations - 2025
Sample Locations
IP-10 Revegetation Unit (2.9 ac.)
Irrigated Pasture Reference Area
Permit Boundary
Feet
0 190 380 760
BB Road
14 15 13 1 2 3 4 5 6 7 8 9 10 11 12
14 15 12 13 10 11 8 9 6 7 4 5 3 2 1
Lincoln St.
Feet
0 140 280 560

2.0 SAMPLING METHODOLOGY

2.1 Sample Site Selection/Location

A systematic procedure for sample location in the reclaimed and reference units occurred in the following stepwise manner. First, a fixed point of reference was selected for the unit to facilitate location of the systematic grid in the field. Second, a systematic grid of appropriate dimensions was selected to provide a reasonable number of coordinate intersections that could then be used for the set of sample sites. Third, a scaled representation of the grid was overlain on a computer-generated map of the target unit. Fourth, the initial placement of this grid was implemented by selection of two random numbers (an X and Y distance) used for locating the first coordinate from the fixed point of reference, thereby making the effort unbiased. Fifth, where an excess number of potential sample points (grid intersections) were indicated by overlain maps, the excess points were randomly chosen for elimination. (If later determined that additional samples would be needed, the eliminated potential sample sites would be added back in reverse order until enough samples could be collected.) Sixth, utilizing a GPS or handheld compass and pacing techniques (or a hip-chain), the sample points were located in the field.

Once a selected grid point was located in the field, ground cover sampling transects were always oriented in the direction of the next site to be physically sampled to further limit any potential bias while facilitating sampling efficiency. This orientation protocol is shown on Figure 1. Depending on logistics, timing, and access points to the target sampling area, the field crew may or may not collect data from sampling points in chronological order. However, orientation protocol was always maintained (i.e., in the direction of the next point to be physically sampled). If the boundary of an area or permanent feature within the area was encountered before reaching the full length of a transect, the orientation of the transect was turned 90° in the appropriate direction so the transect could be completed. In this manner, boundary transects were retained entirely within the target unit by "bouncing" off the boundaries. The orientation protocol dramatically reduces the chances of this happening. Production quadrats were always oriented 90° to the right (clockwise) of the ground cover transect and placed one meter from the starting point so as to avoid any trampled vegetation and limit any potential bias.

2.2 Determination of Ground Cover

Ground cover at each sample point was evaluated in accordance with Rule 4.15.11(1)(a)(i) utilizing the point-intercept methodology as illustrated on Figure 1. As indicated on this figure, Cedar Creek utilizes state-of-the-art instrumentation it has pioneered to facilitate much more rapid and accurate collection of data. At each sampling location, a transect of 10 meters length was extended in the direction of the next sampling location. At each one-meter interval along the transect, a "laser point bar" was situated parallel to, and approximately 4.5 to 5.0 feet vertically above the ground surface. The laser point bar activates a battery of 10 low-energy specialized lasers situated along the bar at 10-centimeter intervals. Each of the narrowly focused (0.02-inch diameter) laser beams (Figure 1) are oriented to land along the transect and each intercept (hit) is recorded. At each meter, a set of 10 readings was taken specifically to record hits on vegetation (by species), litter (including standing dead), rock (inorganic material >2mm), or bare soil. In this manner, a total of 100 intercepts per transect were recorded resulting in 1 percent cover per intercept. This methodology and instrumentation facilitate the collection of the most unbiased, repeatable, and precise ground cover data possible.

2.3 Determination of Current Annual Production

At each sample site, current annual production was collected within a vertical projection from a rectangular $^{1}/_{2}$ m^2 quadrat frame (1 m x 0.5 m). All above ground current annual vegetation within the vertical boundaries of the frame were clipped and bagged separately by life form as follows:

Perennial Grass *Perennial Forb*
Annual Grass *Annual Forb*
Sub-shrubs *Noxious Weeds (if found)*

All production samples were returned to the lab for drying and weighing. Drying was conducted at 105° C until a stable weight was achieved (minimum of 24 hours). Samples were then weighed to the nearest 0.1 gram.

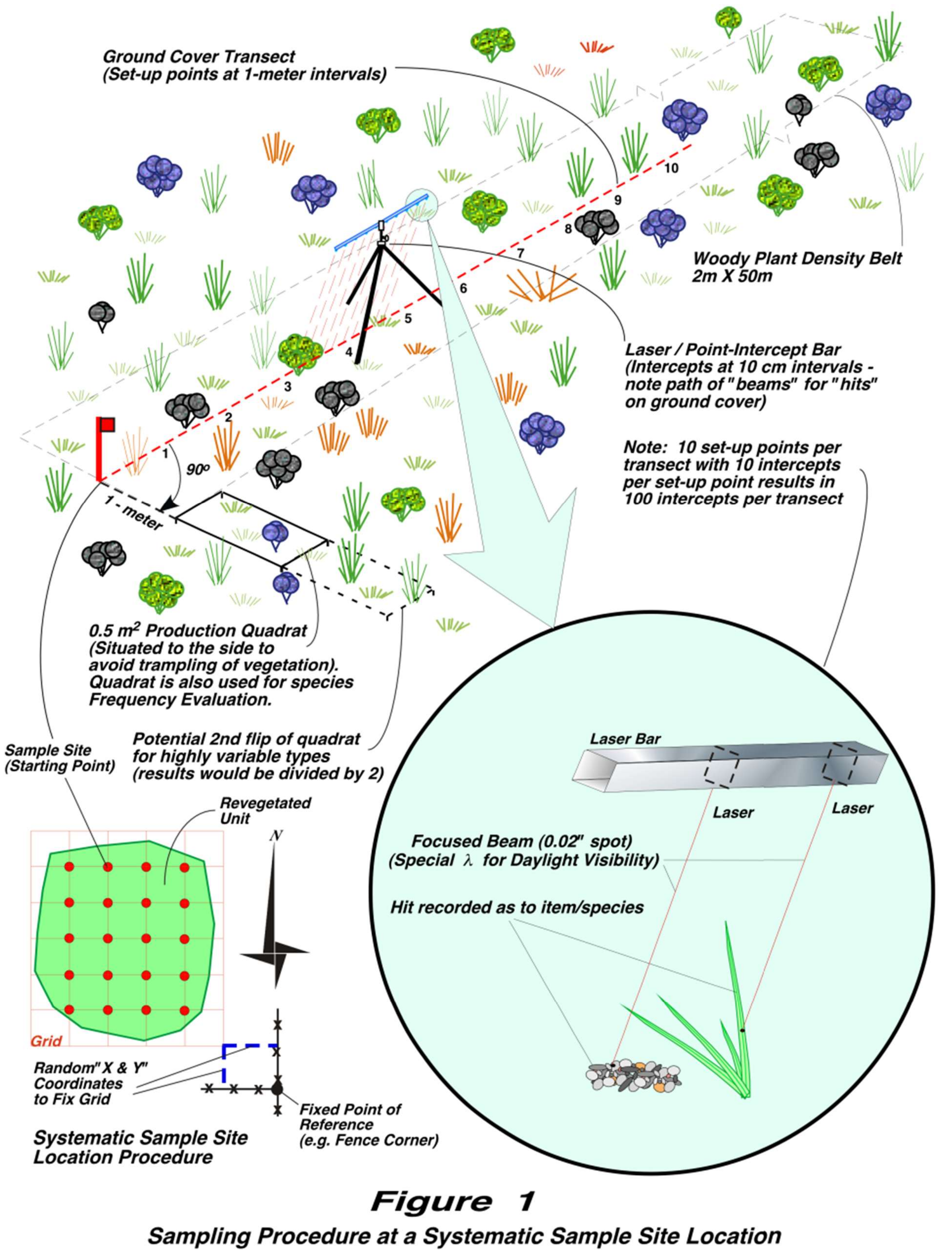


Figure 1

Sampling Procedure at a Systematic Sample Site Location

3.0 DATA ANALYSIS, PERFORMANCE CRITERIA, AND REVEGETATION SUCCESS TESTING

3.1 Data Analysis

Permit No. C-1981-008 requires the exemption of state listed noxious weed species and all annual and biennial plants from success evaluations for both cover and production. As such, the cover and production of these species were collected when present but were not credited or counted towards meeting the success standards. Similarly, sub-shrubs were collected when present but were not credited as desirable herbaceous production because they are not beneficial to the post-mining land use.

For Irrigated Pasture lands only, herbaceous production analyses include the use of a weighted average production factor to account for differences in soil productivity between the reclaimed area and the reference area. This adjustment procedure elevates the production success standard in situations where pre-mining soils were potentially more productive than reference area soils and lowers the standard in situations where pre-mine soils were on average potentially less productive than reference area soils. Each soil type in the Irrigation Pasture bond release block and Irrigated Pasture reference area was evaluated by the National Resources Conservation Service (NRCS) and assigned a relative factor attributed to its potential productivity. This factor is multiplied by the relative acreage of each soil type in the reclaimed area to get the weighted index of each soil type. The weighted indices are then added together to get the soil adjustment factor for the reclaimed area. The soil adjustment factor for the IP-10 unit (0.776, Table 4) is then divided by the soil adjustment factor for the reference area (1.022, Permit Table 2.05.4(2)(e)-2) and the resulting value (0.760) is multiplied by the reference area desirable production sample mean to obtain the adjusted reference area sample mean. Thus, the production standard for the IP-10 unit is 90% of the adjusted reference area sample mean. Given that the IP reference area mean has been weighted based on soil productivity, the hypothesis testing is treated as a one-sample comparison, similar to a technical standard.

As such, data collected at New Horizon in 2024 and 2025 was analyzed for the following parameters: perennial plant cover, total ground cover (vegetation, rock, litter, and bare ground), perennial production, and total production. The requirements for establishment of woody plant species, species diversity, and seasonal variety are irrelevant to the Irrigated Pasture vegetation type and post-mining land use and thus are not required to attain Phase III Bond Release, according to Permit No. C-1981-008. All data are presented in both raw and summarized form along with appropriate means, variances, and sampling adequacy calculations (Tables A-1 through A-8 in Appendix A).

3.2 Revegetation Success Standards

According to New Horizon's permit, revegetation success will be assessed against performance standards for 1) vegetative ground cover, 2) herbaceous production, and 3) forage quality.

1. Vegetative Ground Cover Standard

For Irrigated Pasture lands, revegetation will be deemed adequate if average perennial cover at the reclaimed site is equal to or greater than 90% of the mean perennial cover exhibited by the site's respective reference area.

2. Herbaceous Production Standard

For Irrigated Pasture lands, revegetation will be deemed adequate if average perennial production is at least 90% of the mean perennial production exhibited by the site's respective reference area after applying the weighted average soil adjustment.

3. Forage Quality

For Irrigated Pasture lands, revegetation will be deemed adequate if at least 75% of the relative production is comprised of seeded species or species of comparable quality as livestock forage.

3.3 Sample Adequacy Determination

Sampling within IP-10 was conducted to a minimum of 15 cover and production samples during 2024 and 2025 evaluation efforts. From these preliminary efforts, sample means and standard deviations for total non-overlapping vegetation ground cover were calculated. The Cochran formula (below) for determining sample adequacy was used to calculate $\mathbf{n_{min}}$, whereby the population is estimated to within 10% of the true mean (μ) with 90% confidence.

When the inequality ($\mathbf{n_{min}} \leq \mathbf{n}$) is true, sampling is deemed adequate; and $\mathbf{n_{min}}$ is determined as follows:

$$\mathbf{n_{min} = (t^2 s^2) / (0.1\bar{x})^2}$$

where: n = the number of actual samples collected (initial size = 15 or 20)

t = the value from the one-tailed t distribution for 90% confidence with n-1 degrees of freedom;

s^2 = the variance of the estimate as calculated from the initial samples;

$\bar{x}$ = the mean of the estimate as calculated from the initial samples.

If the initial samples do not provide a suitable estimate of the mean (i.e., the inequality is false), a reverse null success evaluation which does not require adequacy would be employed (Rule 4.15.11 (2)(c)). Sample adequacy results are presented on Table 1.

3.4 Revegetation Success Evaluation

Revegetation success evaluation of the ground cover and production parameters involve comparisons made against reference area data of the same year. Per the "Guideline Regarding Selected Coal Mine Bond Release Issues" (April 18, 1995) from CDRMS, there are two methods in which reference area comparisons can be made. The first is an herbaceous perennial mean comparison in which the woody plant (shrubs, sub-shrubs, and trees) and annual and biennial means are completely deleted from the vegetation data set. Implementation of this method requires noxious weeds, woody plants, and annual and biennial means to be removed from the reclaimed and reference area data sets prior to comparison. The resulting data set includes only non-noxious herbaceous perennial means (grasses and forbs), which can be used to test the hypothesis of revegetation success in a direct or statistical reference area comparison.

The second method provides an opportunity for an allowable contribution of no more than 10% (relative to total vegetation) of annuals and biennials to be used in a reference area comparison. Using this comparison method, noxious weeds, woody plants, and excess annual and biennial means are removed from the reclaimed and reference area data sets prior to comparison. The resulting data set includes non-noxious herbaceous perennial and up to 10% non-noxious herbaceous annual and biennial means, which can then be used to test the hypothesis of revegetation success in a direct or statistical reference area comparison.

During the 2024 and 2025 revegetation success evaluation, Cedar Creek employed the first method of comparing herbaceous perennial means (excluding all annual and biennial vegetation) for both ground cover and production. Sample adequacy for ground cover and production was achieved on IP-10 during both years. Sample adequacy does not need to be achieved for production in the Irrigated Pasture reference area since the comparison is based on a mean weighted by the soil adjustment factor (Section 5.1.2). Therefore, direct comparisons were used to evaluate the Irrigated Pasture revegetation success for ground cover and production as per rule 4.15.11 (2)(a).

Table 1 Sample Adequacy Table

Phase III Bond Release - Irrigated Pasture

		Ground Cover		Production	
		IP-10 Revegetation Unit	Irrigated Pasture RA	IP-10 Revegetation Unit	Irrigated Pasture RA
2024	Mean =	96.1	79.3	108.6	72.1
	Variance =	10.695	206.924	648.042	2,380.555
	t =	1.345	1.345	1.345	1.345
	n =	15	15	15	15
	n_{min} =	0.2	6.0	9.9	82.8
		Ground Cover		**Production**	
		IP-10 Revegetation Unit	**Irrigated Pasture RA**	**IP-10 Revegetation Unit**	**Irrigated Pasture RA**
2025	Mean =	73.4	63.5	45.5	23.6
	Variance =	106.400	102.695	48.164	48.458
	t =	1.345	1.345	1.345	1.345
	n =	15	15	15	15
	n_{min} =	3.6	4.6	4.2	15.7

4.0 RESULTS

4.1 Irrigated Pasture Revegetation Results

IP-10 Revegetation Unit

In 2024, a total of 22 plant species were encountered within the IP-10 unit (Table A-1). Ground cover consisted of 96.1% live vegetation, 0.0% rock, 1.7% litter, and bare ground exposure of 2.2% (Table 2 and Chart 1). Desirable perennial cover across the unit averaged 92.3%, with annual and biennial cover averaging 2.7% absolute cover. The noxious weed cover was 1.1%, comprised entirely of field bindweed. The dominant taxa were alfalfa (*Medicago sativa*) and meadow brome (*Bromus biebersteinii*) with 32.2% and 24.2% average cover, respectively. Current annual herbaceous production averaged 1,934.5 pounds per acre based on oven-dry samples comprised entirely of desirable perennial vegetation (Table 3 and Chart 2).

In 2025, a total of 16 plant species were encountered within the IP-10 unit (Table A-2). Ground cover consisted of 73.4% live vegetation, 0.0% rock, 13.4% litter, and bare ground exposure of 13.2% (Table 2 and Chart 1). Desirable perennial cover across the unit averaged 71.9%, with annual and biennial cover averaging 1.3% absolute cover. The noxious weed cover was 0.2% comprised of field bindweed and knapweed. The noxious weed whitetop was present without contributing to cover. The dominant taxa were alfalfa and meadow brome with 32.1% and 14.9% absolute cover, respectively. Current annual herbaceous production averaged 1,265.5 pounds per acre based on oven-dry samples comprised entirely of desirable perennial vegetation (Table 3 and Chart 2).

Irrigated Pasture Reference Area

In 2024, a total of 10 plant species were encountered within the Irrigated Pasture reference area (Table A-3). Ground cover consisted of 79.3% live vegetation, 0.0% rock, 18.3% litter, and bare ground exposure of 2.5% (Table 2 and Chart 1). Desirable perennial cover averaged 79.2%, with no annual and biennial cover. The noxious weed cover was 0.1% comprised entirely of field bindweed. The dominant taxon were tall fescue (*Festuca arundinacea*) and sedge (*Carex* sp.) with 39.3% and 23.9% average cover, respectively. Current annual herbaceous production averaged 1,284.5 pounds per acre based on oven-dry samples and was comprised entirely of desirable perennial vegetation (Table 3 and Chart 2).

