



STATE OF  
COLORADO

Cazier - DNR, Tim <tim.cazier@state.co.us>

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## TR100 VLF2 Recertification (9750-9900)

1 message

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**Justin Bills** <Justin.Bills@newmont.com>

Mon, Aug 20, 2018 at 2:50 PM

To: Tim Cazier - DNR <tim.cazier@state.co.us>

Cc: Michael Cunningham <michaela.cunningham@state.co.us>, Meg Burt <Margaret.Burt@newmont.com>, Amy Eschberger - DNR <amy.eschberger@state.co.us>, Elliott Russell - DNR <elliott.russell@state.co.us>, Linda White <Linda.White@newmont.com>

Tim,

Please see the attached Record of Construction Reports for the Drain Cover Fill, Soil Liner Fill and Geomembrane for the 9750' to 9900' elevations. A hard copy will be mailed to the Division today.

Please let me know if you have any questions.

Thank you,



**Justin Bills**

Senior Environmental Specialist

Cripple Creek and Victor Gold Mining Co.

T 719.689.4046

M 719.306.3388

[www.newmont.com](http://www.newmont.com)

**Newmont Mining Corporation**

Cripple Creek and Victor Gold Mining Co.

100 North 3<sup>rd</sup> Street

Victor, CO 80860

*Please consider the environment before printing this e-mail.*



**VLF2 Recertification DCF\_SG\_Geomembrane\_9750 to 9900\_comp.pdf**  
13039K









Newmont Mining Corporation  
Cripple Creek & Victor Gold Mining Company  
100 N 3<sup>rd</sup> St  
P.O. Box 191  
Victor, CO 80860  
[www.newmont.com](http://www.newmont.com)

August 20, 2018

Electronic Delivery

Mr. Timothy Cazier, P.E.  
Environmental Protection Specialist  
Colorado Department of Natural Resources  
Division of Reclamation, Mining and Safety  
Office of Mined Land Reclamation  
1313 Sherman Street, Room 215  
Denver, Colorado 80203

Re: Permit No. M-1980-244; Cripple Creek & Victor Gold Mining Company; Cresson Project; – VLF2 Liner Inspection– TR100 Record of Construction Report - VLF2 Recertification Project – Drain Cover Fill, Subgrade and Geomembrane 9750'-9900' Elevations

Dear Mr. Cazier:

On April 10, 2018 Newmont's Cripple Creek and Victor Gold Mining Company (CC&V) submitted Technical Revision (TR) 100 proposing to conduct a liner integrity investigation in the immediate area impacted by the December 16, 2017 Squaw Gulch Valley Leach Facility (VLF2) slough. On June 12, 2018 DRMS approved TR100.

CC&V received Adequacy Review comments in two parts on May 21, 2018 and June 6, 2018 respectively, from the Division of Reclamation, Mining and Safety (DRMS). On June 11, 2018 CC&V addressed DRMS' comments including the following:

**Part 2, Dated June 6, 2018**  
**General Comments**

- d. Provide in writing a commitment to submit a certification report stamped by a professional engineer registered in the state of Colorado to and obtain acceptance from the Division prior to placing ore in any area of VLF2 requiring recertification as a result of the known sloughing area.*

**CC&V Response:** The two certification reports will be prepared and stamped by a professional engineer in the State of Colorado. No ore will be placed in these areas until the state has approved the certification reports.



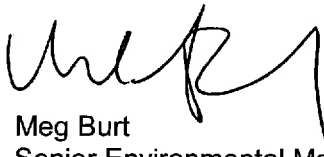
- i. *The Division strongly recommends CC&V submit phased certification reports for each of the components of the liner system (undamaged liner certification; and repair work for: Soil Liner Fill, Geomembrane, Drain Cover Fill) as the certification by the Colorado Professional Engineer is completed. This approach should serve to streamline the process of Division acceptance and minimize potential rework if anomalies are encountered*

**CC&V Response:** CC&V agrees to submit phased certification reports for each of the components of the liner system, certified by a Colorado Professional Engineer as they are completed. After submittal of the phased certification reports, CC&V will move forward with the repair and construction, addressing any DRMS certification report concerns as necessary.

Enclosed please find the Record of Construction Reports for the VLF2 Recertification Project Drain Cover Fill, Subgrade and Geomembrane 9750' – 9900' Elevations.

Should you require further information please do not hesitate to contact Justin Bills at 719.689.4046 or [Justin.Bills@newmont.com](mailto:Justin.Bills@newmont.com) or myself at 719.689.4055 or [Meg.Burt@newmont.com](mailto:Meg.Burt@newmont.com).

Sincerely,



Meg Burt  
Senior Environmental Manager  
Cripple Creek and Victor Mining Co

MB/jb

Attachments

ec: T. Cazier – DRMS



Attachment 1:  
Record of Construction Report  
VLF2 Recertification Project  
Drain Cover Fill 9750' – 9900' Elevations



August 17, 2018  
NewFields Project No. 475.0106.026

Newmont Mining Corporation  
Cripple Creek & Victor Gold Mine  
P.O. Box 191  
Victor, Colorado 80124

**Attention: Laurin Colby**  
**Senior Metallurgist**

**Re: RECORD OF CONSTRUCTION REPORT**  
**VLF2 Recertification Project**  
**Drain Cover Fill 9750' - 9900' Elevations**

Dear Mr. Colby,

NewFields performed Construction Quality Assurance (CQA) activities during the VLF2 Recertification Project, observing and documenting the placement of Drain Cover Fill (DCF) over the geomembrane certified in the VLF2 Recertification Project Record of Construction Report for Subgrade and Geomembrane 9750'-9900' Elevations. The DCF placement occurred between June 26, 2018 and August 13, 2018.

This letter serves as a record of construction report for the VLF2 Recertification project and certifies the construction activities for the DCF placement between the 9750' and 9900' elevations. All construction activities were observed and verified to be in accordance with the approved Squaw Gulch VLF Technical Specifications revised and re-issued for construction on August 25, 2016.

## **1.0 DRAIN COVER FILL PLACEMENT**

Ames Construction placed approximately 7,650 cy of DCF within the VLF2 Recertification area between the 9750' and 9900' elevations in accordance with the Technical Specifications. Crushed overburden material from the Cresson Project was processed between September 2013 and November 2014. All oversized material was removed from the overburden by screening the material over a vibrating 1 ½ inch screen. After processing, the DCF was stockpiled in a local stockpile designated by CC&V located north of VLF2.





Mine operation delivered material from the designated stockpile to the VLF2 Recertification area traveling on no less than 20 feet of geomembrane cover, placing the material in a temporary stockpile near the recertification area. The DCF was pushed and placed in a two-foot lift on approved geomembrane by Low Ground Pressure (LGP) CAT dozers fitted with calibrated Global Position Systems (GPS) Sensors. All DCF was placed in an uphill direction on slopes steeper than 4H:1V using the Soil Liner Fill (SLF) as-built survey raised two feet as a reference for DCF finish grade, maintaining a minimum of two-feet of geomembrane cover. The final DCF surface was surveyed and compared to the SLF as-built presented in the VLF2 Recertification Project Record of Construction Report for Subgrade and Geomembrane 9750'-9900' Elevations. The DCF depth was verified to be at least two-feet in depth. The DCF final and isopach contours are shown on Record of Construction Drawing 1 presented in Appendix A.

### **1.1 As-Built Survey**

Foresight West provided as-built survey to NewFields used for the generation of VLF2 Recertification Project DCF between the 9750' and 9900' elevations Record of Construction Drawing. A copy of the Surveyor's Professional License is presented in Appendix B.

## **2.0 DRAIN COVER FILL QUALITY ASSURANCE**

NewFields representatives were present during all DCF placement activities to verify that the DCF was placed in accordance with the Technical Specifications and that no damage to the geomembrane occurred. If any damage to the geomembrane was noted, work activities were paused and the damage was repaired prior to resuming DCF placement.

The VLF2 Recertification for DCF between the 9750' and 9900' elevations was constructed by placing approximately 7,650 cy of DCF. The particle size distribution and atterberg limits testing frequencies were one sample for every 20,000 cy. One DCF sample was tested with passing results for the VLF2 Recertification for DCF between the 9750' and 9900' elevations. DCF laboratory testing results are presented in Appendix C.

### **2.1 Daily Observation Reports**

Field daily observation reports prepared by NewFields during the VLF2 Recertification Project DCF between the 9750' and 9900' elevations are presented in Appendix D.





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

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

**Reviewed by:**

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

Keith Williams, P.E.  
Principal, Partner

JJM/KCW/jdh

#### **APPENDICES**

Appendix A – Record of Construction Drawing  
Appendix B – Surveyor's Professional License  
Appendix C – Drain Cover Fill Laboratory Test Results  
Appendix D – Daily Observation Reports



Addressee: [Laurin.Colby@Newmont.com](mailto:Laurin.Colby@Newmont.com) (via e-mail)  
CC: [Justin.Bills@Newmont.com](mailto:Justin.Bills@Newmont.com) (via e-mail)





## **Appendices**

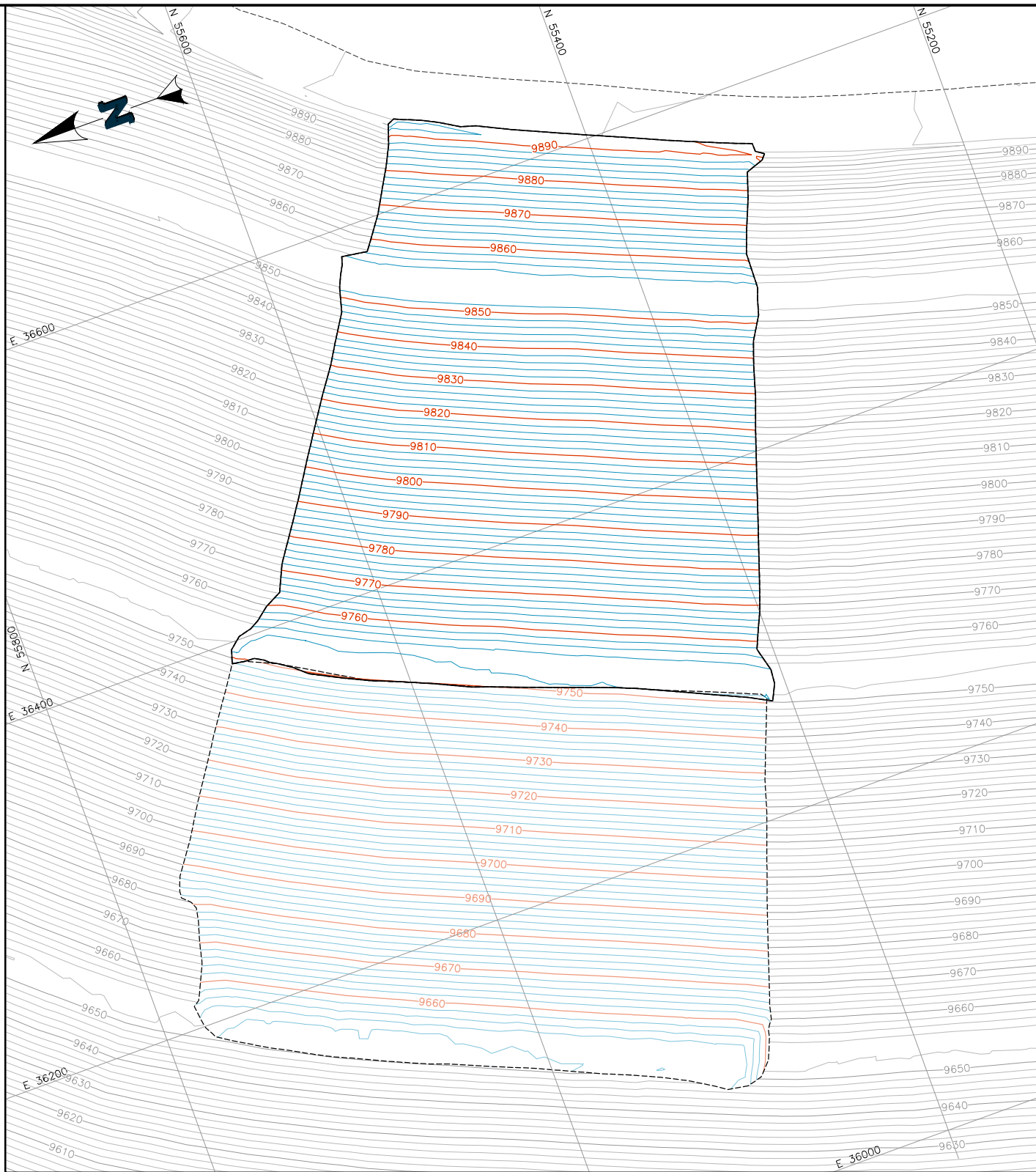




## **Appendix A – Record of Construction Drawing**



P:\Projects\0106.023 CC&V Line Integrity Engineering Support\A-CAD\DWGS\106.023.013F.dwg--8/16/2018 3:34 PM



#### NOTES:

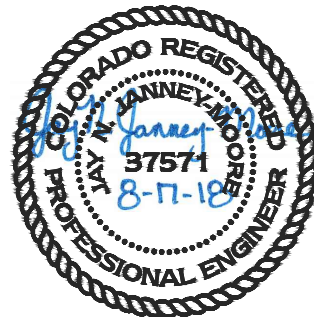
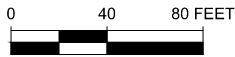
1. THE AS-BUILT TOP OF DRAIN COVER FILL (DCF) (2016) WAS DEVELOPED BY AMES AS PART OF THE RECORD OF CONSTRUCTION REPORT FOR THE SQUAW GULCH VALLEY LEACH FACILITY PHASE 1 COMPLETION, DATED OCTOBER 14, 2016.
2. THE ISOPACH OF DCF DEPTH WAS DEVELOPED BY COMPARING THE AS-BUILT SLF SURFACE (BETWEEN 9750'-9900') TO THE AS-BUILT DCF SURFACE (BETWEEN 9750'-9900').
3. THE TOP OF SLF (BETWEEN 9750'-9900') (2018) WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JULY 10, 2018 IN A FILE CALLED "MLE2 VLF Clay Topo thru 7-10-18.dwg"
4. THE TOP OF DCF (BETWEEN 9750'-9900') (2018) WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON AUGUST 15, 2018 IN A FILE CALLED "MLE2 VLF DCF Checks 8-14-18.dwg".
5. THE TOP OF DCF (BETWEEN 9650'-9750') (2018) WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JULY 10, 2018 IN A FILE CALLED "MLE2 VLF DCF Checks 7-09-18.dwg".


#### LEGEND:

- AS-BUILT TOP OF DCF (2016)
- TOP OF DCF (2018)

#### ISOPACH LEGEND:

- DEPTH OF DCF BETWEEN 0'-2'
- DEPTH OF DCF BETWEEN 2'-3'
- DEPTH OF DCF GREATER THAN 3'



								APPROVED BY: JNM	DISCLAIMER  NEWFIELDS PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF AVAILABLE TECHNICAL INFORMATION AND EXPERIENCE. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO EITHER SUCH TECHNICAL INFORMATION OR EXPERIENCE. ANY MODIFICATION OR ADAPTATION OF THE DATA OR DRAWING SHALL BE AT USER'S RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO NEWFIELDS.	 CLIENT Cripple Creek & Victor Gold Mining Company	PROJECT  VLF2 RECERTIFICATION	
						CHECKED BY: JNM						
						DESIGNED BY: JNM	DRAWN BY: JNM					
0	8/17/18	ISSUED FOR RECORD OF CONSTRUCTION REPORT			JNM	JNM						
REV	DATE	DESCRIPTION			TECH	ENG	TITLE  DCF AS—BUILT SURVEY AND ISOPACH BETWEEN 9750’ AND 9900’ BENCH				FILENAME 106.023.013F	
									DRAWING NO. 1		REVISION 0	





## **Appendix B – Surveyor’s Professional License**



**Colorado Department of Regulatory Agencies  
Division of Professions and Occupations**

State Board of Licensure for Architects, Professional Engineers and  
Professional Land Surveyors

Lester John Ludeman  
Professional Land Surveyor

PLS.0025636

11/01/2017

**Number**

**Issue Date**

Active

10/31/2019

**Credential Status**

**Expire Date**

Verify this credential at: [www.colorado.gov/dora/dpo](http://www.colorado.gov/dora/dpo)

   
Division Director: Ronne Hines      Credential Holder Signature

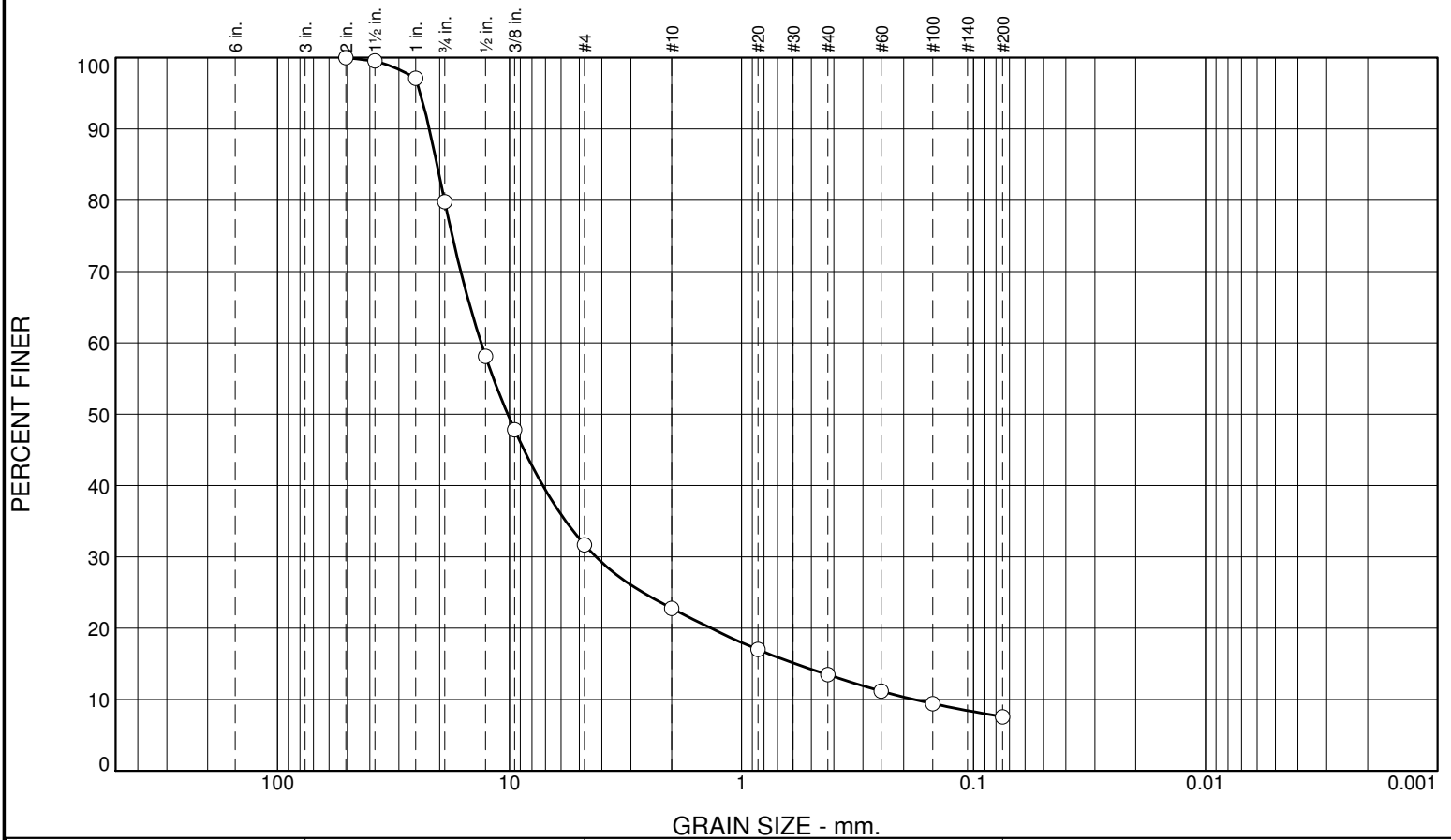




## **Appendix B – Surveyor’s Professional License**



# Particle Size Distribution Report ASTM D6913



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	20.2	48.1	8.9	9.3	5.9	7.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	97.1		
.75	79.8		
.5	58.1		
.375	47.8		
#4	31.7		
#10	22.8		
#20	17.0		
#40	13.5		
#60	11.2		
#100	9.4		
#200	7.6		

\* (no specification provided)

<b>Soil Description</b> poorly graded gravel with silt and sand		
<b>Atterberg Limits</b> PL= NP LL= NV PI= NP	<b>Coefficients</b> D <sub>90</sub> = 22.1846 D <sub>50</sub> = 10.1964 D <sub>10</sub> = 0.1803 D <sub>85</sub> = 20.5743 D <sub>30</sub> = 4.2413 C <sub>u</sub> = 73.58	D <sub>60</sub> = 13.2653 D <sub>15</sub> = 0.5855 C <sub>c</sub> = 7.52
<b>Classification</b> USCS= GP-GM AASHTO= A-1-a	<b>Remarks</b>	

Sample No.: DCF #2  
 Location: Panel PRC-18 (Center), 140' W of EEOS

Date: 7/17/18  
 Elev./Depth:

**Knight Piésold**  
 CONSULTING

Client: NewFields  
 Project: CC&V VLF2 Recertification  
 NF#475.0106.026  
 Project No: DV108-00305-07

Figure

Tested By: LEB

Checked By: JDB





## **Appendix D – Daily Observation Reports**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 7, 2018

S M T W T F **S**

**Temperature:** Low: 53°F to High: 77°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	12

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

Placement continued by pushing a two-foot lift of DCF between 9650' and 9750' bench, using a CAT D6 LGP dozer.

### 1.2 Anchor Trench backfill

An excavator was used to backfill the anchor trench to one foot depth using DCF.

### 1.3 Geomembrane Removal

No activities during the shift

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Acceptance

No new activities during this shift

T. 775.738.3399





## **2.2 Geomembrane Installation**

Approximately 22,275 square feet (Panels PRC-33 to PRC-41) of 80 Mil LLPDE double sided textured geomembrane was installed by Comanco during the shift. Approximately 945 linear feet of fusion seaming was performed using one fusion machine/operator combination. One destructive testing sample was marked during fusion seaming. Non-destructive testing was performed for fusion welded seams. No repairs were performed during the shift. Comanco used the sandbags to secure geomembrane in place.

## **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement, anchor trench backfill, and geomembrane installation during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**

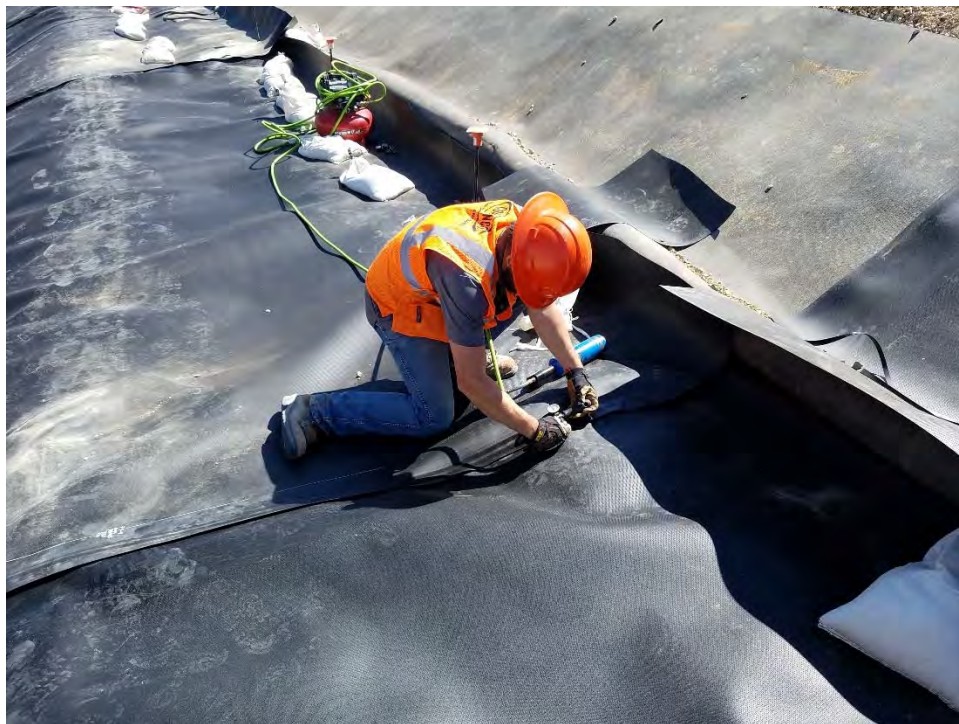


**Geomembrane Installation**





**Fusion Seaming**



**Non-destructive testing**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 9, 2018

S M T W T F S

**Temperature:** Low: 50°F to High: 74°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	13

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

Ames continued Drain Cover Fill (DCF) placement using a CAT D6 LGP dozer. DCF material was delivered and stockpiled near the recertification area by mine operations traveling on at least 20-feet of geomembrane cover at all times.

### 1.2 Anchor Trench backfill

Anchor trench was backfilled on 9900' bench using a CAT 312C L excavator equipped with vibratory plate compactor and laborers. Approximately 25 feet of temporary anchor trench was completed with the placement of Soil Liner Fill (SLF) in accordance with technical specification.

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Acceptance

Panels PRC-17 thru PRC-32 were inspected and approved for DCF placement by CC&V, Ames, Comanco, and NewFields representatives.

T. 775.738.3399





## **2.2 Geomembrane Installation**

Approximately 110 linear feet of fusion seaming was performed using one fusion machine/operator combination. One destructive testing sample was marked during fusion seaming. Non-destructive testing was performed for fusion welded seams. Repairs were performed during the shift, but not vacuum tested. Comanco used the sandbags to secure geomembrane in place.

## **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement, anchor trench backfill, and geomembrane installation during the shift. Geomembrane acceptance for DCF placement was also performed.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Anchor Trench Backfill**





**Anchor Trench Backfill**



**Fusion Seaming**





**Non-destructive testing**



**Repair Activities**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 10, 2018

S M **T** W T F S

**Temperature:** Low: 50°F to High: 73°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	12
Alex Lewallen	0

#### 1.0 AMES

#### 2.0 CONSTRUCTION ACTIVITIES

##### 1.1 Drain Cover Fill Placement

Mine Operations delivered Drain Cover Fill (DCF) from the stockpile to the loading area. The loader was used to deliver the DCF to placement area on 9750' bench. A Cat D6T LGP dozer was utilized to build the ramp on 9750' bench using DCF material.

##### 1.2 Anchor Trench backfill

A CAT 312C L excavator equipped with vibratory plate compactor and the labor guys were used to backfill the anchor trench on 9900' bench. The temporary anchor trench was completed with the last layer of soil liner fill (SFL) according to project specification.

##### 2.1 Geomembrane Acceptance

No activities during shift

T. 775.738.3399





## **2.2 Geomembrane Installation**

Approximately 357 linear feet of extrusion seaming on tie-in was performed using one extrusion machine/operator combination. One destructive testing sample was marked during extrusion seaming. Repairs were performed during the shift, but not vacuum tested. Tomorrow, extrusion seaming will be completed and the repairs.

## **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement, anchor trench backfilled, and repairs performed during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction. If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Exrtusion Seaming and Repairs Performed**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 11, 2018

S M T **W** T F S

**Temperature:** Low: 47°F to High: 70°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	12

#### 1.0 AMES

#### 2.0 CONSTRUCTION ACTIVITIES

##### 1.1 Drain Cover Fill Placement

Mine Operations continued to delivered Drain Cover Fill (DCF) from the stockpile to the loading area. The loader was utilized to deliver the DCF to placement area on 9750' bench. A Cat D6T LGP dozer was used to build the road on 9750' bench.

##### 2.1 Geomembrane Acceptance

No activities during shift

##### 2.2 Geomembrane Installation

Repairs were performed using the extrusion welding method. A total of 46 linear feet of extrusion seaming was completed. All repairs and extrusion welded seams were vacuum tested during the shift. All the destructive testing was performed and met project specifications.

T. 775.738.3399





### **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement, anchor trench backfilled, and repairs performed during the shift.

### **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction. If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Extrusion Seaming and Repairs Performed**





Vacuum Tested



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 12, 2018

S M T W **T** F S

**Temperature:** Low: 50°F to High: 69°F    **Weather:** Partly Cloudy/Rain

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	8

### 1.0 AMES

### 2.0 CONSTRUCTION ACTIVITIES

#### 1.1 Drain Cover Fill Placement

Mine Operations delivered Drain Cover Fill (DCF) from the stockpile to the loading area. The WA470 Komatsu loader was used to deliver the DCF to placement area on 9750' bench. A Cat D6T LGP dozer was used to place and pushed the material on 9750' bench.

#### 2.1 Geomembrane Acceptance

No activities during shift

### 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement.

T. 775.738.3399





#### **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction. If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 13, 2018

S M T W T **F** S

**Temperature:** Low: 48°F to High: 68°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	15

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

DCF material was delivered and stockpiled near the recertification area by mine operations traveling on at least 20-feet of geomembrane cover. The WA 470 Komatsu loader was used to deliver the DCF to the placement area on 9750' bench. A Cat D6T LGP dozer was used for Drain Cover Fill (DCF) placement and a finger was pushed up the slope of Panels PRC-17 and 18.

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Acceptance.

## 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement.

T. 775.738.3399





#### **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 16, 2018

S M T W T F S

**Temperature:** Low: 50°F to High: 63°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

Mine operations delivered and stockpiled DCF material near the recertification area traveling on at least 20-feet of geomembrane cover. The WA 470 Komatsu loader was utilized to deliver the DCF to the placement area on 9750' bench. A Cat D6T LGP dozer continued to place and pushed the Drain Cover Fill (DCF) up the slope on Panels PRC-17 and 18.

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Acceptance.

Panels PRC-33 thru PRC-41 were inspected and approved for DCF placement by CC&V, Ames, Comanco, and NewFields representatives.

## 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement.

T. 775.738.3399





#### **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





Mine Operation delivering



DCF Placement



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 17, 2018

S M **T** W T F S

**Temperature:** Low: 50°F to High: 70°F    **Weather:** Mostly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	11

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

The WA 470 Komatsu loader continued to deliver the DCF to the placement area on 9750' bench. A Cat 312C L excavator and CAT D6T LGP dozer were used for Drain Cover Fill (DCF) placement near Panels PRC-19 and 20.

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Installation

No work performed during the shift.

