April 25, 2024
NewFields Project 475.0106.068

Newmont Mining Corporation
Cripple Creek & Victor Gold Mining Company
P.O. Box 191
Victor, CO 80860

**Attention:** **Travis Howard**
**Process Manager**

**Re:** **RECORD OF CONSTRUCTION REPORT**
**VLF2 Phase 3 Stage A.1 Geomembrane Recertification**

Dear Mr. Howard,

Submitted herewith is the Record of Construction Report for Construction Quality Assurance testing and observation performed by NewFields for the VLF2 Phase 3 Stage A.1 Recertification Project for Soil Liner Fill, Geomembrane, and Drain Cover Fill at the Creek and Victor Gold Mine. Based on the construction activities observed, testing performed, and inspections completed, NewFields certifies that the existing Soil Liner Fill, Geomembrane Repair and Replacement, High Volume Solution Collection Piping, and Drain Cover Fill replacement was constructed in accordance with the VLF2 Phase 3 Technical Specifications.

If you have any questions or require additional information, please contact the undersigned.

Sincerely,
**NewFields Mining Design & Technical Services**

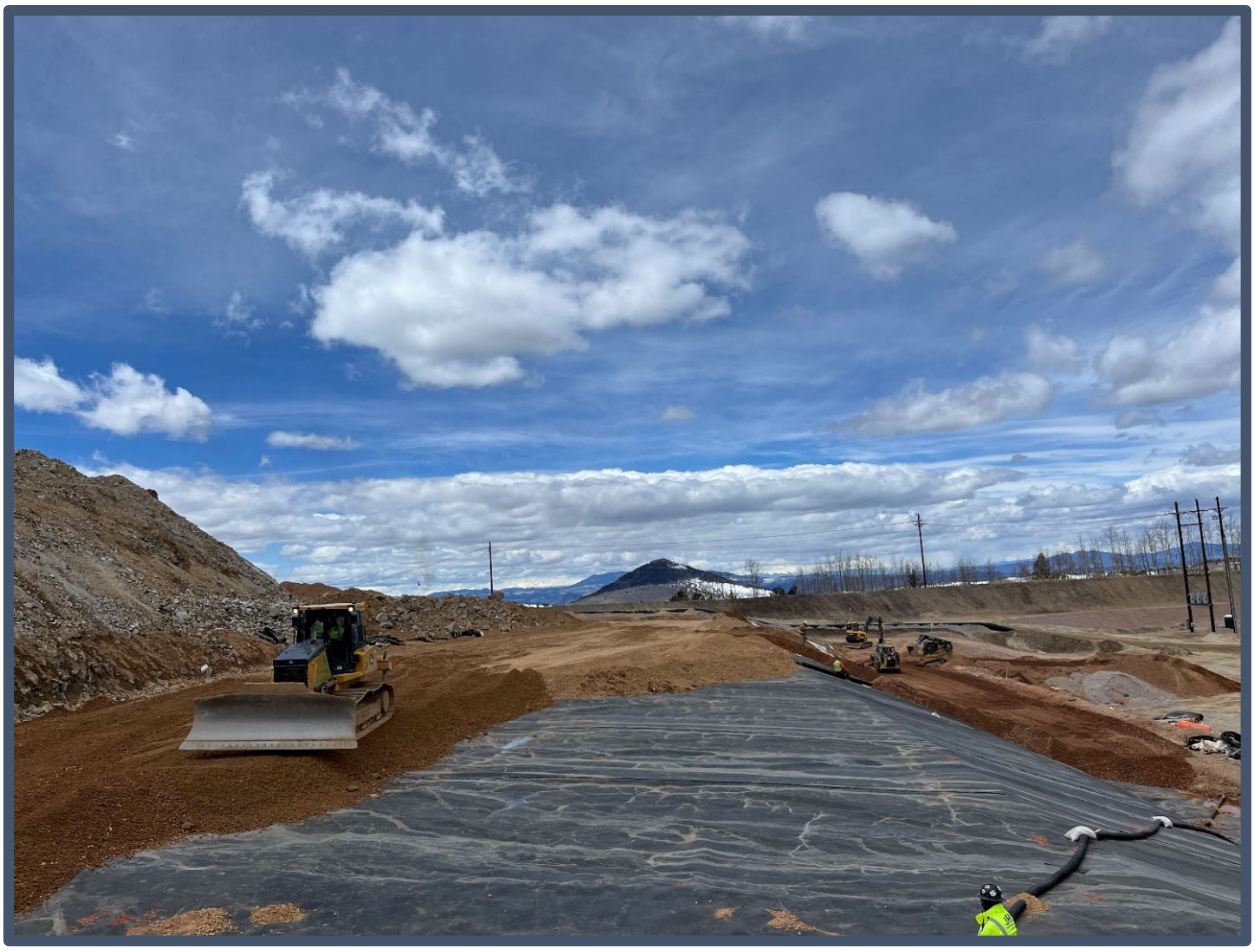
Jay Janney-Moore, P.E.
Engineer of Record