In 2025, a total of 12 plant species were encountered within the Irrigated Pasture reference area (Table A-4). Ground cover consisted of 63.5% live vegetation, 0.0% rock, 34.1% litter, and bare ground exposure of 2.3% (Table 2 and Chart 1). Desirable perennial cover averaged 63.4%, with annual and biennial cover averaging 0.1% absolute cover. Noxious weeds did not contribute to cover but knapweed was observed. The dominant taxon was tall fescue with 38.7% average cover. Current annual herbaceous production averaged 765.8 pounds per acre based on oven-dry samples and was comprised entirely of desirable perennial vegetation (Table 3 and Chart 2).

Table 2 New Horizon - Vegetation Cover Years 1 and 2

Irrigated Pasture - Average Ground Cover by Lifeform

Post-Mining Vegetation/Land Use Type -->	2024		2025	
Unit ——>	IP-10	Reference Area	IP-10	Reference Area
Total Plant Cover	**96.1**	**79.3**	**73.4**	**63.5**
Rock	-	-	-	-
Litter	1.7	18.3	13.4	34.1
Bare ground	2.2	2.5	13.2	2.3
Desirable Perennial Cover (Excluding Noxious Weeds)	**92.3**	**79.2**	**71.9**	**63.4**
Summary by Lifeform:				
Perennial Grasses	**53.6**	**74.1**	**32.3**	**55.2**
Annual Grasses	-	-	-	-
Perennial Forbs	**38.7**	**5.1**	**39.6**	**8.2**
Annual & Biennial Forbs	2.7	-	1.3	0.1
Noxious / Aggressive Weeds	1.1	0.1	0.2	-
Sub-Shrubs	-	-	-	-
Shrubs & Trees	-	-	-	-
Sample Adequacy Calculations				
Mean=	96.1	79.3	73.4	63.5
Variance=	10.7	206.9	106.4	102.7
n=	15	15	15	15
n_{min}=	0.2	6.0	3.6	4.6

Table 3 New Horizon - Vegetation Production Summary Years 1 and 2

Irrigated Pasture - Average Production by Lifeform

Pounds (lbs) per Acre

Area		*Perennial Grasses*	*Perennial Forbs*	*Sub-shrubs*	*Annual Grasses*	*Annual Forbs*	*Noxious Weeds*	TOTAL lbs / ac	TOTAL Desirable* lbs / ac	TOTAL Perennial lbs / ac
2024	IP-10 Revegetation Unit	1,316.9	617.6	-	-	-	-	**1,934.5**	**1,934.5**	**1,934.5**
2024	Irrigated Pasture Reference Area	1,103.4	181.1	-	-	-	-	**1,284.5**	**1,284.5**	**1,284.5**
2025	IP-10 Revegetation Unit	728.6	536.9	-	-	-	-	**1,265.5**	**1,265.5**	**1,265.5**
2025	Irrigated Pasture Reference Area	728.6	37.2	-	-	-	-	**765.8**	**765.8**	**765.8**

* Desirable production includes perennial grasses and perennial forbs

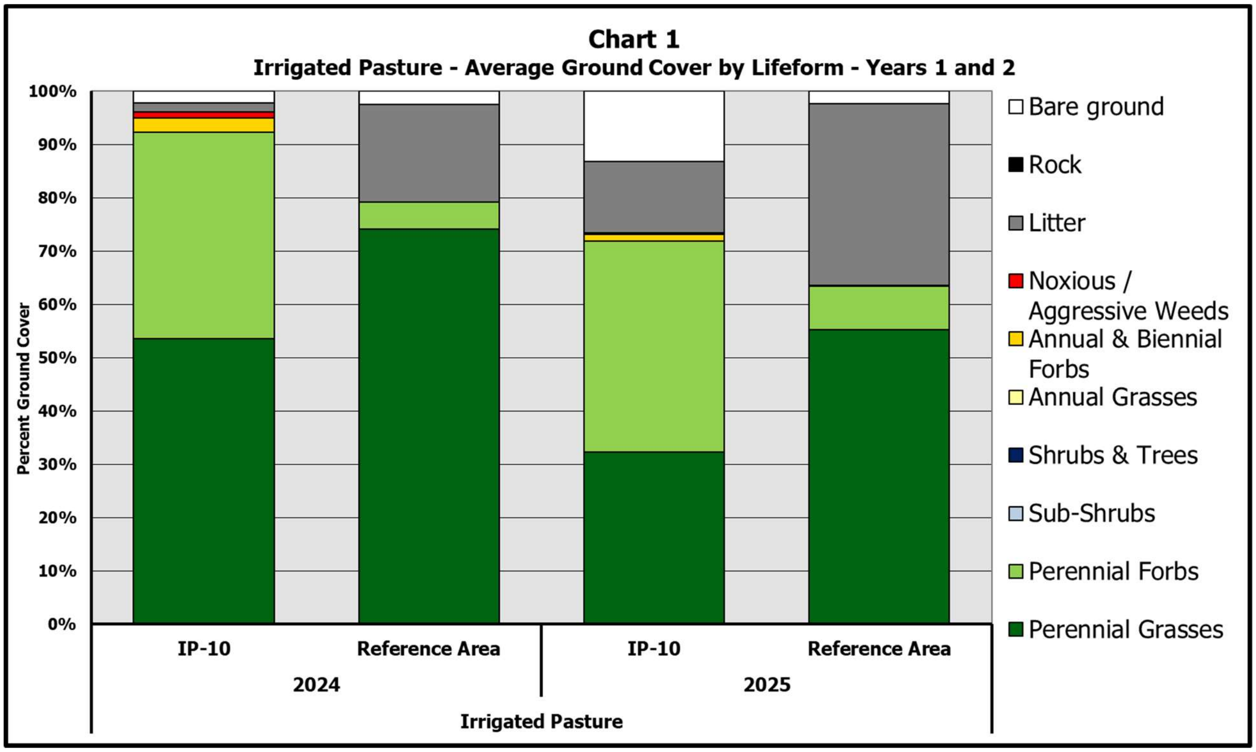


Chart 1
Irrigated Pasture - Average Ground Cover by Lifeform - Years 1 and 2
Percent Ground Cover
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
IP-10
Reference Area
IP-10
Reference Area
2024
2025
Irrigated Pasture
Bare ground
Rock
Litter
Noxious / Aggressive Weeds
Annual & Biennial Forbs
Annual Grasses
Shrubs & Trees
Sub-Shrubs
Perennial Forbs
Perennial Grasses

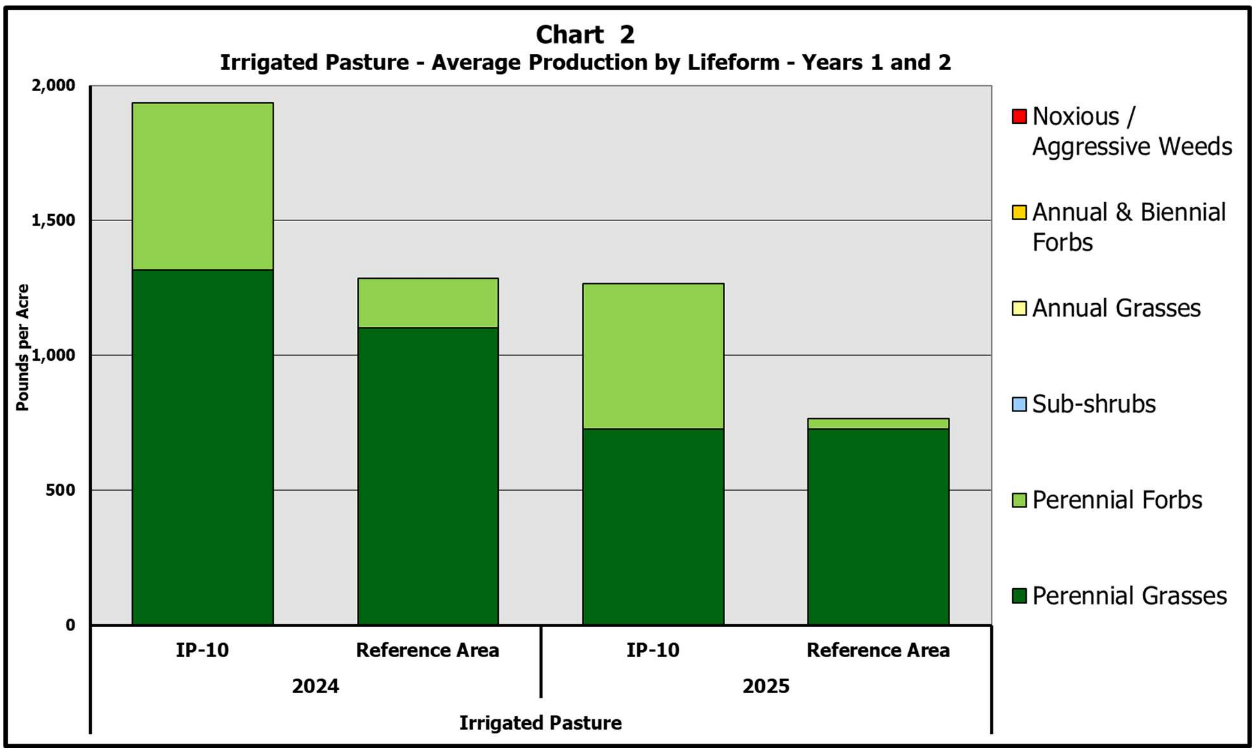


Chart 2
Irrigated Pasture - Average Production by Lifeform - Years 1 and 2
Pounds per Acre
2,000
1,500
1,000
500
0
IP-10
Reference Area
IP-10
Reference Area
2024
2025
Irrigated Pasture
Noxious / Aggressive Weeds
Annual & Biennial Forbs
Annual Grasses
Sub-shrubs
Perennial Forbs
Perennial Grasses

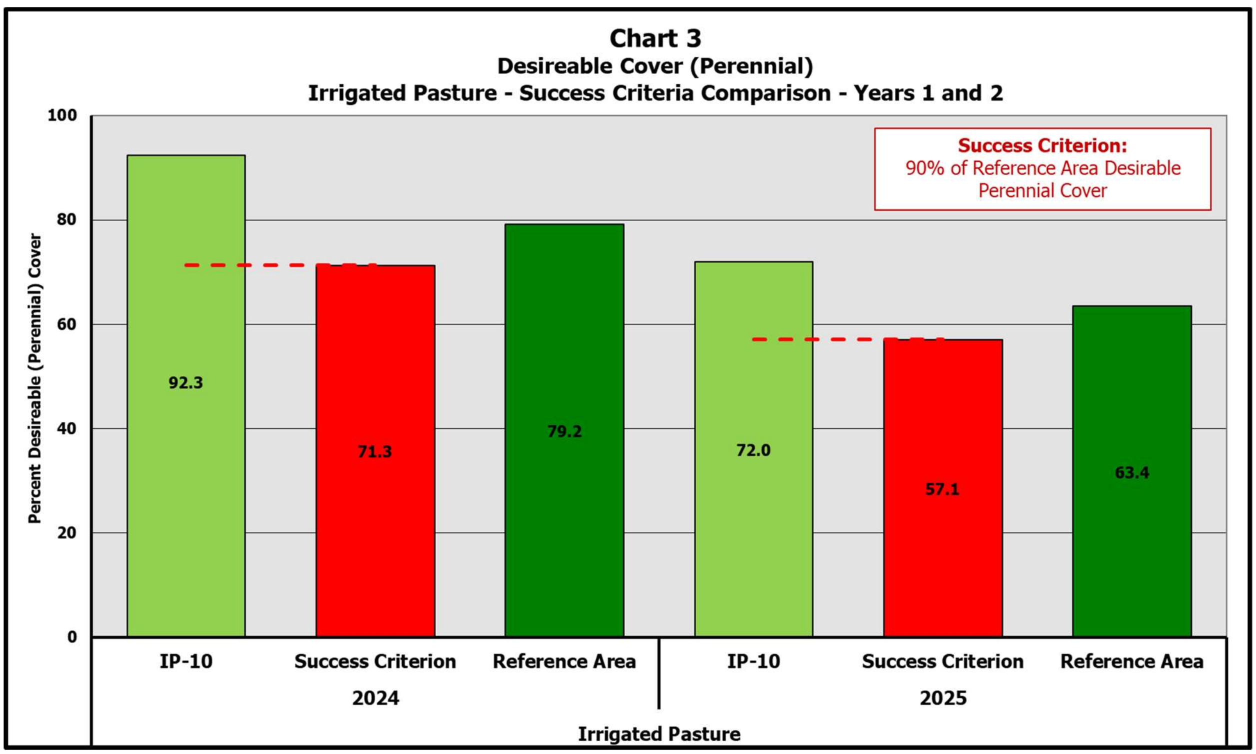
5.0 SUCCESS COMPARISON

5.1 IP-10 Revegetation Unit

5.1.1 Cover

In 2024, the demonstration of sample adequacy and a minimum of 15 transects in the IP-10 unit and the reference area (Table 1, above) allow for a direct comparison for perennial cover per Rule 4.15.11 (2)(a). The IP-10 unit exceeds the reference area comparison with 92.3% perennial cover versus the 71.3% success standard (90% of 79.2%) and demonstrates success for vegetation cover (Chart 3).

In 2025, the demonstration of sample adequacy and a minimum of 15 transects in the IP-10 unit and the reference area (Table 1, above) allow for a direct comparison for perennial cover per Rule 4.15.11 (2)(a). The IP-10 unit exceeds the reference area comparison with 72.0% perennial cover versus the 57.1% success standard (90% of 63.4%) and demonstrates success for vegetation cover (Chart 3).



5.1.2 Production

For Irrigated Pasture bond release production comparisons, permit section 2.05.4(2)(e) specifies that a soil type correction factor must be applied to mean production for the Irrigated Pasture reference area to allow for variation in productivity of different soil types. For IP-10 unit, the Soil Adjustment Factor was calculated based on the acres of each soil type in the reclaimed area tract, and the soil productivity factor associated with the soil types (Table 4).

Table 4 Soil Adjustment Factor - IP-10

Soil	Acreage	Relative Acreage	Assigned Production Factor	Weighted Index
10	0.5	16%	1.0	0.162
78	2.2	75%	0.7	0.522
81	0.3	9%	1.0	0.093
			Soil Adjustment Factor =	**0.776**

To calculate the Soil Adjustment Factor, the acreages were tabulated by overlaying the IP-10 unit on the NRCS Soil Survey to represent pre-mining soils. Assigned Production Factors for each soil were obtained from Mr. Jim Boyd's October 2, 2007, letter found in Attachment 2.05.4(2)(e) – 11 of the permit. Mr. Jim Boyd, NRCS representative, reviewed the capability of all soils in the reclaimed area and assigned a relative factor to each of these soils. The adjustment procedure elevates the production success standard in situations where pre-mining soils were potentially more productive than reference area soils and lowers the standard in situations where pre-mine soils were on average potentially less productive than reference area soils.

The weighted adjustment factor applied to the reference area mean is 0.760 in 2024 and 2025. This is calculated as follows:

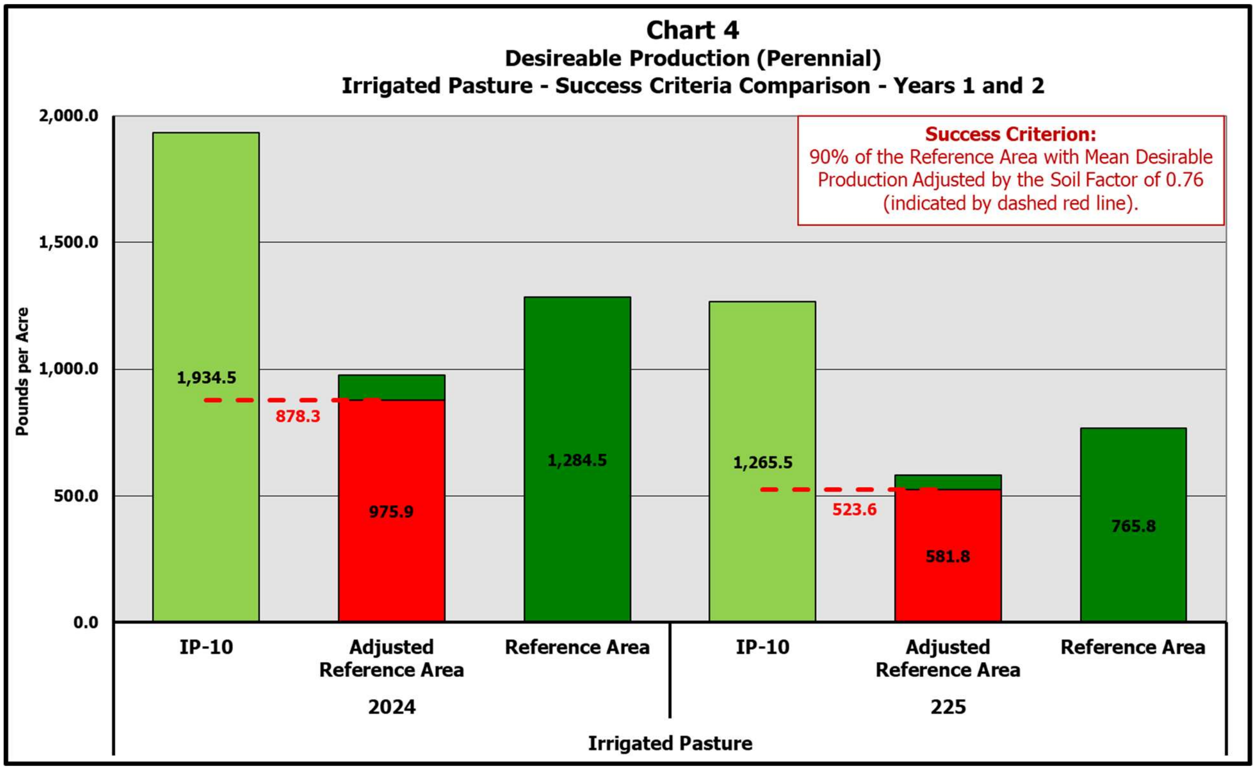
$$Weighted\ Adj.Factor = \frac{IP\ 10\ \ Soil\ Adjustment\ Factor}{IP\ RA\ Soil\ Adjustment\ Factor} = \frac{0.776}{1.022} = 0.760$$

$$2024\ IP\ Success\ Critera = (\bar{x}_{RA} * 0.760) * 0.9 = (1{,}284.5 * 0.760) * 0.9 = 878.3$$

$$2025\ IP\ Success\ Critera = (\bar{x}_{RA} * 0.760) * 0.9 = (765.8 * 0.760) * 0.9 = 523.6$$

In 2024, the demonstration of sample adequacy and a minimum of 15 transects in the bond release block (Table 1, above) allow for a direct comparison for perennial production per Rule 4.15.11 (2)(a). The IP-10 unit exceeds the reference area comparison with 1,934.5 pounds per acre perennial production versus the 878.3 pounds per acre success criteria (90% of 975.9 pounds per acre) and demonstrates success for vegetation production (Chart 4).