## 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 4.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Komatsu Loader delivering DCF**





**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 18, 2018

S M T **W** T F S

**Temperature:** Low: 53°F to High: 79°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	6

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

DCF material was delivered and stockpiled near the recertification area by mine operations traveling on at least 20-feet of geomembrane cover.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF deliveries.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Delivery**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 19, 2018

S M T W **T** F S

**Temperature:** Low: 50°F to High: 74°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	3

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

No work activities during the shift.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel was onsite until notified that no work activities were being performed during the shift.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315

T. 775.738.3399



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 20, 2018

S M T W T **F** S

**Temperature:** Low: 47°F to High: 64°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Soil Liner Fill (SLF) Density Testing

A CAT 321C L excavator was utilized to remove Drain Cover Fill (DCF) from the recently installed geomembrane between 9673' and 9716' elevation. Four test holes were excavated. The geomembrane was cut to expose SLF for density and moisture testing. The density and moisture testing were performed using the CPN Nuclear Moisture/Density Gauge with passing results.

### 1.2 Drain Cover Fill Placement

No activities during the shift.

## COMANCO ACTIVITIES

Comanco cut the geomembrane to expose the SLF for density tests. After the tests were complete, Comanco repaired the geomembrane at each test hole location. Repairs were performed using the extrusion welding method in accordance with the technical specifications. Vacuum testing was not performed during the shift and will be performed on July 21, 2018 prior to backfilling test holes.

T. 775.738.3399





## **NewFields Activities**

NewFields personnel observed the test hole excavation, performed SLF nuclear density testing, and geomembrane repairs. SLF density testing was performed for the VLF2 Recertification area with passing results.

## **2.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

NewFields representatives Jay Moore and Nick Rocco were on site to observe the condition of the SLF, perform nuclear density testing of the recertification area SLF, and observe the geomembrane repairs.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Removal**



**Density and Moisture Testing**





**Repair Activities**



**Repair Activities**





**Repair Activities**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 21, 2018

S M T W T F S

**Temperature:** Low: 52°F to High: 68°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	4

### 1.0 AMES CONSTRUCTION ACTIVITIES

After geomembrane repairs were vacuum tested and approved, a CAT D6T LGP dozer was used to backfill the nuclear density test holes.

#### 1.1 Drain Cover Fill Placement

No activities during the shift.

### 2.0 COMANCO ACTIVITIES

#### 2.1 Geomembrane Repairs

Comanco performed geomembrane vacuum testing in accordance with the technical specifications and passing results.

Comanco demobilized from site after the shift.

### 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed test hole backfill, geomembrane vacuum testing, and approved geomembrane repairs during the shift.





#### 4.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Backfilling Test Holes**





**Vacuum Testing**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 23, 2018

S M T W T F S

**Temperature:** Low: 48°F to High: 67°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	4

### 1.0 AMES CONSTRUCTION ACTIVITIES

A CAT 312C L was used to backfill the previously exposed geomembrane at the North corner of 9750' bench.

#### 1.1 Drain Cover Fill Placement

No activities during the shift.

#### NewFields Activities

NewFields personnel observed the exposed geomembrane backfill during the shift.

### 2.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Backfilling Exposed Geomembrane**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 24, 2018

S M **T** W T F S

**Temperature:** Low: 45°F to High: 68°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	2

### 1.0 AMES CONSTRUCTION ACTIVITIES

No activities during the shift.

#### 1.1 Drain Cover Fill Placement

No activities during the shift.

### 2.0 NEWFIELDS ACTIVITIES

NewFields personnel was onsite until notified that no work activities were being performed during the shift.

### 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 25, 2018

S M T **W** T F S

**Temperature:** Low: 43°F to High: 73°F    **Weather:** Partly Cloudy/rain

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

The WA470 Komatsu loader was utilized to deliver the Drain Cover Fill (DCF) to the placement area on 9750' bench. A Cat D6T LGP dozer was used for DCF placement and was pushing up the slope between panels PRC-20 to PRC- 23.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 26, 2018

S M T W **T** F S

**Temperature:** Low: 47°F to High: 65°F    **Weather:** Partly Cloudy/rain

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

The WA470 Komatsu loader continued to deliver the DCF to the placement area on 9750' bench. A Cat D6T LGP dozer was utilized for Drain Cover Fill (DCF) placement. It completed pushing up the slope between panels PRC-20 and PRC-25.

## 2.0 NEWFIELDS ACTIVITIES

No activities during the shift

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 27, 2018

S M T W T **F** S

**Temperature:** Low: 48°F to High: 65°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	11

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill (DCF) Placement

The Mine operations continued today to deliver the DCF material and stockpiled near the recertification area traveling on at least 20-feet of geomembrane cover. The WA470 Komatsu loader was utilized to deliver the DCF material to the placement area on 9750' bench. A Cat D6T LGP dozer was used for delivered material placement by pushing up the slope on Panels PRC-24 and PRC-25.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 28, 2018

S M T W T F S

**Temperature:** Low: 48°F to High: 71°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	9

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill (DCF) Placement

DCF material was delivered and stockpiled near the recertification area by mine operations traveling on at least 20-feet of geomembrane cover. The WA470 Komatsu loader continued to deliver the DCF material to the placement area on 9750' bench. A Cat D6T LGP dozer was used for deliver material placement by pushing up the slope on Panel PRC-26.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 30, 2018

S M T W T F S

**Temperature:** Low: 39°F to High: 68°F    **Weather:** Mostly Cloudy/Rain

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

The WA470 Komatsu loader was used to deliver the DCF material to the placement area on 9750' bench. Ames continued Drain Cover Fill (DCF) placement using a CAT D6 LGP dozer. DCF material was delivered and stockpiled near the recertification area by mine operations traveling on at least 20-feet of geomembrane cover.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 31, 2018

S M **T** W T F S

**Temperature:** Low: 45°F to High: 64°F    **Weather:** SUNNY

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	11

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill (DCF) Placement

The WA470 Komatsu loader was utilized to deliver the DCF material from the stockpile to the placement area on the 9750' bench. A Cat D6T LGP dozer was to place the delivered material by pushing up the slope between Panels PRC-27 and PRC-32.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 1, 2018

S M T **W** T F S

**Temperature:** Low: 48°F to High: 71°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

### 1.0 AMES CONSTRUCTION ACTIVITIES

#### 1.1 Drain Cover Fill (DCF) Placement

A Cat D6T LGP dozer and 312C L excavator were utilized to place DCF up the slope between panels PRC-27 and PRC-32. A DCF road was also constructed on the 9850' bench to allow for material delivery.

### 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

### 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**





**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 2, 2018

S M T W **T** F S

**Temperature:** Low: 52°F to High: 73°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer and 312C L excavator were utilized to place DCF up the slope between panels PRC-33 and 36.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**





**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 3, 2018

S M T W T **F** S

**Temperature:** Low:47°F to High: 67°F    **Weather:** Mostly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	8

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer and 312C L excavator were utilized to place DCF up the slope between panels PRC-37 and 41.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 7, 2018

S M **T** W T F S

**Temperature:** Low: 45°F to High: 64°F **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer and 312C L excavator were used to place Drain Cover Fill (DCF) up the slope between panels PRC-33 and 41. Ames will remove the DCF on the Northeast corner to find the damaged geomembrane tomorrow.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 8, 2018

S M T **W** T F S

**Temperature:** Low:44°F to High: 65°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	11

### 1.0 AMES CONSTRUCTION ACTIVITIES

#### 1.1 Drain Cover Fill Placement

A 312C L excavator was used to remove the DCF on the Northeast corner of the Geomembrane Recertification VLF2 to locating damaged geomembrane.

### 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

### 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Geomembrane Exposure**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 9, 2018

S M T W **T** F S

**Temperature:** Low:44°F to High: 62°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer and a 312C L excavator were used to remove the Ore material on the 9850' bench at Northeast corner of Geomembrane Recertification VLF2 to find the damaged geomembrane.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Ore removal**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 10, 2018

S M T W T **F** S

**Temperature:** Low:46°F to High: 73°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	8
Roxanne Li	8

### 1.0 AMES CONSTRUCTION ACTIVITIES

#### 1.1 Drain Cover Fill (DCF)

A 312C L excavator were used to remove DCF from repair areas exposing the geomembrane. Comanco will be onsite tomorrow to perform the geomembrane repairs.

### 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed geomembrane exposure during the shift.

### 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Benjamin Melly. 817.889.7315



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 11, 2018

S M T W T F S

**Temperature:** Low: 52°F to High: 83°F    **Weather:** Sunny

### NEWFIELDS PERSONNEL

Name	Hours
Roxanne Li	6.5

### 1.0 AMES CONSTRUCTION ACTIVITIES

Ames assisted Comanco with repairs.

### 2.0 COMANCO ACTIVITIES

Repairs including the geomembrane vents, were completed and vacuum tested. All repairs were performed in accordance with the Technical Specifications.

### 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed geomembrane repairs during the shift.

### 4.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Roxanne Li



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 13, 2018

S M T W T F S

**Temperature:** Low: 52°F to High: 83°F    **Weather:** Sunny

### NEWFIELDS PERSONNEL

Name	Hours
Roxanne Li	8

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer and 312C L excavator were used to place drain cover over the completed repairs. The dozer completed regrading along the side slopes. Drain cover was surveyed to ensure minimum 2' of cover over liner.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Roxanne Li



**DCF Regrading**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 14, 2018

S M **T** W T F S

**Temperature:** Low: 55°F to High: 80°F    **Weather:** Sunny with afternoon thunderstorms

### NEWFIELDS PERSONNEL

Name	Hours
Roxanne Li	3

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer was used to construct a pipe bench along the 9900' elevation.

The VLF2 Recertification Project was completed.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift. The project is complete and this will be the final Daily Reports for the project.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Roxanne Li



**Pipe Bench Construction**



Attachment 2:  
Record of Construction Report  
VLF2 Recertification Project  
Subgrade and Geomembrane 9750' – 9900' Elevations



August 17, 2017  
NewFields Project 475.0106.026

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

**Attention: Laurin Colby**  
**Senior Metallurgist**

**Re: RECORD OF CONSTRUCTION REPORT**  
**VLF2 Recertification Project**  
**Subgrade and Geomembrane 9750' - 9900' Elevations**

Dear Mr. Colby,

Submitted herewith is the Record of Construction Report for Construction Quality Assurance testing and observation performed by NewFields for the VLF2 Recertification Project for Subgrade and Geomembrane between the 9750' and 9900' elevations at the Cripple Creek and Victor Gold Mine. Based on the construction activities observed, testing performed, and inspections completed, NewFields certifies that the subgrade preparation and geomembrane installation between the 9750' and 9900' elevations was constructed in accordance with the Squaw Gulch VLF Technical Specifications.

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

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

**Reviewed by:**



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



Keith Williams, P.E.  
Principal, Partner

JNM/KCW/jdh

Addressee: (3) + electronic

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## **VLF2 RECERTIFICATION PROJECT RECORD OF CONSTRUCTION REPORT FOR SUBGRADE AND GEOMEMBRANE 9750' – 9900' ELEVATIONS**

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

Prepared by:  
NewFields Mining Design & Technical Services  
9400 Station Street, Suite 300  
Lone Tree, Colorado 80124

NewFields Job No. 475.0106.026  
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## 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 (VLF2) Recertification Project. This Record of Construction (ROC) report certifies the subgrade preparation and geomembrane installation for the VLF2 Recertification project between the 9750' and 9900' elevations 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 Recertification Project.
- "Contractor" was Ames Construction (Ames) located at 18450 E 28th Ave., Aurora, CO 80011.
- "Geomembrane Installer" was Comanco Environmental Corporation (Comanco) located at 4301 Sterling Commerce Dr., Plant City, FL 33566.
- "Geomembrane Manufacturer" was Agru America Inc. located at 2000 E Newlands Rd., Fernley, NV 89408.
- "Surveyor" was Foresight West Surveying, Inc. (Foresight) located at 4955 Iris St., Wheat Ridge, CO, 80033.
- "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. Laurin Colby acted in the capacity of the Project Manager for Newmont.

### 1.2. Technical Specifications

All subgrade preparation, geomembrane installation, and CQA activities were performed in accordance with the approved Squaw Gulch VLF Technical Specifications revised and re-issued for construction on August 25, 2016.





### **1.3. As-Built Survey**

The Surveyor provided as-built survey to the Engineer used for the generation of VLF2 Recertification Project Subgrade and Geomembrane between the 9750' and 9900' elevations 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 Recertification Project construction activities included removal of existing ore and Drain Cover Fill (DCF), removal of damaged existing geomembrane, verification and subgrade preparation of the existing Soil Liner Fill (SLF), and installation of 80mil Linear Low Density Polyethylene (LLDPE) double sided micro-spike (DSMS) geomembrane. The VLF2 Recertification area between the 9750' and 9900' elevations is shown on the Record of Construction Drawings. This report covers the recertification construction activities monitored between April 2018 through July 2018.

## **3. CONSTRUCTION ACTIVITIES**

### **3.1. Daily Observation Reports**

Field daily observation reports prepared during the VLF2 Recertification Project Subgrade and Geomembrane between the 9750' and 9900' elevations are presented in Appendix B.

### **3.2. Existing Geomembrane Exposure**

Existing ore material and DCF were removed from the area to identify the extent of the damage to the underlying geomembrane and SLF. CAT dozers and track mounted excavators were utilized to remove these materials from the geomembrane. CAT D6 LGP dozers were used to remove any materials between two and four feet above the geomembrane and track mounted excavators were used to remove DCF less than two feet above the geomembrane. The removed DCF was stockpiled near the recertification area to be replaced upon acceptance of the recertified geomembrane. Ore materials were also stockpiled and hauled to a different location within the VLF by Mine Operations.





### **3.3. Damaged Geomembrane Removal**

After the geomembrane was exposed and the damaged area was identified, it was removed using a CAT track mounted excavator. The removed geomembrane was discarded into roll off trash receptacles and removed from site.

### **3.4. Existing SLF Preparation**

Prior to geomembrane installation, the existing SLF depth was verified and the subgrade surface to receive geomembrane was compacted using a track mounted excavator with a smooth drum compactor attachment. The SLF was inspected and approved by Comanco, Ames and NewFields prior to geomembrane deployment.

#### **3.4.1. SLF Testing**

Due to the existing SLF layer being intact and undisturbed, laboratory and density testing were not performed since the geomembrane liner was not damaged and it was tested and approved during Squaw Gulch Phase 1 VLF construction. The surface was proof rolled to ensure the surface met the requirements the Technical Specifications for geomembrane deployment.

##### **3.4.1.1. SLF Depth Checks**

Depth checks were performed in accordance with the Technical Specifications to ensure that the SLF was not displaced in the VLF2 Recertification area between the 9750' and 9900' elevations. The depth check frequency for SLF is two tests for every acre. Two SLF depth checks were required. Four SLF depth checks were performed within the VLF2 Recertification area between the 9750' and 9900' elevations with passing results. SLF depth checks locations and results are shown on Drawing 1.

### **3.5. Geomembrane Installation**

Comanco installed approximately 71,851 square feet of 80 mil LLDPE DSMS geomembrane within the VLF2 Recertification between the 9750' and 9900' elevations. The recertification area certified in this report is shown on Drawing 2. Fork lifts were used to transport and deploy the geomembrane panels parallel to the slopes to minimize stress on seams. Double-wedge fusion welding was the primary method of geomembrane seaming. Extrusion welding methods were used to perform tie-in seaming, defect repairs and detail activities. Continuity conformance of fusion welded seams was performed using pressure testing methods, while extrusion welded seams and repairs were non-destructively tested using vacuum testing methods. Destructive testing was performed for both seaming types. The CQA Monitor observed and documented all





geomembrane installation activities. Geomembrane quality assurance observations and testing is discussed further in Section 5.

### **3.6. Anchor Trench**

The geomembrane was temporarily anchored on the benches at the 9850' and 9900' elevations in a minimum 2-foot-wide and 2-foot-deep anchor trench. Once non-destructive testing and repairs were completed and approved, the anchor trench was backfilled by Ames in accordance with the Technical Specifications. The backfill material was placed in 12-inch-thick lifts and compacted by a vibratory plate compactor, "Jumping Jack" compactor, or a smooth drum vibratory compactor. In areas where future geomembrane installation would cover the anchor trench, SLF was used to backfill the top 12 inches of the anchor trench.

## **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 CQA Monitor tracked all geomembrane delivered to site in the site inventory. The site inventory for all geomembrane used within the VLF2 Recertification area are presented in Appendix D.1.

### **4.1. Geomembrane Installation Personnel Résumés**

Comanco submitted the résumés of all installation personnel prior to construction or repair activities within the VLF2 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 Recertification Project are presented in Appendix D.2.

### **4.2. Geomembrane Roll QC Certificates**

The geomembrane for the VLF2 Recertification project was manufactured by AGRU America. 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 roll QC certificates were reviewed the CQA Monitor, ensuring all geomembrane materials met or exceeded the Technical Specifications. The roll QC certificates for all geomembrane 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 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 Recertification area are 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 Comanco 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 Recertification for subgrade and geomembrane between the 9750' and 9900' elevations project was performed in accordance with Technical Specifications. Drawing 2 shows panel locations, seams, destructive test locations, and existing geomembrane conformance sample locations.





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### **5.1.1. Third Party Conformance Testing**

#### **5.1.1.1. Manufactured Geomembrane**

Third party conformance test samples were obtained at a rate of one test for every 38,722 square feet and two for the one resin lot used. The specifications require at least one test sample for every 150,000 square feet and at least one test for each resin lot. Samples were tested by TRI in Anaheim, CA. All conformance test results were reviewed by a NewFields representative and met the Technical Specifications. Third party conformance test results are presented in Appendix F.1.

#### **5.1.1.2. Existing Geomembrane**

The existing geomembrane that was exposed and tied into was also tested and met requirements of Technical Specifications for conformance test samples. The existing geomembrane test sample locations are shown on Drawings 3 and testing results are presented in Appendix F.2.

### **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 Comanco, Ames, CC&V, and NewFields prior to and during deployment each day. SLF acceptance forms are presented in Appendix C. During geomembrane panel deployment the CQA Monitor logged the dimensions of each panel, the roll number used for each panel, and measured the thickness of the panel edges. 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 Recertification for subgrade and geomembrane between the 9750' and 9900'. Prior to fusion welding activities, 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 24-inch long by 12-inch wide sample was cut from the seam centered on the seam lengthwise. The sample was then cut in two halves. One half was archived by the CQA Monitor to be tested later, if necessary. Ten 1-inch coupons were then cut from the remaining sample 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 Comanco in the presence of the CQA Monitor. One destructive test failed (RCDF-9) within the VLF2 Recertification Subgrade and Geomembrane between 9750' and 9900' elevations project. The failing area was tracked, identified, repaired, and re-tested within the requirements of the Technical Specifications. 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 a pressure drop 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 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 Comanco, Ames, 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. 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 Geomembrane Recertification for Subgrade and Geomembrane Between the 9750' and 9900' elevations were completed in conformance with the approved Technical Specifications. Upon DCF placement, an additional certification report will be generated certifying that element of construction.

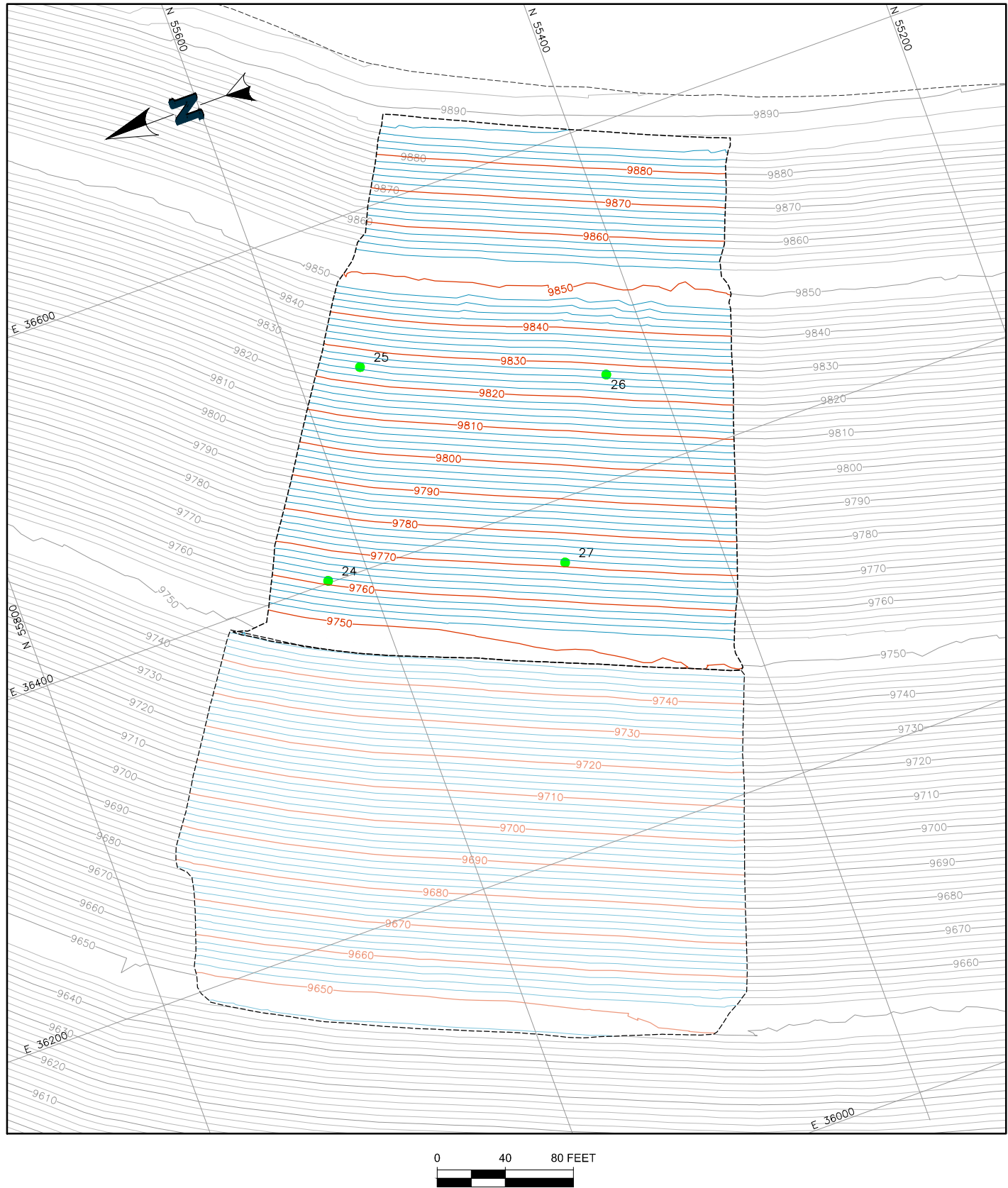




## **Record of Construction Drawings**



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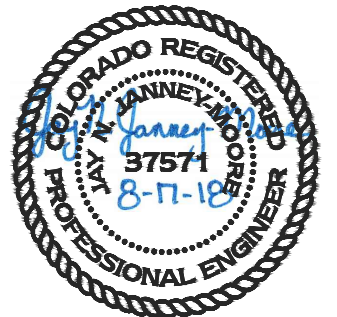
**LEGEND:**

- AS-BUILT TOP OF SLF (2016)
- TOP OF SLF (BETWEEN 9650'-9750') (2018)
- TOP OF SLF (BETWEEN 9750'-9900') (2018)
- SLF DEPTH CHECK LOCATION

**NOTES:**

- THE AS-BUILT TOP OF SLF (2016) WAS DEVELOPED BY AMES AS PART OF THE RECORD OF CONSTRUCTION REPORT FOR THE SQUAW GULCH VALLEY LEACH FACILITY PHASE 1 COMPLETION, DATED OCTOBER 14, 2016.
- THE TOP OF SLF (BETWEEN 9650'-9750') (2018) WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JUNE 20, 2018 IN A FILE CALLED "MLE2 VLF Clay Topo 6-18-18.dwg".
- THE TOP OF SLF (BETWEEN 9750'-9900') (2018) WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JULY 10, 2018 IN A FILE CALLED "MLE2 VLF Clay Topo thru 7-10-18.dwg".
- THE SLF DEPTH CHECK LOCATIONS FSHOWN WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JUNE 27, 2018 IN A FILE CALLED "MLE2 VLF Clay Depth Checks 6-25-18.dwg".

SLF DEPTH	
POINT	DEPTH (in)
24	16
25	16.5
26	16.5
27	14



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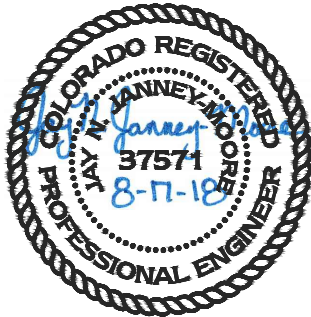



**LEGEND:**

- LIMITS OF GEOMEMBRANE ACCEPTANCE
- PANEL NUMBER
- DESTRUCT FUSION NUMBER AND REPAIR
- DESTRUCT EXTRUSION NUMBER AND REPAIR
- PANEL NUMBER (PART OF THE RECERTIFICATION BETWEEN 9650' 9750' BENCHES)
- DESTRUCT FUSION NUMBER AND REPAIR (PART OF THE RECERTIFICATION BETWEEN 9650' 9750' BENCHES)
- DESTRUCT EXTRUSION NUMBER AND REPAIR (PART OF THE RECERTIFICATION BETWEEN 9650' 9750' BENCHES)
- PREVIOUSLY CERTIFIED PANEL NUMBER
- DESTRUCT FUSION NUMBER AND REPAIR
- DESTRUCT EXTRUSION NUMBER AND REPAIR

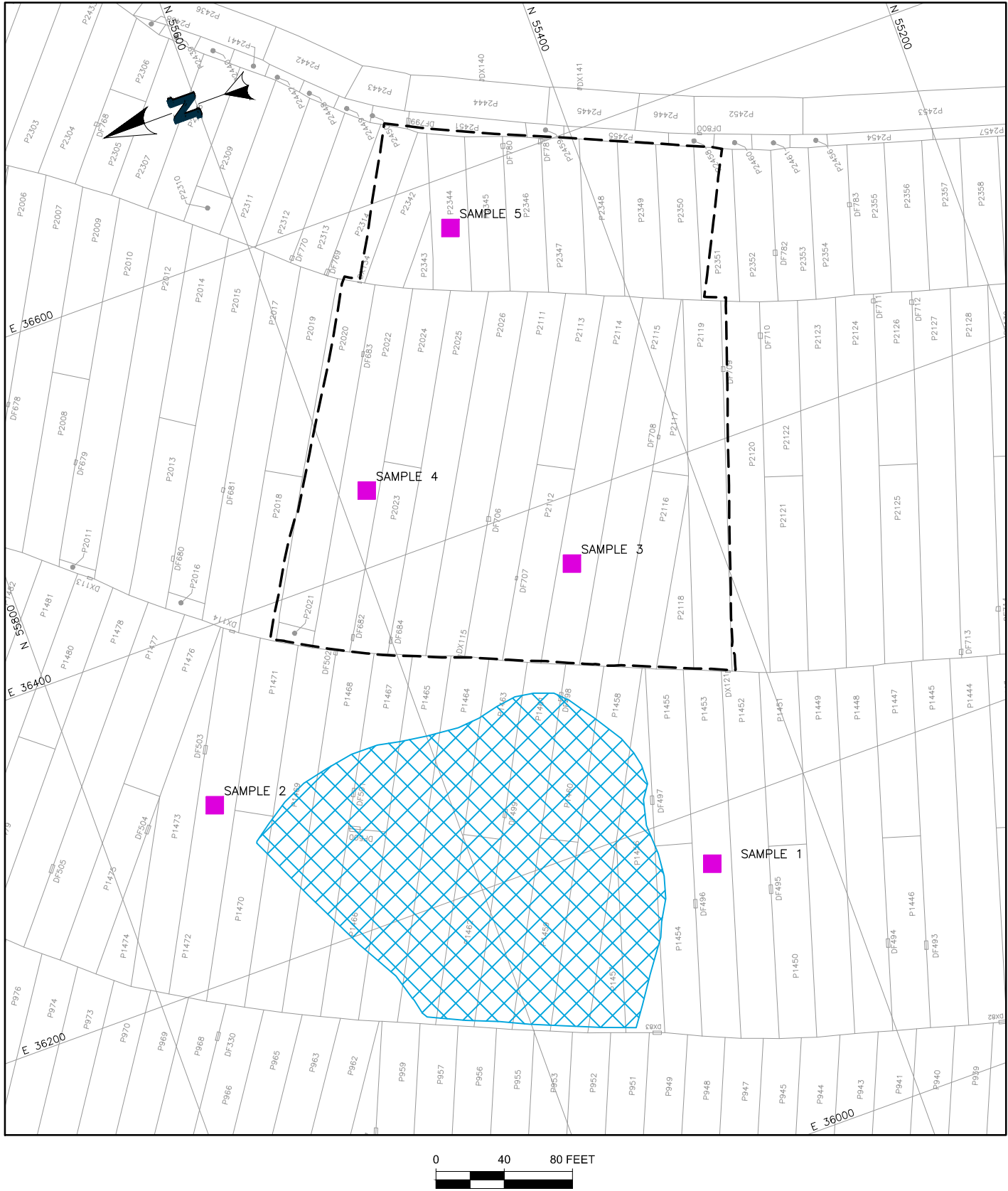
**NOTES:**

1. THE EXISTING GEOMEMBRANE PANEL LAYOUT AND LOCATION OF DESTRUCTS AND REPAIRS WAS DEVELOPED BY NEWFIELDS AS PART OF THE RECORD OF CONSTRUCTION REPORT FOR THE SQUAW GULCH VALLEY LEACH FACILITY PHASE 1 COMPLETION, DATED OCTOBER 14, 2016.
2. THE GEOMEMBRANE PANEL LAYOUT SHOWN AS PART OF RECORD OF CONSTRUCTION FOR THE VLF2 RECERTIFICATION BETWEEN THE 9650' AND 9750' BENCH WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JUNE 21, 2018 IN A FILE CALLED "MLE2 VLF Liner As-built thru 6-19-18.dwg".
3. THE GEOMEMBRANE PANEL LAYOUT SHOWN AS PART OF THE RECORD OF CONSTRUCTION FOR THE VLF2 RECERTIFICATION BETWEEN THE 9750- AND 9900' BENCH WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JULY 11, 2018 IN A FILE CALLED "MLE2 Liner As-built thru 7-10-18.dwg".
4. THE DESTRUCTS AND REPAIRS SHOWN AS PART OF THE RECORD OF CONSTRUCTION FOR THE VLF2 RECERTIFICATION BETWEEN THE 9650' AND 9750' BENCH WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JUNE 21, 2018 IN A FILE CALLED "MLE2 VLF Liner Tests thru 6-20-18.dwg".
5. THE DESTRUCTS AND REPAIRS SHOWN AS PART OF THE RECORD OF CONSTRUCTION FOR THE VLF2 RECERTIFICATION BETWEEN THE 9750' AND 9900' BENCH WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JULY 11, 2018 IN A FILE CALLED "MLE2 Liner Tests thru 7-10-18.dwg".