**Reviewed by:**

Derek Wittwer, P.E.
Principal, Partner

TGW/JNM/DTW
Addressee: (3) + electronic

P:\Projects\0106.068 CC&V Liner Repair\J-REPORTS\RoC\RoC Submittal



# VLF2 Phase 3 Stage A.1 RECERTIFICATION
# RECORD OF CONSTRUCTION REPORT

**Prepared for:**
**Cripple Creek & Victor Gold Mining Company**
**P.O. Box 191**
**Victor, CO 80860**

**Prepared by:**
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**NewFields Job No. 475.0106.068**
**April 25, 2024**

NewFields

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4-25-24

## TABLE OF CONTENTS

## RECORD OF CONSTRUCTIONS DRAWINGS

- DRAWING 1 – SLF As-Built Survey and Testing
- DRAWING 2 – Geomembrane Panel Layout
- DRAWING 3 – DCF and Piping As-built

## LIST OF FIGURES



## LIST OF APPENDICES

# 1. INTRODUCTION

NewFields Mining Design and Technical Services (NewFields) was commissioned by the Cripple Creek & Victor Gold Mining Company (CC&V), which is owned and managed by Newmont Mining Corporation (Newmont), to provide Construction Quality Assurance (CQA) for the Valley Leach Facility 2 Phase 3 Stage A.1 (VLF2 P3 A.1) Recertification Project. This Record of Construction (ROC) report certifies the existing Soil Liner Fill, Geomembrane Replacement and Repair, High Volume Solution Collection Piping replacement, and Drain Cover Fill replacement was performed within the Technical Specifications.

## 1.1. Definitions

The following definitions apply to this report:

- “Owner" is defined as Newmont Mining Corporation (Newmont) and Cripple Creek & Victor Gold Mining Company (CC&V).
- "Engineer" is a representative of NewFields, Jay Janney-Moore, P.E. a registered Professional Engineer in the State of Colorado.
- "CQA Monitor" is defined as the party or parties representing the Owner under the supervision of the Engineer. NewFields was the CQA Monitor for the VLF2 P3 A.1 Recertification Project.
- “Contractor” was JHL Constructors (JHL) located at 9100 E Panorama Ave., Englewood, CO 80112.
- “Geomembrane Installer” was Mustang Extreme Environmental Services (Mustang) located at 5049 Edwards Ranch Road, Fort Worth, TX 76109.
- “Geomembrane Manufacturer” was Agru America Inc. located at 2000 E Newlands Rd., Fernley, NV 89408.
- “Surveyor” was Foresight West Surveying, Inc. (Foresight) located at 1309 S. Inca Street, Denver, CO 80223.
- "Project Manager" is defined as a representative appointed and authorized by the Owner to act as a liaison between the Owner, the Contractor, and the Engineer. Daniel Egley acted in the capacity of the Project Manager for Newmont.

## 1.2. Technical Specifications

All soil liner fill, geomembrane installation, high volume solution collection piping, drain cover fill, and CQA activities were performed in accordance with the approved VLF2 Phase 3 Technical Specifications.

### 1.3. As-Built Survey

The Surveyor provided as-built survey to the Engineer used for the generation of VLF2 P3 A.1 Recertification Project Geomembrane, High Volume Solution Collection Piping, and Drain Cover Fill Record of Construction Drawings. A copy of the Surveyor's Professional License is presented in Appendix A.