In 2025, the demonstration of sample adequacy and a minimum of 15 transects in the bond release block (Table 1, above) allow for a direct comparison for perennial production per Rule 4.15.11 (2)(a). The IP-10 unit exceeds the reference area comparison with 1,265.5 pounds per acre perennial production versus the 523.6 pounds per acre success criteria (90% of 581.8 pounds per acre) and demonstrates success for vegetation production (Chart 4).



5.1.3 Forage Quality

The forage quality standard states that at least 75% of the relative forage production will be comprised of seeded species or species of comparable quality as livestock forage. The results of forage quality testing for 2024 and 2025 are presented on Table 5. In 2024, the IP-10 unit exceeds the technical standard with 100% of the relative production comprised from desirable production and demonstrates success for the forage quality requirement. In 2025, the IP-10 unit exceeds the technical standard with 100% of the relative production comprised from desirable production and demonstrates success for the forage quality requirement.

Table 5 Forage Quality Summary

Success Test Comparison - IP-10 Revegetation Unit

	Year -->	**2024**			**2025**		
		Production Results (lbs/acre)	**Relative Production**	**Test Result**	**Production Results (lbs/acre)**	**Relative Production**	**Test Result**
Desirable Production	Perennial Grasses	1,316.9	100.0%	Pass >75%	728.6	100.0%	Pass >75%
	Perennial Forbs	617.6			536.9		
Undesirable Production	Sub-shrubs	-	0.0%		-	0.0%	
	Annual Grasses	-			-		
	Annual Forbs	-			-		
	Noxious Weeds	-	0.0%		-	0.0%	
Total		**1,934.5**	**100.0%**		**1,265.5**	**100.0%**	

6.0 RECOMMENDATIONS AND CONCLUSIONS

The IP-10 Revegetation Unit evaluated in 2024 and 2025 readily passed all performance standards in regard to revegetation, in accordance with the permit and state rules and guidelines. This unit exhibits vegetation permanence and productivity from quality species which supports the approved post mining land uses.

7.0 REFERENCES

New Horizon Mine. Permit Number C-1981-008. Section 2.05.4.

Weber, W.A. and Wittman, R.C., 1996. Colorado Flora: Western Slope - Revised Edition. University Press of Colorado. 49

Appendix A

Raw Data

Table A-1 New Horizon - Vegetation Cover - 2024

Irrigated Pasture - IP-10 Revegetation Unit

Raw Individual Transect Data — **Percent Ground Cover Based on Point-Intercept Sampling**

			Transect No.——>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Average Cover	Relative Cover	Freq.
Grasses and Grass-likes																					
N	P	*Agropyron cristatum*	Crested Wheatgrass			21	12	7	15					5	3	10			**4.9**	**5.1**	**47**
N	P	*Agropyron smithii*	Western Wheatgrass				13		14					7	8	17			**3.9**	**4.1**	**33**
I	P	*Alopercus pratentsis*	Meadow Foxtail	29				10	3										**2.8**	**2.9**	**20**
I	P	*Bromus biebersteinii*	Meadow Brome	5	32	2	20	36	6	32	16	59	72	8	10	20	38	7	**24.2**	**25.2**	**100**
I	P	*Dactylis glomerata*	Orchardgrass		2		15	4	7		2			3	29	6	18	19	**7.0**	**7.3**	**67**
I	P	*Elymus junceus*	Russian Wildrye			9								1					**0.7**	**0.7**	**13**
N	P	*Elymus trachycaulus*	Slender Wheatgrass														1		**0.1**	**0.1**	**7**
I	P	*Festuca arundinacea*	Tall Fescue	20	5		2	6	9	10	31		4	6	7			1	**6.7**	**7.0**	**73**
I	P	*Poa compressa*	Canada Bluegrass		1		11		3	8	3				3				**1.9**	**2.0**	**40**
N	P	*Poa pratensis*	Kentucky Bluegrass	2	2			1	1										**0.4**	**0.4**	**27**
I	P	*Thinopyrum intermedium*	Intermediate Wheatgrass												15				**1.0**	**1.0**	**7**
Forbs																					
X	P	*Convolvulus arvensis*	Field Bindwed				1		1	1	4	2	2		2	4			**1.1**	**1.2**	**53**
N	A	*Descurainia pinnata*	Pinnate Tansymustard							2									**0.1**	**0.1**	**7**
I	B	*Erodium cicutarium*	Redstem Stork's Bill		1														**0.1**	**0.1**	**7**
N	B	*Grindelia squarrosa*	Curlycup Gumweed														2		**0.1**	**0.1**	**7**
I	P	*Lotus corniculatus*	Bird's-foot Trefoil	6					2										**0.5**	**0.6**	**13**
I	P	*Medicago sativa*	Alfalfa	13	44	65	9	18	27	44	30	29	22	47	18	32	32	53	**32.2**	**33.5**	**100**
N	A	*Plantago elongata*	Prairie Plantain	10	2			6	3		2	7		4					**2.3**	**2.4**	**47**
I	P	*Plantago major*	Common Plantain				7								1	2		4	**0.9**	**1.0**	**27**
I	A	*Sisymbrium altissimum*	Tumble Mustard			1													**0.1**	**0.1**	**7**
I	P	*Taraxacum officinale*	Common Dandelion	6	7		1	5	4	3	7			18	3	5	1	5	**4.3**	**4.5**	**80**
I	P	*Trifolium repens*	White Clover	6	1			4											**0.7**	**0.8**	**20**
																				Mean	
			Total Plant Cover	**97**	**97**	**98**	**91**	**97**	**95**	**100**	**95**	**97**	**100**	**99**	**99**	**96**	**92**	**89**		**96.1**	
			Rock																	**0.0**	
			Litter	1	1	2	5	2	1		2	1		1	1	3		5		**1.7**	
			Bare ground	2	2		4	1	4		3	2				1	8	6		**2.2**	
			Total Perennial Cover (Excluding Noxious Weeds)	**87**	**94**	**97**	**90**	**91**	**91**	**97**	**89**	**88**	**98**	**95**	**97**	**92**	**90**	**89**		**92.3**	

Sample Adequacy Calculations

Plant Cover Mean = 96.1 t= **1.345** n = **15.0**

Variance = 10.695 n_{min} **= 0.2**

N=Native, I=Introduced A=Annual, B=Biennial, P=Perennial, X=Noxious

Table A-2 New Horizon - Vegetation Cover - 2025

Irrigated Pasture - IP-10 Revegetation Unit

Raw Individual Transect Data — **Percent Ground Cover Based on Point-Intercept Sampling**

			Transect No.——>	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**Average Cover**	**Relative Cover**	**Freq.**
Grasses and Grass-likes																					
N	P	*Agropyron cristatum*	Crested Wheatgrass										9	5					**0.9**	**1.3**	**13**
N	P	*Agropyron smithii*	Western Wheatgrass	1	1		1			1									**0.3**	**0.4**	**27**
I	P	*Alopercus pratentsis*	Meadow Foxtail					15											**1.0**	**1.4**	**7**
I	P	*Bromus biebersteinii*	Meadow Brome	7	10	18	34		30	7	12	8	38	10	4	28		17	**14.9**	**20.3**	**87**
I	P	*Dactylis glomerata*	Orchardgrass													12	9	2	**1.5**	**2.1**	**20**
I	P	*Elymus junceus*	Russian Wildrye		9	9				4						2			**1.6**	**2.2**	**27**
I	P	*Festuca arundinacea*	Tall Fescue	11	3						16	5		27	37		18	11	**8.5**	**11.6**	**53**
I	P	*Poa compressa*	Canada Bluegrass	2	15	6	2			4		3							**2.1**	**2.9**	**40**
N	P	*Poa pratensis*	Kentucky Bluegrass			2	4	7		2		4		1	1		1		**1.5**	**2.0**	**53**
Forbs																					
X	P	*Centaurea sp.*	Knapweed						1										**0.1**	**0.1**	**7**
X	P	*Convolvulus arvensis*	Field Bindwed					1	1										**0.1**	**0.2**	**13**
I	P	*Lotus corniculatus*	Bird's-foot Trefoil				5		2		2	2							**0.7**	**1.0**	**27**
I	P	*Medicago sativa*	Alfalfa	47	32	31	11	29	30	30	41	35	28	26	14	31	47	49	**32.1**	**43.7**	**100**
N	A	*Plantago elongata*	Prairie Plantain	6	3		5		1	2	1		1						**1.3**	**1.7**	**47**
I	P	*Taraxacum officinale*	Common Dandelion	13	11	9	2		8	18	11	14		1		5	6		**6.5**	**8.9**	**73**
I	P	*Trifolium repens*	White Clover	2	1	1													**0.3**	**0.4**	**20**
																				Mean	
			Total Plant Cover	**89**	**85**	**76**	**64**	**52**	**73**	**68**	**83**	**71**	**76**	**70**	**56**	**78**	**81**	**79**		**73.4**	
			Rock																	**0.0**	
			Litter	5	9	14	23	11	15	18	10	14	11	21	21	13	5	11		**13.4**	
			Bare ground	6	6	10	13	37	12	14	7	15	13	9	23	9	14	10		**13.2**	
			Total Perennial Cover (Excluding Noxious Weeds)	**83**	**82**	**76**	**59**	**51**	**70**	**66**	**82**	**71**	**75**	**70**	**56**	**78**	**81**	**79**		**71.9**	

Sample Adequacy Calculations	
	Plant Cover Mean = 73.4 t= **1.345** n = **15.0**
	Variance = 106.400 n_{min} **= 3.6**

N=Native, I=Introduced A=Annual, B=Biennial, P=Perennial, X=Noxious

Table A-3 New Horizon - Vegetation Cover - 2024

Irrigated Pasture Reference Area

Raw Individual Transect Data — **Percent Ground Cover Based on Point-Intercept Sampling**

			Transect No.——>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Average Cover	Relative Cover	Freq.
Grasses and Grass-likes																					
I	P	*Bromus biebersteinii*	Meadow Brome		8														**0.5**	**0.7**	**7**
N	P	*Carex sp.*	Sedge	10		2	76	41	52	30	23	26	28	5	16	32	1	16	**23.9**	**30.1**	**93**
I	P	*Dactylis glomerata*	Orchardgrass										2	13	10		2		**1.8**	**2.3**	**27**
I	P	*Festuca arundinacea*	Tall Fescue	46	29	63		19	46	10	21	20	38	67	67	60	71	32	**39.3**	**49.5**	**93**
N	P	*Juncus balticus*	Baltic Rush								36	30		1					**4.5**	**5.6**	**20**
I	P	*Phleum pratense*	Timothy							38			2						**2.7**	**3.4**	**13**
I	P	*Poa compressa*	Canada Bluegrass					10					4		1		2		**1.1**	**1.4**	**27**
N	P	*Poa pratensis*	Kentucky Bluegrass		6														**0.4**	**0.5**	**7**
Forbs																					
X	P	*Convolvulus arvensis*	Field Bindwed			1													**0.1**	**0.1**	**7**
I	P	*Lotus corniculatus*	Bird's-foot Trefoil	20			13						11	6	3		5	18	**5.1**	**6.4**	**47**
																				Mean	
			Total Plant Cover	**76**	**43**	**66**	**89**	**70**	**98**	**78**	**80**	**76**	**85**	**92**	**97**	**92**	**81**	**66**		**79.3**	
			Rock																	**0.0**	
			Litter	24	34	30	11	28	2	22	20	24	15	8	3	8	11	34		**18.3**	
			Bare ground		23	4		2									8			**2.5**	
			Total Perennial Cover (Excluding Noxious Weeds)	**76**	**43**	**65**	**89**	**70**	**98**	**78**	**80**	**76**	**85**	**92**	**97**	**92**	**81**	**66**		**79.2**	

Sample Adequacy Calculations

Plant Cover Mean = 79.3 t= **1.345** n = **15.0**

Variance = 206.924 n_{min} = **6.0**

N=Native, I=Introduced A=Annual, B=Biennial, P=Perennial, X=Noxious

Table A-4 New Horizon - Vegetation Cover - 2025

Irrigated Pasture Reference Area

Raw Individual Transect Data — **Percent Ground Cover Based on Point-Intercept Sampling**

			Transect No.——>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Average Cover	Relative Cover	Freq.
Grasses and Grass-likes																					
I	P	*Bromus biebersteinii*	Meadow Brome		5	7							10						**1.5**	**2.3**	**20**
N	P	*Carex praegracilis*	Clustered Field Sedge	1	11	11	10	17		4	3					6	11		**4.93**	**7.76**	**60**
I	P	*Dactylis glomerata*	Orchardgrass									4		2					**0.4**	**0.6**	**13**
I	P	*Festuca arundinacea*	Tall Fescue	44	44	35	35	22	48	16	47	29	61	35	43	41	34	46	**38.7**	**60.9**	**100**
N	P	*Juncus balticus*	Baltic Rush				5			34	21	14		5			1		**5.3**	**8.4**	**40**
I	P	*Phleum pratense*	Timothy					4		5			10			8		21	**3.2**	**5.0**	**33**
I	P	*Poa compressa*	Canada Bluegrass	7		3		2											**0.8**	**1.3**	**20**
N	P	*Poa pratensis*	Kentucky Bluegrass	1								3		2					**0.4**	**0.6**	**20**
Forbs																					
I	P	*Medicago sativa*	Alfalfa	12	17	5		4				15	3	12	8	7	20		**6.87**	**10.81**	**67**
N	A	*Plantago elongata*	Prairie Plantain												2				**0.13**	**0.21**	**7**
I	P	*Taraxacum officinale*	Common Dandelion					2		2	1	5		4	2	1	2		**1.27**	**1.99**	**53**
I	P	*Trifolium repens*	White Clover														1		**0.07**	**0.10**	**7**
																				Mean	
			Total Plant Cover	**65**	**77**	**61**	**50**	**51**	**48**	**61**	**72**	**70**	**84**	**60**	**55**	**63**	**69**	**67**		**63.5**	
			Rock																	**0.0**	
			Litter	32	19	33	50	44	51	37	28	30	16	36	43	37	29	27		**34.1**	
			Bare ground	3	4	6		5	1	2				4	2		2	6		**2.3**	
			Total Perennial Cover (Excluding Noxious Weeds)	**65**	**77**	**61**	**50**	**51**	**48**	**61**	**72**	**70**	**84**	**60**	**53**	**63**	**69**	**67**		**63.4**	

Sample Adequacy Calculations	
Plant Cover Mean = 63.5	t= **1.345**
n = **15.0**	
Variance = 102.695	n_{min} = **4.6**

N=Native, I=Introduced A=Annual, B=Biennial, P=Perennial, X=Noxious

Table A-5 New Horizon - Vegetation Production - 2024

Irrigated Pasture - IP-10 Revegetation Unit

Raw Individual Plot Data — Air Dry Weight (grams per 0.5 square meter)