						APPROVED BY: JNM	DISCLAIMER  NEWFIELDS PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF AVAILABLE TECHNICAL INFORMATION AND EXPERIENCE. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO EITHER SUCH TECHNICAL INFORMATION OR EXPERIENCE. ANY MODIFICATION OR ADAPTATION OF THE DATA OR DRAWING SHALL BE AT USER'S RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO NEWFIELDS.		CLIENT	CRIPPLE CREEK & VICTOR GOLD MINING COMPANY	
						CHECKED BY: JNM			PROJECT	VLF2 RECERTIFICATION	
						DESIGNED BY: JNM		TITLE	GEOMEMBRANE PANEL LAYOUT AS-BUILT BETWEEN 9750' AND 9900' BENCH		FILENAME 106.023.009F
0	8/17/18	ISSUED FOR RECORD OF CONSTRUCTION REPORT			JNM	JNM			DRAWING NO. 2	REVISION 0	
REV	DATE	DESCRIPTION			TECH	ENG					



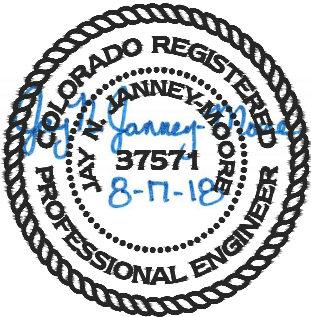



LEGEND:

- LIMITS OF GEOMEMBRANE REPLACEMENT
- LIMITS OF GEOMEMBRANE DAMAGE
- SAMPLE LOCATION FOR EXISTING GEOMEMBRANE CONFORMANCE TESTING
- P1077 PREVIOUSLY CERTIFIED PANEL NUMBER
- DF364 DESTRUCT FUSION NUMBER AND REPAIR
- DX80 DESTRUCT EXTRUSION NUMBER AND REPAIR

NOTES:

1. THE EXISTING GEOMEMBRANE PANEL LAYOUT AND LOCATION OF DESTRUCTS AND REPAIRS WAS DEVELOPED BY NEWFIELDS AS PART OF THE RECORD OF CONSTRUCTION REPORT FOR THE SQUAW GULCH VALLEY LEACH FACILITY PHASE 1 COMPLETION, DATED OCTOBER 14, 2016.
2. THE LIMITS OF DAMAGED LINER SHOWN WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JUNE 15, 2018 IN A FILE CALLED "MLE2 VLF Damaged Liner 6-14-18.dwg".
3. THE SAMPLE LOCATIONS FOR THE EXISTING GEOMEMBRANE CONFORMANCE TESTING SHOWN WAS SURVEYED BY FORSIGHT WEST AND PROVIDED TO NEWFIELDS ON JULY 11, 2018 IN A FILE CALLED "MLE2 VLF Liner Tests thru 7-10-18.dwg".



						APPROVED BY: JNM	DISCLAIMER  NEWFIELDS PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF AVAILABLE TECHNICAL INFORMATION AND EXPERIENCE. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO EITHER SUCH TECHNICAL INFORMATION OR EXPERIENCE. ANY MODIFICATION OR ADAPTATION OF THE DATA OR DRAWING SHALL BE AT USER'S RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO NEWFIELDS.		CLIENT	CRIPPLE CREEK & VICTOR GOLD MINING COMPANY		
						CHECKED BY: JNM			PROJECT	VLF2 RECERTIFICATION		
						DESIGNED BY: JNM		TITLE	LIMITS OF GEOMEMBRANE DAMAGE AND GEOMEMBRANE CONFORMANCE TEST SAMPLE LOCATIONS		FILENAME 106.023.0010F	
0	8/17/18	ISSUED FOR RECORD OF CONSTRUCTION REPORT			JNM	JNM					DRAWING NO. 3	
REV	DATE	DESCRIPTION			TECH	ENG	DRAWN BY: JNM					

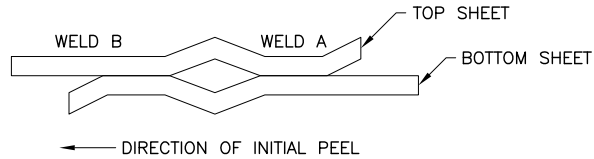


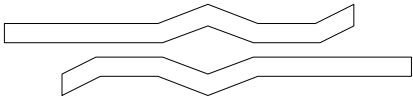
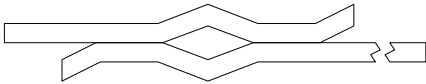
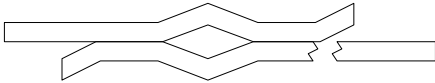
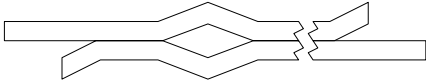
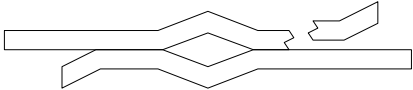


## Figures




# SCHEMATIC OF UNTESTED SPECIMEN



TYPES OF BREAKS	LOCUS-OF BREAK CODE	BREAK DESCRIPTION	CLASSIFICATION <sup>1</sup>
	AD	ADHESION FAILURE	NON-FTB
	BRK	BREAK IN SHEETING. BREAK CAN BE IN EITHER TOP OR BOTTOM SHEET	FTB
	SE1	BREAK IN OUTER EDGE OF SEAM. BREAK CAN BE IN EITHER TOP OR BOTTOM SHEET	FTB
	SE2	BREAK AT INNER EDGE OF SEAM THROUGH BOTH SHEETS	FTB
	AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE. BREAK CAN BE IN EITHER THE TOP OR BOTTOM SHEET	FTB

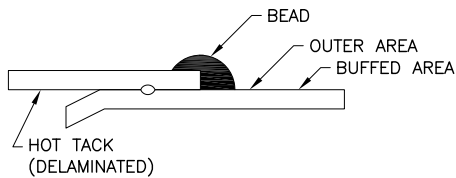
<sup>1</sup>FTB = FILM TEAR BOND

P:\Projects\0106.026 CC&V Leak Detection Services\J-REPORTS\ROC Reports\Support Files\Figures\FIGURE 1.dwg--7/2/2018 6:28 PM

		CLIENT <b>CRIPPLE CREEK &amp; VICTOR GOLD MINING COMPANY</b>	
PROJECT <b>VLF2 RECERTIFICATION PROJECT</b>			
TITLE <b>DESTRUCTIVE SAMPLE TEST CODES FOR DUAL HOT WEDGE FUSION WELDS</b>		FILENAME FIGURE 1	
		FIGURE NO. <b>1</b>	REVISION <b>0</b>



# SCHEMATIC OF UNTESTED SPECIMEN



TYPES OF BREAKS	LOCUS-OF BREAK CODE	BREAK DESCRIPTION	CLASSIFICATION <sup>1</sup>
	AD1	FAILURE IN ADHESION. SPECIMENS MAY ALSO DELAMINATE UNDER THE BEAD AND BREAK THROUGH THE THIN EXTRUDED MATERIAL IN THE OUTER EDGE	NON-FTB
	AD2	FAILURE IN ADHESION	NON-FTB
	AD-WLD	BREAK THROUGH THE FILLET. BREAK THROUGH THE FILLET RANGE FROM BREAKS STARTING AT THE EDGE OF THE TOP SHEET TO BREAKS THROUGH THE FILLET AFTER SOME ADHESION FAILURE BETWEEN THE FILLET AND THE BOTTOM SHEET	NON-FTB <sup>2</sup>
	SE1	BREAKS AT SEAM EDGE IN THE BOTTOM SHEET. SPECIMENS MAY BREAK ANYWHERE FROM THE BEAD/OUTER AREA EDGE TO THE OUTER AREA/BUFFED AREA EDGE (APPLICABLE TO SHEAR ONLY)	FTB
	SE2	BREAKS AT SEAM EDGE IN THE TOP SHEET. SPECIMENS MAY BREAK ANYWHERE FROM THE BEAD/OUTER AREA EDGE TO THE OUTER AREA/BUFFED AREA EDGE	FTB
	SE3	BREAKS AT SEAM EDGE IN THE BOTTOM SHEET (APPLICABLE TO PEEL ONLY)	FTB
	BRK1	BREAKS IN THE BOTTOM SHEETING. A "B" IN PARENTHESES FOLLOWING THE CODE MEANS THE SPECIMEN BROKE IN THE BUFFED AREA (APPLICABLE TO SHEAR ONLY)	FTB
	BRK2	BREAKS IN THE TOP SHEETING. A "B" IN PARENTHESES FOLLOWING THE CODE MEANS THE SPECIMEN BROKE IN THE BUFFED AREA	FTB
	AD-BRK	BREAKS IN THE BOTTOM SHEETING AFTER SOME ADHESION FAILURE BETWEEN THE FILLET AND THE BOTTOM SHEET (APPLICABLE TO PEEL ONLY)	FTB
	HT	BREAK AT THE EDGE OF THE HOT TACK FOR SPECIMENS WHICH COULD NOT BE DELAMINATED IN THE HOT TACK	NO TEST

<sup>1</sup> FTB = FILM TEAR BOND

<sup>2</sup> ACCEPTANCE OF AD-WLD BREAKS MAY DEPEND ON WHETHER TEST VALUES MEET A MINIMUM SPECIFICATION VALUE AND NOT ON CLASSIFICATION AS A FTB OR NON-FTB BREAK

		CLIENT <b>CRIPPLE CREEK &amp; VICTOR GOLD MINING COMPANY</b>	
PROJECT <b>VLF2 RECERTIFICATION PROJECT</b>			
TITLE <b>DESTRUCTIVE SAMPLE TEST CODES FOR EXTRUSION WELDS WITH LEISTER HEAT SEAMS</b>		FILENAME FIGURE 2 FIGURE NO. <b>2</b> REVISION <b>0</b>	





## **Appendices**





## **Appendix A – Surveyor's Professional License**



**Colorado Department of Regulatory Agencies  
Division of Professions and Occupations**

State Board of Licensure for Architects, Professional Engineers and  
Professional Land Surveyors

Lester John Ludeman  
Professional Land Surveyor

PLS.0025636

11/01/2017

**Number**

**Issue Date**

Active

10/31/2019

**Credential Status**

**Expire Date**

Verify this credential at: [www.colorado.gov/dora/dpo](http://www.colorado.gov/dora/dpo)

   
Division Director: Ronne Hines      Credential Holder Signature





## **Appendix B – Daily Observation Reports**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** June 25, 2018

S M T W T F S

**Temperature:** Low: 43°F to High: 74°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	13
Alex Lewallen	12

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 DCF Removal

A Cat 312 CL Excavator was utilized to remove the Drain Cover Fill (DCF) on 9750' bench exposing the existing geomembrane.

### 1.2 Anchor Trench Excavation

A CAT 305.5 E mini excavator was used to excavate approximately 84 feet of anchor trench on the 9850' bench.

### 1.3 Geomembrane Removal

A Cat 336 F excavator was used to remove geomembrane and expose the Soil Liner Fill (SLF) between 9750' and 9850' bench.

T. 775.738.3399





## **2.0 COMANCO ACTIVITIES**

### **2.1 Geomembrane Installation**

One destructive test was marked, tested, and the location was repaired using the extrusion welding method. All non-destructive and destructive test results met project specifications.

## **3.0 NEWFIELDS ACTIVITIES**

Newfield personnel observed DCF removal, anchor trench excavation and geomembrane removal during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Benjamin Melly. 817.889.7315





**Geomembrane exposure**



**Anchor Trench Excavation**





**Geomembrane Removal**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** June 26, 2018

S M **T** W T F S

**Temperature:** Low: 51°F to High: 77°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	9
Alex Lewallen	8

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Soil Liner Fill

Four depth checks were performed on existing Soil Liner Fill (SLF) between 9750' and 9850' benches. All test results were within project specifications and the locations were surveyed by Foresight West.

### 1.2 Anchor Trench Excavation

A CAT 305.5 E mini excavator was used to excavate approximately 56 feet of anchor trench on the 9850' bench.

### 1.3 Drain Cover Fill Removal

A Cat 312 C L Excavator was used to remove Drain Cover Fill (DCF) from the existing geomembrane on the 9750' bench.

T. 775.738.3399





## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Installation

No geomembrane was installed during this shift.

## 3.0 NEWFIELDS ACTIVITIES

Newfield personnel observed SLF depth checks, DCF removal, and anchor trench excavation during the shift.

## 4.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Performing Depth Checks**





**Anchor Excavation**



**Geomembrane Exposure**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** June 27, 2018

S M T **W** T F S

**Temperature:** Low: 52°F to High: 79°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	13
Alex Lewallen	12

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

Panels PRC-1 thru PRC-16 were accepted for Drain Cover Fill (DCF) placement. Placement began by pushing a two-foot lift of previously stockpiled DCF onto the accepted geomembrane using a CAT D6 LGP dozer.

### 1.2 Anchor Trench Excavation

A CAT 305.5 E mini excavator was used to excavate approximately 30 feet of anchor trench on the 9850' bench.

### 1.3 Geomembrane Removal

A Cat 336 F excavator was used to remove geomembrane and expose the Soil Liner Fill (SLF) between 9750' and 9850' bench.

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## **2.0 COMANCO ACTIVITIES**

### **2.1 Geomembrane Acceptance**

Panels PRC-1 thru PRC-16 were inspected and approved for DCF placement by CC&V, Ames, Comanco, and NewFields representatives.

### **2.2 Geomembrane Installation**

Approximately 21,817 square feet (Panels PRC-17 to PRC-22) of 80 Mil LLPDE double sided textured geomembrane was installed by Comanco during the shift. Approximately 842 linear feet of fusion seaming was performed using one fusion machine/operator method. One destructive testing sample was marked during fusion seaming. Comanco used the sandbags to secure geomembrane in place. Non-destructive testing was performed for fusion welded seams. Repairs were performed using the extrusion welding method for all marked defects.

## **3.0 NEWFIELDS ACTIVITIES**

Newfield personnel observed DCF placement, anchor trench excavation, geomembrane acceptance, geomembrane installation, and geomembrane removal during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Geomembrane Installation**





**Fusion Seaming**



**Anchor Trench Excavation**





**Geomembrane Removal**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** June 28, 2018

S M T W **T** F S

**Temperature:** Low: 56°F to High: 81°F    **Weather:** Clear

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	13
Alex Lewallen	12

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

Mine Operations delivered Drain Cover Fill (DCF) from the stockpile to placement area between 9650' elevation and loading area. A Cat D6T LGP dozer was used to push and placed the DCF material between 9650' bench and 9691' elevation at the minimum of two-foot lift.

### 1.2 Anchor Trench Excavation

A CAT 305.5 E mini excavator was used to excavate approximately 32 feet of anchor trench on the 9850' bench.

### 1.3 Geomembrane Removal

A Cat 312C L excavator was utilized to remove the DCF and geomembrane to expose the Soil Liner Fill (SLF) on 9750'.

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## **2.0 COMANCO ACTIVITIES**

### **2.1 Geomembrane Acceptance**

No activities during the shift.

### **2.2 Geomembrane Installation**

Approximately 2,700 square feet (Panels PRC-23 to PRC-27) of 80 Mil LLPDE double sided textured geomembrane was installed by Comanco during the shift. Approximately 1,200 linear feet of fusion seaming was performed using one fusion machine/operator method. Three destructive testing samples were marked, cut and tested during fusion seaming. Non-destructive testing was performed for fusion welded seams. Repairs were performed using the extrusion welding method for all marked defects. No vacuum testing was performed during the shift. Comanco used the sandbags to secure geomembrane in place.

## **3.0 NEWFIELDS ACTIVITIES**

Newfield personnel observed DCF placement, anchor trench excavation, geomembrane installation, and geomembrane removal during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Anchor Trench Excavation**





**Geomembrane Installation**



**Fusion Seaming**





**Anchor Trench Excavation**



**Geomembrane Exposure**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** June 29, 2018

S M T W T **F** S

**Temperature:** Low: 58°F to High: 81°F    **Weather:** Clear

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	13
Alex Lewallen	8

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

Mine Operations delivered Drain Cover Fill (DCF) from the stockpile to placement area between 9650' elevation and loading area. A Cat D6T LGP dozer was utilized to push and placed the DCF material between 9650' bench and 9681' elevation in a minimum two-foot lift.

### 1.2 Anchor Trench Excavation

No activities during the shift.

### 1.3 Geomembrane Removal

No activities during the shift.

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Acceptance

No activities during the shift.

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## **2.2 Geomembrane Installation**

The tie-in for existing geomembrane and PRC-17 was welded using one fusion welding machine/operator combination. A total of 240 linear feet of seam was completed. 213 linear feet of extrusion seaming was performed using one extrusion machine/operator method. Two destructive testing samples, RCDF-15 and RCDX-2 were marked and cut, but not tested. All pressure testing was performed and passed. Repairs were performed using the extrusion welding method for all marked defects. No vacuum testing was performed.

## **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement and geomembrane installation activities during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Extrusion Seaming**





**Fusion Seaming**



**Non-destructive Testing**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** June 30, 2018

S M T W T F **S**

**Temperature:** Low: 56°F to High: 73°F    **Weather:** Clear

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	9
Alex Lewallen	0

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

Mine Operations continued to deliver Drain Cover Fill (DCF) from the stockpile to placement area between 9650' elevation and loading area. A Cat D6T LGP dozer was used to push and placed the DCF material between 9650' bench and 9684' elevation in a minimum of two-foot lift.

### 1.2 Anchor Trench Excavation

2 No activities during the shift.

### 2.1 Geomembrane Removal

3 No activities during the shift.

## 2.0 COMANCO ACTIVITIES

### 4.1 Geomembrane Acceptance

No activities during the shift.

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## **4.2 Geomembrane Installation**

All the repairs and extrusion welded seams were vacuum tested and passed. All the destructive testing was performed and met project specifications.

## **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement, vacuum testing and destructive sample testing during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Vacuum Testing**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 2, 2018

S **M** T W T F S

**Temperature:** Low: 52°F to High: 77°F    **Weather:** Mostly Sunny

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	13
Alex Lewallen	12

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1. Drain Cover Fill Placement

A Cat D6T LGP dozer was used to push and placed the Drain Cover Fill (DCF) material between 9650' bench and 9700' elevation at the minimum of two-foot lift.

### 1.1 Drain Cover Removal

A Cat D6T LGP dozer was also utilized to remove DCF on 9900' bench to expose the anchor trench.

### 1.2 Anchor Trench Backfill

A CAT 305.5 E mini excavator was utilized to backfill the anchor trench with the first layer of Soil Liner Fill (SLF) on the 9850' bench. The hand compactor was used to compact the anchor trench.

### 1.3 Geomembrane Removal

No activities during the shift.

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## **2.0 COMANCO ACTIVITIES**

### **2.1 Geomembrane Acceptance**

No activities during the shift.

### **2.2 Geomembrane Installation**

Approximately 12,815 square feet (Panels PRC-28 to PRC-32) of 80 Mil LLPDE double sided textured geomembrane was installed by Comanco during the shift. Approximately 701 linear feet of fusion seaming was performed using one fusion machine/operator method. One destructive testing sample was marked during fusion seaming. Non-destructive testing was performed for fusion welded seams. Repairs were performed using the extrusion welding method for all marked defects. Vacuum testing was performed on the repairs. Comanco used the sandbags to secure geomembrane in place.

## **3.0 NEWFIELDS ACTIVITIES**

Newfield personnel observed DCF placement, anchor trench backfill, geomembrane installation, and DCF removal during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**

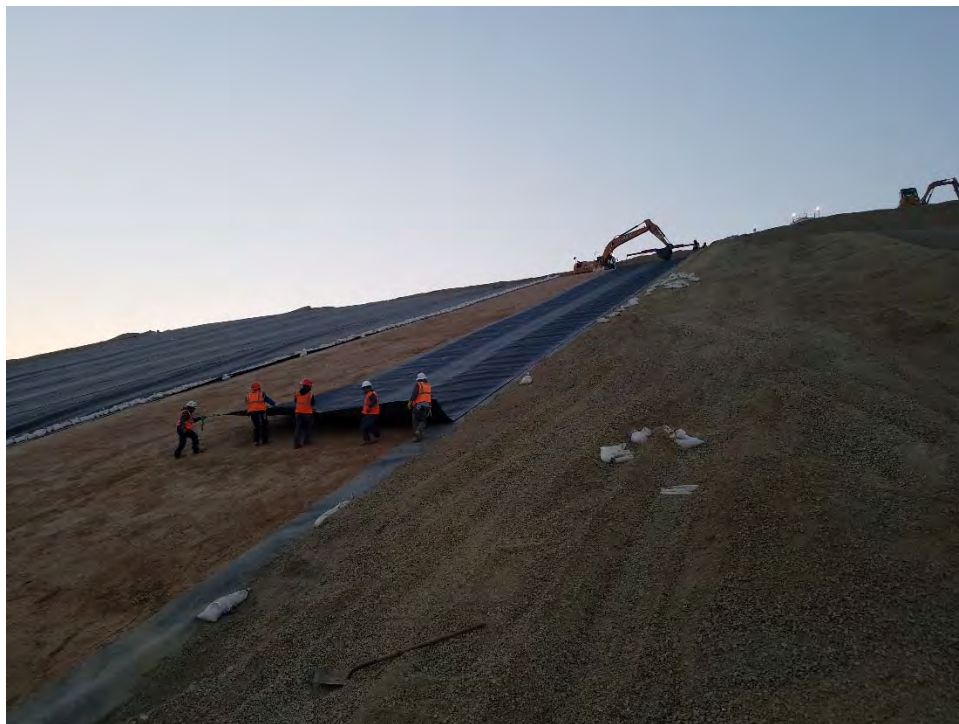


**DCF Removal**





**Anchor Trench Backfill**



**Geomembrane Installation**





**Fusion Seaming**



**Non-destructive Testing**





**Vacuum Testing**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 3, 2018

S M **T** W T F S

**Temperature:** Low: 56°F to High: 79°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	13
Alex Lewallen	12

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1. Drain Cover Fill Placement

A Cat D6T LGP dozer was utilized to push and place Drain Cover Fill (DCF) material between 9650' bench and 9712' elevation in a minimum of two-foot lift.

### 1.1 Drain Cover Removal

A Cat 312C L excavator was used to remove DCF from existing Soil Liner Fill (SLF) surface and existing geomembrane on 9850' bench.

### 1.2 Anchor Trench Backfill

The Anchor Trench was backfilled on 9850' bench using a skid steer and A CAT 312C L excavator equipped with vibratory plate compactor and the labor guys. The temporary anchor trench was completed with the last layer of soil liner fill according to project specification.

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### **1.3 Geomembrane Removal**

No activities during the shift.

## **2.0 COMANCO ACTIVITIES**

### **2.1 Geomembrane Acceptance**

No activities during the shift

### **2.2 Geomembrane Installation**

The tie-in for PRC-31 to the existing geomembrane was welded using one fusion welding machine/operator combination. A total of 241 linear feet of fusion seaming was completed. All pressure testing was performed and passed. Repairs were performed using the extrusion welding method. A total of 75 linear feet of extrusion seaming was completed. All repairs and extrusion welded seams were not vacuum tested during the shift until tomorrow. All the destructive testing was performed and met project specifications.

## **3.0 NEWFIELDS ACTIVITIES**

Newfield personnel observed DCF placement, DCF removal, anchor trench backfill, geomembrane installation during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**

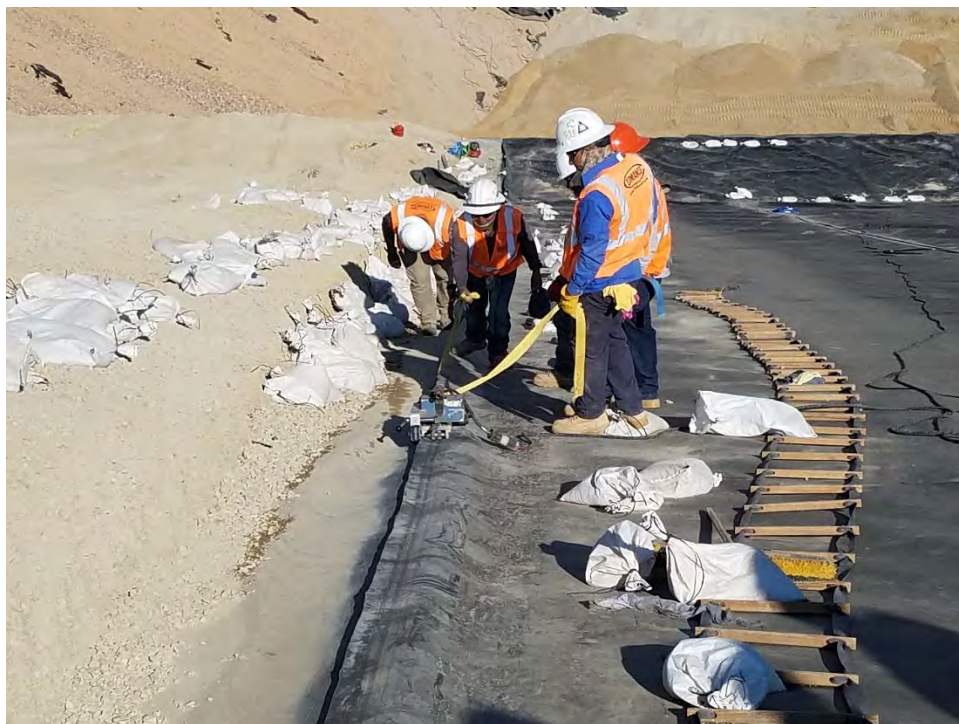


**DCF Removal**





**Anchor Trench Backfill**



**Fusion Seaming**





**Repair Activities**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 4, 2018

S M T **W** T F S

**Temperature:** Low: 48°F to High: 74°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	9
Alex Lewallen	8

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1. Drain Cover Fill Placement

Mine Operations continued to deliver Drain Cover Fill (DCF) from the stockpile to the placement area between 9650' elevation and loading area. A Cat D6T LGP dozer was used to push and place the DCF material between the 9650' and 9715' elevations in a minimum two-foot lift.

### 1.1 Drain Cover Removal

A Cat 312C L excavator completed the removal DCF from existing Soil Liner Fill (SLF) surface and existing geomembrane on 9850' bench.

### 1.2 Anchor Trench Backfill

No action during the shift

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### **1.3 Geomembrane Removal**

No activities during the shift.

## **2.0 COMANCO ACTIVITIES**

### **2.1 Geomembrane Acceptance**

No activities during the shift

### **2.2 Geomembrane Installation**

All completed repairs and extrusion welded seams were vacuum tested during the shift.

## **3.0 NEWFIELDS ACTIVITIES**

Newfield personnel observed DCF placement, DCF removal, and vacuum testing during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Vacuum Testing**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 5, 2018

S M T W **T** F S

**Temperature:** Low: 48°F to High: 64°F    **Weather:** Mostly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	12
Alex Lewallen	11

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer was used to push and place Drain Cover Fill (DCF) material between 9650' bench and 9728' elevation in a minimum of two-foot lift.

### 1.2 Drain Cover Fill Removal

A Cat 312C L excavator was used to remove DCF from existing Soil Liner Fill (SLF) surface and existing geomembrane on 9900' bench.

### 1.3 Anchor Trench Excavation

A Cat 336F and A Cat 305.5 E mini excavator were used to excavate approximately 30 feet of anchor trench on the 9900' bench.

### 1.4 Geomembrane Removal

No activities during the shift.

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## **2.0 COMANCO ACTIVITIES**

### **2.1 Geomembrane Acceptance**

No activities during the shift

### **2.2 Geomembrane Installation**

No activities during the shift

## **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement, DCF removal, and anchor trench excavation during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Anchor Trench Excavation**





**DCF Removal**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 6, 2018

S M T W T **F** S

**Temperature:** Low: 50°F to High: 69°F    **Weather:** Mostly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	12
Alex Lewallen	8

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer continued to push and place Drain Cover Fill (DCF) material between 9650' bench and 9735' elevation in a minimum of two-foot lift.

### 1.2 Anchor Trench Excavation

A Cat 336F and A Cat 305.5 E mini excavator were used to complete the excavation of anchor trench on the 9900' bench.

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Acceptance

No activities during the shift

### 2.2 Geomembrane Installation

No activities during the shift

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## 2.3 Geomembrane Removal

Comanco cut and removed the geomembrane liner using CX210C CASE Excavator between 9850' bench and 9900' bench.

## 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement, geomembrane removal, and anchor trench excavation during the shift.

## 4.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**





**Anchor Trench Excavation**



**Geomembrane Removal**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 7, 2018

S M T W T F **S**

**Temperature:** Low: 53°F to High: 77°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	12

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

Placement continued by pushing a two-foot lift of DCF between 9650' and 9750' bench, using a CAT D6 LGP dozer.

### 1.2 Anchor Trench backfill

An excavator was used to backfill the anchor trench to one foot depth using DCF.

### 1.3 Geomembrane Removal

No activities during the shift

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Acceptance

No new activities during this shift

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## **2.2 Geomembrane Installation**

Approximately 22,275 square feet (Panels PRC-33 to PRC-41) of 80 Mil LLPDE double sided textured geomembrane was installed by Comanco during the shift. Approximately 945 linear feet of fusion seaming was performed using one fusion machine/operator combination. One destructive testing sample was marked during fusion seaming. Non-destructive testing was performed for fusion welded seams. No repairs were performed during the shift. Comanco used the sandbags to secure geomembrane in place.