### 1.4. Use of this Report

This report has been prepared exclusively for the Cripple Creek & Victor Gold Mining Company. No third party, other than NewFields, shall be entitled to rely on any information, conclusions, opinions, or other information contained herein without the express written consent of CC&V.

## 2. PROJECT DESCRIPTION

The project site is located at the Cripple Creek and Victor Gold Mine in Teller County near Cripple Creek, Colorado. The VLF2 P3 A.1 Recertification Project construction activities included removal of existing ore and Drain Cover Fill (DCF), removal of existing geomembrane, verification of the existing Soil Liner Fill (SLF) thickness and compaction, installation of 80-mil Linear Low-Density Polyethylene (LLDPE) double sided textured geomembrane, re-installment of the High-Volume Solution Collection (HVSC) Piping within the project limits, and the placement of the DCF. The VLF2 P3 A.1 Recertification area is shown on the Record of Construction Drawings. This report covers the recertification construction activities monitored between February 2024 through April 2024.

## 3. CONSTRUCTION ACTIVITIES

### 3.1. Weekly Observation Reports

Weekly field observation reports prepared during the VLF2 P3 A.1 Recertification Project are presented in Appendix B.

### 3.2. Existing Geomembrane Exposure

Existing ore material and DCF were removed from the area to inspect for damage to the HVSC piping, geomembrane, and underlying SLF. Dozers, skid steer loaders, and track mounted excavators were utilized to remove these materials from the geomembrane. A John Deere 750L and D6 LGP dozer were used to remove any materials located between two and four feet above the geomembrane and Volvo ECR88D track mounted excavators were used to remove DCF less than two feet above the geomembrane. Laborers spotted equipment and manually shoveled material from directly above the geomembrane. The removed DCF was stockpiled near the recertification area to be reused upon acceptance of the recertified geomembrane. Ore materials

were also stockpiled and hauled to a different location within the VLF by Mine Operations. The existing geomembrane was not removed within the project limits until the liner installation crew had arrived to prevent damage to the underlying SLF. The CQA Monitor observed and documented all geomembrane exposure activities and upon initial observation of the existing geomembrane, damage was not evident.

### 3.3. Existing SLF Verification

Prior to geomembrane installation, the existing SLF was exposed and the depth, moisture, and density was verified. The SLF surface was inspected and approved by Mustang, JHL and NewFields prior to geomembrane repair and replacement. The SLF depth and density test locations are shown on **Drawing 1**. The results of the density are presented in **Appendix C**.

### 3.4. Geomembrane Installation

Mustang installed approximately 19,120 square feet of 80-mil LLDPE double sided textured geomembrane within the VLF2 Phase 3 A.1 Recertification limits. The recertification area being certified in this report herein is shown on **Drawing 2**. Skid steers with forks and attachments were used to transport and deploy the geomembrane panels parallel to the slope to minimize stress on seams. Double-wedge fusion welding was the primary method of geomembrane seaming around the limits of the repair and replacement. Extrusion welding methods were used for defect repairs and detail activities. Continuity conformance of fusion welded seams was performed using pressure testing methods. Extrusion welded seams and repairs were non-destructively tested using vacuum testing methods. Trial seam and destructive testing was performed before welding began each day and after midday for both types of welding. The CQA Monitor observed and documented all geomembrane installation activities. Geomembrane quality assurance observations and testing is discussed further in Section 5.

### 3.5. High Volume Solution Collection Piping

JHL removed and reinstalled the existing High-Volume Solution Collection Piping located within the VLF2 Phase 3 A.1 Recertification limits. The High-Volume Solution Collection Piping is shown on **Drawing 3**. Quality Assurance and Observations are discussed further in Section 6.

### 3.6. Drain Cover Fill

JHL placed stockpiled DCF within the VLF2 Phase 3 A.1 Recertification limits over the geomembrane and High-Volume Solution Collection Piping. The Drain Cover Fill placement is shown on **Drawing 3**. Quality Assurance and Observations are discussed further in Section 7.