Sample No.	*Perennial Grasses*	*Perennial Forbs*	*Sub-shrubs*	*Annual Grasses*	*Annual / Biennial Forbs*	*Noxious Weeds*	TOTAL		TOTAL DESIRABLE	
							$g/0.5m^2$	lbs / ac	$g/0.5m^2$	lbs / ac
1	43.4	72.8					**116.2**	**2,070.0**	**116.2**	**2,070.0**
2	100.8	47.2					**148.0**	**2,636.5**	**148.0**	**2,636.5**
3	48.8	50.4					**99.2**	**1,767.1**	**99.2**	**1,767.1**
4	87.4	6.0					**93.4**	**1,663.8**	**93.4**	**1,663.8**
5	77.5	28.6					**106.1**	**1,890.1**	**106.1**	**1,890.1**
6	92.2	1.2					**93.4**	**1,663.8**	**93.4**	**1,663.8**
7	71.6	1.4					**73.0**	**1,300.4**	**73.0**	**1,300.4**
8	136.4	1.6					**138.0**	**2,458.3**	**138.0**	**2,458.3**
9	56.4	20.5					**76.9**	**1,369.9**	**76.9**	**1,369.9**
10	2.6	137.0					**139.6**	**2,486.8**	**139.6**	**2,486.8**
11	49.4	37.2					**86.6**	**1,542.7**	**86.6**	**1,542.7**
12	82.4	34.4					**116.8**	**2,080.7**	**116.8**	**2,080.7**
13	79.8	37.2					**117.0**	**2,084.2**	**117.0**	**2,084.2**
14	77.6	1.9					**79.5**	**1,416.2**	**79.5**	**1,416.2**
15	102.6	42.6					**145.2**	**2,586.6**	**145.2**	**2,586.6**
Average	**73.9**	**34.7**	-	-	-	-	**108.6**	**1,934.5**	**108.6**	**1,934.5**

Sampling Adequacy: **t = 1.345** **var. = 648.042**
n= 15 **Mean = 108.6** **n_{min} = 9.9**

Table A-6 New Horizon - Vegetation Production - 2025

Irrigated Pasture - IP-10 Revegetation Unit

Raw Individual Plot Data — Air Dry Weight (grams per 0.5 square meter)

Sample No.	*Perennial Grasses*	*Perennial Forbs*	*Sub-shrubs*	*Annual Grasses*	*Annual / Biennial Forbs*	*Noxious Weeds*	TOTAL		TOTAL DESIRABLE	
							$g/0.5m^2$	lbs / ac	$g/0.5m^2$	lbs / ac
1	19.0	23.9					**42.9**	**764.2**	**42.9**	**764.2**
2	24.3	30.0					**54.3**	**967.3**	**54.3**	**967.3**
3	8.2	34.4					**42.6**	**758.9**	**42.6**	**758.9**
4	36.7	2.9					**39.6**	**705.4**	**39.6**	**705.4**
5	2.4	53.1					**55.5**	**988.7**	**55.5**	**988.7**
6	14.3	25.3					**39.6**	**705.4**	**39.6**	**705.4**
7	8.6	32.7					**41.3**	**735.7**	**41.3**	**735.7**
8	15.1	28.4					**43.5**	**774.9**	**43.5**	**774.9**
9	11.1	38.6					**49.7**	**885.4**	**49.7**	**885.4**
10	8.3	33.0					**41.3**	**735.7**	**41.3**	**735.7**
11	12.9	33.0					**45.9**	**817.7**	**45.9**	**817.7**
12	12.6	20.0					**32.6**	**580.7**	**32.6**	**580.7**
13	23.3	25.2					**48.5**	**864.0**	**48.5**	**864.0**
14	16.6	29.1					**45.7**	**814.1**	**45.7**	**814.1**
15	16.4	42.5					**58.9**	**1,049.2**	**58.9**	**1,049.2**
Average	**40.9**	**30.1**	-	-	-	-	**45.5**	**809.8**	**45.5**	**809.8**

Sampling Adequacy: **t = 1.345** **var. = 48.164**
n= 15 **Mean = 45.5** **n_{min} = 4.2**

Table A-7 New Horizon - Vegetation Production - 2024

Irrigated Pasture Reference Area

Raw Individual Plot Data — **Air Dry Weight (grams per 0.5 square meter)**

Sample No.	*Perennial Grasses*	*Perennial Forbs*	*Sub-shrubs*	*Annual Grasses*	*Annual / Biennial Forbs*	*Noxious Weeds*	TOTAL		TOTAL DESIRABLE	
							$g/0.5m^2$	lbs / ac	$g/0.5m^2$	lbs / ac
1	54.6	38.0					**92.6**	**1,649.6**	**92.6**	**1,649.6**
2	25.4	1.2					**26.6**	**473.9**	**26.6**	**473.9**
3	28.4						**28.4**	**505.9**	**28.4**	**505.9**
4	5.2	10.2					**15.4**	**274.3**	**15.4**	**274.3**
5	2.9	11.5					**14.4**	**256.5**	**14.4**	**256.5**
6	126.6	4.5					**131.1**	**2,335.4**	**131.1**	**2,335.4**
7	79.2	5.8					**85.0**	**1,514.2**	**85.0**	**1,514.2**
8	106.2	1.1					**107.3**	**1,911.4**	**107.3**	**1,911.4**
9	75.2						**75.2**	**1,339.6**	**75.2**	**1,339.6**
10	6.8	19.4					**26.2**	**466.7**	**26.2**	**466.7**
11	66.0	16.8					**82.8**	**1,475.0**	**82.8**	**1,475.0**
12	79.2	18.4					**97.6**	**1,738.6**	**97.6**	**1,738.6**
13	179.0	10.6					**189.6**	**3,377.5**	**189.6**	**3,377.5**
14	43.1	1.5					**44.6**	**794.5**	**44.6**	**794.5**
15	51.3	13.5					**64.8**	**1,154.3**	**64.8**	**1,154.3**
Average	**61.9**	**10.2**	-	-	-	-	**72.1**	**1,284.5**	**72.1**	**1,284.5**

Sampling Adequacy: **t = 1.345** **var. = 2,380.555**
n= 15 **Mean = 72.1** **n_{min} = 82.8**

Table A-8 New Horizon - Vegetation Production - 2025

Irrigated Pasture Reference Area

Raw Individual Plot Data — **Air Dry Weight (grams per 0.5 square meter)**

Sample No.	*Perennial Grasses*	*Perennial Forbs*	*Sub-shrubs*	*Annual Grasses*	*Annual / Biennial Forbs*	*Noxious Weeds*	TOTAL		TOTAL DESIRABLE	
							$g/0.5m^2$	lbs / ac	$g/0.5m^2$	lbs / ac
1	15.6						**15.6**	**277.9**	**15.6**	**277.9**
2	10.5	8.6					**19.1**	**340.2**	**19.1**	**340.2**
3	18.8	3.3					**22.1**	**393.7**	**22.1**	**393.7**
4	29.6						**29.6**	**527.3**	**29.6**	**527.3**
5	13.9	2.8					**16.7**	**297.5**	**16.7**	**297.5**
6	29.9						**29.9**	**532.6**	**29.9**	**532.6**
7	23.8						**23.8**	**424.0**	**23.8**	**424.0**
8	18.0						**18.0**	**320.7**	**18.0**	**320.7**
9	30.3	9.0					**39.3**	**700.1**	**39.3**	**700.1**
10	30.5						**30.5**	**543.3**	**30.5**	**543.3**
11	22.7						**22.7**	**404.4**	**22.7**	**404.4**
12	16.2						**16.2**	**288.6**	**16.2**	**288.6**
13	26.8	4.4					**31.2**	**555.8**	**31.2**	**555.8**
14	17.8	3.2					**21.0**	**374.1**	**21.0**	**374.1**
15	18.8						**18.8**	**334.9**	**18.8**	**334.9**
Average	**40.9**	**2.1**	-	-	-	-	**23.6**	**421.0**	**23.6**	**421.0**

Sampling Adequacy: **t = 1.345** **var. = 48.458**
n= 15 **Mean = 23.6** **n_{min} = 15.7**

Appendix C

New Horizon Mine Phase III Bond Release Probably Hydrologic Analysis – IP-10

Water & Environmental
TECHNOLOGIES

New Horizon Mine Phase III Bond Release Probable Hydrologic Analysis - IP-10

Prepared For:

ELK RIDGE
MINING AND RECLAMATION

May 2025

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1 Background

This Bond Release Hydrological Assessment has been prepared by Water & Environmental Technologies (WET) to support a Phase III Bond Release application for New Horizon Mine. The New Horizon Mine is permitted under the Colorado Division of Reclamation Mining and Safety Reclamation Division Permit No. C-1981-008. The mine is located in southwestern Colorado in Montrose County just to the west of the town of Nucla, Colorado (**Figure 1**).

This assessment and data collection specifically addresses the Phase III Final Bond Release for 2.9 acres of irrigated pasture as shown in **Figure 2**. The New Horizon Mine was mined in two phases; New Horizon 1 was mined and completely bond released in 2002. The remaining portion contains the parcel in this package.

Mining at New Horizon Mine began in 1993 utilizing surface mining methods to remove coal from multiple seams within the Cretaceous Dakota Sandstone. Coal extraction ceased in 2013, and the final pit was backfilled and regraded to meet postmining topography in 2018.

The coal was mined in strips approximately 120 feet wide, with each strip being worked sequentially. Once the coal in a strip was removed, the overburden was cleared from the next strip and placed over the area where coal had already been extracted. After several strips had been mined and the overburden repositioned, the entire area was graded to match the approved postmining topography. Topsoil was hauled from the active mining area to active reclamation areas when possible. Once the topsoil was placed, it was tilled and seeded.

Coal mining operations in Colorado are regulated by the Colorado Division of Reclamation, Mining and Safety (DRMS) under the Colorado Surface Coal Mining Reclamation Act (CSCMRA), which aligns with the federal Surface Mining Control and Reclamation Act (SMCRA). The requirements for bond release are outlined in Rule 3.03 of the *Regulations of the Colorado Mined Land Reclamation Board for Coal Mining* (1980 et seq.) and are further detailed in the *Guideline Regarding Selected Coal Mine Bond Release Issues* (CDMG 1995).

The bond release process is administered by DRMS and conducted in multiple phases. Phase III signifies that reclamation has been completed according to the approved permit and reclamation plan, and that the site is ready to support the designated postmining land use. To qualify, the operator must demonstrate that all required reclamation activities—such as backfilling, grading, topsoil replacement, and revegetation—have been completed successfully.

A key requirement of Phase III bond release is demonstrating that revegetation meets or exceeds the success criteria specified in the approved permit. Additionally, the operator must evaluate both surface water and groundwater conditions to ensure that hydrologic impacts have been minimized on-site and off-site in accordance with the mine permit. This includes submitting a detailed water quantity and quality analysis to verify compliance with Rule 4.05 of the Coal Regulations. The report only addresses groundwater conditions only. For surface water information please refer to Section D. in the SL-29 Phase III Bond Release application.

1.1 Analysis Criteria

Criteria for the water quantity and quality analysis are outlined in "Guideline Regarding Selected Coal Mine Bond Release Issues, Part 1 Application Requirements and Inspection Criteria for Bond Release on Permanent Program Areas, Item IV, No. 5, and in Part 5 Hydrologic Considerations" (CDMG 1995).

The specific analysis criteria will include:

- Provide a summary of existing groundwater data for the mine and determine impact to groundwater quantity and quality in the permit and adjacent areas.
- Determine compliance with Probable Hydrologic Consequences (PHC);
- Determine whether disturbance to the hydrologic balance has been minimized and offsite material damage has been prevented;
- Identify trends in available monitoring data related to long-term stability in water quantity and quality.

An assessment of Probable Hydrologic Consequences (PHC) is provided in Mine Permit C-1981-008, Sections 2.04.7 and 2.05.6(3). WET relied on these documents and on data provided by New Horizon Mine to develop the groundwater water quantity and quality analysis to support the bond release package for reclamation parcel IP-10.

2 Hydrologic Analysis Framework

New Horizon Mine is located with the San Miguel River watershed, which is part of the Colorado River basin.

2.1 Surface Water Conditions

The hydrology of the New Horizon mining area is described in Section 2.04.7 of the Permit document. Surface water flows either to Tuttle Draw or Calamity Draw, with the regional layout shown in Figure 1. This area is a gently sloping upland region between Tuttle Draw to the north and Calamity Draw to the south, largely formed by regional uplift of sedimentary rocks, primarily composed of recent eolian silts and sands overlying the Dakota and Burro Canyon Formations. Since around 1910, these deposits have been extensively cultivated with irrigation, forming a broad, rolling valley.

The West Lateral ditch is part of the Colorado Cooperative Company's main ditch system that originates on the San Miguel River just upstream of Cottonwood Canyon (about 13 miles to the southeast of the mine), upstream in the basin. The West Lateral splits off the main ditch near the northern boundary of Nucla. From there, the ditch follows a ridge top course westward to the main north-south county road and then winds south and southwest until the conveyed irrigation water has been diverted by the various ditch shareholders. Water delivered via the West Lateral ditch serves as the primary water source for irrigation and livestock use in the area. The ditch is unlined except within the Mine Permit boundary, where it flows through a 26-inch pipe. The West Lateral operates typically from mid-April to mid-October, depending on the growing season. Although the water in the ditch is suitable for domestic, agricultural, and livestock uses, surface water in Calamity and Tuttle Draws and their tributaries is not suitable for drinking water but meets livestock and irrigation criteria. The draws are commonly used by livestock and wildlife as a water source.

The Permit Area is bisected by the West Lateral Ditch. South and east of the West Lateral irrigation ditch, the land drains into Calamity Draw, while north and west of the ditch, it drains into Tuttle Draw. Both draws flow westward to eventually join the San Miguel River. Except for the lower portion of Calamity Draw near its mouth, the area is mostly irrigated pasture, rangeland, and the town of Nucla. The middle and upper parts of Calamity Draw have been intensively irrigated and cultivated since the 1910s and 1920s. As the town of Nucla developed, the irrigation network's return ditches largely controlled the drainage pattern, with many intermittent or possibly perennial ditches influenced by irrigation timing.

Both draws are perennial tributaries of the San Miguel River which in turn flows into the Dolores River and finally to the Colorado River. Excess irrigation water flows overland and largely contributes to the streamflow of Calamity and Tuttle Draws. The streamflow from Calamity and Tuttle Draws in turn contributes to the flow of the San Miguel River two and one half miles downstream of the former mining areas.

2.2 Geology

Southwest Colorado is known for its diverse physiography, mineral resources, soils, groundwater, and surface water conditions, largely shaped by the region's geology (Section 2.04.6 of the Permit document). In the Nucla-Naturita Coal Field within the San Juan Coal Region, the occurrence and quality of coal reserves are controlled by northwest-trending structural features and complex stratigraphy.

Most of the principal structures in the Nucla Area have undergone a complex tectonic history of recurring differential uplift, subsidence, deposition, erosion, folding, and faulting beginning in early Pennsylvanian time and lasting to the present (Lohman, 1965). The largest structure is the Uncompahgre Arch, a 100-mile-long upwarp located 10 to 15 miles north and northeast of the mine site. Other significant anticlines in the area include the Paradox Valley Complex, Gypsum Valley Anticline, and Sinbad Valley Anticline, the latter having salt and gypsum cores from the Paradox Member of the Hermosa Formation.

Between these anticlines are shallow, broad synclines containing most of the region's coal reserves, with the Nucla Syncline being the largest at 65 miles long. The New Horizon Permit Area is located slightly north of the Nucla Syncline axis. The region’s structural relief results primarily from compressive forces during the late Pennsylvanian, late Cretaceous, Eocene, and late Pliocene or early Pleistocene periods (Cater, 1970). Various forms of deformation, including monoclines and high-angle faults, occur along the outer margins of these structures. A fault scarp marks the southwest edge of the Uncompahgre Uplift, and small folds and faults in Quaternary deposits suggest ongoing structural adjustments (Cater, 1955).

The stratigraphy of the Dakota Sandstone has been extensively studied, as detailed in the permit document. The formation is generally divided into three units: the overburden, the Dakota coals (containing coal seams and interburden material), and the underburden.

Within the Mine Permit Area, the overburden primarily consists of fine- to medium-grained, low-porosity, well-cemented sandstone and sandy shale. These sandstones are lenticular, discordant, and cross-bedded, with iron-stained joints and fractures. Gypsum lenses are present between bedding planes within 20-foot-thick sandstone strata located 40 to 60 feet above the base of the lower Dakota seam, marking a transition between oxidized sulfate-bearing and unoxidized sulfide-bearing strata. The "upper" sandstone unit of the Dakota is absent in this area. Additionally, two thin, traceable bentonitic clay beds, ranging from 0.5 to 2.5 feet thick, occur approximately 60 to 70 feet above the base of the lower Dakota coal seam. While conglomerates are absent in the overburden, a 2 to 4-foot conglomerate marks the base of the Dakota Formation, representing the "lower" Dakota lithologic unit (Young, 1973).

The middle "Dakota coals" unit consists primarily of carbonaceous shale and impure coal with lesser amounts of interbedded sandstone and siltstone. There are four primary coal seams within this unit. The upper Dakota (#1) seam ranges from 0.6 to 2.1 feet in thickness, averaging 1.2 feet. The lower Dakota (#2) seam, the principal coal seam mined at New Horizon Mine, varies from 4.2 to 6.9 feet in thickness, averaging 5.5 feet. A 7.5-foot interburden separates the two seams. Beneath the Dakota coals lies the lower underburden unit, which primarily consists of a very hard, indurated sandstone.

2.3 Groundwater Conditions

The New Horizon Mine area is part of a structurally complex region, rich in coal reserves, but with groundwater that is poor in quality and unsuitable for most uses. The area's geology, groundwater conditions, and coal seams are intricately linked to the regional tectonics and past geologic history.