## **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement, anchor trench backfill, and geomembrane installation during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**

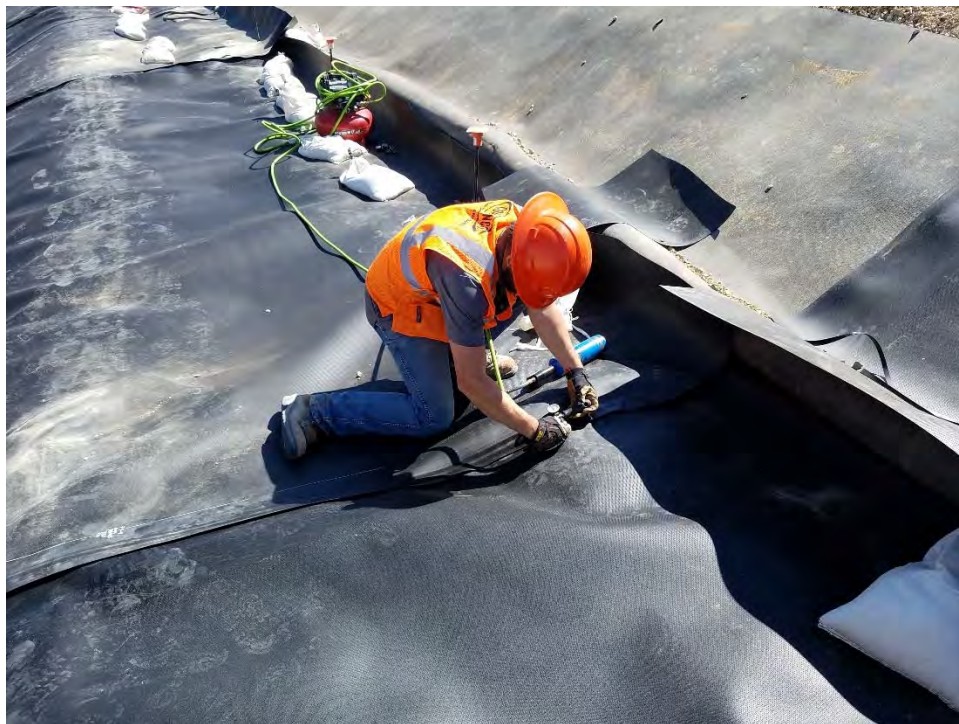


**Geomembrane Installation**





**Fusion Seaming**



**Non-destructive testing**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 9, 2018

S M T W T F S

**Temperature:** Low: 50°F to High: 74°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	13

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

Ames continued Drain Cover Fill (DCF) placement using a CAT D6 LGP dozer. DCF material was delivered and stockpiled near the recertification area by mine operations traveling on at least 20-feet of geomembrane cover at all times.

### 1.2 Anchor Trench backfill

Anchor trench was backfilled on 9900' bench using a CAT 312C L excavator equipped with vibratory plate compactor and laborers. Approximately 25 feet of temporary anchor trench was completed with the placement of Soil Liner Fill (SLF) in accordance with technical specification.

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Acceptance

Panels PRC-17 thru PRC-32 were inspected and approved for DCF placement by CC&V, Ames, Comanco, and NewFields representatives.

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## **2.2 Geomembrane Installation**

Approximately 110 linear feet of fusion seaming was performed using one fusion machine/operator combination. One destructive testing sample was marked during fusion seaming. Non-destructive testing was performed for fusion welded seams. Repairs were performed during the shift, but not vacuum tested. Comanco used the sandbags to secure geomembrane in place.

## **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement, anchor trench backfill, and geomembrane installation during the shift. Geomembrane acceptance for DCF placement was also performed.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Anchor Trench Backfill**





**Anchor Trench Backfill**



**Fusion Seaming**





**Non-destructive testing**



**Repair Activities**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 10, 2018

S M **T** W T F S

**Temperature:** Low: 50°F to High: 73°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	12
Alex Lewallen	0

#### 1.0 AMES

#### 2.0 CONSTRUCTION ACTIVITIES

##### 1.1 Drain Cover Fill Placement

Mine Operations delivered Drain Cover Fill (DCF) from the stockpile to the loading area. The loader was used to deliver the DCF to placement area on 9750' bench. A Cat D6T LGP dozer was utilized to build the ramp on 9750' bench using DCF material.

##### 1.2 Anchor Trench backfill

A CAT 312C L excavator equipped with vibratory plate compactor and the labor guys were used to backfill the anchor trench on 9900' bench. The temporary anchor trench was completed with the last layer of soil liner fill (SFL) according to project specification.

##### 2.1 Geomembrane Acceptance

No activities during shift

T. 775.738.3399





## **2.2 Geomembrane Installation**

Approximately 357 linear feet of extrusion seaming on tie-in was performed using one extrusion machine/operator combination. One destructive testing sample was marked during extrusion seaming. Repairs were performed during the shift, but not vacuum tested. Tomorrow, extrusion seaming will be completed and the repairs.

## **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement, anchor trench backfilled, and repairs performed during the shift.

## **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction. If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Exrtusion Seaming and Repairs Performed**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 11, 2018

S M T **W** T F S

**Temperature:** Low: 47°F to High: 70°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	12

#### 1.0 AMES

#### 2.0 CONSTRUCTION ACTIVITIES

##### 1.1 Drain Cover Fill Placement

Mine Operations continued to delivered Drain Cover Fill (DCF) from the stockpile to the loading area. The loader was utilized to deliver the DCF to placement area on 9750' bench. A Cat D6T LGP dozer was used to build the road on 9750' bench.

##### 2.1 Geomembrane Acceptance

No activities during shift

##### 2.2 Geomembrane Installation

Repairs were performed using the extrusion welding method. A total of 46 linear feet of extrusion seaming was completed. All repairs and extrusion welded seams were vacuum tested during the shift. All the destructive testing was performed and met project specifications.

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### **3.0 NEWFIELDS ACTIVITIES**

NewFields personnel observed DCF placement, anchor trench backfilled, and repairs performed during the shift.

### **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction. If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



**Extrusion Seaming and Repairs Performed**





Vacuum Tested



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** VLF2 Geomembrane Recertification

**NewFields Project Number:** 475.0106.026

**Date:** July 12, 2018

S M T W **T** F S

**Temperature:** Low: 50°F to High: 69°F **Weather:** Partly Cloudy/Rain

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	8

### 1.0 AMES

### 2.0 CONSTRUCTION ACTIVITIES

#### 1.1 Drain Cover Fill Placement

Mine Operations delivered Drain Cover Fill (DCF) from the stockpile to the loading area. The WA470 Komatsu loader was used to deliver the DCF to placement area on 9750' bench. A Cat D6T LGP dozer was used to place and pushed the material on 9750' bench.

#### 2.1 Geomembrane Acceptance

No activities during shift

### 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement.

T. 775.738.3399





#### **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction. If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 13, 2018

S M T W T **F** S

**Temperature:** Low: 48°F to High: 68°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	15

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

DCF material was delivered and stockpiled near the recertification area by mine operations traveling on at least 20-feet of geomembrane cover. The WA 470 Komatsu loader was used to deliver the DCF to the placement area on 9750' bench. A Cat D6T LGP dozer was used for Drain Cover Fill (DCF) placement and a finger was pushed up the slope of Panels PRC-17 and 18.

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Acceptance.

## 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement.

T. 775.738.3399





#### **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 16, 2018

S M T W T F S

**Temperature:** Low: 50°F to High: 63°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

Mine operations delivered and stockpiled DCF material near the recertification area traveling on at least 20-feet of geomembrane cover. The WA 470 Komatsu loader was utilized to deliver the DCF to the placement area on 9750' bench. A Cat D6T LGP dozer continued to place and pushed the Drain Cover Fill (DCF) up the slope on Panels PRC-17 and 18.

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Acceptance.

Panels PRC-33 thru PRC-41 were inspected and approved for DCF placement by CC&V, Ames, Comanco, and NewFields representatives.

## 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement.

T. 775.738.3399





#### **4.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





Mine Operation delivering



DCF Placement



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 17, 2018

S M **T** W T F S

**Temperature:** Low: 50°F to High: 70°F    **Weather:** Mostly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	11

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

The WA 470 Komatsu loader continued to deliver the DCF to the placement area on 9750' bench. A Cat 312C L excavator and CAT D6T LGP dozer were used for Drain Cover Fill (DCF) placement near Panels PRC-19 and 20.

## 2.0 COMANCO ACTIVITIES

### 2.1 Geomembrane Installation

No work performed during the shift.

## 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 4.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Komatsu Loader delivering DCF**





**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 18, 2018

S M T **W** T F S

**Temperature:** Low: 53°F to High: 79°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	6

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

DCF material was delivered and stockpiled near the recertification area by mine operations traveling on at least 20-feet of geomembrane cover.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF deliveries.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Delivery**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 19, 2018

S M T W **T** F S

**Temperature:** Low: 50°F to High: 74°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	3

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

No work activities during the shift.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel was onsite until notified that no work activities were being performed during the shift.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315

T. 775.738.3399



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 20, 2018

S M T W T **F** S

**Temperature:** Low: 47°F to High: 64°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Soil Liner Fill (SLF) Density Testing

A CAT 321C L excavator was utilized to remove Drain Cover Fill (DCF) from the recently installed geomembrane between 9673' and 9716' elevation. Four test holes were excavated. The geomembrane was cut to expose SLF for density and moisture testing. The density and moisture testing were performed using the CPN Nuclear Moisture/Density Gauge with passing results.

### 1.2 Drain Cover Fill Placement

No activities during the shift.

## COMANCO ACTIVITIES

Comanco cut the geomembrane to expose the SLF for density tests. After the tests were complete, Comanco repaired the geomembrane at each test hole location. Repairs were performed using the extrusion welding method in accordance with the technical specifications. Vacuum testing was not performed during the shift and will be performed on July 21, 2018 prior to backfilling test holes.

T. 775.738.3399





## **NewFields Activities**

NewFields personnel observed the test hole excavation, performed SLF nuclear density testing, and geomembrane repairs. SLF density testing was performed for the VLF2 Recertification area with passing results.

## **2.0 COMMUNICATIONS AND MEETINGS**

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

NewFields representatives Jay Moore and Nick Rocco were on site to observe the condition of the SLF, perform nuclear density testing of the recertification area SLF, and observe the geomembrane repairs.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315





**DCF Removal**



**Density and Moisture Testing**





**Repair Activities**



**Repair Activities**





**Repair Activities**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 21, 2018

S M T W T F S

**Temperature:** Low: 52°F to High: 68°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	4

### 1.0 AMES CONSTRUCTION ACTIVITIES

After geomembrane repairs were vacuum tested and approved, a CAT D6T LGP dozer was used to backfill the nuclear density test holes.

#### 1.1 Drain Cover Fill Placement

No activities during the shift.

### 2.0 COMANCO ACTIVITIES

#### 2.1 Geomembrane Repairs

Comanco performed geomembrane vacuum testing in accordance with the technical specifications and passing results.

Comanco demobilized from site after the shift.

### 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed test hole backfill, geomembrane vacuum testing, and approved geomembrane repairs during the shift.





#### 4.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Backfilling Test Holes**





**Vacuum Testing**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 23, 2018

S M T W T F S

**Temperature:** Low: 48°F to High: 67°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	4

### 1.0 AMES CONSTRUCTION ACTIVITIES

A CAT 312C L was used to backfill the previously exposed geomembrane at the North corner of 9750' bench.

#### 1.1 Drain Cover Fill Placement

No activities during the shift.

#### NewFields Activities

NewFields personnel observed the exposed geomembrane backfill during the shift.

### 2.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Backfilling Exposed Geomembrane**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 24, 2018

S M **T** W T F S

**Temperature:** Low: 45°F to High: 68°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	2

### 1.0 AMES CONSTRUCTION ACTIVITIES

No activities during the shift.

#### 1.1 Drain Cover Fill Placement

No activities during the shift.

### 2.0 NEWFIELDS ACTIVITIES

NewFields personnel was onsite until notified that no work activities were being performed during the shift.

### 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 25, 2018

S M T **W** T F S

**Temperature:** Low: 43°F to High: 73°F    **Weather:** Partly Cloudy/rain

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

The WA470 Komatsu loader was utilized to deliver the Drain Cover Fill (DCF) to the placement area on 9750' bench. A Cat D6T LGP dozer was used for DCF placement and was pushing up the slope between panels PRC-20 to PRC- 23.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 26, 2018

S M T W **T** F S

**Temperature:** Low: 47°F to High: 65°F    **Weather:** Partly Cloudy/rain

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

The WA470 Komatsu loader continued to deliver the DCF to the placement area on 9750' bench. A Cat D6T LGP dozer was utilized for Drain Cover Fill (DCF) placement. It completed pushing up the slope between panels PRC-20 and PRC-25.

## 2.0 NEWFIELDS ACTIVITIES

No activities during the shift

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 27, 2018

S M T W T **F** S

**Temperature:** Low: 48°F to High: 65°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	11

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill (DCF) Placement

The Mine operations continued today to deliver the DCF material and stockpiled near the recertification area traveling on at least 20-feet of geomembrane cover. The WA470 Komatsu loader was utilized to deliver the DCF material to the placement area on 9750' bench. A Cat D6T LGP dozer was used for delivered material placement by pushing up the slope on Panels PRC-24 and PRC-25.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 28, 2018

S M T W T F S

**Temperature:** Low: 48°F to High: 71°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	9

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill (DCF) Placement

DCF material was delivered and stockpiled near the recertification area by mine operations traveling on at least 20-feet of geomembrane cover. The WA470 Komatsu loader continued to deliver the DCF material to the placement area on 9750' bench. A Cat D6T LGP dozer was used for deliver material placement by pushing up the slope on Panel PRC-26.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 30, 2018

S M T W T F S

**Temperature:** Low: 39°F to High: 68°F    **Weather:** Mostly Cloudy/Rain

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

The WA470 Komatsu loader was used to deliver the DCF material to the placement area on 9750' bench. Ames continued Drain Cover Fill (DCF) placement using a CAT D6 LGP dozer. DCF material was delivered and stockpiled near the recertification area by mine operations traveling on at least 20-feet of geomembrane cover.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** July 31, 2018

S M **T** W T F S

**Temperature:** Low: 45°F to High: 64°F    **Weather:** SUNNY

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	11

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill (DCF) Placement

The WA470 Komatsu loader was utilized to deliver the DCF material from the stockpile to the placement area on the 9750' bench. A Cat D6T LGP dozer was to place the delivered material by pushing up the slope between Panels PRC-27 and PRC-32.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 1, 2018

S M T **W** T F S

**Temperature:** Low: 48°F to High: 71°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

### 1.0 AMES CONSTRUCTION ACTIVITIES

#### 1.1 Drain Cover Fill (DCF) Placement

A Cat D6T LGP dozer and 312C L excavator were utilized to place DCF up the slope between panels PRC-27 and PRC-32. A DCF road was also constructed on the 9850' bench to allow for material delivery.

### 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

### 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**





**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 2, 2018

S M T W **T** F S

**Temperature:** Low: 52°F to High: 73°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer and 312C L excavator were utilized to place DCF up the slope between panels PRC-33 and 36.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**





**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 3, 2018

S M T W T **F** S

**Temperature:** Low:47°F to High: 67°F    **Weather:** Mostly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	8

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer and 312C L excavator were utilized to place DCF up the slope between panels PRC-37 and 41.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 7, 2018

S M **T** W T F S

**Temperature:** Low: 45°F to High: 64°F **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer and 312C L excavator were used to place Drain Cover Fill (DCF) up the slope between panels PRC-33 and 41. Ames will remove the DCF on the Northeast corner to find the damaged geomembrane tomorrow.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**DCF Placement**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 8, 2018

S M T **W** T F S

**Temperature:** Low:44°F to High: 65°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	11

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A 312C L excavator was used to remove the DCF on the Northeast corner of the Geomembrane Recertification VLF2 to locating damaged geomembrane.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Geomembrane Exposure**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 9, 2018

S M T W **T** F S

**Temperature:** Low:44°F to High: 62°F **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	10

## 1.0 AMES CONSTRUCTION ACTIVITIES

### 1.1 Drain Cover Fill Placement

A Cat D6T LGP dozer and a 312C L excavator were used to remove the Ore material on the 9850' bench at Northeast corner of Geomembrane Recertification VLF2 to find the damaged geomembrane.

## 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed DCF placement during the shift.

## 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**

**Prepared by:** Benjamin Melly. 817.889.7315



**Ore removal**



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 10, 2018

S M T W T **F** S

**Temperature:** Low:46°F to High: 73°F    **Weather:** Partly Cloudy

### NEWFIELDS PERSONNEL

Name	Hours
Benjamin Melly	8
Roxanne Li	8

### 1.0 AMES CONSTRUCTION ACTIVITIES

#### 1.1 Drain Cover Fill (DCF)

A 312C L excavator were used to remove DCF from repair areas exposing the geomembrane. Comanco will be onsite tomorrow to perform the geomembrane repairs.

### 2.0 NEWFIELDS ACTIVITIES

NewFields personnel observed geomembrane exposure during the shift.

### 3.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Benjamin Melly. 817.889.7315



## FIELD DAILY PROGRESS REPORT

**Client:** Cripple Creek & Victor Gold Mining Company

**Project:** Geomembrane Recertification VLF2

**NewFields Project Number:** 475.0106.026

**Date:** August 11, 2018

S M T W T F S

**Temperature:** Low: 52°F to High: 83°F    **Weather:** Sunny

### NEWFIELDS PERSONNEL

Name	Hours
Roxanne Li	6.5

### 1.0 AMES CONSTRUCTION ACTIVITIES

Ames assisted Comanco with repairs.

### 2.0 COMANCO ACTIVITIES

Repairs including the geomembrane vents, were completed and vacuum tested. All repairs were performed in accordance with the Technical Specifications.

### 3.0 NEWFIELDS ACTIVITIES

NewFields personnel observed geomembrane repairs during the shift.

### 4.0 COMMUNICATIONS AND MEETINGS

NewFields personnel attended a project pre-shift safety meeting conducted by Ames Construction.

T. 775.738.3399





If you have any questions or require additional information, please contact us at your convenience.

Sincerely,

**NewFields Mining Design & Technical Services**  
**Prepared by:** Roxanne Li




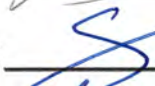

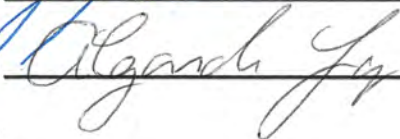


## **Appendix C – Soil Liner Fill Acceptance Forms**



## Soil Liner Fill Acceptance Form



<b>Client:</b> Cripple Creek & Victor Mining Co. <b>Project:</b> VLF2 Geomembrane Recertification <b>Project No.:</b> 475.0106.026	<b>Contractor:</b> Ames <b>Weather:</b> 77 <b>Date:</b> 06/27/2018
<b>Area/Location:</b> PRC 17 - PRC - 22	
<b>Items Inspected:</b> Depth of SLF verified Firm and unyielding Surface No visible low/ponding areas Free of deleterious materials	
<b>Testing Performed:</b> Survey completed	
<b>Deficient Items:</b> None	
<b>Remedial Actions:</b>	
<b>Subgrade Accepted:</b> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
<b>Comments:</b>	
<b>Signatures:</b>	
<b>NewFields:</b> 	<b>Date:</b> 06/27/18
<b>Ames:</b> 	<b>Date:</b> 06-27-18
<b>CC&amp;V:</b> 	<b>Date:</b> 6/27/18
<b>Other:</b> 	<b>Date:</b> 6/27/18
<b>Other:</b>	<b>Date:</b>



# Subgrade Acceptance Form



<b>Client:</b> Cripple Creek & Victor Mining Co.	<b>Contractor:</b> Ames
<b>Project:</b> VLF2 Geomembrane Recertification	<b>Weather:</b> 54
<b>Project No.:</b> 475.0106.026	<b>Date:</b> 07/07/2018

**Area/Location:** Panels PRC-33 to PRC-41

**Items Inspected:** Firm and unyielding Surface  
No visible low/ponding areas  
Free of deleterious materials

**Testing Performed:** Visual Observations  
Survey Complete

**Deficient Items:** \_\_\_\_\_

**Remedial Actions:** \_\_\_\_\_

**Subgrade Accepted:** YES X NO \_\_\_\_\_

**Comments:** \_\_\_\_\_

**Signatures:**

<b>NewFields:</b> <u>[Signature]</u>	<b>Date:</b> <u>07/07/18</u>
<b>Ames:</b> <u>[Signature]</u>	<b>Date:</b> <u>07-07-18</u>
<b>CC&amp;V:</b> <u>[Signature]</u>	<b>Date:</b> <u>7-7-18</u>
<b>Other:</b> <u>[Signature]</u>	<b>Date:</b> <u>07/07/18</u>
<b>Other:</b> _____	<b>Date:</b> _____





## **Appendix D – Geomembrane Quality Control Submittals**

**Appendix D.1 – 80mil LLDPE DSMS Inventory Control**

**Appendix D.2 – Résumés of Installation Personnel**

**Appendix D.3 – 80mil LLDPE DSMS Geomembrane Roll QC Certificates**

**Appendix D.4 – 80mil LLDPE DSMS Geomembrane Resin QC  
Certificates**

**Appendix D.5 – Welding Rod Quality Control Certificates**





## **Appendix D.1 – 80mil LLDPE DSMS Inventory Control**



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Subgrade & Geomembrane 9650' - 9750' Elevations**  
**80mil LLDPE DSMS Inventory Control**

Roll Number	Resin Lot Number	Width (ft)	Length (ft)	Area (sf)	Conformance Test	Agru QC Certification	Resin Certification	Site Delivery Date
FND0010080002	CJB810260	23	410	9,430	X	X	CJB810260	6/1/2018
FND0010080003	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080004	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080005	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080006	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080007	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080008	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080012	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080013	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080014	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080015	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080016	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080017	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080018	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080019	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080020	CJB810260	23	410	9,430	X	X	CJB810260	6/1/2018
FND0010080021	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080022	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080023	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080024	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080025	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080026	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080027	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
FND0010080028	CJB810260	23	410	9,430		X	CJB810260	6/1/2018
<i>Total Rolls</i>	<i>24</i>	<i>Total Area (sf)</i>		<i>226,320</i>				





## **Appendix D.2 – Résumés of Installation Personnel**





**Dan Ward**  
**Project Manager**

Dan has over 5 years of experience and is considered an expert in the installation and fusing of various synthetic liners and components in a wide range of industry applications. He has extensive expertise in the supervision of safety, quality control, scheduling, and productivity. As Project Manager, the qualification requires a minimum of twenty million square feet of actual hands on geomembrane installation experience.

In addition to his supervisory experience, Dan has experience which far exceeds all of the requirements to be qualified as a Leadman, Quality Control Technician and Master Seamer. Dan is responsible for all aspects of the job from pre-job planning through final acceptance by the client. Dan has all required qualifications and documentation.

**Recent Job History:**

Republic Tervita Odessa Landfill	1,032,211	SF HDPE	461,465	SF Geocomposite
Republic Blue Ridge Landfill	499,705	SF LLDPE	451,958	SF Geocomposite
PCS WS Lined SCC Stack EX	10,855,795	SF HDPE	728,865	SF Geocomposite
Republic Sycamore Landfill	899,220	SF HDPE	917,945	SF Geotextile

**Components Installed**

**Total SF**

HDPE (Textured and Smooth)	41,137,454
LLPDE (Textured and Smooth)	697,772
Super Grip Drain Liner	
Unreinforced Polyethylene	
Reinforced Polyethylene	1,023,830
Geotextile	9,217,014
Geonet	2,324,122
Geocomposite	8,990,018
GCL	7,789,077
PVC	
Gundseal	
XR-5	
EPDM	436,168
Hypalon	
Rain Tarp	
Pipe Boots	613
Batten Systems	310
HDPE Sumps	





**Project Engineer  
James Kile**

James has over 2 years of experience as a project engineer and is the liaison between the project manager and the technical disciplines involved in the project. James' responsibilities include the daily operations of field work activities and organization of subcontractors; the coordination and implementation of the project, ensuring it is built correctly. He is responsible for the project schedules and forecasts; interpretation of drawings for tradesmen; review of engineering deliverables; regular project status reports; budget monitoring and trend tracking; bill of materials creation and maintenance; effective communications between engineering, technical, construction and project control groups; and assistant to the Project Manager.

**COMANCO Environmental Corporation**

2015 - Present

**Project Engineer**

**Plant City, FL**

- Responsible for the management and continued the growth of COMANCO's quality, while promoting and maintaining the utmost importance for a safe and healthy work environment
- Maintaining industry and government project safety compliance
- Public, vendor and customer relations
- Prepare material and labor estimates for preparation of customer quotations
- Review plans and specifications, establish scope of work and cost to perform work
- Projected cost for projects
- Development and training of personnel
- Management of projects safety, quality and production
- Responsible for holding Pre-Job Planning (PJP) meetings
- Responsible for weekly and monthly Work in Progress (WIP) reporting
- Responsible for short and long term range project planning and projecting
- Responsible for coordinating resources with COMANCO VP's and project managers (manpower, equipment, material, etc.)

**Previous Professional Experience**

**Consolidated Contractors Company (CCC)**

2011 to 2015

**HSE Manager**

**Astana, Kazakhstan**

**Mauritania, West Africa**

- Directly managed up to 25 employees
- Ensured that safety standards are maintained and continually seek ways to improve safety standards
- Helped establish and ensure implementation of best safety practices
- Advise Management on all matters pertaining to safety and health, including compliance on Republic of Mauritania and Republic of Kazakhstan Legislation on safety and health in compliance with labor law
- Planned and implemented safety and health programs and promotional activities (e.g. inspections, campaigns and competitions) that will improve safety and health awareness



- Maintain relevant safety records, records and certificates required
- Worked with the ACCL & ISOS 's doctor on occupational health and industrial diseases

**Kellogg, Brown, & Root (KBR)**

**2004 to 2011**

**HSE Coordinator – HSE Supervisor**

**Middle East (Iraq / Kuwait) - (LOGCAP)**

- Trained and tested vehicle and equipment operators throughout project to ensure company specifications were met.
- Conducted OSHA and Safety Training for all Civilian and Military.
- Performed jobsite and shop inspections and to evaluate root causes of production and quality problems to prevent short cuts that lead to safety concerns / problems.
- Lead improvement initiatives to increase client service levels and supported the client to reduce LTI by fostering a safe work environment for all.
- Provided guidance to achieve desired level of productivity, quality, and safety.

**Professional Education, Associations, & Certifications**

- CPR / First Aid Instructor
- MSHA
- TWIC
- Florida Phosphate Contractor Training
- Defensive Driver Training
- Georgia Pacific Site Specific Training
- Mosaic Louisiana Site Specific Training
- Mosaic Florida Site Specific Training
- Waste Management Safety Training
- NUCA Crew Leadership Training
- OSHA 500, 511 & 510
- OSHA 10 Hour General Industry
- PMI Risk Management (PM300)

**Recent Job History:**

Orange County Eastern WRF	1,318,515	Geotextile	1,318,515	SF Geocomposite
Georgia Pacific SRM	2,600,798	SF LLDPE	178,191	SF Geocomposite
PCS WS Lined SCC Stack Ex	10,855,795	SF HDPE	728,865	SF Geocomposite





<b><u>Components Installed</u></b>	<b><u>Total SF</u></b>
HDPE (Textured and Smooth)	14,346,193
LLPDE (Textured and Smooth)	2,602,351
Super Grip Drain Liner	
Unreinforced Polyethylene	
Reinforced Polyethylene	
Geotextile	1,443,222
Geonet	
Geocomposite	3,978,259
GCL	
PVC	1,320,375
Gundseal	
XR-5	
EPDM	
Hypalon	1,959
Rain Tarp	
Pipe Boots	319
Batten Systems	1,798







**Alejandro Loza Solis**

**Foreman**

**Certified Welding Technician: CWT24315**

Alejandro has over 10 years of experience and is considered an expert in the installation and fusing of various synthetic liners and components. He is familiar with all welding techniques, welder set up / maintenance, safety and installation procedures currently utilized. He has experience in on-site crew management for deployment, welding and quality control testing for a variety of geosynthetics.

Alejandro is familiar with and has experience with detailed work including pipe boots, sumps, batten seals, and other miscellaneous appurtenances. Alejandro also meets all the requirements to be classified as a Geomembrane Master Seamer and Quality Control Technician and is qualified to assist in the training of Geomembrane Welders, Installers, and QC Technicians.

In addition, Alejandro has 5 years of experience in the installation and seaming of various synthetic liners and components. He has been responsible for the on-site Quality Control, Quality Control Testing and documentation of all field welding and liner installation. He has experience and training in project safety compliance, review of project QA/QC specifications and performance of site-specific QA/QC testing and documentation. Alejandro is also qualified to assist in the training of Geomembrane Welders, Installers, and QC Technicians.

**Recent Job History:**

Progressive JED Landfill, Cell 13	1,563,821	SF HDPE	1,531,510	SF Geocomposite
Republic Tervita Odessa Landfill	1,032,211	SF HDPE	461,465	SF Geocomposite
Georgia Pacific Landfill, SRM	2,600,798	SF LLDPE	345,916	SF Geocomposite
Republic West Parish Landfill	436,598	SF HDPE	791,618	SF Geocomposite

**Components Installed**

<u>Components Installed</u>	<u>Total SF</u>
HDPE (Textured and Smooth)	67,511,433
LLPDE (Textured and Smooth)	4,485,511
Reinforced Polyethylene	43,773
Geotextile	6,415,370
Geonet	33,649,847
Geocomposite	29,210,027
GCL	12,183,980
PVC	1,805,269
Gundseal	1,508,313
XR-5	19,200
EPDM	2,745,848
Hypalon	21,159
Rain Tarp	1,721,224
Pipe Boots	1,456
Batten Systems	13,322







**Charles Coker**

**Quality Control Technician**

Charles has over 1 year of experience in the installation and seaming of various synthetic liners and components. He is responsible for the on-site Quality Control, Quality Control Testing and documentation of all field welding and liner installation. He has experience and training in project safety compliance, review of project QA/QC specifications and performance of site-specific QA/QC testing and documentation. Charles is also qualified to assist in the training of Geomembrane Welders, Installers, and QC Technicians.

**Recent Job History:**

Sole Mia Crystal Lagoon	263,262	SF HDPE	3,956	SF LLDPE
Land Tejas Balmoral	66,542	SF HDPE	1,960	SF LLDPE
Republic Conestoga LF	475,536	SF HDPE	226,938	SF Geocomposite

**Components Installed**

	<b><u>Total SF</u></b>
HDPE (Textured and Smooth)	805,340
LLPDE (Textured and Smooth)	5,916
Super Grip Drain Liner	
Unreinforced Polyethylene	
Reinforced Polyethylene	
Geotextile	226,938
Geonet	
Geocomposite	226,938
GCL	226,938
PVC	
Gundseal	
XR-5	
EPDM	
Hypalon	
Rain Tarp	
Pipe Boots	
Batten Systems	
HDPE Sumps	





**Andres Hernandez**

**Liner Technician**

**Certified Welding Technician: CWT122615**

Andres has over 12 years of experience in the installation and fusing of various synthetic liners and components. He is qualified to set up and operate the following machines: vacuum box, hand-held hot air welder, and sewing machine. As part of his continued training; he is permitted to operate the wedge welder, extrusion welder, and air pressure testing equipment under the direct supervision of a COMANCO Superintendent, Master Seamer or Quality Control Technician. Andres has been trained and is familiar with all safety procedures currently utilized.