## 4. GEOMEMBRANE QUALITY CONTROL SUBMITTALS

The CQA Monitor reviewed and approved all geomembrane QC submittals, including geomembrane installation personnel résumés, geomembrane roll QC certificates, geomembrane resin QC certificates, and welding rod QC certificates. The site inventory for all geomembrane used within the VLF2 P3 A.1 Recertification area is presented in **Appendix D.1**.

### 4.1. Geomembrane Installation Personnel Résumés

Mustang submitted the résumés of all installation personnel prior to construction or repair activities within the VLF2 P3 A.1 Recertification Project. The CQA Monitor verified that the Installation Superintendent, Master Seamer and QC Inspector possessed the installation experience required by the Technical Specifications. Geomembrane installation personnel résumés for all crews that performed work on the VLF2 P3 A.1 Recertification Project are presented in **Appendix D.2**.

### 4.2. Geomembrane Roll QC Certificates

The geomembrane for the VLF2 P3 A.1 Recertification project was manufactured by AGRU America in 2022. Manufacturing Roll QC certificates were submitted for every roll of geomembrane (approximately one every 9,000 square feet), exceeding the required minimum frequency of one per 50,000 square feet of geomembrane. The QC certificates for each roll were reviewed the CQA Monitor, ensuring all geomembrane materials met or exceeded the Technical Specifications. The QC certificates for each geomembrane roll used within the VLF2 Recertification area are presented in **Appendix D.3**.

### 4.3. Geomembrane Resin QC Certificates

AGRU America manufactured the geomembrane for the VLF2 P3 A.1 Recertification Project by using LLDPE polymer raw material (resin). Chevron Phillips Chemical Company provided resin QC certificates at a rate of one per rail car shipment. The resin QC certificates were reviewed by the CQA Monitor, ensuring all materials met or exceeded the Technical Specifications. The resin QC certificates for all geomembrane used within the VLF2 P3 A.1 Recertification area is presented in **Appendix D.4**.

### 4.4. Geomembrane Welding Rod QC Certificates

AGRU America manufactured the extrusion welding rod for the VLF2 Recertification Project from various resin lots. The CQA Monitor reviewed and verified that all welding rod QC certificates

that were provided by Chevron Phillips Chemical Company met the Technical Specifications. The welding rod QC certificates are presented in **Appendix D.5**.

## 5. GEOMEMBRANE QUALITY ASSURANCE

CQA performed on installed LLDPE geomembrane consisted of visual observations of panel deployment, double-wedge fusion seaming, extrusion seaming, extrusion welded repairs, non-destructive testing, and destructive testing. Fusion welded seams were non-destructively tested for continuity using pressure testing methods. Extrusion welds were non-destructively tested using vacuum testing methods. Fusion and extrusion welding methods were also tested destructively. All field sampling and testing was performed by Mustang and observed by the CQA Monitor. Visual observations of field seams and panels were routinely made to inspect the seam for squeeze-out, melt, over-grind, and overlap. Defects and/or failed seams were marked and repaired in accordance with the specified repair procedures.

Welding machines were continually inspected for proper operation, settings, and condition by performing trial welds prior to actual geomembrane installation. Logs of the trial welds, panels, seams, continuity testing, repairs, and destructive testing were maintained by both the contractor and the CQA Monitor on a daily basis. The CQA Monitor's geomembrane installation logs are presented in **Appendix E**.

All geomembrane installation for the VLF2 P3 A.1 Recertification was performed in accordance with the Technical Specifications. **Drawing 2** shows panel locations, seams, destructive test locations, and existing geomembrane conformance sample locations.

### 5.1.1. Third Party Conformance Testing

Third party conformance test samples were tested by TRI in Anaheim, CA. All conformance test results were reviewed by a NewFields representative and verified that they met the Technical Specifications. Third party conformance test results are presented in **Appendix F**.

### 5.1.2. Geomembrane Panel Deployment

The SLF surface was inspected by the CQA monitor prior to geomembrane deployment, ensuring the surface was free of any protruding rock greater than 0.75" or irregularities (rutting, ridges, indentations, etc.) greater than 0.5". The SLF surface was approved by Mustang, JHL, CC&V, and NewFields prior to and during deployment each day. SLF acceptance forms are presented in **Appendix C**. The exposed portion of geomembrane on the rolls utilized for deployment was removed and discarded before panel installation. During geomembrane panel deployment the CQA Monitor logged the dimensions of each panel and the roll number used for each panel. Roll

numbers were checked against the site inventory to ensure only approved geomembrane was deployed. The Geomembrane Panel Deployment Summary is presented in **Appendix E.1**.