Geological controls on shallow groundwater—specifically within the upper Dakota Sandstone and alluvium—appear to be minimal. This is primarily due to the widespread presence of sandstone outcrops, which facilitate recharge along topographic highs rather that stratigraphic highs. However, artesian pressure may develop when a minor coal bed or sandstone aquifer becomes confined by impermeable strata.

Groundwater recharge in the region primarily occurs in the plateaus and mountains, where annual precipitation is highest, with the exception of recharge from irrigation in closer proximity to the mine. Groundwater moves from these recharge areas to natural discharge points, such as springs, gaining stream reaches, and regions with phreatophyte growth. Shallow groundwater is also affected by irrigation in the adjacent portions of the area to the mine.

Groundwater within the overburden in the vicinity of the Mine Permit Area is unconfined and exhibits a downward-head pressure. The predominant flow direction is from northeast to southwest and is controlled by topography. Seasonal fluctuations in groundwater levels occur, primarily due to recharge from irrigation ditches and flood irrigation. Water level fluctuations in response to precipitation events are not distinguishable. The ridge between Tuttle and Calamity Draws acts as a groundwater divide, causing the groundwater to flow from the ridge top toward both Tuttle and Calamity Draws, respectively.

The Dakota coals aquifer is confined, with groundwater exhibiting artesian conditions and seasonal variations in potentiometric levels. Groundwater levels in this aquifer fluctuate in response to the irrigation season and operation of the ditch irrigation system. There is no significant groundwater recharge from precipitation events identified in the groundwater fluctuation observed in the coal aquifer. The flow in the Dakota coal aquifer is generally from the northeast to the southwest. Recharge to the Dakota coal is generally from the agricultural crop areas and from vertical leakage from the irrigation ditches and flood irrigation via overlying units. Discharge mainly occurs along the draws where the Dakota aquifer intersects the ground surface and by discharge to contiguous aquifers.

The underburden aquifer is confined with artesian conditions and a downward vertical hydraulic gradient. It exhibits seasonal variations in potentiometric levels, though there is no discernible recharge from precipitation events. Groundwater flow is from northeast to southwest and is topographically controlled, similar to the overburden. Recharge occurs through leakage from overlying units, particularly northeast of the mine site, while discharge takes place in draws where the underburden aquifer reaches the surface and into connected aquifers.

Groundwater quality in the region is poor, rendering it unsuitable for most uses except livestock watering (of which water would only be considered marginally suitable), and yields are generally too low to support irrigation wells. Premining water quality in the overburden was characterized as very hard, saline, calcium/magnesium sulfate water with a neutral pH, with levels of TDS varying from 1500 to 10,000 mg/L and average of 4600 mg/L (CDMG 1993). Sulfate concentrations ranged from 875 to 6800 mg/L with an average of 3100 mg/L. Water quality in the coal aquifer was characterized as unsuitable for most uses, with saline, sulfate based water with high TDS and moderate flow capability. TDS ranged from 1000 to 4400 mg/L in the New Horizon mine area. Iron, manganese, aluminum, fluoride, and pH levels exceeded recommended water quality criteria for agricultural use, and aluminum and fluoride levels exceeded livestock water quality criteria. Underburden water quality in the confined aquifer is a hard, moderately alkaline saline water that meets livestock water quality but not domestic or agricultural water quality.

2.4 Bond Release Parcel Mining and Reclamation History

Tri-State on behalf of New Horizon Mine is applying for Phase III bond release of 2.9 acres of irrigated pasture (IP-10) identified on Figure 2. IP-10 was not mined and is a reclaimed haul road that supported mine operations for equipment movement to and from the shop areas to the active mine areas. Reclamation of the parcel was completed in 2016, and Phase II bond release of the reclamation parcel was approved in March of 2023.

2.5 Probable Hydrologic Consequences Summary

The probable hydrological consequences (PHC) are described in Section 2.07.7, Section 2.05.6(3) and Section 2.05.6(3)(b)(v) of the Permit and summarized below.

2.5.1 Water Quantity

The PHC for groundwater quantity at New Horizon Mine utilized a MODFLOW groundwater flow model to determine impact to surface and groundwater flow and recharge rates in groundwater aquifers. Model results in the PHC concluded that the deeper overburden drawdown levels would not reach the San Miguel River and that while shallow overburden aquifer flow into Tuttle Draw would be decreased, it would be offset by pit water pumped from the mine while in operation. The PHC concluded that some drawdown of the coal aquifer would reach the San Miguel River but no significant impact on the San Miguel River was expected. No significant impact to surface or groundwater rights were anticipated, however surface and groundwater augmentation plans were in place should they be needed.

Groundwater impacts were anticipated to be temporary during mining and in local proximity to the mining area, which would be resaturated after reclamation of backfill spoils was complete. Increase in recharge capacity in the spoils was anticipated to occur.

A potential long-term impact identified in the PHC was the potential time needed for the spoil material to resaturate and reestablish a flow gradient. The placement of spoil material into the backfilled pit was expected to increase interconnected porosities and increase both vertical and horizontal hydraulic conductivities in the overburden above the mined out coal seam. The time required for spoil material to resaturate was expected to be reduced due to irrigation recharge, as the mined area would be revegetated for irrigation-based postmining land use. The irrigation water was predicted to increase the resaturation rate of the spoils backfill at the mine.

Large impacts of irrigation to the groundwater were observed in baseline conditions and were expected to continue after mining and reclamation were complete. As the postmining land use remains crop and pastureland, irrigation continues and effects from mining in the groundwater quantity are considered minimal.

2.5.2 Water Quality

Per the PHC, impacts to groundwater and surface water quality were expected to be minimal and short-term. Runoff and pit pumpage was to be treated in sedimentation ponds to meet regulatory standards, with negligible increases in total dissolved solids (TDS) in nearby surface water bodies. Acid production from overburden was predicted to be limited and potentially neutralized by natural calcite buffering. The classification of the San Miguel River use (irrigation) would be maintained.

During the postmining period, it was thought that spoil water inflows may cause minor increases in TDS levels in Tuttle Draw and the San Miguel River. Groundwater quality was expected to also experience temporary changes as groundwater levels rebounded in the backfilled mine spoil. Much of this recharge would come from irrigation water infiltrating through the spoil, dissolving soluble minerals and lead to an initial rise in TDS. However, over time, as pyrite oxidation slowed and dissolved solids were gradually flushed out, groundwater chemistry was expected to stabilize, minimizing any long-term impacts.

2.6 Monitoring Network

The current monitoring network (**Table 1**) consists of six groundwater monitoring wells; one upgradient well and one downgradient well for each groundwater aquifer.

Table 1. Monitoring Network Summary

Type	Monitoring Location	Aquifer	Location
Groundwater	GW-N36	Overburden	Upgradient
	GW-N44		Downgradient
	GW-N37	Dakota Coal	Upgradient
	GW-N45		Downgradient
	GW-N38	Underburden	Upgradient
	GW-N46		Downgradient

2.7 Impacts Considered for the Hydrologic Analysis

The probable hydrological consequences for groundwater are described in Table 2.05.6(3)-1 of the permit documents and presented in **Table 2**. These impacts, as well as the Colorado guidelines presented by the Colorado Mined Land Reclamation Board, are considered to evaluate whether the proposed bond release parcel meets the criteria for Phase III release.

Table 2. Summary of Consequences of Life-of-Mine Mining Plan for the New Horizon Mining Area

Probable Hydrologic Consequences	Analysis Results	Significance
Groundwater		
Interruption of groundwater flow and drawdowns.	Maximum projected pit inflow rates will be approximately 5,230 ft^3/day during year 5 of mining at the New Horizon mining area. The maximum extent of the 1 foot drawdown contour is estimated to be 4,000 feet from the center of the pit.	Short term impact of minimal significance. Any impact to surface water rights will be mitigated according to the surface water augmentation plan. Wells proximate to mining areas are completed in deeper units and are not likely to be impacted (little significance). Ground water rights mitigation plan addresses alternative ground or surface water sources should they be needed. No short or long term significant impacts.
Removal of wells and ponds by mining.	No water righted wells are within the areas that were mined.	No impact.
Impact of replaced spoil material on groundwater flow and recharge capacity.	Horizontal hydraulic conductivities will be higher in the spoil as a result of higher percentages of interconnected porosities. Existing and reclaimed topsoil infiltration rates are similar except for some loss of soil structure in the reclaimed topsoil. Vertical hydraulic conductivities in the overburden are principally limited to interconnected fractures. Flow impeding ledges of consolidated rock are absent in the spoil but there is poorer sorting of grain sizes.	Short term impact to topsoil structure but of little significance as far as infiltration rate changes because of plowing and disking practices in the reclamation. Vertical hydraulic conductivities in the spoil will improve because they are no longer dependent on fracture flow. Horizontal hydraulic conductivities should also be higher.
Impact of spoil water quality on ground and surface water quality.	Geochemical controls on water quality suggest that the water chemistry and concentrations of most elements of concern are controlled by mineralogic reactions that will resist changes in water chemistry. Irrigation water will enter the spoil and will increase in TDS and will discharge from spoil springs, but the quality will be essentially the same as the current overburden water quality. This will occur for at least hundreds of years and the spoil water quality will gradually improve to the quality of the irrigation water as pyrite is oxidized and dissolved solids are flushed out.	No indication of significant long or short term impacts to the local groundwater quality. Impact to San Miguel water quality is of little significance. Impacts to Calamity and Tuttle Draw water quality are measurable but are of little significance in terms of water use. Potential impacts of replaced spoil on groundwater quality.

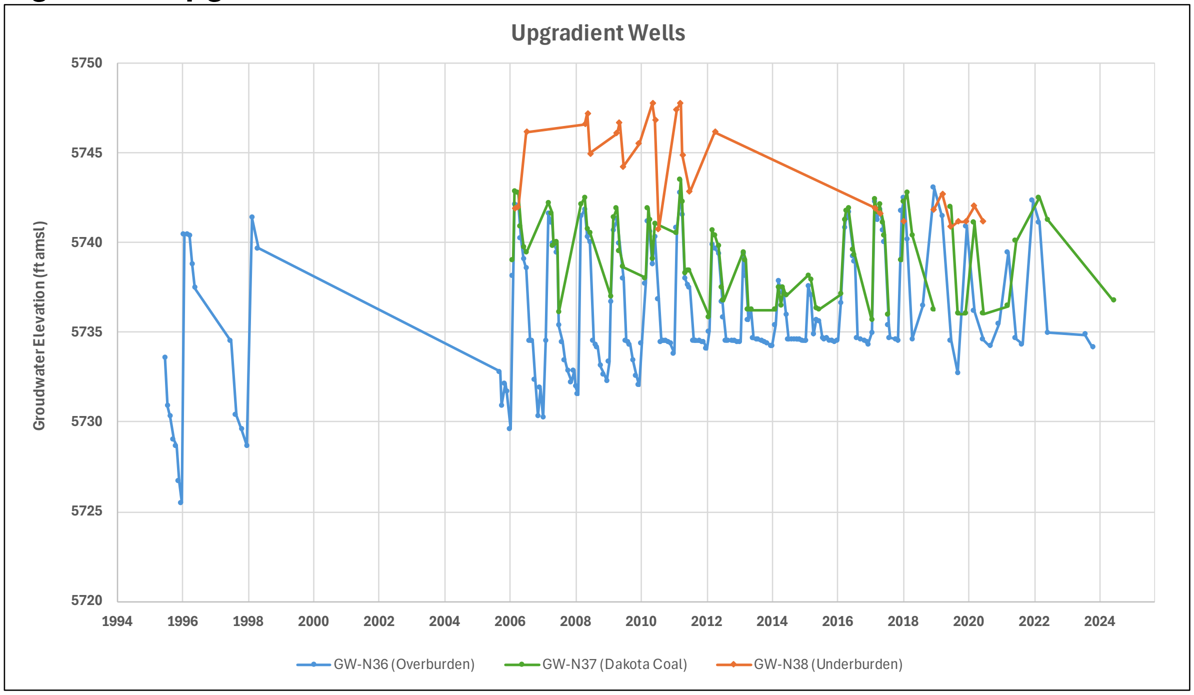
3 Hydrological Assessment

This section provides detailed water quantity and quality impact analysis to assess compliance with the rules and regulations for Phase III bond release. The 2.9 acres requested for Phase III bond release in this package were mined from 1996-2001. Data provided by Tri-State on behalf of New Horizon Mine for the currently monitored locations shown in Table 2 were used for completion of the analysis. Current groundwater conditions were compared to the predicted PHC to determine if predicted effects are consistent with current conditions.

3.1 Groundwater Impacts

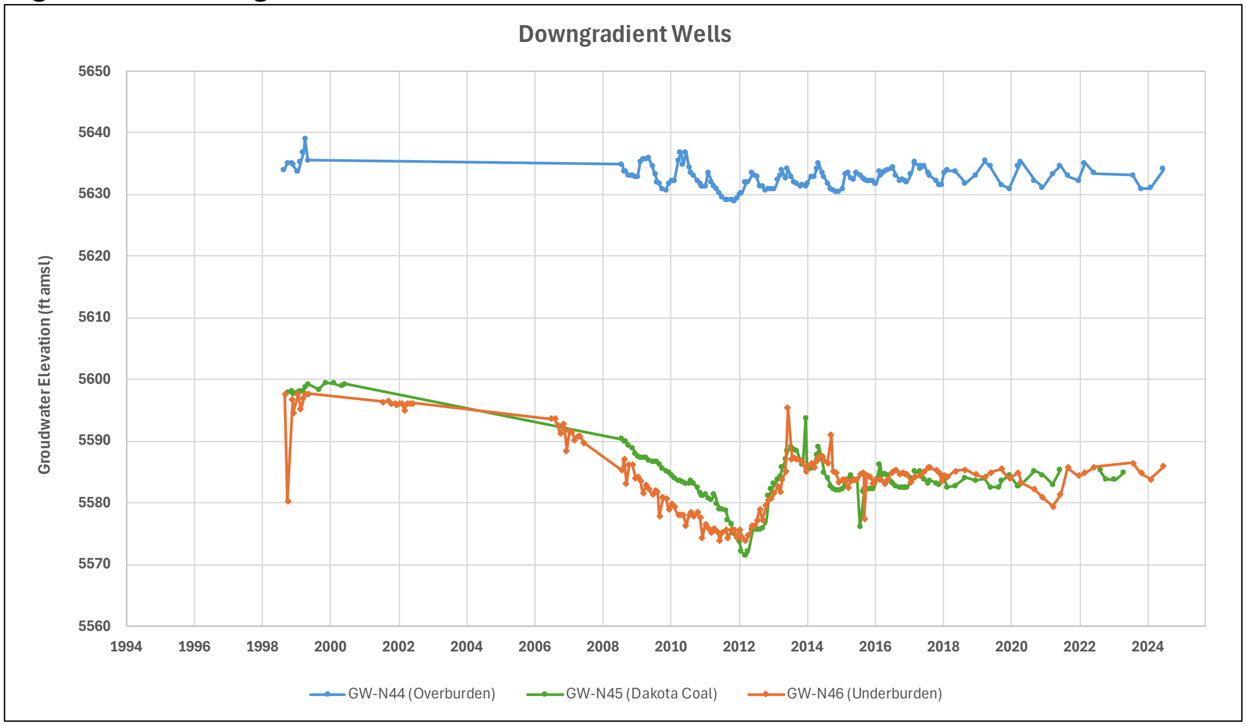
Upgradient wells show continued irrigation influences in the overburden and coal aquifers, with seasonal fluctuations as expected (**Figure 3a**). Water level elevations in the underburden well (GW-N38) display its confined nature in the aquifer. Underburden water levels have declined since 2010 in the upgradient well and the well has been dry since 2020.

Figure 3a. Upgradient Well Groundwater Elevations



Downgradient wells in each aquifer continue to show irrigation effects with seasonal fluctuations (**Figure 3b**). The downgradient overburden well (GW-N44) has recovered to premine levels, with seasonal fluctuation as predicted and observed in the PHC due to irrigation practices. The coal and underburden wells downgradient of mining continue to show recovery within approximately 10 feet of premine levels. Recent years after mining show stabilization of water levels in each aquifer.

Figure 3b. Downgradient Well Groundwater Elevations



3.1.1 Interruption of Groundwater Flow and Drawdowns

The PHC predicted that groundwater flow into Tuttle Draw would be decreased, but this would be offset by the discharge from the pit sump during active mining. It also predicted that there would be no effect of groundwater inflow on the San Miguel River from the shallow overburden drawdown. A maximum drawdown of 30 feet was predicted in the overburden that would not extend to the San Miguel River, and 8 feet of drawdown in the coal layer (Attachment 2.05.6(3)-2), which would reach the San Miguel River. There was no predicted effect on local water-righted users, as most wells were completed in deeper aquifer units.

GW-N36 and GW-N44 are actively monitored overburden wells and data suggest that the overburden is strongly influenced by irrigation (**Figure 4a**). Groundwater levels fluctuate 3 to 12 feet in the upgradient well (GW-N36) and 2 to 5 feet in the downgradient well (GW-N44) with increased groundwater levels from May to October and decreased groundwater levels from November to April. There is no completion information and little pre-mining data for monitoring well GW-N36 at the upgradient location.