**Recent Job History:**

SECI SGS Palatka	1,031,420	SF HDPE	745,931	SF Geocomposite
Georgia Pacific Landfill, SRM	2,600,798	SF LLDPE	345,916	SF Geocomposite
Republic Conestoga Landfill	475,536	SF HDPE	226,938	SF Geocomposite

**Components Installed**

	<b><u>Total SF</u></b>
HDPE (Textured and Smooth)	161,674,914
LLPDE (Textured and Smooth)	36,584,439
Super Grip Drain Liner	377,133
Unreinforced Polyethylene	
Reinforced Polyethylene	1,023,830
Geotextile	9,417,164
Geonet	11,170,748
Geocomposite	38,272,485
GCL	32,777,597
PVC	1,802,026
Gundseal	391,726
XR-5	
EPDM	3,000
Hypalon	
Rain Tarp	5,745,113
Pipe Boots	1,869
Batten Systems	11,479
HDPE Sumps	



[Type here]





**Hector Elacio**

**Liner Technician**

Certified Welding Technician: CWT33915

Hector has over 10 years of experience in the installation and fusing of various synthetic liners and components. He is qualified to set up and operate the following machines: vacuum box, hand-held hot air welder, and sewing machine. As part of his continued training; he is permitted to operate the wedge welder, extrusion welder, and air pressure testing equipment under the direct supervision of a COMANCO Superintendent, Master Seamer or Quality Control Technician. Hector has been trained and is familiar with all safety procedures currently utilized.

**Recent Job History:**

Republic Conestoga Landfill	475,536	SF HDPE	226,938	SF Geocomposite
Republic St Marks Landfill	372,075	SF HDPE	347,910	SF Geocomposite
SECI SGS Palatka	1,031,420	SF HDPE	745,931	SF Geocomposite
Full Circle Dairy	225,027	SF HDPE	225,027	SF Geotextile

**Components Installed**

	<b><u>Total SF</u></b>
HDPE (Textured and Smooth)	102,212,267
LLPDE (Textured and Smooth)	3,708,352
Super Grip Drain Liner	
Unreinforced Polyethylene	
Reinforced Polyethylene	7,9848
Geotextile	3,927,290
Geonet	
Geocomposite	23,340,569
GCL	6,802,511
PVC	1,166,875
Gundseal	2,391,370
XR-5	
EPDM	
Hypalon	
Rain Tarp	1,159,756
Pipe Boots	1,060
Batten Systems	12,772
HDPE Sumps	







**Ignacio Beltran**

**Heavy Equipment Operator**

**Certified Welding Technician: CWT23615**

Ignacio has over 12 years of experience in operating a variety of contractor equipment and trucks used in construction, maintenance and repair activities.

His experience includes:

- Gypsum projects including earthwork excavation and re-grading of gypsum dikes, placement, and compaction of gypsum cover atop HDPE liner. This includes the construction of gypsum perimeter dike drains and drain system outlet pipes, the installation of vent systems and geotextile wrapped silica gravel drains with HDPE pipes and sand filter drains.
- Landfill projects including site preparation and erosion control, clearing & grubbing, wetlands excavation/demucking, wetlands dewatering and wetlands fill. Stormwater ditches including the installation of piping, sod installation, PVC toe drain pipe installation in the anchor trench and road construction.
- Heavy equipment required for the installation of various geosynthetic liners and components.

Ignacio is qualified to operate the following equipment: Dozer, loader, excavator, forklift, skid steer, haul truck, water truck, and crawler. He has the experience, skills, and consistency to operate safely and perform quality work and is familiar with all safety procedures currently utilized.

**Recent Job History:**

Republic Tervita Odessa Landfill	1,032,211	SF HDPE	461,465	SF Geocomposite
SECI SGS Palatka Vertical	1,031,420	SF HDPE	745,931	SF Geocomposite
Tervita Odessa Evaporation	714,882	SF HDPE	163,847	SF Geocomposite
Otis Rd LF Phase 1	505,190	SF HDPE	417,893	SF Geocomposite

**Components Installed**

**Total SF**

HDPE (Textured and Smooth)	33,386,916
LLPDE (Textured and Smooth)	3,187,933
Super Grip Drain Liner	2,018,458
Unreinforced Polyethylene	
Reinforced Polyethylene	2,670,387
Geotextile	7,290,515
Geonet	1,290,767
Geocomposite	18,057,987
GCL	6,171,615
PVC	
Gundseal	
XR-5	
EPDM	436,168
Hypalon	
Rain Tarp	1,661,623
Pipe Boots	1,020
Batten Systems	4,892
HDPE Sumps	







**Roberto Fernandez**

**Pipe Technician/Liner Technician**

**Certified Welding Technician: CWT123115**

Roberto has over 8 years of experience as a Pipe Technician, he works with small diameter applications from ½" CTS to 6" DIPS and understands the theory of fusion and how to properly fuse small diameter pipes and fittings. He is also experienced with 28, 250, 412, 618 and 500 series machines that are used for fusing pipes from 2" IPS to 20" OD and HDPE pipe from 8" IPS to 65" OD and is experienced in operating some of the largest fusion machines. Roberto also knows how to properly analyze and document fusion joints using the latest technology.

Roberto is experienced in the installation and fusing of various synthetic liners and components. He is qualified to set up and operate the following machines: vacuum box, hand-held hot air welder, and sewing machine. As part of his continued training; he is permitted to operate the wedge welder, extrusion welder, and air pressure testing equipment under the direct supervision of a COMANCO Superintendent, Master Seamer or Quality Control Technician. Roberto has been trained and is familiar with all safety procedures currently utilized.

### **Most Recent Job History:**

**Georgia Pacific SRM Cells 2 and 3 Closure:** Closure of paper mill sludge cells 2 and 3 - combined the two sludge cells covered approximately 62-acres. Final cover consisted of 12" clay to achieve final design grades and help with slope stability, covered by a geomembrane/Closure Turf System. Work consisted of initial site prep, general earthwork including final surface grading, gravel roadway surface, anchor trench, perimeter cutoff trench, the installation of a leachate collection system including leachate drainage trench and piping, 6" Diameter HDPE SDR 17 leachate force main piping, force main junction manhole, leachate sump improvements, leachate drainage pump manholes, the installation of a gas collection system including gas lateral piping, gas header piping and wellhead connections, the installation of a storm water management system including a perimeter diversion berm, culvert pipe installation, culvert inlet headwalls, concrete energy dissipators, riprap outlet protection, renovation of existing detention pond and site restoration and seeding. The installation of a Closure Turf Cover including Geocomposite gas collection layer, 50mil LLDPE Microdrain liner and engineered turf, sand infill material, Hydrobinder with Dust Suppressant, the installation of turf around gas lateral piping above the cover system and liner penetrations.



***Polk County Construction of Class I, Phase V Disposal Facility at North Central Landfill:***

Construction of an approximately 30-acre landfill with double liner and leachate collection and removal systems, sub base, earthwork, pumping stations, piping, roadways, stormwater management, paving and ancillary components.

The Phase V footprint covered both a lateral expansion and vertical expansion. The 28.15-acre lateral expansion used a double liner system that collects leachate on the primary, top geomembrane and collects leakage through the primary liner onto the secondary, bottom geomembrane. A geosynthetic clay liner (GCL) underlies the secondary geomembrane. All geomembranes are high-density polyethylene (HDPE). HDPE geonets with polypropylene geotextiles on both sides (Geocomposite) lie between the primary and secondary liners and on top of the primary liner. 2,718,964sf of HDPE, 2,596,127sf of Geocomposite

The work included clearing, grubbing, and stripping, site demolition, and the construction of a stormwater system including the installation of drainage structures, drainage RCP pipe, concrete ditch pavement and riprap with filter fabric, dewatering and the installation of new groundwater monitoring wells. The earthwork included the removal and replacement of unsuitable soils, subgrade excavation, and replacement for low-density soils, subgrade excavation to backfill, subgrade excavation to stockpile and construction of the drainage soil layer. The liner system included the supply and installation of the Geosynthetic Clay Liner, secondary Geomembrane, secondary Geocomposite, Primary Geomembrane, Primary Geocomposite, Rain Tarp and the construction of the anchor trench. The leachate collection system included the construction of the leachate collection and leak detection trenches, leachate pump stations including concrete slabs, bollards, piping, fittings, control panels, and appurtenances, the construction of the leachate force main including excavating, backfilling, road crossings, pipe testing and connecting to the existing leachate force main. The construction of paved and unpaved site road including stabilized subgrade, lime rock base, and paved surface for the landfill access road pump station access drives, and perimeter maintenance and berm road.

***Republic Bridgeton Landfill South Quarry Temporary Cover Integrity System & North Quarry GCCS Expansion:***

Construction of a temporary cover integrity system for the South Quarry including perimeter toe drains, condensate sumps, bench regrade, horizontal collector pipe with stone, strip drains, subgrade preparation, existing FML tie-in seam, phase tie-in seam, 678,245sf of Geotextile, 739,577sf of FLM, 140,040sf of road Geocomposite, 24" thick stone placement, 8" lateral, 6" lateral, and 4" risers. Also included is the Gas Collection Control System Expansion for the North Quarry Landfill. The work consisted of erosion control, dust control, stripping of cap area, subgrade preparation, perimeter toe drain piping, Geotextile and FML for perimeter toe collection pipe trench, perimeter toe collector stone placement, perimeter toe drain condensate sumps, 3"x6" perimeter forcemain, 2" perimeter airline, installation of containment pump station, horizontal collector pipe & stone, strip drains, perimeter anchor trench, booted liner penetrations, cap Geotextile and FML installation, road Geocomposite installation, 21" thick road base stone placement, 3" thick road top stone placement, gas well completion, 6" lateral and tie-in to existing, 8" lateral and tie-in to existing, 24" header and tie-in to existing, 4" riser, 3"x6" gas forcemain, 2" gas airline, 18" CMP road crossing, 36" CMP road crossing, 18" culvert, 24" culvert, new smart ditch, perimeter channel regrade, grading, energy dissipator installation, pond strip & excavation, pond FML liner and anchor, 6" welded pipe deflectors and terrace grading.





**Recent Job History:**

Georgia Pacific Landfill, SRM	2,551,759	SF LLDPE	345,916	SF Geocomposite
Progressive JED Landfill, Cell 13	1,563,821	SF HDPE	1,531,510	SF Geocomposite
Republic Bridgeton North Quarry	1,063,132	SF HDPE	224,420	SF Geocomposite
Polk County NCLF Class I Landfill	2,718,964	SF HDPE	2,596,127	SF Geocomposite

**Liner Components Installed**

	<b><u>Total SF</u></b>
HDPE (Textured and Smooth)	64,272,604
LLPDE (Textured and Smooth)	4,764,124
Super Grip Drain Liner	
Unreinforced Polyethylene	
Reinforced Polyethylene	
Geotextile	1,160,699
Geonet	491,425
Geocomposite	17,819,461
GCL	8,704,157
PVC	336,269
Gundseal	1,464,595
XR-5	
EPDM	
Hypalon	786
Rain Tarp	2,443,819
Pipe Boots	1,082
Batten Systems	2,898
HDPE Sumps	







**Misael Tovar**

**Heavy Equipment Operator**

Misael has over 10 years of experience in operating a variety of contractor equipment and trucks used in construction, maintenance and repair activities.

His experience includes:

- Gypsum projects including earthwork excavation and re-grading of gypsum dikes, placement, and compaction of gypsum cover atop HDPE liner. This includes the construction of gypsum perimeter dike drains and drain system outlet pipes, the installation of vent systems and geotextile wrapped silica gravel drains with HDPE pipes and sand filter drains.
- Landfill projects including site preparation and erosion control, clearing & grubbing, wetlands excavation/demucking, wetlands dewatering and wetlands fill. Stormwater ditches including the installation of piping, sod installation, PVC toe drain pipe installation in the anchor trench and road construction.
- Heavy equipment required for the installation of various geosynthetic liners and components.

Misael is qualified to operate the following equipment: Dozer, loader, excavator, forklift, skid steer, haul truck, water truck, and crawler. He has the experience, skills, and consistency to operate safely and perform quality work and is familiar with all safety procedures currently utilized.

**Recent Job History:**

Georgia Pacific Landfill, SRM	2,600,798	SF LLDPE	345,916	SF Geocomposite
SECI SGS Palatka Vertical	1,031,420	SF HDPE	745,931	SF Geocomposite
Polk County NCLF Class I Landfill	2,718,964	SF HDPE	2,596,127	SF Geocomposite
Mosaic Green Bay Cooling Pond Liner	6,854,461	SF HDPE	873,959	SF Geocomposite

**Liner Components Installed**

**Total SF**

HDPE (Textured and Smooth)	56,470,956
LLPDE (Textured and Smooth)	3,092,209
Super Grip Drain Liner	
Unreinforced Polyethylene	
Reinforced Polyethylene	43,773
Geotextile	1,328,860
Geonet	491,426
Geocomposite	16,030,011
GCL	8,399,195
PVC	618,036
Gundseal	489,851
XR-5	
EPDM	
Hypalon	
Rain Tarp	1,693,500
Pipe Boots	864
Batten Systems	7,925
HDPE Sumps	





## **Appendix D.3 – 80mil LLDPE DSMS Geomembrane Roll QC Certificates**





# quality certificate

ROLL #: **FND0010080002**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.85 mm	73 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.07 mm	82 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.99 mm	79 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.69 mm	27 mil
ASTM D7466		Bottom			.69 mm	27 mil
Specific Gravity	Average Density					.934 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.6 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	43 N/mm	243 ppi	3040 psi	
ASTM D6693		TD	42 N/mm	240 ppi	3001 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			543 %	
ASTM D6693		TD			571 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		284.7 N	64 lbs.	
ASTM D1004 (Modified)		TD		284.7 N	64 lbs.	
Puncture Resistance	Average Peak Load			733.9 N	165 lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature: \_\_\_\_\_

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080003**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.88 mm	74 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.14 mm	84 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	2.02 mm	79 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.71 mm	28 mil
ASTM D7466		Bottom			.76 mm	30 mil
Specific Gravity	Average Density					.934 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.6 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	43 N/mm	243 ppi	3040 psi	
ASTM D6693		TD	42 N/mm	240 ppi	3001 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			543 %	
ASTM D6693		TD			571 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		284.7 N	64 lbs.	
ASTM D1004 (Modified)		TD		284.7 N	64 lbs.	
Puncture Resistance	Average Peak Load			733.9 N	165 lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature: \_\_\_\_\_

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080004**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.94 mm	77 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.10 mm	83 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	2.02 mm	79 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.71 mm	28 mil
ASTM D7466		Bottom			.69 mm	27 mil
Specific Gravity	Average Density					.934 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.6 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	43 N/mm	243 ppi	3040 psi	
ASTM D6693		TD	42 N/mm	240 ppi	3001 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			543 %	
ASTM D6693		TD			571 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		284.7 N	64 lbs.	
ASTM D1004 (Modified)		TD		284.7 N	64 lbs.	
Puncture Resistance	Average Peak Load			733.9 N	165 lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature:

  
**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080005**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.93 mm	76 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.08 mm	82 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	2.00 mm	79 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.76 mm	30 mil
ASTM D7466		Bottom			.74 mm	29 mil
Specific Gravity	Average Density					.934 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.6 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	43 N/mm	243 ppi	3040 psi	
ASTM D6693		TD	42 N/mm	240 ppi	3001 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			543 %	
ASTM D6693		TD			571 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		284.7 N	64 lbs.	
ASTM D1004 (Modified)		TD		284.7 N	64 lbs.	
Puncture Resistance	Average Peak Load			733.9 N	165 lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature:

  
**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080006**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

	METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN: <b>1.90</b> mm	<b>75</b> mil	Thickness:	<b>2.03</b> mm	<b>80</b> mil
Measurement	MAX: <b>2.08</b> mm	<b>82</b> mil	Length:	<b>124.968</b> m	<b>410</b> feet
ASTM D5994	AVE: <b>2.00</b> mm	<b>79</b> mil	Width:	<b>7.01</b> m	<b>23</b> feet
(Modified)					
OIT(Standard) ASTM D 3895					<b>204</b> minutes
Asperity	Average	Top		<b>.79</b> mm	<b>31</b> mil
ASTM D7466		Bottom		<b>.71</b> mm	<b>28</b> mil
Specific Gravity	Average Density				<b>.934</b> g/cc
ASTM D792					
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min				<b>.34</b>
Grade: <b>7104</b>					
Carbon Black Content ASTM D4218	Range				<b>2.6</b> %
Carbon Black Dispersion ASTM D5596	Category				<b>10 in Category 1</b>

Tensile Strength	Average Strength @ Break	MD	<b>43</b> N/mm	<b>243</b> ppi	<b>3040</b> psi
ASTM D6693		TD	<b>42</b> N/mm	<b>240</b> ppi	<b>3001</b> psi
(2 inches / minute)					

Tensile Elongation	Average Elongation @Break	MD		<b>543</b> %
ASTM D6693		TD		<b>571</b> %
(2 inches / minute)				
Lo = 1.3" Yield				
Lo = 2.0" Break				

Tear Resistance	Average Tear Resistance	MD	<b>284.7</b> N	<b>64</b> lbs.
ASTM D1004 (Modified)		TD	<b>284.7</b> N	<b>64</b> lbs.

Puncture Resistance	Average Peak Load		<b>733.9</b> N	<b>165</b> lbs.
ASTM D4833 (Modified)				

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature: \_\_\_\_\_

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080007**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.94 mm	76 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.19 mm	86 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	2.05 mm	81 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.74 mm	29 mil
ASTM D7466		Bottom			.66 mm	26 mil
Specific Gravity	Average Density					.934 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.6 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	47 N/mm	267 ppi	3339 psi	
ASTM D6693		TD	46 N/mm	261 ppi	3268 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			533 %	
ASTM D6693		TD			562 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		284.7 N	64 lbs.	
ASTM D1004 (Modified)		TD		284.7 N	64 lbs.	
Puncture Resistance	Average Peak Load			733.9 N	165 lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature: \_\_\_\_\_

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080008**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

	METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN: <b>1.89</b> mm	<b>74</b> mil	Thickness:	<b>2.03</b> mm	<b>80</b> mil
Measurement	MAX: <b>2.14</b> mm	<b>84</b> mil	Length:	<b>124.968</b> m	<b>410</b> feet
ASTM D5994	AVE: <b>2.01</b> mm	<b>79</b> mil	Width:	<b>7.01</b> m	<b>23</b> feet
(Modified)					
OIT(Standard) ASTM D 3895					<b>204</b> minutes
Asperity	Average	Top		<b>.66</b> mm	<b>26</b> mil
ASTM D7466		Bottom		<b>.69</b> mm	<b>27</b> mil
Specific Gravity	Average Density				<b>.934</b> g/cc
ASTM D792					
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min				<b>.34</b>
Grade: <b>7104</b>					
Carbon Black Content ASTM D4218	Range				<b>2.6</b> %
Carbon Black Dispersion ASTM D5596	Category				<b>10 in Category 1</b>
Tensile Strength	Average Strength @ Break	MD	<b>47</b> N/mm	<b>267</b> ppi	<b>3339</b> psi
ASTM D6693		TD	<b>46</b> N/mm	<b>261</b> ppi	<b>3268</b> psi
(2 inches / minute)					
Tensile Elongation	Average Elongation @Break	MD			<b>533</b> %
ASTM D6693		TD			<b>562</b> %
(2 inches / minute)					
Lo = 1.3" Yield					
Lo = 2.0" Break					
Tear Resistance	Average Tear Resistance	MD	<b>284.7</b> N		<b>64</b> lbs.
ASTM D1004 (Modified)		TD	<b>284.7</b> N		<b>64</b> lbs.
Puncture Resistance	Average Peak Load		<b>733.9</b> N		<b>165</b> lbs.
ASTM D4833 (Modified)					

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature:

  
**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080012**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.80 mm	71 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.02 mm	79 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.95 mm	77 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.76 mm	30 mil
ASTM D7466		Bottom			.74 mm	29 mil
Specific Gravity	Average Density					.931 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.3 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	44 N/mm	251 ppi	3143 psi	
ASTM D6693		TD	41 N/mm	235 ppi	2942 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			503 %	
ASTM D6693		TD			546 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		289.1 N	65 lbs.	
ASTM D1004 (Modified)		TD		289.1 N	65 lbs.	
Puncture Resistance	Average Peak Load			653.9 N	147 lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature: \_\_\_\_\_

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080013**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

	METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN: <b>1.74</b> mm	<b>69</b> mil	Thickness:	<b>2.03</b> mm	<b>80</b> mil
Measurement	MAX: <b>2.13</b> mm	<b>84</b> mil	Length:	<b>124.968</b> m	<b>410</b> feet
ASTM D5994	AVE: <b>1.96</b> mm	<b>77</b> mil	Width:	<b>7.01</b> m	<b>23</b> feet
(Modified)					
OIT(Standard) ASTM D 3895					<b>204</b> minutes
Asperity	Average	Top		<b>.79</b> mm	<b>31</b> mil
ASTM D7466		Bottom		<b>.66</b> mm	<b>26</b> mil
Specific Gravity	Average Density				<b>.931</b> g/cc
ASTM D792					
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min				<b>.34</b>
Grade: <b>7104</b>					
Carbon Black Content ASTM D4218	Range				<b>2.3</b> %
Carbon Black Dispersion ASTM D5596	Category				<b>10 in Category 1</b>
Tensile Strength	Average Strength @ Break	MD	<b>44</b> N/mm	<b>251</b> ppi	<b>3143</b> psi
ASTM D6693		TD	<b>41</b> N/mm	<b>235</b> ppi	<b>2942</b> psi
(2 inches / minute)					
Tensile Elongation	Average Elongation @Break	MD			<b>503</b> %
ASTM D6693		TD			<b>546</b> %
(2 inches / minute)					
Lo = 1.3" Yield					
Lo = 2.0" Break					
Tear Resistance	Average Tear Resistance	MD	<b>289.1</b> N		<b>65</b> lbs.
ASTM D1004 (Modified)		TD	<b>289.1</b> N		<b>65</b> lbs.
Puncture Resistance	Average Peak Load		<b>653.9</b> N		<b>147</b> lbs.
ASTM D4833 (Modified)					

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature:

  
**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080014**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

	METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN: <b>1.77</b> mm	<b>70</b> mil	Thickness:	<b>2.03</b> mm	<b>80</b> mil
Measurement	MAX: <b>2.13</b> mm	<b>84</b> mil	Length:	<b>124.968</b> m	<b>410</b> feet
ASTM D5994	AVE: <b>1.95</b> mm	<b>77</b> mil	Width:	<b>7.01</b> m	<b>23</b> feet
(Modified)					
OIT(Standard) ASTM D 3895					<b>204</b> minutes
Asperity	Average	Top		<b>.58</b> mm	<b>23</b> mil
ASTM D7466		Bottom		<b>.69</b> mm	<b>27</b> mil
Specific Gravity	Average Density				<b>.931</b> g/cc
ASTM D792					
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min				<b>.34</b>
Grade: <b>7104</b>					
Carbon Black Content ASTM D4218	Range				<b>2.3</b> %
Carbon Black Dispersion ASTM D5596	Category				<b>10 in Category 1</b>

Tensile Strength	Average Strength @ Break	MD	<b>44</b> N/mm	<b>251</b> ppi	<b>3143</b> psi
ASTM D6693		TD	<b>41</b> N/mm	<b>235</b> ppi	<b>2942</b> psi
(2 inches / minute)					

Tensile Elongation	Average Elongation @Break	MD		<b>503</b> %
ASTM D6693		TD		<b>546</b> %
(2 inches / minute)				
Lo = 1.3" Yield				
Lo = 2.0" Break				

Tear Resistance	Average Tear Resistance	MD	<b>289.1</b> N	<b>65</b> lbs.
ASTM D1004 (Modified)		TD	<b>289.1</b> N	<b>65</b> lbs.

Puncture Resistance	Average Peak Load		<b>653.9</b> N	<b>147</b> lbs.
ASTM D4833 (Modified)				

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature:

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080015**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.87 mm	74 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.06 mm	81 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.98 mm	78 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.61 mm	24 mil
ASTM D7466		Bottom			.71 mm	28 mil
Specific Gravity	Average Density					.931 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.7 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	44 N/mm	251 ppi	3143 psi	
ASTM D6693		TD	41 N/mm	235 ppi	2942 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			503 %	
ASTM D6693		TD			546 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		289.1 N	65 lbs.	
ASTM D1004 (Modified)		TD		289.1 N	65 lbs.	
Puncture Resistance	Average Peak Load			653.9 N	147 lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/23/2018** OA#: **41398**

Signature: \_\_\_\_\_

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080016**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.82 mm	72 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.09 mm	82 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.94 mm	76 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.58 mm	23 mil
ASTM D7466		Bottom			.66 mm	26 mil
Specific Gravity	Average Density					.931 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.7 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1

Tensile Strength	Average Strength @ Break	MD	<b>44</b> N/mm	<b>251</b> ppi	<b>3143</b> psi
ASTM D6693		TD	<b>41</b> N/mm	<b>235</b> ppi	<b>2942</b> psi
(2 inches / minute)					

Tensile Elongation	Average Elongation @Break	MD		<b>503</b> %
ASTM D6693		TD		<b>546</b> %
(2 inches / minute)				
Lo = 1.3" Yield				
Lo = 2.0" Break				

Tear Resistance	Average Tear Resistance	MD	<b>289.1</b> N	<b>65</b> lbs.
ASTM D1004 (Modified)		TD	<b>289.1</b> N	<b>65</b> lbs.

Puncture Resistance	Average Peak Load		<b>653.9</b> N	<b>147</b> lbs.
ASTM D4833 (Modified)				

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature:

  
**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080017**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.80 mm	71 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.09 mm	82 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.96 mm	77 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.61 mm	24 mil
ASTM D7466		Bottom			.66 mm	26 mil
Specific Gravity	Average Density					.931 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.6 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	44 N/mm	249 ppi	3109 psi	
ASTM D6693		TD	44 N/mm	254 ppi	3173 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			536 %	
ASTM D6693		TD			586 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		289.1 N	65 lbs.	
ASTM D1004 (Modified)		TD		289.1 N	65 lbs.	
Puncture Resistance	Average Peak Load			653.9 N	147 lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature:

  
**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080018**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

	METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN: <b>1.76</b> mm	<b>69</b> mil	Thickness:	<b>2.03</b> mm	<b>80</b> mil
Measurement	MAX: <b>2.08</b> mm	<b>82</b> mil	Length:	<b>124.968</b> m	<b>410</b> feet
ASTM D5994	AVE: <b>1.94</b> mm	<b>76</b> mil	Width:	<b>7.01</b> m	<b>23</b> feet
(Modified)					
OIT(Standard) ASTM D 3895					<b>204</b> minutes
Asperity	Average	Top		<b>.69</b> mm	<b>27</b> mil
ASTM D7466		Bottom		<b>.71</b> mm	<b>28</b> mil
Specific Gravity	Average Density				<b>.931</b> g/cc
ASTM D792					
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min				<b>.34</b>
Grade: <b>7104</b>					
Carbon Black Content ASTM D4218	Range				<b>2.6</b> %
Carbon Black Dispersion ASTM D5596	Category				<b>10 in Category 1</b>
Tensile Strength	Average Strength @ Break	MD	<b>44</b> N/mm	<b>249</b> ppi	<b>3109</b> psi
ASTM D6693		TD	<b>44</b> N/mm	<b>254</b> ppi	<b>3173</b> psi
(2 inches / minute)					
Tensile Elongation	Average Elongation @Break	MD			<b>536</b> %
ASTM D6693		TD			<b>586</b> %
(2 inches / minute)					
Lo = 1.3" Yield					
Lo = 2.0" Break					
Tear Resistance	Average Tear Resistance	MD	<b>289.1</b> N		<b>65</b> lbs.
ASTM D1004 (Modified)		TD	<b>289.1</b> N		<b>65</b> lbs.
Puncture Resistance	Average Peak Load		<b>653.9</b> N		<b>147</b> lbs.
ASTM D4833 (Modified)					

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature:

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080019**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	<b>1.81</b> mm	<b>71</b> mil	Thickness:	<b>2.03</b> mm	<b>80</b> mil
Measurement	MAX:	<b>2.09</b> mm	<b>82</b> mil	Length:	<b>124.968</b> m	<b>410</b> feet
ASTM D5994	AVE:	<b>1.96</b> mm	<b>77</b> mil	Width:	<b>7.01</b> m	<b>23</b> feet
(Modified)						
OIT(Standard) ASTM D 3895						<b>204</b> minutes
Asperity	Average	Top			<b>.64</b> mm	<b>25</b> mil
ASTM D7466		Bottom			<b>.69</b> mm	<b>27</b> mil
Specific Gravity	Average Density					<b>.931</b> g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					<b>.34</b>
Grade: <b>7104</b>						
Carbon Black Content ASTM D4218	Range					<b>2.6</b> %
Carbon Black Dispersion ASTM D5596	Category					<b>10 in Category 1</b>

Tensile Strength	Average Strength @ Break	MD	<b>44</b> N/mm	<b>249</b> ppi	<b>3109</b> psi
ASTM D6693		TD	<b>44</b> N/mm	<b>254</b> ppi	<b>3173</b> psi
(2 inches / minute)					

Tensile Elongation	Average Elongation @Break	MD		<b>536</b> %
ASTM D6693		TD		<b>586</b> %
(2 inches / minute)				
Lo = 1.3" Yield				
Lo = 2.0" Break				

Tear Resistance	Average Tear Resistance	MD	<b>289.1</b> N	<b>65</b> lbs.
ASTM D1004 (Modified)		TD	<b>289.1</b> N	<b>65</b> lbs.

Puncture Resistance	Average Peak Load		<b>653.9</b> N	<b>147</b> lbs.
ASTM D4833 (Modified)				

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature:

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080020**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	<b>1.88</b> mm	<b>74</b> mil	Thickness:	<b>2.03</b> mm	<b>80</b> mil
Measurement	MAX:	<b>2.26</b> mm	<b>89</b> mil	Length:	<b>124.968</b> m	<b>410</b> feet
ASTM D5994	AVE:	<b>2.03</b> mm	<b>80</b> mil	Width:	<b>7.01</b> m	<b>23</b> feet
(Modified)						
OIT(Standard) ASTM D 3895						<b>204</b> minutes
Asperity	Average	Top			<b>.94</b> mm	<b>37</b> mil
ASTM D7466		Bottom			<b>.69</b> mm	<b>27</b> mil
Specific Gravity	Average Density					<b>.931</b> g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					<b>.34</b>
Grade: <b>7104</b>						
Carbon Black Content ASTM D4218	Range					<b>2.8</b> %
Carbon Black Dispersion ASTM D5596	Category					<b>10 in Category 1</b>

Tensile Strength	Average Strength @ Break	MD	<b>44</b> N/mm	<b>249</b> ppi	<b>3109</b> psi
ASTM D6693		TD	<b>44</b> N/mm	<b>254</b> ppi	<b>3173</b> psi
(2 inches / minute)					

Tensile Elongation	Average Elongation @Break	MD		<b>536</b> %
ASTM D6693		TD		<b>586</b> %
(2 inches / minute)				
Lo = 1.3" Yield				
Lo = 2.0" Break				

Tear Resistance	Average Tear Resistance	MD	<b>289.1</b> N	<b>65</b> lbs.
ASTM D1004 (Modified)		TD	<b>289.1</b> N	<b>65</b> lbs.