### 5.1.3. Geomembrane Fusion Seaming

Double-wedge fusion welding was the primary method of geomembrane seaming for the VLF2 P3 A.1 Recertification. Prior to fusion welding activities at the beginning of shift, or after midday breaks, trial welds were performed for each welding machine and welding technician combination. The fusion welding trial seam logs are presented in **Appendix E.2**. The weld was inspected constantly for insufficient overlap, burnouts, or any other damage caused during the welding process. The CQA Monitor logged the welding machine and welding technician combination, the length of the seam, the direction the seam was welded, time of seaming, the welding machine temperature, and the welding machine speed. Destructive test samples were marked during fusion seaming and testing is discussed further in **Section 5.1.5**. Continuity conformance of the seam is also performed using pressure tested methods and is discussed further in **Section 5.1.6**. The Geomembrane Fusion Welding Summary is presented in **Appendix E.4**.

### 5.1.4. Geomembrane Extrusion Seaming

Around the perimeter of the recertification area, the deployed geomembrane was tied-into the previously placed geomembrane using fusion welding as the primary tie-in method. The tie-in was welded using extrusion welding methods if fusion welding was not feasible. Prior to extrusion seaming activities, trial welds were performed for each welding machine and welding technician combination. The extrusion trial seam logs are presented in **Appendix E.3**. As extrusion seaming was performed proper techniques were verified, including welding angle, grinding, and weld/welding rod cleanliness. The CQA Monitor logged the welding machine and welding technician combination, the length of the seam, the direction the seam was welded, time of seaming, the pre-heat temperature, and the welding temperature. Destructive test samples were marked during extrusion seaming and testing is discussed further in **Section 5.1.5**. All extrusion welded seams were vacuum tested and is discussed further in **Section 5.1.7**. The Geomembrane Extrusion Welding Summary is presented in **Appendix E.5**.

### 5.1.5. Geomembrane Destructive Testing

During welding activities destructive test samples were marked for every 500 linear feet of seam for each welding type and each welding machine/welding technician combination. A 36-inch long by 12-inch-wide sample was cut from the seam centered on the seam lengthwise. The sample was then cut into three 12-inch sections. Two sections were archived by the CQA Monitor to be tested later, if necessary. Ten 1-inch coupons were then cut from the remaining sample in half. Five coupons were tested for shear strength and five coupons were tested for peel strength using

a tensiometer. The different failure types and test codes for fusion and extrusion destructive testing are presented on **Figures 1 and 2**, respectively. All destructive testing was performed by Mustang in the presence of the CQA Monitor. No destructive tests failed. Fusion and Extrusion Destructive Testing Summaries are presented in **Appendix E.6** and **Appendix E.7**, respectively, and the tensiometer certifications are presented in **Appendix G**.

### 5.1.6. Geomembrane Pressure Testing

Pressure testing was performed to ensure all fusion welded seams had continuity throughout their entire length. The ends of the seam were sealed and the air channel in the seam was pressurized using a small air compressor to a minimum of 30 pounds per square inch (psi), for a minimum of five minutes. A pressure gauge and needle were used to monitor the air pressure in the seam. If the pressure dropped less than 3 psi, the opposite end of the seam from the pressure gauge was cut. If the needle dropped, continuity was confirmed throughout entire seam length and the test was considered "passing." If pressure drops of more than 3 psi occurred or the continuity was not proven, smaller sections of the seam were tested to delineate the failing section of the seam. All failing seams or portions of seams were repaired and vacuum tested. The Geomembrane Seam Pressure Testing Summary is presented in **Appendix E.8**.

### 5.1.7. Geomembrane Defects and Repairs

The CQA Monitor constantly inspected the geomembrane for defects from the time it was deployed to DCF placement. All defects were marked with a defect number by the CQA Monitor and repaired. Repairs were performed using the extrusion welding method and patches extended at least 6-inches past the defect in all directions. All repairs were assigned a repair number and cross checked with defect numbers to ensure all defects were repaired.