Data for GW-N44 in the downgradient location indicates that the overburden was affected by nearby mining activities with a drawdown of approximately 7 feet during mining (**Figure 4b**). Water levels have rebounded approximately 5 feet from a minimum which occurred in 2011, indicating that the groundwater levels are recovering and nearly completely recovered as predicted in the PHC.

Figure 4a. Overburden Groundwater Elevations

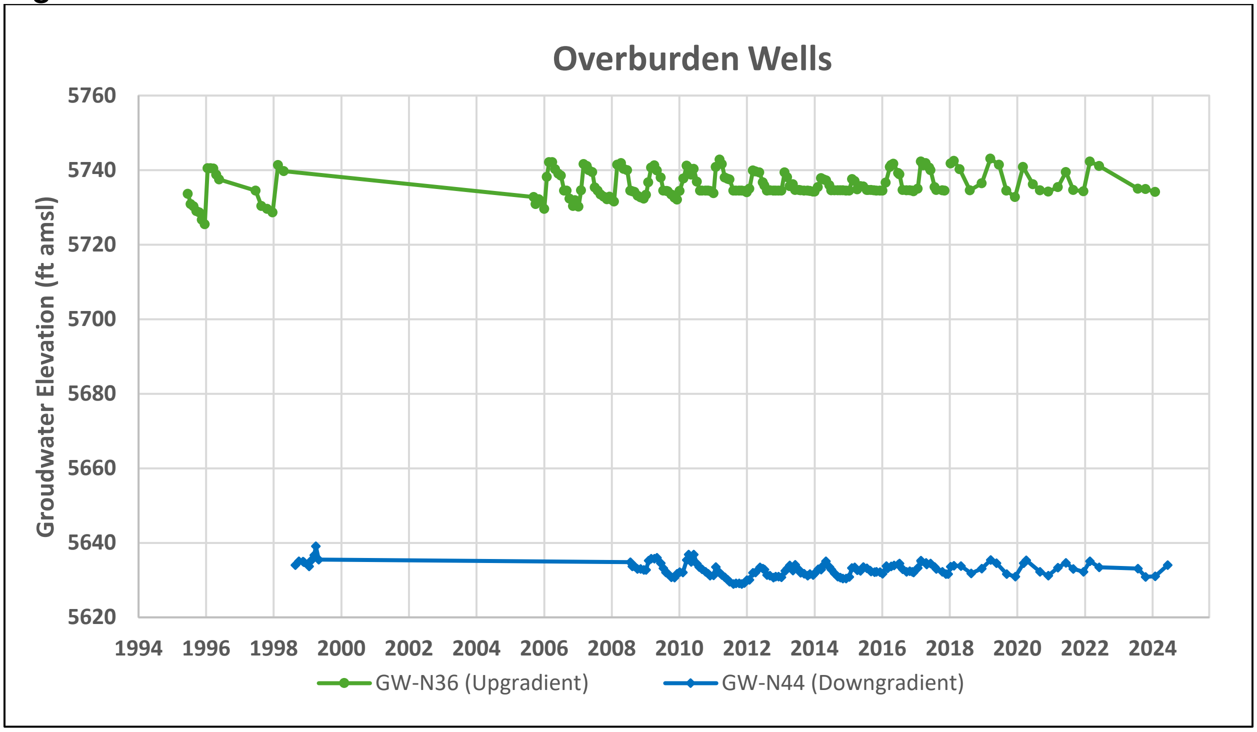
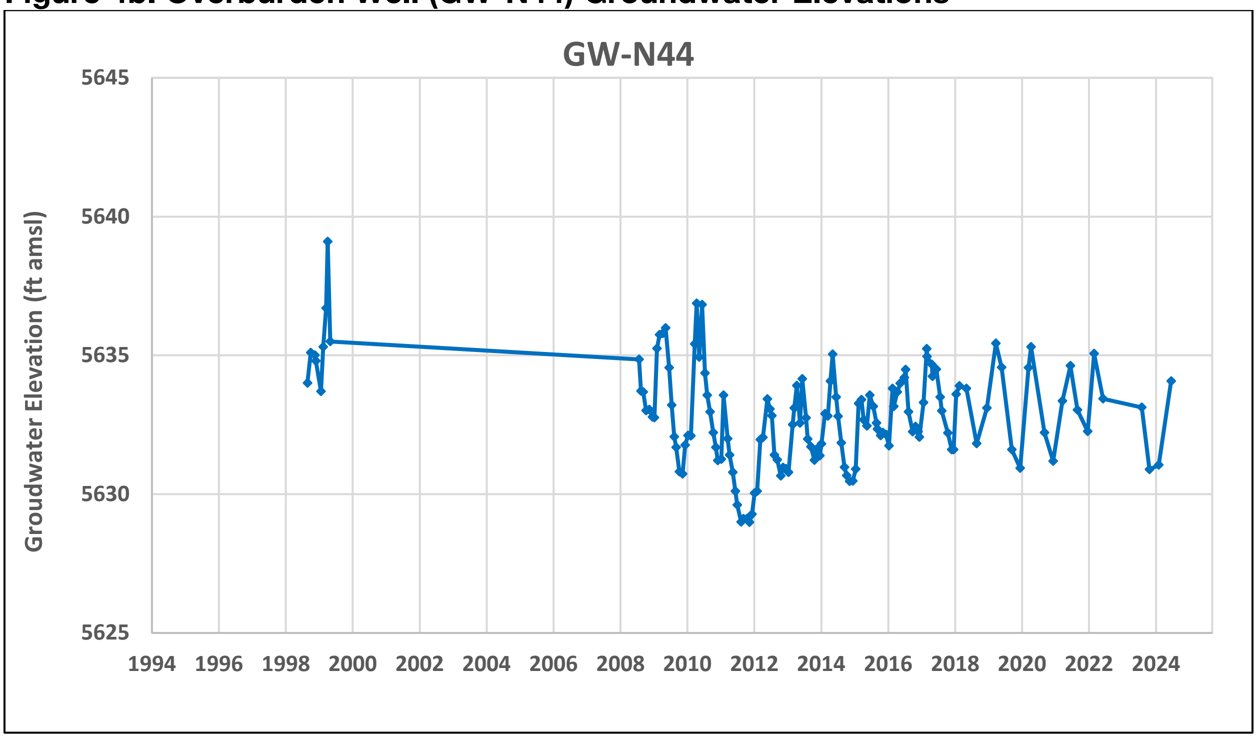


Figure 4b. Overburden Well (GW-N44) Groundwater Elevations



GW-N37 and GW-N45 are actively monitored Dakota coal wells. Groundwater levels in the Dakota coal wells (**Figure 5a**) fluctuate seasonally 3 to 8 feet in the upgradient well (GW-N37) and 2 to 4 feet in the downgradient well (GW-N45). From 2008 to 2012, groundwater levels in

GW-N45 declined by 18 feet as mining activities neared (**Figure 5b**). Since mining activities have ceased, groundwater levels have increased approximately 12 feet and continue to recover with seasonal fluctuations from irrigation.

Figure 5a. Dakota Coal Groundwater Elevations

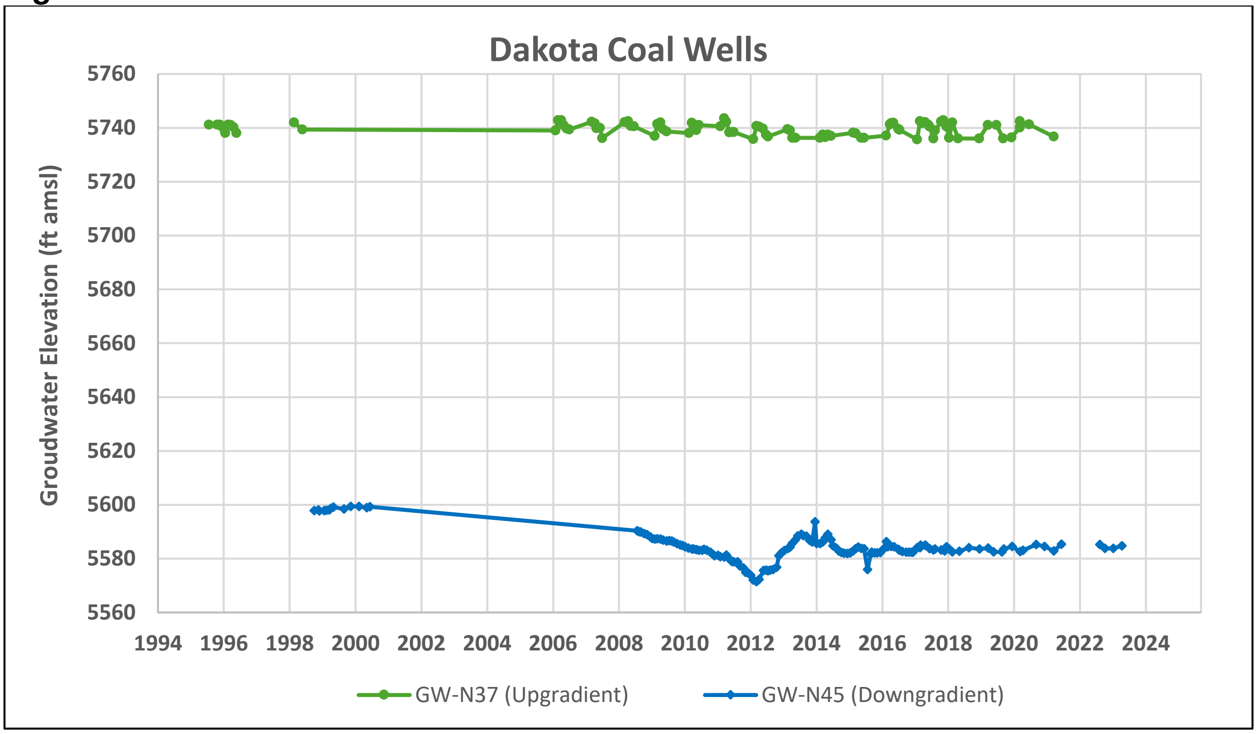
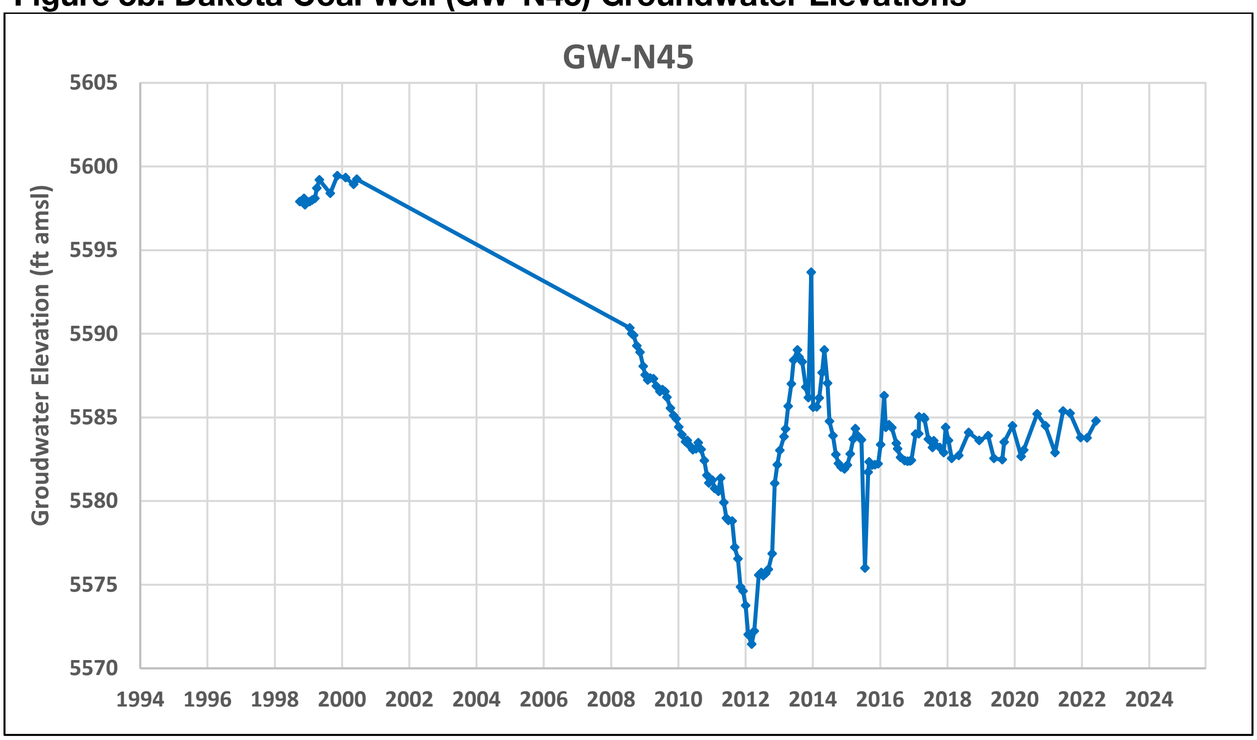


Figure 5b. Dakota Coal Well (GW-N45) Groundwater Elevations



GW-N38 and GW-N46 are currently monitored underburden wells (**Figure 6a**). Upgradient well (GW-N38) has remained consistent within seasonal fluctuations for groundwater levels of approximately 6 feet and is an updip/upgradient underburden well which was dry for a period during mining (1999-2006) and subsequently has been dry since 2020. Downgradient underburden well (GW-N46) demonstrates a 4 foot decline in groundwater levels from 1999 to 2008 and an additional 20 foot decline from 2008 to 2011 when mining and dewatering activities were closest (**Figure 6b**). Since mining has ceased and reclamation completed, groundwater levels have started to recover and are currently within 10 to 15 feet of premining levels at the downgradient well, showing similar seasonal fluctuations due to irrigation water, similar to coal well GW-N45.

Figure 6a. Underburden Groundwater Elevations

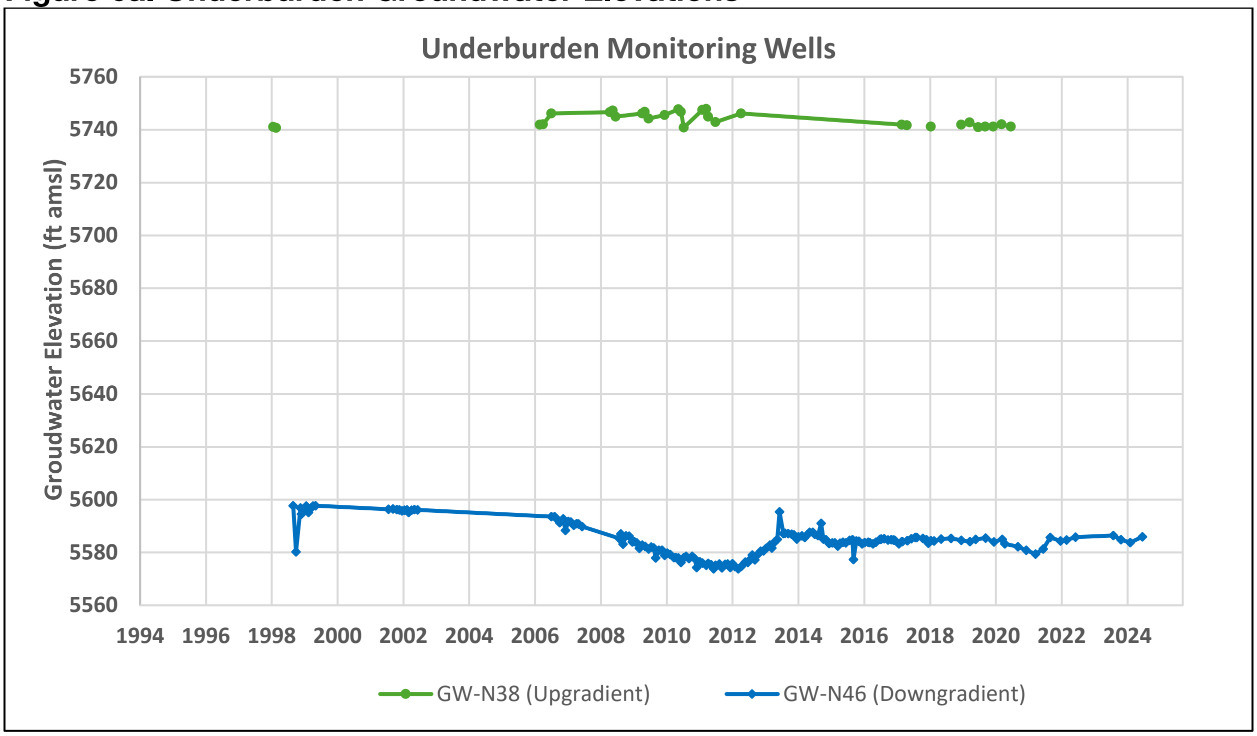
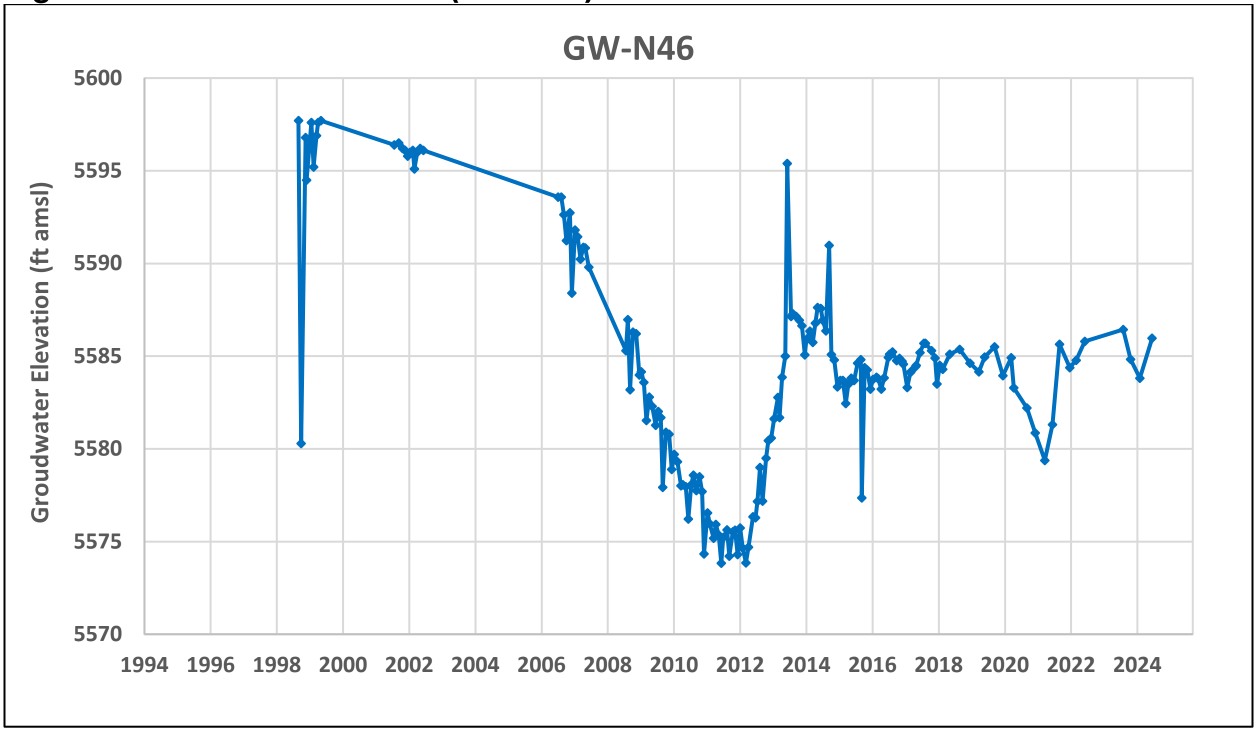