Puncture Resistance	Average Peak Load		<b>653.9</b> N	<b>147</b> lbs.
ASTM D4833 (Modified)				

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature:

  
**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080021**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.90 mm	75 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.09 mm	82 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.98 mm	78 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.74 mm	29 mil
ASTM D7466		Bottom			.76 mm	30 mil
Specific Gravity	Average Density					.931 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.8 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	44 N/mm	249 ppi	3109 psi	
ASTM D6693		TD	44 N/mm	254 ppi	3173 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			536 %	
ASTM D6693		TD			586 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		289.1 N	65 lbs.	
ASTM D1004 (Modified)		TD		289.1 N	65 lbs.	
Puncture Resistance	Average Peak Load			653.9 N	147 lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature: \_\_\_\_\_

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: FND0010080022

LOT #: CJB810260

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.84 mm	72 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	1.98 mm	78 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.93 mm	76 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.86 mm	34 mil
ASTM D7466		Bottom			.89 mm	35 mil
Specific Gravity	Average Density					.934 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.6 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	41 N/mm	233 ppi	2913 psi	
ASTM D6693		TD	42 N/mm	239 ppi	2987 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			579 %	
ASTM D6693		TD			566 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD	271.3 N	61 lbs.		
ASTM D1004 (Modified)		TD	266.9 N	60 lbs.		
Puncture Resistance	Average Peak Load		685.0 N	154 lbs.		
ASTM D4833 (Modified)						

Customer: Cripple Creek & Victor Gold Mining  
PO: 3001659124 Newmont Mining  
Destination: Cripple Creek, CO

Production Date: 5/24/2018 OA#: 41398

Signature:

  
Maria Coffey

Quality Control Department





# quality certificate

ROLL #: **FND0010080023**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	<b>1.86</b> mm	<b>73</b> mil	Thickness:	<b>2.03</b> mm	<b>80</b> mil
Measurement	MAX:	<b>2.07</b> mm	<b>81</b> mil	Length:	<b>124.968</b> m	<b>410</b> feet
ASTM D5994	AVE:	<b>1.99</b> mm	<b>78</b> mil	Width:	<b>7.01</b> m	<b>23</b> feet
(Modified)						
OIT(Standard) ASTM D 3895						<b>204</b> minutes
Asperity	Average	Top			<b>.79</b> mm	<b>31</b> mil
ASTM D7466		Bottom			<b>.81</b> mm	<b>32</b> mil
Specific Gravity	Average Density					<b>.934</b> g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					<b>.34</b>
Grade: <b>7104</b>						
Carbon Black Content ASTM D4218	Range					<b>2.6</b> %
Carbon Black Dispersion ASTM D5596	Category					<b>10 in Category 1</b>

Tensile Strength	Average Strength @ Break	MD	<b>41</b> N/mm	<b>233</b> ppi	<b>2913</b> psi
ASTM D6693		TD	<b>42</b> N/mm	<b>239</b> ppi	<b>2987</b> psi
(2 inches / minute)					

Tensile Elongation	Average Elongation @Break	MD		<b>579</b> %
ASTM D6693		TD		<b>566</b> %
(2 inches / minute)				
Lo = 1.3" Yield				
Lo = 2.0" Break				

Tear Resistance	Average Tear Resistance	MD	<b>271.3</b> N	<b>61</b> lbs.
ASTM D1004 (Modified)		TD	<b>266.9</b> N	<b>60</b> lbs.

Puncture Resistance	Average Peak Load		<b>685.0</b> N	<b>154</b> lbs.
ASTM D4833 (Modified)				

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature:

  
**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080024**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.91 mm	75 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.00 mm	79 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.95 mm	77 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.76 mm	30 mil
ASTM D7466		Bottom			.66 mm	26 mil
Specific Gravity	Average Density					.934 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.6 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	41 N/mm	233 ppi	2913 psi	
ASTM D6693		TD	42 N/mm	239 ppi	2987 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			579 %	
ASTM D6693		TD			566 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		271.3 N	61 lbs.	
ASTM D1004 (Modified)		TD		266.9 N	60 lbs.	
Puncture Resistance	Average Peak Load				685.0 N	154 lbs.
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature: \_\_\_\_\_

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080025**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	<b>1.92</b> mm	<b>76</b> mil	Thickness:	<b>2.03</b> mm	<b>80</b> mil
Measurement	MAX:	<b>2.03</b> mm	<b>80</b> mil	Length:	<b>124.968</b> m	<b>410</b> feet
ASTM D5994	AVE:	<b>1.97</b> mm	<b>77</b> mil	Width:	<b>7.01</b> m	<b>23</b> feet
(Modified)						
OIT(Standard) ASTM D 3895						<b>204</b> minutes
Asperity	Average	Top			<b>.74</b> mm	<b>29</b> mil
ASTM D7466		Bottom			<b>.66</b> mm	<b>26</b> mil
Specific Gravity	Average Density					<b>.934</b> g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					<b>.34</b>
Grade: <b>7104</b>						
Carbon Black Content ASTM D4218	Range					<b>2.3</b> %
Carbon Black Dispersion ASTM D5596	Category					<b>10 in Category 1</b>
Tensile Strength	Average Strength @ Break	MD	<b>41</b> N/mm	<b>233</b> ppi	<b>2913</b> psi	
ASTM D6693		TD	<b>42</b> N/mm	<b>239</b> ppi	<b>2987</b> psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			<b>579</b> %	
ASTM D6693		TD			<b>566</b> %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD	<b>271.3</b> N		<b>61</b> lbs.	
ASTM D1004 (Modified)		TD	<b>266.9</b> N		<b>60</b> lbs.	
Puncture Resistance	Average Peak Load		<b>685.0</b> N		<b>154</b> lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature: \_\_\_\_\_

**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: FND0010080026

LOT #: CJB810260

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.83 mm	72 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.10 mm	83 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.98 mm	78 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes

Asperity	Average	Top	.89 mm	35 mil
ASTM D7466		Bottom	.81 mm	32 mil

Specific Gravity	Average Density	.934 g/cc
ASTM D792		

MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min	.34
Grade: 7104		

Carbon Black Content ASTM D4218	Range	2.3 %
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Carbon Black Dispersion ASTM D5596	Category	10 in Category 1
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Tensile Strength	Average Strength @ Break	MD	41 N/mm	233 ppi	2913 psi
ASTM D6693		TD	42 N/mm	239 ppi	2987 psi
(2 inches / minute)					

Tensile Elongation	Average Elongation @Break	MD	579 %
ASTM D6693		TD	566 %
(2 inches / minute)			
Lo = 1.3" Yield			
Lo = 2.0" Break			

Tear Resistance	Average Tear Resistance	MD	271.3 N	61 lbs.
ASTM D1004 (Modified)		TD	266.9 N	60 lbs.

Puncture Resistance	Average Peak Load	685.0 N	154 lbs.
ASTM D4833 (Modified)			

Customer: Cripple Creek & Victor Gold Mining  
PO: 3001659124 Newmont Mining  
Destination: Cripple Creek, CO

Production Date: 5/24/2018 OA#: 41398

Signature:

  
Maria Coffey

Quality Control Department





# quality certificate

ROLL #: **FND0010080027**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.85 mm	73 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.09 mm	82 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.99 mm	78 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.84 mm	33 mil
ASTM D7466		Bottom			.76 mm	30 mil
Specific Gravity	Average Density					.934 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.5 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1

Tensile Strength	Average Strength @ Break	MD	<b>44</b> N/mm	<b>249</b> ppi	<b>3108</b> psi
ASTM D6693 (2 inches / minute)		TD	<b>46</b> N/mm	<b>260</b> ppi	<b>3252</b> psi

Tensile Elongation	Average Elongation @Break	MD		<b>519</b> %
ASTM D6693 (2 inches / minute)		TD		<b>593</b> %
Lo = 1.3" Yield				
Lo = 2.0" Break				

Tear Resistance	Average Tear Resistance	MD	<b>271.3</b> N	<b>61</b> lbs.
ASTM D1004 (Modified)		TD	<b>266.9</b> N	<b>60</b> lbs.

Puncture Resistance	Average Peak Load		<b>685.0</b> N	<b>154</b> lbs.
ASTM D4833 (Modified)				

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature:

  
**Maria Coffey**

Quality Control Department





# quality certificate

ROLL #: **FND0010080028**

LOT #: **CJB810260**

LINER TYPE:

**80 LL MICROSPIKE**

		METRIC	ENGLISH		METRIC	ENGLISH
Thickness	MIN:	1.82 mm	71 mil	Thickness:	2.03 mm	80 mil
Measurement	MAX:	2.07 mm	81 mil	Length:	124.968 m	410 feet
ASTM D5994	AVE:	1.93 mm	76 mil	Width:	7.01 m	23 feet
(Modified)						
OIT(Standard) ASTM D 3895						204 minutes
Asperity	Average	Top			.79 mm	31 mil
ASTM D7466		Bottom			.71 mm	28 mil
Specific Gravity	Average Density					.934 g/cc
ASTM D792						
MFI ASTM D1238 COND. E	Melt Flow Index 190C/2160 g - g/10 min					.34
Grade: 7104						
Carbon Black Content ASTM D4218	Range					2.5 %
Carbon Black Dispersion ASTM D5596	Category					10 in Category 1
Tensile Strength	Average Strength @ Break	MD	44 N/mm	249 ppi	3108 psi	
ASTM D6693		TD	46 N/mm	260 ppi	3252 psi	
(2 inches / minute)						
Tensile Elongation	Average Elongation @Break	MD			519 %	
ASTM D6693		TD			593 %	
(2 inches / minute)						
Lo = 1.3" Yield						
Lo = 2.0" Break						
Tear Resistance	Average Tear Resistance	MD		271.3 N	61 lbs.	
ASTM D1004 (Modified)		TD		266.9 N	60 lbs.	
Puncture Resistance	Average Peak Load			685.0 N	154 lbs.	
ASTM D4833 (Modified)						

Customer: **Cripple Creek & Victor Gold Mining**  
PO: **3001659124 Newmont Mining**  
Destination: **Cripple Creek, CO**

Production Date: **5/24/2018** OA#: **41398**

Signature: \_\_\_\_\_

**Maria Coffey**

Quality Control Department





## **Appendix D.4 – 80mil LLDPE DSMS Geomembrane Resin QC Certificates**



## Certificate of Analysis

Shipped To: AGRU AMERICA INC:FERNLEY  
2000 EAST NEWLANDS  
FERNLEY NV 89408  
USA

Recipient: PALMER  
Fax:

Delivery #: 89647130  
PO #: 12806  
Weight: 189150.000 LB  
Ship Date: 04/11/2018  
Package: BULK  
Mode: Hopper Car  
Car #: CHVX893069  
Seal No: 114824

Product:  
MARLEX 7104 POLYETHYLENE in Bulk

Lot Number: CJB810260

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.34	g/10min
HLMI	ASTM D1238	12.86	g/10min
Pellet Count	ST-905	33	pelet/gram
Production date		20180204	
Density	D1505	0.919	g/cm3

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).  
**However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.**



T. KEVIN AYRES  
QUALITY ASSURANCE SUPERINTENDENT

For CoA questions contact Patricia Royall at +1-832-813-4806





January 29, 2014

**Mail To:**

**Grant Palmer**  
**Agru America**  
500 Garrison Road  
Georgetown, SC 29440

email: [gp@AgruAmerica.com](mailto:gp@AgruAmerica.com)

**Bill To:**

<= Same

Dear Mr. Palmer:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

TRI Job Reference Number: E2386-59-09

Material(s) Tested: One Agru 80 mil Microspike LLDPE Geomembrane(s)

Test(s) Requested: 2% Secant (ASTM D5323 via ASTM D638, GM17)  
Multi-axial Tensile (ASTM D 5617)

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,

Mansukh Patel  
Laboratory Manager  
Geosynthetic Services Division  
[www.GeosyntheticTesting.com](http://www.GeosyntheticTesting.com)



## GEOMEMBRANE TEST RESULTS

TRI Client: Agru America

Material: Agru 80 mil Microspike LLDPE Geomembrane

Sample Identification: G14D031009 , Chevron 7104 LLDPE Resin, Resin Lot # CDG810350

TRI Log #: E2386-59-09

PARAMETER											TEST REPLICATE NUMBER										MEAN	STD. DEV.
											1	2	3	4	5	6	7	8	9	10		
2% Secant Modulus (ASTM D5323 via ASTM D638, GM17)																						
MD 2% Secant Modulus (psi)		30887	30305	30617	32594	31327								31146	892							
MD 2% Secant Modulus (ppi)		2662	2530	2596	2533	2444								2553	82							
TD 2% Secant Modulus (psi)		35037	35745	35187	37057	34833								35572	897							
TD 2% Secant Modulus (ppi)		2950	2760	3065	2827	2675								2855	154							
Multi-axial Tensile (ASTM D 5617)																						
Test Method A: Centerpoint Deflection Versus Pressure																						
Thickness (mils)		81.0	78.0	79.0								79.3	1.5									
Maximum Stress (psi)		1873	1781	1899								1851	62									
% Elongation @ Rupture (%)		77.6	77.0	85.0								79.9	4.5									
Failure Description		MDT	MDT	MDT																		
		N-EF	N-EF	N-EF																		
MDT	A tear in the machine direction.																					
H	Circular or elliptical hole in the specimen.																					
H-CAT	Circular or elliptical hole in an area where the material has significantly necked down or thinned. The large thinned area resembles a pupil of a cat eye.																					
N-EF	No edge failure																					
MD Machine Direction		TD Transverse Direction																				





Vergil H. Rhodes, PE, CPlasT - Tech Svc & App Dev Engineer, Geomembranes  
Highways 60 & 123, Bartlesville Research and Technology Center, Room 103 PTC  
Bartlesville, OK 74003  
■ 918-977-4229 ■ rhodevh@cpchem.com ■ Fax: 918-977-7599 ■ [www.cpchem.com](http://www.cpchem.com)

October 31, 2017

Filename: Agru Oven and QUV Exposure Testing\_103117.pdf

Nathan Ivy - Corporate Quality Control/Technical Manager  
Agru America, Inc.  
800 Rockmead #122  
Kingwood, TX 77339  
281-358-4741

Dear Mr. Ivy:

Please recall your request for testing of oven-exposed and UV-exposed geomembrane samples produced primarily from Marlex® 7104 LLDPE and Marlex® K307 HDPE. Agru blended other components with each of these polyethylenes to produce the geomembrane samples for testing. Smooth geomembrane samples have been received from Agru and test results are reported below. The samples were tested for HP-OIT in their as-received condition, and were also tested after oven and UV exposures of 90 days and 1600 hours of irradiance, respectively, in accordance with GRI-GM13 and GRI-GM17.

The following geomembrane sheet samples were received from Agru in mid-June 2017 and were reported to be primarily composed of each of the Chevron Phillips Chemical Company grades in the description below:

- K307 Lot #HHB620720, Agru Roll #G17D000534, black sheet, smooth, nominal 0.040" thick.
- 7104 Lot #CFJ810540, Agru Roll #G15B434055, black sheet, smooth, nominal 0.040" thick.

Exposure and testing conditions, along with the test results are tabulated on the next page. GM-13 and GM-17 require minimum % HP-OIT retention after a 90-day oven exposure and after a 1600 hour UV irradiance exposure. These test results indicate these GM-13 and GM-17 minimum % HP-OIT retentions were exceeded by these Agru-supplied K307 and 7104 sheet samples, respectively.

If you have any questions, please feel free to contact me (contact information given above).

Sincerely,

Vergil Rhodes  
Polyethylene Technical Service and Applications Development, Geomembrane

#### NOTICES

Technical Information - By using any Technical Information contained herein, Recipient agrees that said Technical Information is given by CPChem for convenience only, without any warranty or guarantee of any kind, and is accepted and used at your sole risk. Recipients are encouraged to verify independently any such information to their reasonable satisfaction. As used in this paragraph, "Technical Information" includes any technical advice, recommendations, testing, or analysis, including, without limitation, information as it may relate to the selection of a product for a specific use and application.



The following oven aging and UV exposure test methods were conducted in accordance with the GRI-GM13 (HDPE) and GRI-GM17 (LLDPE) requirements:

Test Name	Exposure Conditions	Test Method
Oven Aging	90 days in an oven at 85 °C	ASTM D5721
UV Exposure	1600 UV irradiance hours. Cycle: 20 hours UVA-340 at 75 °C followed by 4 hours dark with condensation at 60 °C. Irradiance was 0.78 W/m <sup>2</sup> at wavelength 340 nm. Note: This implies a total UV chamber residence time of 1920 hours, e.g., 1600 hours of irradiance and 320 hours of dark/condensation.	ASTM D7238
HP-OIT	150 °C in an oxygen atmosphere at 500 psi	ASTM D5885

#### Oven Aging Results:

Sample	Initial HP-OIT (min)	HP-OIT after 90 days of oven aging. (min)	% HP-OIT Retained after 90 days of oven aging.	GRI-GM13 and GRI-GM17 minimum % HP-OIT retained after 90 days of oven aging.
K307 Lot #HHB620720, Agru Roll #G17D000534, black sheet, smooth, nominal 0.040" thick	1264	1123	89	GRI-GM13: 80 minimum
7104 Lot #CFJ810540, Agru Roll #G15B434055, black sheet, smooth, nominal 0.040" thick	550	508	92	GRI-GM17: 60 minimum

#### UV Aging Results:

Sample	Initial HP-OIT (min)	HP-OIT after 1600 hrs of UV exposure. (min)	% HP-OIT Retained after 1600 hrs of UV exposure.	GRI-GM13 and GRI-GM17 minimum % HP-OIT retained after 1600 hrs of UV exposure.
K307 Lot #HHB620720, Agru Roll #G17D000534, black sheet, smooth, nominal 0.040" thick	1264	1024	81	GRI-GM13: 50 minimum
7104 Lot #CFJ810540, Agru Roll #G15B434055, black sheet, smooth, nominal 0.040" thick	550	470	85	GRI-GM17: 35 minimum

Note: 1600 hours of UV exposure in accordance with ASTM D7238 implies a total UV chamber residence time of 1920 hours, e.g., 1600 hours of irradiance and 320 hours of darkness with condensation.

#### NOTICES

**Technical Information** - By using any Technical Information contained herein, Recipient agrees that said Technical Information is given by CPChem for convenience only, without any warranty or guarantee of any kind, and is accepted and used at your sole risk. Recipients are encouraged to verify independently any such information to their reasonable satisfaction. As used in this paragraph, "Technical Information" includes any technical advice, recommendations, testing, or analysis, including, without limitation, information as it may relate to the selection of a product for a specific use and application.





## **Appendix D.5 – Welding Rod Quality Control Certificates**





## WELDING ROD CERTIFICATE OF CONFORMITY

Weld Rod (Black)      Thickness: **5.00 mm**

Lot Number: **CHC811870**

Material: **7104**      Resin: **LLDPE**

---

### Test Results

---

Carbon Black Content:  
ASTM D4218

**2.7 %**

Melt Flow Index:  
Cond. E  
ASTM D1238

190C/2160 g

**.33 g/10 min**

Specific Gravity:  
ASTM D792 /D1505

Average Density

**.933 g/cc**

---

CUSTOMER:              **Newmont Mining**  
P.O. #:                    **30010370   Cripple Creek Weld Rod**  
DESTINATION:           **Cripple Creek, CO**

OA #:                      **41730**

Signature:

**Maria Coffey**

Manager, Quality Control Department

Production Date:      **8/12/2017**

---



## Certificate of Analysis

Shipped To: AGRU AMERICA INC:FERNLEY  
2000 EAST NEWLANDS  
FERNLEY NV 89408  
USA

Recipient: PALMER  
Fax:

Delivery #: 89455771  
PO #: 011332  
Weight: 187650 LB  
Ship Date: 04/28/2017  
Package: BULK  
Mode: Hopper Car  
Car #: CHVX890013  
Seal No: 82518

Product:  
MARLEX 7104 POLYETHYLENE in Bulk

Lot Number: CHC811870

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.33	g/10mi
HLMI	ASTM D1238	15.77	g/10mi
Pellet Count	ST-905	31	pel/g
Production date		20170327	
Density	D1505 or D4883	0.919	g/cm3

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).  
**However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.**



KEVIN AYRES  
QUALITY ASSURANCE SUPERINTENDENT

For CoA questions contact Customer Service Representative at +1832813





## **Appendix E – Geomembrane Installation Summaries**

### **Appendix E.1 – Geomembrane Deployment Summary**

### **Appendix E.2 – Geomembrane Fusion Trial Seam Summaries**

### **Appendix E.3 – Geomembrane Extrusion Trial Seam Summaries**

### **Appendix E.4 – Geomembrane Fusion Welding Summary**

### **Appendix E.5 – Geomembrane Extrusion Welding Summary**

### **Appendix E.6 – Geomembrane Fusion Destructive Testing Summary**

### **Appendix E.7 – Geomembrane Extrusion Destructive Testing Summary**

### **Appendix E.8 – Geomembrane Pressure Testing Summary**

### **Appendix E.9 – Geomembrane Defect/Repair Summary**

### **Appendix E.10 – Geomembrane Acceptance Forms**





## **Appendix E.1 – Geomembrane Deployment Summary**



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Subgrade & Geomembrane 9750' - 9900' Elevations**  
**Geomembrane Panel Deployment Summary**



Deployment Date	Panel Number	Roll Number	Ambient Temp. (°F)	Average Thickness (mm)	QA Monitor	Approximate Quantities			Surveyed Quantities		Remarks
						Length (ft)	Width (ft)	Area (ft²)	Area (ft²)	Cumulative Area (ft²)	
6/27/2018	PRC-17	FND0010080004	57	80	AL	241	22.5	5,423	5,423	82,868	
6/27/2018	PRC-18	FND0010080004	59	80	AL	242	22.5	5,445	5,445	88,313	
6/27/2018	PRC-19	FND0010080004	62	80	AL	242	22.5	5,445	5,445	93,758	
6/27/2018	PRC-20	FND0010080004	69	80	AL	241	21	5,061	5,061	98,819	
6/27/2018	PRC-21	FND0010080004	76	80	AL	81	5	203	203	99,021	
6/27/2018	PRC-22	FND0010080004	76	80	AL	40	6	240	240	99,261	
6/28/2018	PRC-23	FND0010080004	55	80	AL	240	22.5	5,400	5,400	104,661	
6/28/2018	PRC-24	FND0010080005	57	80	AL	240	22.5	5,400	5,400	110,061	
6/28/2018	PRC-25	FND0010080006	63	80	AL	240	22.5	5,400	5,400	115,461	
6/28/2018	PRC-26	FND0010080007	67	80	AL	240	22.5	5,400	5,400	120,861	
6/28/2018	PRC-27	FND0010080008	73	80	AL	240	22.5	5,400	5,400	126,261	
7/2/2018	PRC-28	FND0010080009	66	80	AL	68	5	170	170	126,431	
7/2/2018	PRC-29	FND0010080010	63	80	AL	111	22.5	2,498	2,498	128,929	
7/2/2018	PRC-30	FND0010080011	63	80	AL	130	22.5	2,925	2,925	131,854	
7/2/2018	PRC-31	FND0010080012	53	80	AL	241	22.5	5,423	5,423	137,276	
7/2/2018	PRC-32	FND0010080013	66	80	AL	120	10	600	600	137,876	
7/7/2018	PRC-33	FND0010080014	53	80	BM	110	22.5	2,475	2,475	140,351	
7/7/2018	PRC-34	FND0010080005	53	80	BM	110	22.5	2,475	2,475	142,826	
7/7/2018	PRC-35	FND0010080002	53	80	BM	110	22.5	2,475	2,475	145,301	
7/7/2018	PRC-36	FND0010080003	55	80	BM	110	22.5	2,475	2,475	147,776	
7/7/2018	PRC-37	FND0010080012	55	80	BM	110	22.5	2,475	2,475	150,251	
7/7/2018	PRC-38	FND0010080007	55	80	BM	110	22.5	2,475	2,475	152,726	
7/7/2018	PRC-39	FND0010080013	64	80	BM	110	22.5	2,475	2,475	155,201	
7/7/2018	PRC-40	FND0010080016	64	80	BM	110	22.5	2,475	2,475	157,676	
7/7/2018	PRC-41	FND0010080008	64	80	BM	110	22.5	2,475	2,475	160,151	





## **Appendix E.2 – Geomembrane Fusion Trial Seam Summary**



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Subgrade & Geomembrane 9750' - 9900'**  
**Geomembrane Fusion Trial Seam Summary**



Date	Sample Number	Time	Machine Number	Operator	Ambient Air Temp. (°F)	Machine Settings		Test Results								QA Monitor	Remarks
						Temp. (°F)	Speed (ft/s)	Inside Peel (Min. = 100 ppi)		Outside Peel (Min. = 100 ppi)		Shear (Minimum = 120 ppi)		Pass/Fail			
								Strength (ppi)	Mode <sup>1</sup>	Strength (ppi)	Mode <sup>1</sup>	Strength (ppi)	Mode <sup>1</sup>				
6/27/2018	RCTF-12	7:10 AM	43	TA	46	850	7	152	SE1	143	SE1	167	BRK	PASS	BM		
								145	SE1	158	SE1	156	BRK	PASS	BM		
								155	SE1	139	SE1	162	BRK	PASS	BM		
								149	SE1	150	SE1	162	BRK	PASS	BM		
								150	SE1	151	SE1	166	BRK	PASS	BM		
6/27/2018	RCTF-13	7:10 AM	43	TA	46	850	8	136	SE1	133	SE1	155	BRK	PASS	BM		
								131	SE1	133	SE1	154	BRK	PASS	BM		
								133	SE1	135	SE1	151	BRK	PASS	BM		
								141	SE1	134	SE1	161	BRK	PASS	BM		
								132	SE1	131	SE1	155	BRK	PASS	BM		
6/27/2018	RCTF-14	1:20 PM	43	TA	70	850	9	112	SE1	120	SE1	143	BRK	PASS	BM		
								121	SE1	125	SE1	139	BRK	PASS	BM		
								117	SE1	120	SE1	141	BRK	PASS	BM		
								122	SE1	123	SE1	135	BRK	PASS	BM		
								120	SE1	120	SE1	144	BRK	PASS	BM		
6/28/2018	RCTF-15	8:00 AM	43	TA	60	850	7.5	134	SE1	138	SE1	158	BRK	PASS	BM		
								141	SE1	141	SE1	159	BRK	PASS	BM		
								141	SE1	1365	SE1	157	BRK	PASS	BM		
								144	SE1	137	SE1	162	BRK	PASS	BM		
								134	SE1	143	SE1	160	BRK	PASS	BM		
6/29/2018	RCTF-16	10:00 AM	43	TA	60	850	9	154	SE1	145	SE1	152	BRK	PASS	BM		
								150	SE1	150	SE1	155	BRK	PASS	BM		
								140	SE1	142	SE1	154	BRK	PASS	BM		
								154	SE1	145	SE1	148	BRK	PASS	BM		
								161	SE1	142	SE1	157	BRK	PASS	BM		
6/29/2018	RCTF-17	1:30 PM	43	TA	70	850	10	128	SE1	127	SE1	132	BRK	PASS	BM		
								134	SE1	132	SE1	147	BRK	PASS	BM		
								123	SE1	130	SE1	134	BRK	PASS	BM		
								129	SE1	122	SE1	141	BRK	PASS	BM		
								125	SE1	131	SE1	141	BRK	PASS	BM		



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Subgrade & Geomembrane 9750' - 9900'**  
**Geomembrane Fusion Trial Seam Summary**



Date	Sample Number	Time	Machine Number	Operator	Ambient Air Temp. (°F)	Machine Settings		Test Results								QA Monitor	Remarks
						Temp. (°F)	Speed (ft/s)	Inside Peel (Min. = 100 ppi)		Outside Peel (Min. = 100 ppi)		Shear (Minimum = 120 ppi)		Pass/Fail			
								Strength (ppi)	Mode <sup>1</sup>	Strength (ppi)	Mode <sup>1</sup>	Strength (ppi)	Mode <sup>1</sup>				
7/2/2018	RCTF-18	6:20 AM	43	TA	50	850	8	141	SE1	136	SE1	161	BRK	PASS	BM		
								142	SE1	152	SE1	159	BRK	PASS	BM		
								136	SE1	136	SE1	167	BRK	PASS	BM		
								140	SE1	147	SE1	157	BRK	PASS	BM		
								141	SE1	135	SE1	164	BRK	PASS	BM		
7/2/2018	RCTF-19	7:45 AM	43	TA	58	850	8	137	SE1	139	SE1	159	BRK	PASS	BM		
								134	SE1	142	SE1	169	BRK	PASS	BM		
								141	SE1	148	SE1	165	BRK	PASS	BM		
								140	SE1	149	SE1	166	BRK	PASS	BM		
								131	SE1	148	SE1	166	BRK	PASS	BM		
7/7/2018	RCTF-20	6:00 AM	43	TA	53	850	8.5	145	SE1	143	SE1	157	BRK	PASS	BM		
								150	SE1	153	SE1	164	BRK	PASS	BM		
								144	SE1	148	SE1	168	BRK	PASS	BM		
								149	SE1	149	SE1	164	BRK	PASS	BM		
								153	SE1	145	SE1	164	BRK	PASS	BM		
7/7/2018	RCTF-21	7:15 AM	43	TA	55	850	7.5	145	SE1	142	SE1	155	BRK	PASS	BM		
								148	SE1	148	SE1	160	BRK	PASS	BM		
								146	SE1	150	SE1	156	BRK	PASS	BM		
								151	SE1	147	SE1	165	BRK	PASS	BM		
								145	SE1	141	SE1	153	BRK	PASS	BM		
7/7/2018	RCTF-22	11:20 AM	43	TA	63	850	7.5	130	SE1	139	SE1	138	BRK	PASS	BM		
								127	SE1	133	SE1	138	BRK	PASS	BM		
								131	SE1	131	SE1	137	BRK	PASS	BM		
								129	SE1	136	SE1	140	BRK	PASS	BM		
								121	SE1	134	SE1	139	BRK	PASS	BM		
7/9/2018	RCTF-23	9:00 AM	43	TA	60	850	7.5	133	SE1	145	SE1	153	BRK	PASS	BM		
								139	SE1	153	SE1	160	BRK	PASS	BM		
								141	SE1	156	SE1	161	BRK	PASS	BM		
								137	SE1	153	SE1	162	BRK	PASS	BM		
								149	SE1	145	SE1	159	BRK	PASS	BM		