All repairs and extrusion welded seams were non-destructively tested using a vacuum box. The area being tested was covered in soapy water and the vacuum box was sealed to the geomembrane. A vacuum was pulled over the area for at least 10 seconds and if no bubbles were present the test passed. If bubbles were present the area failed and was marked as a defect. The repair process would then be repeated for the failing vacuum test. Vacuum tests overlapped with each other by a minimum of 3-inches. The Geomembrane Defect/Repair Summary, including vacuum testing logs, is presented in **Appendix E.9**.

### 5.1.8. Geomembrane Acceptance

Prior to DCF placement, the geomembrane was accepted by Mustang, JHL, CC&V and NewFields. All CQA logs and survey data were thoroughly reviewed ensuring that all aspects of the geomembrane installation were performed in accordance with the Technical Specifications. Geomembrane Acceptance Forms are presented in **Appendix E.10**.

## 6. HIGH VOLUME SOLUTION COLLECTION PIPING

HVSC Piping was exposed during the excavation of the VLF2 P3 A.1 Recertification project limits. The existing HVSC piping had remained intact until the excavation. The existing HVSC piping was removed before the geomembrane work. The exposed tie-ins of the HVSC piping still contained with-in existing DCF were capped during the geomembrane work.

The sections of HVSC piping that had been removed were reinstalled upon the completion of the geomembrane work. The HVSC piping was reinstalled to its original location and included on **Drawing 3.**

## 7. DRAIN COVER FILL

Drain Cover Fill Ore (DCFO) was placed on the approved geomembrane. Dozers, skid steer loaders, and a front-end loader were utilized to place the DCF on the geomembrane. A John Deere 750L dozer and two John Deere 333 skid steer front end loaders were used to place DCF in a minimum two-foot-thick lift. A CAT IT28 Loader stockpiled DCF for placement by the dozer and skid steers. Laborers spotted equipment, verified lift thickness, and ensured the LVSC piping stayed connected and in place during DCF placement.

## 8. PROJECT DEVIATIONS

The following deviation from the technical specifications was approved by the Engineer of Record:

- The DCFO record sample DCFO-3-R did not meet the project technical specifications. It is our opinion that the removal and replacement of the DCFO material caused it to partially segregate, resulting in the project deviation.

  The Technical Specifications for DCFO state that the DCFO material shall have less than 8 percent of the material passing the #200 Sieve and shall be considered non-plastic. DCFO-3-R test results indicated 9.4 percent material passing the #200 Sieve and the Plasticity Index as 6.

  The Engineer of Record approved the deviation given the following reasoning:

  Based on the approximate cubic yards placed as presented in Appendix H.2 only one sample of DCFO was required per the Technical Specifications. Three samples were obtained due to the concern of material segregation. Two samples passed specifications and one sample was slightly out of compliance.

  ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) was used in conjunction with the particle-size distribution results, and the sample was classified as follows:

DCF-3-R Poorly Graded Gravel with clay and sand (GP-GC); DCFO is predominantly gravel sized crushed rock, with coarse sand being the secondary constituent, and fine sand, silt, and clay the tertiary constituents. Whereas some of the finer fraction of these samples was outside the Specifications, the DCFO material, as a whole, is considered non-plastic.

In addition, the DCFO provides two functions in the facility design: (1) a drainage layer for solution over the geomembrane liner; and (2) as a protective layer for the geomembrane liner. The DCFO will provide protection for the liner system, and based on the location where this sample was taken (on the VLF2 Phase 3 A.1 Liner Recertification 2:1 Slope), the material will maintain sufficient transmissivity to provide active drainage towards the downstream Phase 3 Pond Storage Solution Area (PSSA).

Although test results were slightly outside of the values set forth in the Technical Specifications, it is our opinion the material meets the intent of the design.

## 9. CONCLUSION

Based on a review of the construction documents, the daily observation reports, our professional judgment, and the quality control and assurance testing, it is our opinion that the construction activities associated with the VLF2 Phase 3 Stage A.1 Recertification were completed in conformance with the approved Technical Specifications.