Figure 6b. Underburden Well (GW-N46) Groundwater Elevations

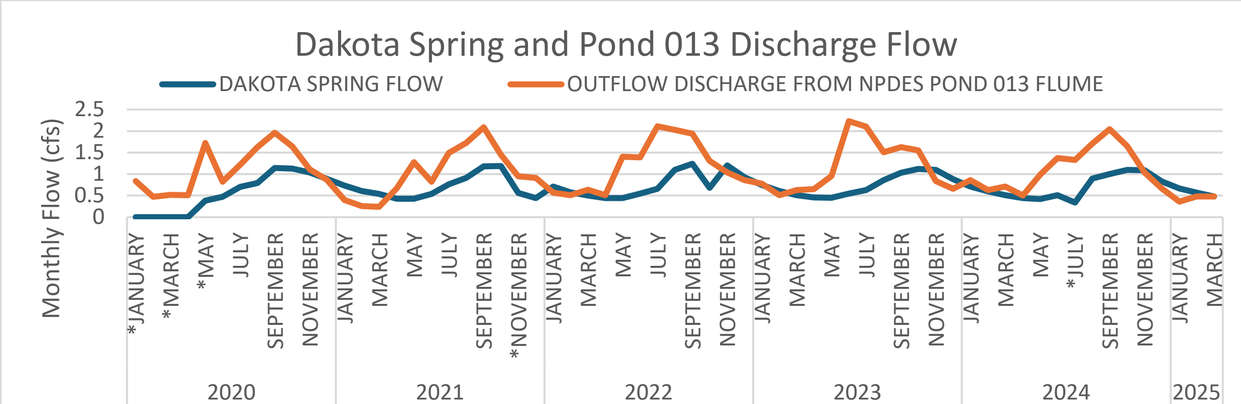


3.1.2 Impact of Replaced Spoil Material on Groundwater Flow and Recharge Capacity

The primary component of recharge in the vicinity of New Horizon Mine is infiltration as a result of irrigation, with infiltration from precipitation being a very minor component. The New Horizon PHC predicted that in areas that are mined out, it is likely that recharge rates under postmine conditions would be slightly higher compared to pre-mine conditions. This is due to an increase in effective vertical hydraulic conductivity of the spoils compared to the overburden. The increased vertical hydraulic conductivity leads to less vertical impedance, and hence, allows greater recharge to occur. It was predicted that the increased recharge into the spoils would result in a downgradient spoil spring (Spoil Spring #4) developing near Pond 013 (See location in Figure 2) with a maximum spoil spring discharge of 952 acre-feet per year. Pond 013 and Spoil Spring #4 are not located within or near the bond release parcel.

Flow rates and water quality data reported for Pond 013 (**Figure 7**) reflect contributions from surface runoff draining into Pond 013, local groundwater inflows to the pond, and discharge from Spoil Spring #4, now known as Dakota Spring. Dakota Spring has been measured since 2020 and averages a combined flow from the two metering points of 0.72 cfs. Seasonal highs and lows imitate the irrigation season and overburden groundwater level fluctuations, with a seasonal low during the winter months of 0.4 cfs and a seasonal high during the irrigation season of 1.1 cfs. Flows from Pond 013 range from approximately 0.5 cfs in the non-irrigation season and up to approximately 2.1 cfs during the irrigation season. Yearly total volume in acre-feet can be totaled from metering points measuring Dakota Spring since 2020. The average total yearly contribution from Dakota Spring is 523 ac-ft per year.

Figure 7. Dakota Spring Flow and NPDES Pond 013 Discharge Rates



*Denotes incomplete spring flow measurements

The average discharge from Pond 013 with combined surface water runoff from irrigation return water and Dakota Spring measured for 2020-2024 is 817 ac-ft per year, ranging from 743 ac-ft in 2021 to 865 ac-ft in 2022 (**Table 3**). The estimated average Dakota Spring flow rates and Pond 013 are less than the predicted maximum 950 ac-ft per year, indicating that residual impacts to the mine's hydrologic balance remain within expected limits.

Table 3. Flow Contributions for Pond 013 Discharge

Ac-ft Per Year Contribution			
Year	Dakota Spring	Pond 013 Discharge Total	Calculated Surface Water Runoff to Pond 013 (from irrigation and reclamation)
2021	501	743	242
2022	544	865	321
2023	539	848	309
2024	509	815	306

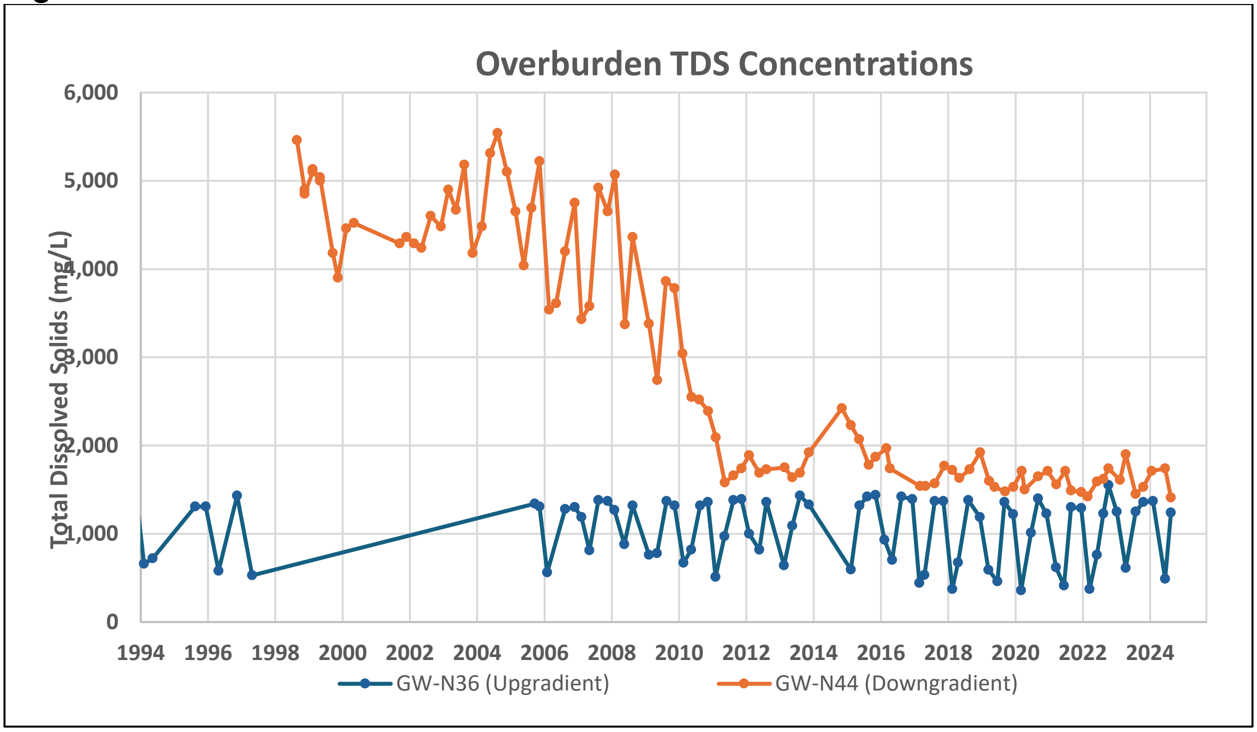
3.1.3 Impact of Replaced Spoil Material on Groundwater Quality

The PHC indicated that the water chemistry and concentrations of most elements of concern are controlled by mineralogic reactions that would resist change in water chemistry. Production of acid may occur in very local settings (probably most prevalent in the coal, which was to be mined); calculations indicated the neutralization of acid forming would occur rapidly with mixing of water or with movement of acidic water into calcite-bearing rocks.

It was predicted that the water leaching through spoil material would temporarily increase TDS until pyrite oxidation was completed. Over time, as pyrite and salts wash out, spoil water TDS would decline, eventually surpassing overburden water quality and, much later, approaching irrigation water quality.

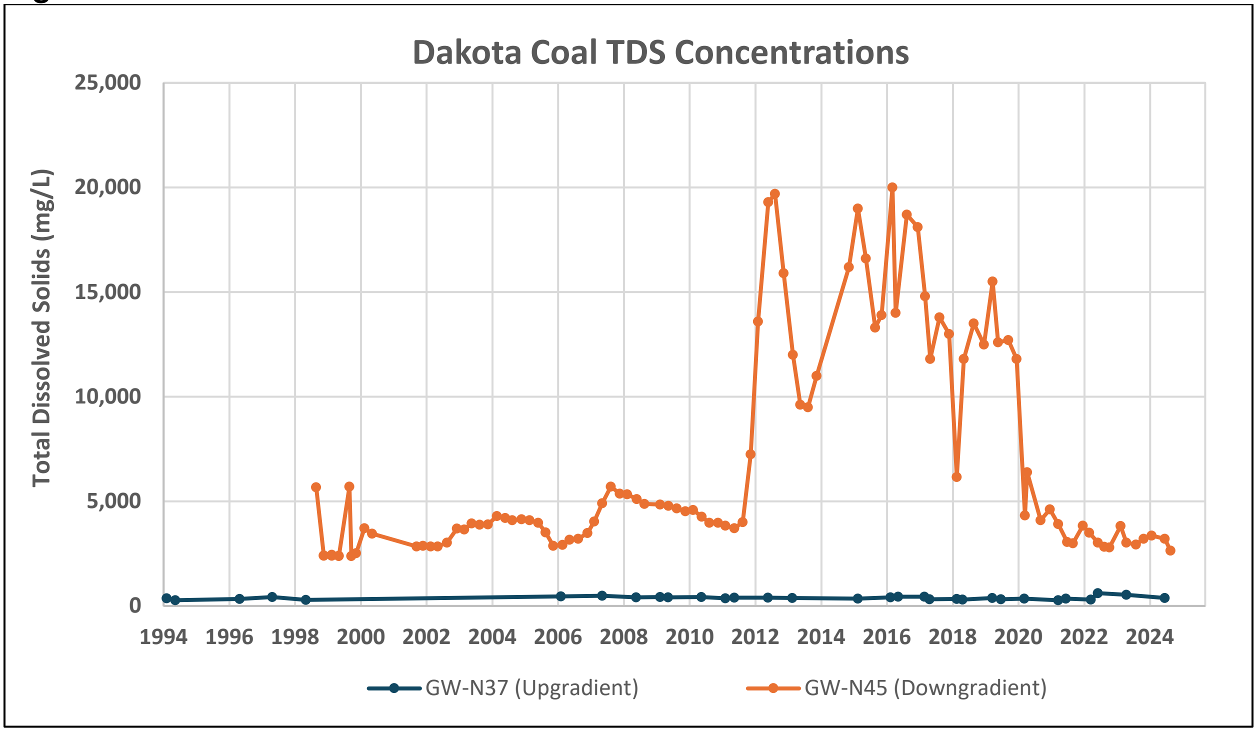
TDS concentration trends through the overburden strata are illustrated in **Figure 8a**. The upgradient overburden well (GW-N36) exhibits seasonal variations in TDS but shows no evidence of impacts from mining activities, with concentrations ranging from 360 mg/L to 1,550 mg/L. The downgradient overburden well (GW-N44) had TDS concentrations between 3,370 mg/L and 5,540 mg/L during mining. TDS concentrations began decreasing in 2010 and are currently around 1,600 mg/L.

Figure 8a. TDS Concentrations in the Overburden



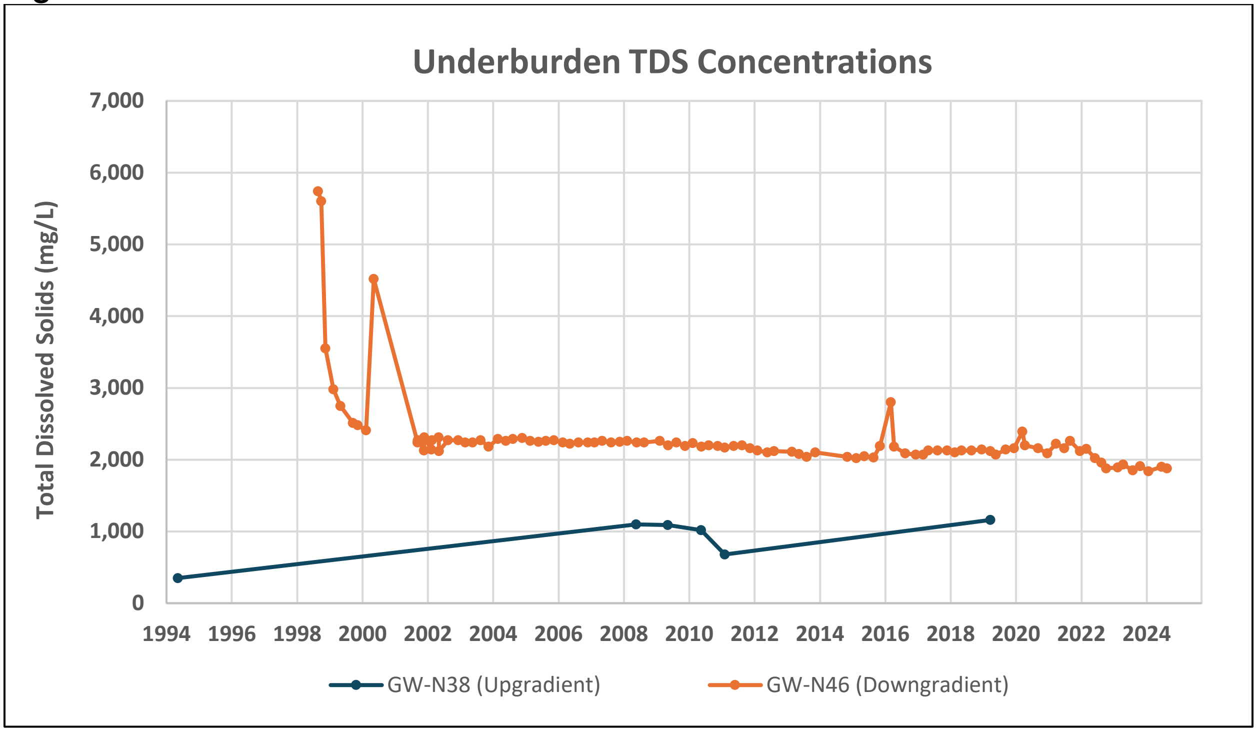
TDS concentration trends in the Dakota Coal strata are illustrated in **Figure 8b**. The upgradient Dakota coal well (GW-N37) shows TDS concentrations ranging from 271 mg/L to 612 mg/L, with no evidence of impact from mining activities. TDS concentrations in downgradient Dakota coal well (GW-N45) began increasing in 2012 from around 4,000 mg/L to between 10,000 and 20,000 mg/L; higher than predicted by the PHC. However, in 2020, concentrations returned to near background concentrations and have remained near premine levels, indicating TDS has stabilized.