## **Appendix E.3 – Geomembrane Extrusion Trial Seam Summary**



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750'-9900' Elevations**  
**Geomembrane Extrusion Trial Seam Summary**



Date	Sample Number	Time	Machine Number	Operator	Ambient Air Temp. (°F)	Machine Settings		Test Results					QA Monitor	Remarks
						Pre-Heat Temp. (°F)	Extruder Temp. (°F)	Peel (Min. = 100 ppi)		Shear (Min. = 120 ppi)		Pass/Fail		
								Strength (ppi)	Mode <sup>1</sup>	Strength (ppi)	Mode <sup>1</sup>			
6/27/2018	RCTX-8	12:20 PM	81	LA	70	500	500	125	SE3	132	BRK	PASS	BM	
								125	SE3	133	BRK	PASS	BM	
								123	SE3	133	BRK	PASS	BM	
								128	SE3	129	BRK	PASS	BM	
								125	SE3	134	BRK	PASS	BM	
6/28/2018	RCTX-9	2:40 PM	81	LA	86	500	500	129	SE3	134	BRK	PASS	BM	
								142	SE3	132	BRK	PASS	BM	
								118	SE3	130	BRK	PASS	BM	
								121	SE3	132	BRK	PASS	BM	
								120	SE3	128	BRK	PASS	BM	
6/29/2018	RCTX-10	8:00 AM	8	LA	53	500	500	161	SE3	147	BRK	PASS	BM	
								145	SE3	148	BRK	PASS	BM	
								140	SE3	140	BRK	PASS	BM	
								151	SE3	153	BRK	PASS	BM	
								151	SE3	172	BRK	PASS	BM	
6/29/2018	RCTX-11	1:30 PM	8	LA	70	500	500	128	SE3	135	BRK	PASS	BM	
								132	SE3	141	BRK	PASS	BM	
								129	SE3	133	BRK	PASS	BM	
								133	SE3	138	BRK	PASS	BM	
								129	SE3	141	BRK	PASS	BM	
7/2/2018	RCTX-12	1:00 PM	8	LA	70	500	500	125	SE3	127	BRK	PASS	BM	
								125	SE3	136	BRK	PASS	BM	
								116	SE3	142	BRK	PASS	BM	
								125	SE3	143	BRK	PASS	BM	
								122	SE3	135	BRK	PASS	BM	



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750'-9900' Elevations**  
**Geomembrane Extrusion Trial Seam Summary**



Date	Sample Number	Time	Machine Number	Operator	Ambient Air Temp. (°F)	Machine Settings		Test Results					QA Monitor	Remarks
						Pre-Heat Temp. (°F)	Extruder Temp. (°F)	Peel (Min. = 100 ppi)		Shear (Min. = 120 ppi)		Pass/Fail		
								Strength (ppi)	Mode <sup>1</sup>	Strength (ppi)	Mode <sup>1</sup>			
7/3/2018	RCTX-13	10:00 AM	8	LA	60	500	500	118	SE3	137	BRK	PASS	BM	
								111	SE3	139	BRK	PASS	BM	
								113	SE3	142	BRK	PASS	BM	
								132	SE3	143	BRK	PASS	BM	
								109	SE3	138	BRK	PASS	BM	
7/4/2018	RCTX-14	7:30 AM	8	LA	53	500	500	139	SE3	158	BRK	PASS	BM	
								148	SE3	160	BRK	PASS	BM	
								143	SE3	153	BRK	PASS	BM	
								143	SE3	163	BRK	PASS	BM	
								142	SE3	152	BRK	PASS	BM	
7/9/2018	RCTX-15	11:00 AM	8	LA	68	500	500	67	SE3		BRK	FAIL	BM	
								141	SE3		BRK	FAIL	BM	
								137	SE3		BRK	FAIL	BM	
								120	SE3		BRK	FAIL	BM	
								123	SE3		BRK	FAIL	BM	
7/9/2018	RCTX-16	11:30 AM	8	LA	68	500	500	137	SE3	137	BRK	PASS	BM	
								139	SE3	140	BRK	PASS	BM	
								136	SE3	138	BRK	PASS	BM	
								132	SE3	146	BRK	PASS	BM	
								127	SE3	139	BRK	PASS	BM	
7/10/2018	RCTX-17	8:00 AM	8	LA	68	500	500	156	SE3	154	BRK	PASS	BM	
								158	SE3	164	BRK	PASS	BM	
								159	SE3	161	BRK	PASS	BM	
								159	SE3	159	BRK	PASS	BM	
								155	SE3	161	BRK	PASS	BM	



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750'-9900' Elevations**  
**Geomembrane Extrusion Trial Seam Summary**



Date	Sample Number	Time	Machine Number	Operator	Ambient Air Temp. (°F)	Machine Settings		Test Results					QA Monitor	Remarks
						Pre-Heat Temp. (°F)	Extruder Temp. (°F)	Peel (Min. = 100 ppi)		Shear (Min. = 120 ppi)		Pass/Fail		
								Strength (ppi)	Mode <sup>1</sup>	Strength (ppi)	Mode <sup>1</sup>			
7/10/2018	RCTX-18	6:00 PM	8	LA	75	500	500	130	SE3	159	BRK	PASS	BM	
								127	SE3	164	BRK	PASS	BM	
								121	SE3	160	BRK	PASS	BM	
								143	SE3	162	BRK	PASS	BM	
								131	SE3	139	BRK	PASS	BM	
7/11/2018	RCTX-19	6:00 AM	8	LA	45	500	500	146	SE3	159	BRK	PASS	BM	
								163	SE3	175	BRK	PASS	BM	
								166	SE3	166	BRK	PASS	BM	
								171	SE3	179	BRK	PASS	BM	
								154	SE3	182	BRK	PASS	BM	





## **Appendix E.4 – Geomembrane Fusion Welding Summary**



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750' - 9900' Elevations**  
**Geomembrane Fusion Welding Summary**



Seam Date	Seam Number	Seam Sections			Start Time	Ambient Temp (°F)	Operator	Machine Number	Speed Setting (ft/min)	Machine Temperature		Welded Seam Length (ft)	QA Monitor	Destructive Test Sample Number	Remarks
		From	/	To						Setting (°F)	Actual (°F)				
6/27/18	PRC-17/PRC-18	EAST	/	WEST	6:55 AM	57	TA	43	7	850	850	240	AL		
6/27/18	PRC-18/PRC-19	EAST	/	WEST	8:18 AM	62	TA	43	7	850	850	240	AL		
6/27/18	PRC-19/PRC-20	EAST	/	WEST	9:48 AM	69	TA	43	7	850	850	120	AL	RCDF-11	
6/27/18	PRC-20/PRC-21	EAST	/	WEST	10:13 AM	74	TA	43	7	850	850	81	AL		
6/27/18	PRC-21/PRC-22	SOUTH	/	NORTH	PATCH										
6/27/18	PRC-19/PRC-21	EAST	/	WEST	10:25 AM	74	TA	43	7	850	850	40	AL		
6/27/18	PRC-20/PRC-22	EAST	/	WEST	11:10 AM	77	TA	43	7	850	850	81	AL		
6/27/18	PRC-19/PRC-22	EAST	/	WEST	11:27 AM	77	TA	43	7	850	850	40	AL		
6/28/18	PRC-20/PRC-23	EAST	/	WEST	6:25 AM	56	TA	43	7.5	850	850	240	AL	RCDF-12	
6/28/18	PRC-23/PRC-24	EAST	/	WEST	7:25 AM	59	TA	43	7.5	850	850	240	AL		
6/28/18	PRC-24/PRC-25	EAST	/	WEST	8:38 AM	63	TA	43	7.5	850	850	240	AL	RCDF-13	
6/28/18	PRC-25/PRC-26	EAST	/	WEST	9:40 AM	67	TA	43	7.5	850	850	240	AL		
6/28/18	PRC-26/PRC-27	EAST	/	WEST	11:00 AM	73	TA	43	7.5	850	850	240	AL	RCDF-14	
6/29/18	EL/PRC-17	EAST	/	WEST	10:50 AM	58	TA	43	9	850	850	240	AL	RCDF-15	
7/2/18	PRC-29/PRC-30	SOUTH	/	NORTH	6:40 AM	53	TA	43	9.5	850	850	23	AL		
7/2/18	PRC-29/PRC-31	EAST	/	WEST	6:50 AM	53	TA	43	9.5	850	850	111	AL		
7/2/18	PRC-30/PRC-31	EAST	/	WEST	7:00 AM	56	TA	43	9.5	850	850	130	AL		
7/2/18	PRC-27/PRC-29	EAST	/	WEST	7:55 AM	59	TA	43	9.5	850	850	55	AL		
7/2/18	PRC-28/PRC-29	EAST	/	WEST	9:00 AM	63	TA	43	9.5	850	850	58	AL		
7/2/18	PRC-28/PRC-32	SOUTH	/	NORTH	8:40 AM	59	TA	43	9.5	850	850	7	AL		
7/2/18	PRC-28/PRC-30	EAST	/	WEST	9:07 AM	63	TA	43	9.5	850	850	10	AL		
7/2/18	PRC-30/PRC-32	EAST	/	WEST	9:08 AM	63	TA	43	9.5	850	850	120	AL	RCDF-16	
7/2/18	PRC-27/PRC-28	EAST	/	WEST	10:27 AM	66	TA	43	9.5	850	850	67	AL		
7/2/18	PRC-27/PRC-32	EAST	/	WEST	11:00 AM	69	TA	43	9.5	850	850	120	AL		
7/3/18	EL/PRC-31	EAST	/	WEST	9:03 AM	71	TA	43	8.5	850	850	241	AL	RCDF-17	
7/7/18	PRC-33/PRC-34	EEOS	/	WEOS	6:11 AM	53	TA	43	8.5	850	850	105	BM		
7/7/18	PRC-34/PRC-35	EEOS	/	WEOS	6:39 AM	53	TA	43	8.5	850	850	105	BM		
7/7/18	PRC-35/PRC-36	EEOS	/	WEOS	7:13 AM	55	TA	43	8.5	850	850	105	BM		
7/7/18	PRC-36/PRC-37	EEOS	/	WEOS	7:45 AM	55	TA	43	8.5	850	850	105	BM		
7/7/18	PRC-37/PRC-38	EEOS	/	WEOS	8:15 AM	59	TA	43	8.5	850	850	105	BM	RCDF-18	
7/7/18	PRC-38/PRC-39	EEOS	/	WEOS	9:05 AM	64	TA	43	8.5	850	850	105	BM		
7/7/18	PRC-39/PRC-40	EEOS	/	WEOS	9:55 AM	64	TA	43	8.5	850	850	105	BM		
7/7/18	PRC-40/PRC-41	EEOS	/	WEOS	10:26 AM	69	TA	43	8.5	850	850	105	BM		
7/7/18	EL/PRC-41	EEOS	/	WEOS	11:40 AM	69	TA	43	7.5	850	850	105	BM		
7/9/18	EL/PRC-33	EEOS	/	WEOS	9:30 AM	62	TA	43	7.5	850	850	105	BM	RCDF-19	





## **Appendix E.5 – Geomembrane Extrusion Welding Summary**



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750' - 9900' Elevations**  
**Geomembrane Extrusion Welding Summary**



Seam Date	Seam Number	Seam Sections			Start Time	Ambient Temp (°F)	Operator	Machine Number	Pre-Heat Setting	Machine Temperature		Welded Seam Length (ft)	QA Monitor	Destructive Test Sample Number	Vacuum Test Results Pass/Fail	Remarks
		From	/	To						Setting (°F)	Actual (°F)					
6/29/2018	EL/PRC-14	NORTH		SOUTH	7:50 AM	69	LA	8	X	500	500	17	BM		PASS	
6/29/2018	PRC-14/PRC-17	NORTH		SOUTH	7:55 AM	69	LA	8	X	500	500	6	BM		PASS	
6/29/2018	PRC-13/PRC-17	NORTH		SOUTH	8:00 AM	72	LA	8	X	500	500	15	BM		PASS	
6/29/2018	PRC-13/PRC-18	NORTH		SOUTH	8:22 AM	72	LA	8	X	500	500	8	BM		PASS	
6/29/2018	PRC-12/PRC-18	NORTH		SOUTH	8:25 AM	72	LA	8	X	500	500	15	BM		PASS	
6/29/2018	PRC-12/PRC-19	NORTH		SOUTH	8:30 AM	72	LA	8	X	500	500	8	BM		PASS	
6/29/2018	PRC-11/PRC-19	NORTH		SOUTH	8:35 AM	72	LA	8	X	500	500	15	BM		PASS	
6/29/2018	PRC-11/PRC-22	NORTH		SOUTH	8:40 AM	72	LA	8	X	500	500	7	BM		PASS	
6/29/2018	PRC-10/PRC-20	NORTH		SOUTH	8:45 AM	72	LA	8	X	500	500	23	BM		PASS	
6/29/2018	PRC-09/PRC-23	NORTH		SOUTH	8:55 AM	72	LA	8	X	65	500	23	BM		PASS	
6/29/2018	PRC-08/PRC-24	NORTH		SOUTH	9:05 AM	74	LA	8	X	500	500	23	BM		PASS	
6/29/2018	PRC-07/PRC-25	NORTH		SOUTH	9:10 AM	74	LA	8	X	500	500	23	BM		PASS	
6/29/2018	PRC-06/PRC-26	NORTH		SOUTH	10:50 AM	76	LA	8	X	500	500	23	BM		PASS	
6/29/2018	PRC-05/PRC-27	NORTH		SOUTH	11:09 AM	77	LA	8	X	500	500	17	BM	RCDX-2	PASS	
7/3/2018	PRC-05/PRC-27	NORTH		SOUTH	12:36 PM	70	LA	8	X	500	500	7	BM		PASS	
7/3/2018	PRC-04/PRC-32	NORTH		SOUTH	12:40 PM	70	LA	8	X	500	500	23	BM		PASS	
7/3/2018	PRC-03/PRC-30	NORTH		SOUTH	12:45 PM	70	LA	8	X	500	500	23	BM		PASS	
7/3/2018	PRC-01/PRC-31	NORTH		SOUTH	12:50 PM	70	LA	8	X	500	500	23	BM	RCDX-3	PASS	
7/10/2018	EL/PRC-17	NORTH		SEOS	8:05 AM	63	LA	8	X	500	500	9	BM		PASS	
7/10/2018	PRC-17/PRC-33	NORTH		SEOS	8:10 AM	63	LA	8	X	500	500	7	BM		PASS	
7/10/2018	PRC-18/PRC-33	NORTH		SEOS	8:15 AM	63	LA	8	X	500	500	16	BM		PASS	
7/10/2018	PRC-19/PRC-34	NORTH		SEOS	8:20 AM	63	LA	8	X	500	500	23	BM		PASS	
7/10/2018	PRC-20/PRC-35	NORTH		SEOS	8:55 AM	63	LA	8	X	500	500	22	BM		PASS	
7/10/2018	PRC-23/PRC-35	NORTH		SEOS	8:58 AM	63	LA	8	X	500	500	4	BM		PASS	
7/10/2018	PRC-23/PRC-36	NORTH		SEOS	9:05 AM	65	LA	8	X	500	500	19	BM		PASS	
7/10/2018	PRC-24/PRC-36	NORTH		SEOS	9:10 AM	65	LA	8	X	500	500	4	BM		PASS	
7/10/2018	PRC-24/PRC-37	NORTH		SEOS	9:12 AM	65	LA	8	X	500	500	19	BM		PASS	
7/10/2018	PRC-25/PRC-37	NORTH		SEOS	9:19 AM	65	LA	8	X	500	500	4	BM		PASS	
7/10/2018	PRC-25/PRC-38	NORTH		SEOS	9:20 AM	65	LA	8	X	500	500	19	BM		PASS	
7/10/2018	PRC-26/PRC-38	NORTH		SEOS	9:30 AM	65	LA	8	X	500	500	4	BM		PASS	
7/10/2018	PRC-26/PRC-39	NORTH		SEOS	9:31 AM	65	LA	8	X	500	500	19	BM		PASS	
7/10/2018	PRC-27/PRC-39	NORTH		SEOS	9:45 AM	65	LA	8	X	500	500	4	BM		PASS	
7/10/2018	PRC-27/PRC-40	NORTH		SEOS	9:46 AM	65	LA	8	X	500	500	13	BM		PASS	
7/10/2018	PRC-29/PRC-40	NORTH		SEOS	10:02 AM	69	LA	8	X	500	500	9	BM		PASS	
7/10/2018	PRC-29/PRC-41	NORTH		SEOS	10:05 AM	68	LA	8	X	500	500	1	BM		PASS	
7/10/2018	PRC-31/PRC-41	NORTH		SEOS	10:08 AM	68	LA	8	X	500	500	10	BM		PASS	
7/10/2018	EL/PRC-31	NORTH		SEOS	10:15 AM	71	LA	8	X	500	500	13	BM		PASS	



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750' - 9900' Elevations**  
**Geomembrane Extrusion Welding Summary**



Seam Date	Seam Number	Seam Sections			Start Time	Ambient Temp (°F)	Operator	Machine Number	Pre-Heat Setting	Machine Temperature		Welded Seam Length (ft)	QA Monitor	Destructive Test Sample Number	Vacuum Test Results Pass/Fail	Remarks
		From	/	To						Setting (°F)	Actual (°F)					
7/10/2018	EL/PRC-33	NORTH		SEOS	1:35 PM	71	LA	8	X	500	500	23	BM		PASS	
7/10/2018	EL/PRC-34	NORTH		SEOS	1:46 PM	71	LA	8	X	500	500	22	BM		PASS	
7/10/2018	EL/PRC-35	NORTH		SEOS	1:55 PM	74	LA	8	X	500	500	23	BM		PASS	
7/10/2018	EL/PRC-36	NORTH		SEOS	2:05 PM	74	LA	8	X	500	500	22	BM		PASS	
7/10/2018	EL/PRC-37	NORTH		SEOS	2:15 PM	74	LA	8	X	500	500	23	BM		PASS	
7/10/2018	EL/PRC-38	NORTH		SEOS	2:25 PM	74	LA	8	X	500	500	22	BM	RCDX-05	PASS	
7/10/2018	EL/PRC-39	NORTH		SEOS	2:52 PM	74	LA	8	X	500	500	23	BM		PASS	
7/10/2018	EL/PRC-40	NORTH		SEOS	6:10 AM	47	LA	8	X	500	500	22	BM		PASS	
7/10/2018	EL/PRC-41	NORTH		SEOS	6:25 AM	47	LA	8	X	500	500	23	BM	RCDX-04	PASS	





## **Appendix E.6 – Geomembrane Fusion Destructive Testing Summary**



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750' - 9900' Elevations**  
**Geomembrane Fusion Desrutive Testing Summary**



Sample Number	Seam Number	Date Seamed	Welding Data		Date Tested	Test Results																QA Monitor
			Operator	Machine Number		Peel Strength (Minimum = 100 ppi)					Peel Strength (Minimum = 100 ppi)					Shear Strength (Minimum = 130 ppi)					Pass/Fail	
RCDF-11	PRC-19/PRC-20	6/27/2018	TA	43	6/29/2018	117	124	117	122	124	120	121	117	119	121	127	130	125	133	134	PASS	BM
RCDF-12	PRC-20/PRC-23	6/28/2018	TA	43	6/29/2018	119	124	119	116	118	119	126	124	122	125	125	128	129	133	133	PASS	BM
RCDF-13	PRC-24/PRC-25	6/28/2018	TA	43	6/29/2018	121	124	121	120	121	119	124	120	120	124	130	133	128	135	134	PASS	BM
RCDF-14	PRC-26/PRC-27	6/28/2018	TA	43	6/29/2018	113	118	117	120	118	121	117	117	122	121	123	128	129	126	126	PASS	BM
RCDF-15	EL/PRC-17	6/29/2018	TA	43	6/29/2018	164	165	164	155	158	145	145	149	153	150	173	183	175	187	188	PASS	BM
RCDF-16	PRC-30/PRC-32	7/2/2018	TA	43	7/3/2018	118	123	118	126	125	122	123	116	121	121	129	136	127	135	132	PASS	BM
RCDF-17	EL/PRC-31	7/3/2018	TA	43	7/3/2018	130	135	131	133	134	130	129	125	131	129	136	137	136	142	134	PASS	BM
RCDF-18	PRC-37/PRC-38	7/7/2018	TA	43	7/7/2018	135	147	141	135	143	136	134	138	141	133	152	154	153	158	158	PASS	BM
RCDF-19	EL/PRC-33	7/9/2018	TA	43	7/9/2018	138	145	138	141	145	122	127	125	129	131	151	151	146	148	140	PASS	BM





## **Appendix E.7 – Geomembrane Extrusion Destructive Testing Summary**



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750' - 9900'**  
**Geomembrane Extrusion Destructive Testing Summary**



Sample Number	Seam Number	Date Seamed	Welding Data		Date Tested	Test Results										QA Monitor	Remarks	
			Operator	Machine Number		Peel Strength <sup>1</sup> (Minimum = 100 ppi) <sup>2</sup>					Shear Strength <sup>1</sup> (Minimum = 120 ppi) <sup>2</sup>							Pass/Fail
RCDX-2	PRC-5/PRC-27	6/29/18	LA	9	6/29/18	165	160	160	163	161	173	179	174	175	171	PASS	BM	
						SE3	SE3	SE3	SE3	SE3	BRK	BRK	BRK	BRK	BRK			
RCDX-3	PRC-11/PRC-31	7/3/18	LA	10	7/3/18	133	138	132	129	136	140	143	140	146	147	PASS	BM	
						SE3	SE3	SE3	SE3	SE3	BRK	BRK	BRK	BRK	BRK			
RCDX-4	EL/PRC-41	7/10/18	LA	8	7/11/18	161	150	157	157	167	161	180	174	174	177	PASS	BM	
						SE3	SE3	SE3	SE3	SE3	BRK	BRK	BRK	BRK	BRK			
RCDX-5	EL/PRC-38	7/10/18	LA	8	7/11/18	149	156	148	141	153	172	172	172	169	173	PASS	BM	
						SE3	SE3	SE3	SE3	SE3	BRK	BRK	BRK	BRK	BRK			





## **Appendix E.8 – Geomembrane Pressure Testing Summary**



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750' - 9900' Elevations**  
**Geomembrane Pressure Testing Summary**



Date Tested	Seam Number	Location			QC Tech.	Time		Pressure		Pass/Fail	QA Monitor	Seam		Remarks
		From	/	To		Start	Finish	Initial (psi)	Final (psi)			Yes	No	
6/27/2018	PRC-17/PRC-18	EAST	/	WEST	CWC	9:23 AM	9:28 AM	30	30	P	BM	X		6/27/2018
6/27/2018	PRC-18/PRC-19	EAST	/	WEST	CWC	9:27 AM	9:32 AM	30	30	P	BM	X		6/27/2018
6/27/2018	PRC-20/PRC-21	EAST	/	WEST	CWC	2:10 PM	2:15 PM	30	30	P	BM	X		6/27/2018
6/27/2018	PRC-19/PRC-20	EAST	/	WEST	CWC	1:57 PM	2:02 PM	30	30	P	BM	X		6/27/2018
6/27/2018	PRC-19/PRC-21	EAST	/	WEST	CWC	2:03 PM	2:08 PM	30	30	P	BM	X		6/27/2018
6/27/2018	PRC-19/PRC-22	EAST	/	WEST	AP	2:30 PM	2:35 PM	30	28	P	BM	X		6/27/2018
6/27/2018	PRC-20/PRC-22	EAST	/	WEST	AP	2:25 PM	2:30 PM	30	30	P	BM	X		6/27/2018
6/28/2018	PRC-20/PRC-23	EAST	/	WEST	AP	8:08 AM	8:13 AM	30	30	P	BM	X		6/28/2018
6/28/2018	PRC-23/PRC-24	WEST	/	EAST	AP	8:15 AM	8:20 AM	30	30	P	BM	X		6/28/2018
6/28/2018	PRC-24/PRC-25	WEST	/	EAST	AP	9:20 AM	9:25 AM	30	29	P	BM	X		6/28/2018
6/28/2018	PRC-25/PRC-26	WEST	/	EAST	AP	11:18 AM	11:23 AM	30	30	P	BM	X		6/28/2018
6/28/2018	PRC-26/PRC-27	WEST	/	EAST	AP	11:33 AM	11:38 AM	30	30	P	BM	X		6/28/2018
6/29/2018	EL/PRC-17	EAST	/	RRC-76	AP	11:54 AM	11:59 AM	30	30	P	BM		X	6/29/2018
6/29/2018	EL/PRC-17	RRC-76	/	RRC-77	AP	2:34 PM	2:39 PM	30	30	P	BM		X	6/29/2018
6/29/2018	EL/PRC-17	RRC-77	/	WEST	AP	2:25 PM	2:30 PM	30	30	P	BM	X		6/29/2018
7/2/2018	PRC-29/PRC-31	WEST	/	EAST	AP	9:01 AM	9:06 AM	30	30	P	BM	X		7/2/2018
7/2/2018	PRC-30/PRC-31	EAST	/	WEST	AP	9:02 AM	9:07 AM	30	30	P	BM	X		7/2/2018
7/2/2018	PRC-29/PRC-30	SOUTH	/	NORTH	AP	9:29 AM	9:34 AM	30	30	P	BM	X		7/2/2018
7/2/2018	PRC-28/PRC-29	WEST	/	EAST	AP	9:41 AM	9:46 AM	30	30	P	BM	X		7/2/2018
7/2/2018	PRC-28/PRC-32	SOUTH	/	NORTH	AP	9:47 AM	9:52 AM	30	30	P	BM	X		7/2/2018
7/2/2018	PRC-28/PRC-30	EAST	/	WEST	AP	9:56 AM	10:01 AM	30	30	P	BM	X		7/2/2018
7/2/2018	PRC-30/PRC-32	EAST	/	WEST	AP	10:02 AM	10:07 AM	30	30	P	BM	X		7/2/2018
7/2/2018	PRC-27/PRC-32	EAST	/	WEST	AP	11:00 AM	11:05 AM	30	30	P	BM	X		7/2/2018
7/2/2018	PRC-27/PRC-28	WEST	/	RRC-96	AP	11:13 AM	11:18 AM	30	30	P	BM		X	7/2/2018
7/2/2018	PRC-27/PRC-28	RRC-96	/	EEOS	AP	11:22 AM	11:27 AM	30	30	P	BM	X		7/2/2018
7/2/2018	PRC-27/PRC-29	WEST	/	EAST	AP	10:31 AM	10:36 AM	30	30	P	BM	X		7/2/2018
7/3/2018	EL/PRC-31	EAST	/	RRC-104	AP	9:56 AM	10:01 AM	30	30	P	BM		X	7/3/2018
7/3/2018	EL/PRC-31	RRC-104	/	WEOS	AP	10:30 AM	10:35 AM	30	30	P	BM	X		7/3/2018
7/7/2018	PRC-33/PRC-34	EEOS	/	WEOS	AP	7:51 AM	7:56 AM	30	30	P	BM	X		7/7/2018
7/7/2018	PRC-34/PRC-35	EEOS	/	WEOS	AP	7:52 AM	7:57 AM	30	30	P	BM	X		7/7/2018
7/7/2018	PRC-35/PRC-36	EEOS	/	WEOS	AP	8:25 AM	8:30 AM	30	30	P	BM	X		7/7/2018
7/7/2018	PRC-36/PRC-37	EEOS	/	WEOS	AP	8:40 AM	8:45 AM	30	30	P	BM	X		7/7/2018
7/7/2018	PRC-37/PRC-38	EEOS	/	WEOS	AP	8:43 AM	8:48 AM	30	30	P	BM	X		7/7/2018
7/7/2018	PRC-38/PRC-39	EEOS	/	WEOS	AP	9:28 AM	9:33 AM	30	30	P	BM	X		7/7/2018
7/7/2018	PRC-39/PRC-40	EEOS	/	WEOS	AP	10:18 AM	10:23 AM	30	30	P	BM	X		7/7/2018



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750' - 9900' Elevations**  
**Geomembrane Pressure Testing Summary**



Date Tested	Seam Number	Location			QC Tech.	Time		Pressure		Pass/Fail	QA Monitor	Seam		Remarks
		From	/	To		Start	Finish	Initial (psi)	Final (psi)			Yes	No	
7/7/2018	PRC-40/PRC-41	EEOS	/	WEOS	AP	10:46 AM	10:51 AM	30	30	P	BM	X		7/7/2018
7/7/2018	EL/PRC-41	EEOS	/	WEOS	AP	11:58 AM	12:03 PM	30	30	P	BM	X		7/7/2018
7/9/2018	EL/PRC-33	EEOS	/	RRC-115	AP	10:13 AM	10:18 AM	30	30	P	BM		X	7/9/2018
7/7/2018	EL/PRC-33	RRC -115	/	WEOS	AP	10:24 AM	10:29 AM	30	30	P	BM	X		7/7/2018





## **Appendix E.9 – Geomembrane Defect/Repair Summary**



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750' - 9900' Elevations**  
**Geomembrane Defect/Repair Summary**



**Location:** AT - Anchor Trench; TI - Tie In; NEOS - North End of Seam; EEOS - East End of Seam; SEOS - South End of Seam; WEOS - West End of Seam

**Defect Type:** RC - Recertification Project, FM - Fishmouth; BO - Burnout; W - Wrinkle; BS - Boot Skirt; DF - Fusion Destruct; DX - Extrusion Destruct; PU - Puncture; PT - Pressure Test; INT - Panel Intersection

FS - Failed Seam; DO - Damage by Others; WR - Welder Restart; IO - Insufficient Overlap; MD - Manufacturer Defect; FVT - Failed Vacuum Test