Figure 8b. TDS Concentrations in the Dakota Coal



TDS concentration trends in the underburden strata are illustrated in **Figure 8c**. The upgradient underburden well (GW-N38) shows TDS concentrations ranging from 350 mg/L to 1,160 mg/L, with no evidence of impact from mining activities. TDS concentrations in downgradient underburden well (GW-N46) show a decrease from initial readings of 5,700 mg/L in 1999 to around 2,200 mg/L from 2001 until 2022 where concentrations again decreased to around 1,900 mg/L.

Figure 8c. TDS Concentrations in the Underburden



TDS concentrations observed in Pond 013 reflect a combination of surface water runoff from mining and reclamation, irrigation runoff, and groundwater from Dakota Spring. Concentrations show seasonal variations in TDS concentrations with an overall decreasing trend since mining ceased in 2012 and reclamation was completed and stable in 2016 (**Figure 9**). Maximum annual TDS concentrations decreased from a high of 5,170 mg/L in 2014 to 2,860 mg/L in 2024. TDS concentrations vary between 1,000-2,000 mg/L (similar to overburden) to 3,000 to 4,000 mg/L (similar to Dakota coal) seasonally, in response to irrigation practices. The PHC predicted TDS from Dakota Spring was approximately 3,400 mg/L with a maximum of 4,000 mg/L (New Horizon, 1981 et seq.).

Average TDS expected from Dakota Spring in the PHC was 3,425 mg/L; actual average TDS for the non-irrigation season (when Dakota Spring is the majority of flow) is 3,016 mg/L. As can be observed in **Figure 7** above, flows from Dakota Spring are a smaller contribution of flow from Pond 013 during the irrigation season with the majority of flows sourcing from irrigation water; the TDS concentrations during the irrigation season from Pond 013 represent water quality from irrigation water mixed with Dakota Spring water. While a consistent flow from Dakota Spring is present during the irrigation season, it is a relatively small percentage of the flows in comparison to the irrigation water during the beginning of the irrigation season (25%) and increasing to around 50% during the end of the irrigation season. Conversely, flows during the non-irrigation season from Pond 013 in late winter represent exclusively the spring itself, and TDS concentrations observed during this season can be considered representative of water quality from Dakota Spring. TDS concentrations were compared from 2016-2024 during the irrigation and non-irrigation seasons from Pond 013 and are shown in **Table 5**. Mean seasonal average

TDS values are below the predicted values in the PHC during both the irrigation season and the non-irrigation season. Seasonal maximum TDS values are below the predicted maximum concentration in the PHC for the irrigation season, but are slightly above the predicted concentration in the non-irrigation season. The predicted maximum concentration from Dakota Spring was expected to be 4,000 mg/L; the maximum concentration from the non-irrigation season for 2016-2024 was 4,320 mg/L, slightly above the predicted value.

Figure 9. Pond 013 and Dakota Spring TDS Concentrations

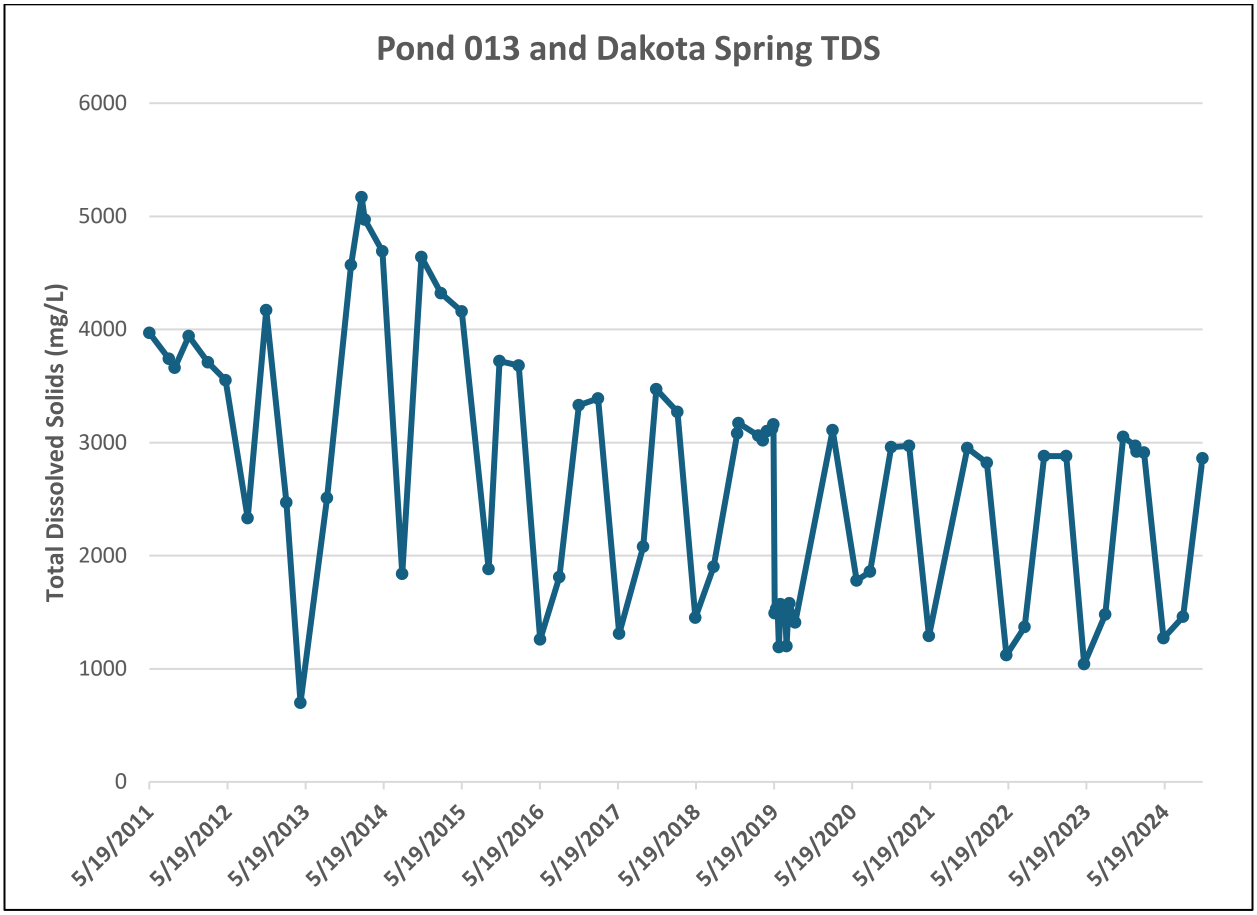


Table 4. TDS Observations from Dakota Spring and Surface Water Runoff to Tuttle Draw

Season	Seasonal Average TDS 2016-2024 (mg/L)	Seasonal Maximum TDS 2016-2024 (mg/L)
Irrigation Season (Mid April – Mid October)	1642	2080
Non-Irrigation Season (Mid October – Mid April)	3016	4320

In summary, as predicted in the PHC, TDS concentrations temporarily increased in the overburden and Dakota coal strata as spoil resaturation occurred and have gradually attenuated. Similar patterns in Pond 013 and Dakota Spring are evident, with initial TDS concentrations nearing the predictions in the PHC and subsequent concentrations falling and stabilizing within or near predicted levels. Similar trends in calcium, magnesium, manganese, and sodium were observed. Also as predicted by the PHC, the pH was buffered and no lowering of the pH occurred in any of the strata. The pH values discharged from Pond 013 also substantiate this conclusion.

4 Conclusions

Groundwater quantity outcomes at the New Horizon Mine align with predictions made in the Probable Hydrologic Consequences (PHC) assessment. As predicted, drawdown of the downgradient overburden and Dakota coal wells occurred with groundwater levels largely rebounded to near pre-mine levels in the overburden and within 5-10 feet in the Dakota coal aquifer and continue to show expected seasonal irrigation-driven fluctuations.

Groundwater quality outcomes have also conformed to PHC predictions, with groundwater remaining suitable for postmining uses. TDS concentrations in groundwater wells showed temporary increases in downgradient locations during mining but have since declined and stabilized. For example, TDS concentrations in the downgradient overburden well (GW-N44) decreased from peak values above 5,000 mg/L during mining to around 1,600 mg/L post-mining. TDS in the Dakota coal downgradient well (GW-N45) spiked significantly beyond predicted levels—reaching 10,000–20,000 mg/L—but returned to near premining levels by 2020. Underburden wells also demonstrated declining TDS concentrations over time, with no evidence of sustained mining-related water quality degradation.

Surface water and groundwater discharge from Pond 013 and Dakota Spring similarly reflect seasonal irrigation patterns and declining TDS concentrations. The average discharge volumes and quality were below the maximum predicted limits, confirming the PHC's expectations.

Resaturation through the spoil material is ongoing and is expected to continue as a long-term process, consistent with PHC predictions. This gradual resaturation is driven by enhanced recharge due to the spoil's increased hydraulic conductivity and aligns with anticipated postmining hydrologic recovery patterns. While initial leaching from spoil material temporarily elevated TDS, these concentrations have since declined, consistent with expectations of pyrite oxidation and salt flushing diminishing over time.

Overall, groundwater impacts from mining at New Horizon Mine have been temporary and localized, with no long-term adverse effects observed in the data provided, supporting the PHC's conclusions that mining would have minimal and manageable hydrologic impacts.

5 References

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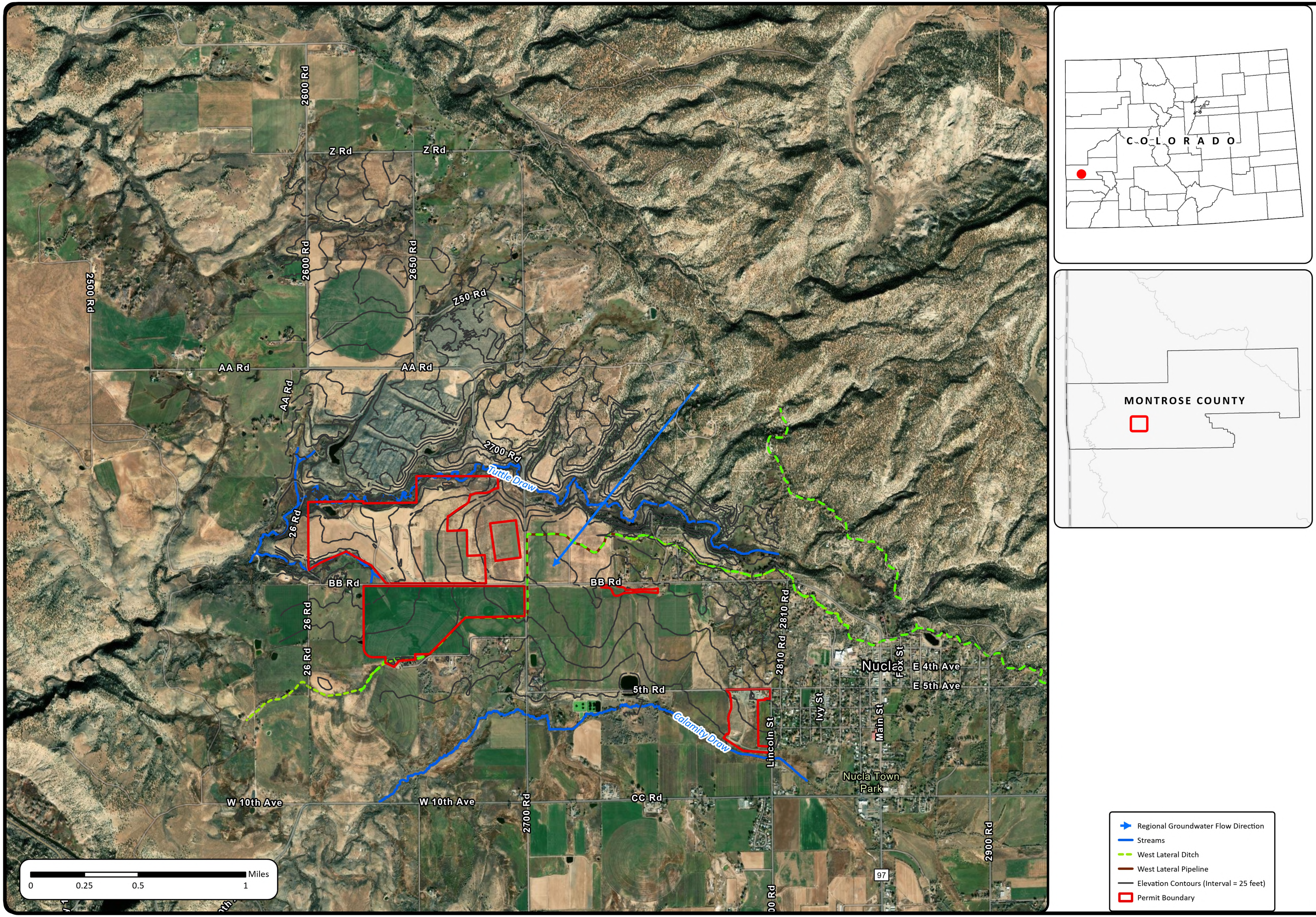
Attached Figures



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NOTES

SITE LOCATION

NEW HORIZON MINE - PROBABLE HYDROLOGIC ANALYSIS

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DATE:5/8/2025

FIGURE 1

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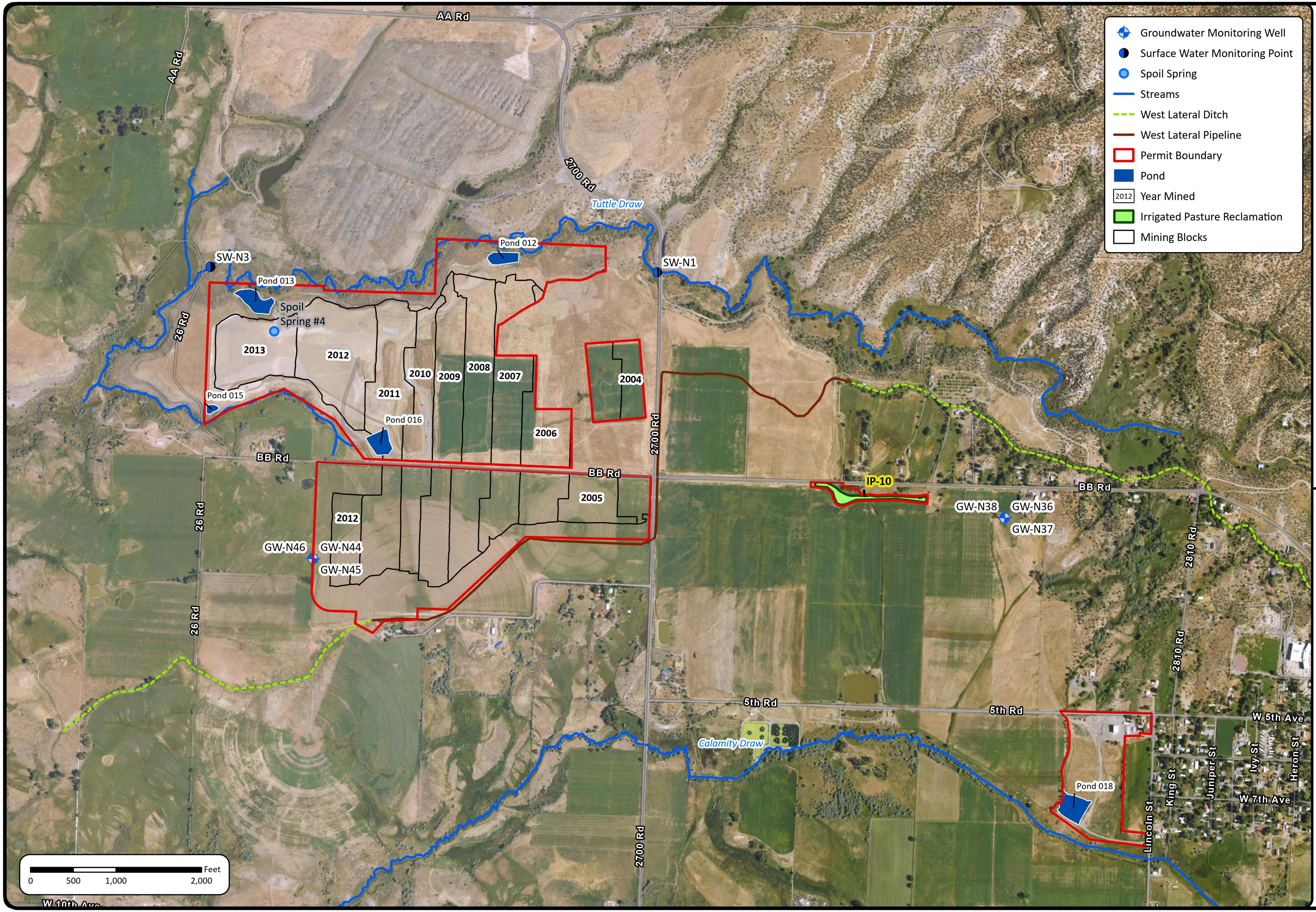

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SITE MAP

NEW HORIZON MINE - PROBABLE HYDROLOGIC ANALYSIS

FIGURE 2

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