**Defect Repair:** P - Patch; C - Cap; B - Bead

Defect Date	Defect Number	Seam / Panel Number	Location	Defect Type	Defect Repair						Repair Vacuum Test				Remarks
					Repair Date	Time	Size	Type	Operator	Machine Number	Test Date	Tech	QA Monitor	P/F	
6/27/2018	RRC-64	PRC-19/PRC-20		RCDF-11	6/27/18	1:10 PM	2X5	RCDF-11	LA	061	6/29/18	LA	BM	PASS	Machine 01
6/27/2018	RRC-65	PRC-18/PRC-19		PT	6/27/18	2:10 PM	2X2	P	LA	061	6/29/18	LA	BM	PASS	Machine 01
6/27/2018	RRC-66	PRC-19		DO	6/27/18	2:45 PM	2X2	P	LA	061	6/29/18	LA	BM	PASS	Machine 01
6/27/2018	RRC-67	PRC-19/PRC-20/PRC-21		INT	6/27/18	3:08 PM	3X4	P	LA	061	6/29/18	LA	BM	PASS	Machine 01
6/27/2018	RRC-68	PRC-19/PRC-20/PRC-21/PRC-22		INT	6/27/18	4:29 PM	4X7	P	LA	061	6/29/18	LA	BM	PASS	Machine 01
6/27/2018	RRC-69	PRC-20/PRC-23		WR	6/28/18	2:40 PM	2X7	P	LA	061	6/29/18	LA	BM	PASS	Machine 01
6/27/2018	RRC-70	PRC-20/PRC-23		RCDF-12	6/28/18	3:05 PM	2X5	RCDF-12	LA	061	6/29/18	LA	BM	PASS	Machine 01
6/27/2018	RRC-71	PRC-24/PRC-25		RCDF-13	6/28/18	3:15 PM	2X5	RCDF-13	LA	061	6/29/18	LA	BM	PASS	Machine 01
6/27/2018	RRC-72	PRC-26/PRC-27		RCDF-14	6/28/18	3:40 PM	2X5	RCDF-14	LA	061	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-73	PRC-5/PRC-27		RCDX-2	6/29/18	11:50 AM	2X7	RCDX-2	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-74	EL/PRC-17		WR	6/29/18	1:40 PM	3X4	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-75	EL/PRC-17		RCDF-15	6/29/18	3:30 PM	2X7	RCDF-15	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-76	EL/PRC-17		W	6/29/18	4:20 PM	4X10	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-77	EL/PRC-17		PT	6/29/18	4:05 PM	3X7	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-78	EL/PRC-14/PRC-17		COVERED BY RRC-75							6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-79	PRC-13/PRC-14/PRC-17		INT	6/29/18	8:00 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-80	PRC-13/PRC-17/PRC-18		INT	6/29/18	8:22 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-81	PRC-12/PRC-13/PRC-18		DO	6/29/18	8:25 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-82	PRC-12/PRC-18		INT	6/29/18	2:10 PM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-83	PRC-12/PRC-18/PRC-19		INT	6/29/18	8:30 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-84	PRC-11/PRC-12/PRC-19		INT	6/29/18	8:35 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-85	PRC-11/PRC-19/PRC-22		INT	6/29/18	8:40 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-86	PRC-10/PRC-11/PRC-20/PRC-22		INT	6/29/18	8:45 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-87	PRC-09/PRC-10/PRC-20/PRC-23		INT	6/29/18	8:55 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-88	PRC-08/PRC-09/PRC-23/PRC-24		INT	6/29/18	9:05 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-89	PRC-07/PRC-08/PRC-24/PRC-25		INT	6/29/18	9:10 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-90	PRC-07/PRC-25		W	6/29/18	9:20 AM	2X15	C	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-91	PRC-06/PRC-07/PRC-25/PRC-26		INT	6/29/18	10:50 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
6/29/2018	RRC-92	PRC-05/PRC-06/PRC-26/PRC-27		INT	6/29/18	11:09 AM	2X7	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/2/2018	RRC-93	PRC-30/PRC-32		RCDF-16	7/2/18	3:55 PM	2X6	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/2/2018	RRC-94	PRC-27/PRC-29		WR	7/2/18	1:55 PM	2X6	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/2/2018	RRC-95	PRC-27/PRC-28/PRC-29		INT	7/2/18	3:10 PM	5X6	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/2/2018	RRC-96	PRC-27/PRC-28		BO	7/2/18	3:15 PM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/2/2018	RRC-97	PRC-29/PRC-30/PRC-31		INT	7/2/18	3:27 PM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/2/2018	RRC-98	PRC-28/PRC-29/PRC-30		INT	7/2/18	3:35 PM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/2/2018	RRC-99	PRC-28/PRC-30/PRC-32		INT	7/2/18	3:40 PM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/2/2018	RRC-100	PRC-27/PRC-28/PRC-32		INT	7/2/18	3:45 PM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/2/2018	RRC-101	PRC-30		DO	7/2/18	3:30 PM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/2/2018	RRC-102	PRC-27		DO	7/2/18	1:50 PM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/4/2018	RRC-103	PRC-32		DO	7/4/18	9:20 AM	3X4	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/4/2018	RRC-104	EL/PRC-31		W	7/4/18	8:10 AM	2X5	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/3/2018	RRC-105	EL/PRC-31		RCDF-17	7/3/18	2:11 PM	2X9	RCDF-17	LA	008	6/29/18	LA	BM	PASS	Machine 01



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750' - 9900' Elevations**  
**Geomembrane Defect/Repair Summary**



**Location:** AT - Anchor Trench; TI - Tie In; NEOS - North End of Seam; EEOS - East End of Seam; SEOS - South End of Seam; WEOS - West End of Seam  
**Defect Type:** RC - Recertification Project, FM - Fishmouth; BO - Burnout; W - Wrinkle; BS - Boot Skirt; DF - Fusion Destruct; DX - Extrusion Destruct; PU - Puncture; PT - Pressure Test; INT - Panel Intersection  
 FS - Failed Seam; DO - Damage by Others; WR - Welder Restart; IO - Insufficient Overlap; MD - Manufacturer Defect; FVT - Failed Vacuum Test  
**Defect Repair:** P - Patch; C - Cap; B - Bead

Defect Date	Defect Number	Seam / Panel Number	Location	Defect Type	Defect Repair						Repair Vacuum Test				Remarks
					Repair Date	Time	Size	Type	Operator	Machine Number	Test Date	Tech	QA Monitor	P/F	
7/3/2018	RRC-106	PRC-1/PRC-31		RCDX-3	7/3/18	12:55 PM	2X7	RCDX-3	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/3/2018	RRC-107	PRC-4/PRC-5/PRC-27/PRC-32		INT	7/3/18	12:40 PM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/3/2018	RRC-108	PRC-3/PRC-4/PRC-30/PRC-32		INT	7/3/18	12:45 PM	2X6	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/3/2018	RRC-109	PRC-1/PRC-3/PRC-30/PRC-31		INT	7/3/18	12:50 PM	2X5	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/3/2018	RRC-110	EL/PRC-1/PRC-31		COVERED BY RRC-105							6/29/18	LA	BM	PASS	Machine 01
7/4/2018	RRC-111	PRC-31		DO	7/4/18	8:25 AM	2X2	P	LA	008	6/29/18	LA	BM	PASS	Machine 01
7/7/2018	RRC-112	PRC-35/PRC-36		PT	07/09/18	12:35 PM	2X6	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/7/2018	RRC-113	PRC-37/PRC-38		RCDF-18	07/09/18	1:45 PM	2X5	RCDF-18	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/9/2018	RRC-114	EL/PRC-33		RCDF-19	07/09/18	12:50 PM	2X5	RCDF-19	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/9/2018	RRC-115	EL/PRC-33		PT	07/09/18	3:15 PM	3X15	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/9/2018	RRC-116	EL/PRC-17/PRC-33		INT.	07/09/18	3:33 PM	6X11	C	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/9/2018	RRC-117	EL/PRC-31/PRC-41		INT.	07/09/18	10:15 AM	10X15	C	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-118	PRC-17/PRC-18/PRC-33		INT.	07/10/18	8:05 AM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-119	PRC-18/PRC-19/PRC-33/PRC-34		INT.	07/10/18	8:20 AM	2X4	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-120	PRC-19/PRC-20/PRC-34/PRC-35		INT.	07/10/18	8:55 AM	2X5	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-121	PRC-20/PRC-23/PRC-35/PRC-36		INT.	07/10/18	9:05 AM	2X6	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-122	PRC-23/PRC-24/PRC-36/PRC-37		INT.	07/10/18	9:10 AM	2X6	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-123	PRC-24/PRC-025/PRC-37/PRC-38		INT.	07/10/18	9:20 AM	2X6	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-124	PRC-25/PRC-38		IO	07/10/18	9:25 AM	2X12	C	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-125	PRC-25/PRC-26/PRC-38/PRC-39		INT.	07/10/18	9:30 AM	2X6	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-126	PRC-26/PRC-27/PRC-39/PRC-40		INT.	07/10/18	9:45 AM	2X7	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-127	PRC-27/PRC-29/PRC-40		INT.	07/10/18	10:02 AM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-128	PRC-29/PRC-40/PRC-41		INT.	07/10/18	10:05 AM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-129	PRC-29/PRC-31/PRC-41		INT.	07/10/18	10:08 AM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-130	EL/PRC-33		WR	07/10/18	1:35 PM	2X7	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-131	EL/PRC-33/PRC-34		INT.	07/10/18	1:46 PM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-132	EL/PRC-34/PRC-35		INT.	07/10/18	1:55 PM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-133	EL/PRC-35/PRC-36		INT.	07/10/18	2:05 PM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-134	EL/PRC-36/PRC-37		INT.	07/10/18	2:15 PM	2X4	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/10/2018	RRC-135	EL/PRC-37/PRC-38		INT.	07/10/18	2:25 PM	2X6	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/11/2018	RRC-136	EL/PRC-38		RCDX-05	07/11/18	7:05 AM	2X10	RCDX-05	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/11/2018	RRC-137	EL/PRC-38/PRC-39		INT.	07/10/18	2:52 PM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/11/2018	RRC-138	EL/PRC-39		IO	07/11/18	6:55 AM	2X14	C	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/11/2018	RRC-139	EL/PRC-39/PRC-40		INT.	07/11/18	6:10 AM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/11/2018	RRC-140	EL/PRC-40		DO	07/11/18	6:15 AM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/11/2018	RRC-141	EL/PRC-40/PRC-41		INT.	07/11/18	6:25 AM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/11/2018	RRC-142	EL/PRC-41		RCDX-04	07/11/18	7:20 AM	2X5	RCDX-04	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/11/2018	RRC-143	EL/PRC-41		DO	07/11/18	6:30 AM	2X2	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/11/2018	RRC-144	EL/PRC-41		WR	07/11/18	6:45 AM	2X7	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
7/11/2018	RRC-145	EL/PRC-35/PRC-36		IO	07/11/18	7:12 AM	2X9	P	LA	008	7/11/18	LA	BM	PASS	Machine 01
8/11/2018	RRC-146 (R-1)		55909.070N, 36933.760E	DO	8/11/2018	7:09 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01



**Cripple Creek & Victor Gold Mining Company**  
**VLF2 Recertification Project Subgrade & Geomembrane 9750' - 9900' Elevations**  
**Geomembrane Defect/Repair Summary**



**Location:** AT - Anchor Trench; TI - Tie In; NEOS - North End of Seam; EEOS - East End of Seam; SEOS - South End of Seam; WEOS - West End of Seam

**Defect Type:** RC - Recertification Project, FM - Fishmouth; BO - Burnout; W - Wrinkle; BS - Boot Skirt; DF - Fusion Destruct; DX - Extrusion Destruct; PU - Puncture; PT - Pressure Test; INT - Panel Intersection

FS - Failed Seam; DO - Damage by Others; WR - Welder Restart; IO - Insufficient Overlap; MD - Manufacturer Defect; FVT - Failed Vacuum Test

**Defect Repair:** P - Patch; C - Cap; B - Bead

Defect Date	Defect Number	Seam / Panel Number	Location	Defect Type	Defect Repair						Repair Vacuum Test				Remarks
					Repair Date	Time	Size	Type	Operator	Machine Number	Test Date	Tech	QA Monitor	P/F	
8/11/2018	RRC-147 (R-2)		55882.184N, 36869.390E	DO	8/11/2018	7:30 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-148 (R-3)		55866.751N, 36847.096E	DO	8/11/2018	7:44 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-149 (R-4)		55858.112N, 36833.928E	DO	8/11/2018	7:54 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-150 (R-5)		55842.079N, 36816.435E	DO	8/11/2018	8:04 AM	4ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-151 (R-6)		55743.407N, 36736.098E	DO	8/11/2018	8:40 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-152 (R-7)		55679.058N, 36693.499E	DO	8/11/2018	8:56 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-153 (R-8)	Vent 4	55543.958N, 36555.722E	VENT	8/11/2018	9:18 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-154 (R-9)	Vent 3	55482.726N, 36529.597E	VENT	8/11/2018	9:28 AM	5ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-155 (R-10)	Vent 2	55422.737N, 36505.042E	VENT	8/11/2018	9:40 AM	5ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-156 (R-11)	Vent 1	55378.140N, 36486.077E	VENT	8/11/2018	9:57 AM	5ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-157 (R-12)	Vent 9	55476.388N, 36628.046E	VENT	8/11/2018	10:50 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-158 (R-13)	Vent 8	55417.571N, 36601.801E	VENT	8/11/2018	11:05 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-159 (R-14)	Vent 7	55372.333N, 36581.271E	VENT	8/11/2018	11:23 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-160 (R-15)	Vent 6	55351.275N, 36572.435E	VENT	8/11/2018	11:35 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01
8/11/2018	RRC-161 (R-16)	Vent 5	55336.340N, 36566.184E	VENT	8/11/2018	11:40 AM	3.2ft <sup>2</sup>	P	HE	A040	8/11/18	HE	RL	PASS	Machine 01





## **Appendix E.10 – Geomembrane Acceptance Forms**



# Geomembrane Acceptance Form



<b>Client:</b> <u>Cripple Creek &amp; Victor Mining Co.</u> <b>Project:</b> <u>VL2 Recertification</u> <b>Project No.:</b> <u>475.0106.026</u>	<b>Contractor:</b> <u>Ames</u> <b>Weather:</b> <u>74°</u> <b>Date:</b> <u>07/09/2018</u>										
<b>Panels:</b> <u>PRC-17 through PRC-32</u>											
<b>Items Inspected:</b> <u>All seaming and repair work is complete in the accepted area</u> <u>All seams and repairs have been pressure tested or</u> <u>vacuum tested</u> <u>All destructive samples have been tested and meet project</u> <u>specifications</u> <u>As-built panel layout, deployment logs, seaming logs,</u> <u>pressure testing logs, vacuum testing logs, repair logs,</u> <u>and destructive testing logs have been reviewed and</u> <u>approved for DCF placement.</u>											
<b>Testing Performed:</b> <table style="width: 100%; border: none;"> <tr> <td style="border: none;"><u>Pressure Testing</u></td> <td style="border: none;"><u>Destructive Testing</u></td> </tr> <tr> <td style="border: none;"><u>Vacuum Testing</u></td> <td style="border: none;"><u>Survey Completed</u></td> </tr> </table>		<u>Pressure Testing</u>	<u>Destructive Testing</u>	<u>Vacuum Testing</u>	<u>Survey Completed</u>						
<u>Pressure Testing</u>	<u>Destructive Testing</u>										
<u>Vacuum Testing</u>	<u>Survey Completed</u>										
<b>Deficient Items:</b> <u>None</u>											
<b>Remedial Actions:</b>											
<b>Geomembrane Accepted:</b> YES <u>X</u> NO _____											
<b>Comments:</b>											
<b>Signatures:</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><u>NewFields:</u> </td> <td style="width: 50%;">Date: <u>07/09/18</u></td> </tr> <tr> <td><u>Ames:</u> </td> <td>Date: <u>7-9-18</u></td> </tr> <tr> <td><u>Comanco:</u> </td> <td>Date: <u>7-9-2018</u></td> </tr> <tr> <td><u>CC&amp;V:</u> </td> <td>Date: <u>7-9-18</u></td> </tr> <tr> <td><u>Other:</u> _____</td> <td>Date: _____</td> </tr> </table>		<u>NewFields:</u>	Date: <u>07/09/18</u>	<u>Ames:</u>	Date: <u>7-9-18</u>	<u>Comanco:</u>	Date: <u>7-9-2018</u>	<u>CC&amp;V:</u>	Date: <u>7-9-18</u>	<u>Other:</u> _____	Date: _____
<u>NewFields:</u>	Date: <u>07/09/18</u>										
<u>Ames:</u>	Date: <u>7-9-18</u>										
<u>Comanco:</u>	Date: <u>7-9-2018</u>										
<u>CC&amp;V:</u>	Date: <u>7-9-18</u>										
<u>Other:</u> _____	Date: _____										



# Geomembrane Acceptance Form



<b>Client:</b> Cripple Creek & Victor Mining Co. <b>Project:</b> VLF2 Recertification <b>Project No.:</b> 475.0106.026	<b>Contractor:</b> Ames <b>Weather:</b> 64° <b>Date:</b> 07/13/2018										
<b>Panels:</b> PRC-33 through PRC-41											
<b>Items Inspected:</b> All seaming and repair work is complete in the accepted area All seams and repairs have been pressure tested or vacuum tested All destructive samples have been tested and meet project specifications As-built panel layout, deployment logs, seaming logs, pressure testing logs, vacuum testing logs, repair logs, and destructive testing logs have been reviewed and approved for DCF placement.											
<b>Testing Performed:</b> Pressure Testing      Destructive Testing Vacuum Testing      Survey Completed											
<b>Deficient Items:</b> None											
<b>Remedial Actions:</b>											
<b>Geomembrane Accepted:</b> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>											
<b>Comments:</b>											
<b>Signatures:</b> <table style="width: 100%;"> <tr> <td style="width: 50%;"> <b>NewFields:</b> </td> <td style="width: 50%;"> <b>Date:</b> 07/13/18         </td> </tr> <tr> <td> <b>Ames:</b> </td> <td> <b>Date:</b> 7-13-18         </td> </tr> <tr> <td> <b>Comanco:</b> </td> <td> <b>Date:</b> 7/16/18         </td> </tr> <tr> <td> <b>CC&amp;V:</b> </td> <td> <b>Date:</b> 7/16/18         </td> </tr> <tr> <td> <b>Other:</b> </td> <td> <b>Date:</b> </td> </tr> </table>		<b>NewFields:</b>	<b>Date:</b> 07/13/18	<b>Ames:</b>	<b>Date:</b> 7-13-18	<b>Comanco:</b>	<b>Date:</b> 7/16/18	<b>CC&amp;V:</b>	<b>Date:</b> 7/16/18	<b>Other:</b>	<b>Date:</b>
<b>NewFields:</b>	<b>Date:</b> 07/13/18										
<b>Ames:</b>	<b>Date:</b> 7-13-18										
<b>Comanco:</b>	<b>Date:</b> 7/16/18										
<b>CC&amp;V:</b>	<b>Date:</b> 7/16/18										
<b>Other:</b>	<b>Date:</b>										





## **Appendix F – Third Party Conformance Testing Results**

### **Appendix F.1 – Manufactured Geomembrane Conformance Testing Results**

### **Appendix F.2 – Existing Geomembrane Conformance Testing Results**





## **Appendix F.1 – Manufactured Geomembrane Conformance Testing Results**



**TABLE 1.**  
**MATERIAL PROPERTIES**  
 CLIENT: NewFields  
 PROJECT: CC&V/ Project 475.0106.026

Date Received: 5/29/2018  
 Date Reported: 6/2/2018  
 Client Sample ID: R#FND0010080002 L#CJB810260  
 Material Description: 80mil LLDPE Microspike Geomembrane

QC'd By: *Maria Espitia*  
 TRI Job No.: G180542  
 TRI Control No.: 128192

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10				
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2° to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>														
		81.5	81.1	81.0	80.9	82.2	80.3	82.3	80.5	84.7	81.7	81.6	1.3	80.3	84.7
ASTM D792	Specific Gravity (23/ 23°C)														
Method A		0.9338	0.9342									0.9340	0.0003	0.9338	0.9342
ASTM D6693	<u>Tensile Properties:</u>														
Type IV	<i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F), and 50+/-5% relative humidity. Rate of Separation: 2"/min</i>														
	Tensile Strength at Break (lbs/ in.- width)														
	MD	280	283	270	277	277						278	5	270	283
	TD	256	227	267	265	250						253	16	227	267
	Elongation at Break (percent, %)														
	MD	487	501	475	487	506						491	12	475	506
	TD	563	498	587	569	552						554	33	498	587
ASTM D4218	Carbon Content <i>Apparatus: Muffle Furnace</i>														
		2.40	2.52									2.46	0.08	2.40	2.52

(End of Table 1)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

LEGENDS:  
 MD - MACHINE DIRECTION  
 TD- TRANSVERSE DIRECTION

1160 North Gilbert Street, Anaheim, CA 92801, [www.precisionlabs.net](http://www.precisionlabs.net)  
 Precision Geosynthetic Laboratories International dba TRI Environmental, Inc.



**TABLE 2.**  
**MATERIAL PROPERTIES**  
 CLIENT: NewFields  
 PROJECT: CC&V/ Project 475.0106.026

Date Received: 5/29/2018  
 Date Reported: 6/2/2018  
 Client Sample ID: R#FND0010080020 L#CJB810260  
 Material Description: 80mil LLDPE Microspike Geomembrane

QC'd By: *Maria Espitia*  
 TRI Job No.: G180542  
 TRI Control No.: 128193

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10				
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2° to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>														
		81.3	83.5	83.2	80.3	80.1	81.5	80.6	85.0	81.1	82.3	81.9	1.6	80.1	85.0
ASTM D792 Method A	Specific Gravity (23/ 23°C) <b>0.9381 0.9378</b>											0.9379	0.0002	0.9378	0.9381
ASTM D6693 Type IV	<u>Tensile Properties:</u> <i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F), and 50+/-5% relative humidity. Rate of Separation: 2"/min</i>														
	Tensile Strength at Break (lbs/ in.- width)														
	MD 243 266 258 268 280											263	14	243	280
	TD 257 254 236 236 218											240	16	218	257
	Elongation at Break (percent, %) Gauge Length = 2.0 in.														
	MD 490 522 467 477 525											496	26	467	525
	TD 561 550 528 537 508											537	20	508	561
ASTM D4218	Carbon Content <i>Apparatus: Muffle Furnace</i>														
	2.41 2.68											2.54	0.19	2.41	2.68

(End of Table 2)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

LEGENDS:

MD - MACHINE DIRECTION  
 TD- TRANSVERSE DIRECTION





## **Appendix F.2 – Existing Geomembrane Conformance Testing Results**



**TABLE 1.**  
**MATERIAL PROPERTIES**  
 CLIENT: NewFields  
 PROJECT: CC&V/ Project 475.0106.026

Date Received: **6/28/2018**  
 Date Reported: **7/5/2018**  
 Client Sample ID: **Sample 3**  
 Material Description: **80mil LLDPE Microspike Geomembrane**

QC'd By: Maria Espitia  
 TRI Job No.: **G180709**  
 TRI Control No.: **129109**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs.	
1	2	3	4	5	6	7	8	9	10							
METHOD	DESCRIPTION															
ASTM D5994	Thickness (mils)															
	<i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2° to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i>															
	<i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															
	82.7	81.2	80.2	80.0	83.7	83.0	81.3	81.8	80.7	80.3	81.5	1.3	80.0	83.7	68 min.	
ASTM D792	Specific Gravity (23/ 23°C)															76 min. ave.
Method A	0.9348	0.9343									0.9345	0.0004	0.9343	0.9348	0.939 max.	
ASTM D6693	<u>Tensile Properties:</u>															
Type IV	<i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F), and 50+/-5% relative humidity. Rate of Separation: 2"/min</i>															
	Tensile Strength at Break (lbs/ in.- width)															
	MD	240	245	249	246	264					249	9	240	264	120 min.	
	TD	233	228	206	289	265					244	33	206	289		
	Elongation at Break (percent, %) <i>Gauge Length = 2.0 in.</i>															
	MD	466	507	559	520	525					515	34	466	559	250 min.	
	TD	466	495	433	601	596					518	77	433	601		
ASTM D4218	Carbon Content															
	<i>Apparatus: Muffle Furnace</i>															
	2.30	2.29									2.29	0.01	2.29	2.30	2 - 3	

(End of Table 1)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

LEGENDS:

MD - MACHINE DIRECTION  
 TD- TRANSVERSE DIRECTION



**TABLE 2.**  
**MATERIAL PROPERTIES**  
**CLIENT: NewFields**  
**PROJECT: CC&V/ Project 475.0106.026**

Date Received: **6/28/2018**  
 Date Reported: **7/5/2018**  
 Client Sample ID: **Sample 4**  
 Material Description: **80mil LLDPE Microspike Geomembrane**

QC'd By: Maria Espitia  
 TRI Job No.: **G180709**  
 TRI Control No.: **129110**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs.	
1	2	3	4	5	6	7	8	9	10							
METHOD	DESCRIPTION															
ASTM D5994	Thickness (mils)															
	<i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2° to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i>															
	<i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															
	82.8	81.8	81.9	80.3	80.0	80.4	80.0	83.2	80.2	82.9	81.4	1.3	80.0	83.2	68 min. 76 min. ave.	
ASTM D792	Specific Gravity (23/ 23°C)															
Method A	0.9364	0.9367									0.9365	0.0002	0.9364	0.9367	0.939 max.	
ASTM D6693	<u>Tensile Properties:</u>															
Type IV	<i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F), and 50+/-5% relative humidity. Rate of Separation: 2"/min</i>															
	Tensile Strength at Break (lbs/ in.- width)															
	MD	237	237	263	242	235					243	12	235	263	120 min.	
	TD	268	281	257	264	228					260	19	228	281		
	Elongation at Break (percent, %) <i>Gauge Length = 2.0 in.</i>															
	MD	467	465	504	490	467					479	18	465	504	250 min.	
	TD	575	607	561	561	501					561	38	501	607		
ASTM D4218	Carbon Content															
	<i>Apparatus: Muffle Furnace</i>															
	2.37	2.37									2.37	0.00	2.37	2.37	2 - 3	

(End of Table 2)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

LEGENDS:

MD - MACHINE DIRECTION  
 TD- TRANSVERSE DIRECTION



**TABLE 1.**  
**MATERIAL PROPERTIES**  
**CLIENT: NewFields**  
**PROJECT: CC&V/ Project 475.0106.026**

Date Received: **7/10/2018**  
 Date Reported: **7/13/2018**  
 Client Sample ID: **Sample 5**  
 Material Description: **80mil LLDPE Microspike Geomembrane**

QC'd By: Maria Espitia  
 TRI Job No.: **G180761**  
 TRI Control No.: **129405**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10				
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2° to the horizontal with the tip rounded to a radius of 0.8+/-0.1 mm(0.031+/-0.004 in), with a specified force of 0.56+/-0.05 N (2+/-0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>														
		82.8	80.3	80.9	82.0	80.5	81.9	82.7	80.5	81.4	82.0	81.5	0.9	80.3	82.8
ASTM D792 Method A	Specific Gravity (23/ 23°C) <b>0.9367 0.9367</b>											0.9367	0.0000	0.9367	0.9367
ASTM D6693 Type IV	<u>Tensile Properties:</u> <i>Test Specimens: Type IV, Width of narrow section:0.25in, Length of narrow section:1.3in, Width Overall:0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23+/-2° C (73.4+/-3.6° F), and 50+/-5% relative humidity. Rate of Separation: 2"/min</i>														
	Tensile Strength at Break (lbs/ in.- width)														
	MD 283 263 292 289 289											283	12	263	292
	TD 241 228 243 290 274											255	26	228	290
	Elongation at Break (percent, %) <i>Gauge Length = 2.0 in.</i>														
	MD 505 475 525 506 520											506	19	475	525
	TD 514 504 518 613 590											548	50	504	613
ASTM D4218	Carbon Content <i>Apparatus: Muffle Furnace</i>														
	2.45 2.40											2.43	0.04	2.40	2.45

(End of Table 1)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

LEGENDS:

MD - MACHINE DIRECTION  
 TD- TRANSVERSE DIRECTION





## **Appendix G – Tensiometer Calibration Certificates**



**DMD FORCE MEASUREMENT SYSTEMS**  
**CERTIFICATE OF CALIBRATION**

*TN-B002*  
*STATION 5*  
*INSTALLED*  
*11-16-2017*

TRACEABLE TO THE UNITED STATES NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY AND PERFORMED IN ACCORDANCE WITH ANSI/NCSL Z540-1-1994.

THIS DEVICE IS CERTIFIED TO BE WITHIN  $\pm 0.50$  % OF FULL SCALE READING AT EACH TEST POINT AT TIME OF SHIPMENT

**CUSTOMER:** COMANCO

**MODEL NUMBER:** SBO-1K

**SERIAL NUMBER:** 259189

**CALIBRATED IN:** Tensile

Applied Value	Expected Value	As Found	Run 1	Run 2	Run 3	Average	Full Scale Error
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0%
40.00	40.00	39.88	39.87	39.86	39.89	39.87	-0.03%
80.00	80.00	79.86	79.86	79.90	79.97	79.91	-0.02%
120.00	120.00	119.80	119.83	119.85	119.96	119.88	-0.03%
160.00	160.00	159.76	159.77	159.84	159.96	159.86	-0.03%
200.00	200.00	199.64	199.75	199.82	199.95	199.84	-0.04%
240.00	240.00	239.61	239.68	239.80	239.92	239.80	-0.05%
280.00	280.00	279.58	279.65	279.79	279.91	279.78	-0.05%
320.00	320.00	319.56	319.62	319.78	319.88	319.76	-0.06%
360.00	360.00	359.49	359.61	359.74	359.87	359.74	-0.06%
400.00	400.00	399.44	399.52	399.75	399.85	399.71	-0.07%

**CALIBRATION EQUIPMENT USED:**

Omega load cell s/n 1476853 and display s/n  
0931501 cal by Trescal on report # 3805640001.  
Traceable to NIST. Cal date- 03/23/2017.

**CALIBRATION DATE:** 11/07/2017

**CERTIFICATE NUMBER:** 3496

**CALIBRATED BY:** DM

**HUMIDITY:** 49 %

**TEMPERATURE:** 77 F

4605 49TH STREET NORTH, ST. PETERSBURG, FLORIDA, 33709. PHONE - 727.388.9517

E-MAIL - [Info@dmdfms.com](mailto:Info@dmdfms.com)



**DMD FORCE MEASUREMENT SYSTEMS**  
**CERTIFICATE OF CALIBRATION**

*TN-B002*  
*STATION 4*  
*INSTALLED*  
*11-16-2017*

TRACEABLE TO THE UNITED STATES NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY AND PERFORMED IN ACCORDANCE WITH ANSI/NCSL Z540-1-1994.

THIS DEVICE IS CERTIFIED TO BE WITHIN  $\pm 0.50$  % OF FULL SCALE READING AT EACH TEST POINT AT TIME OF SHIPMENT

**CUSTOMER:** COMANCO

**MODEL NUMBER:** SBO-1K

**SERIAL NUMBER:** 259188

**CALIBRATED IN:** Tensile

Applied Value	Expected Value	As Found	Run 1	Run 2	Run 3	Average	Full Scale Error
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0%
40.00	40.00	39.83	39.88	39.91	39.92	39.90	-0.02%
80.00	80.00	79.84	79.91	79.97	79.99	79.96	-0.01%
120.00	120.00	119.75	119.85	119.97	119.98	119.93	-0.02%
160.00	160.00	159.70	159.80	160.00	159.94	159.91	-0.02%
200.00	200.00	199.60	199.74	199.98	199.96	199.89	-0.03%
240.00	240.00	239.53	239.69	239.97	239.89	239.85	-0.04%
280.00	280.00	279.48	279.67	280.03	279.92	279.87	-0.03%
320.00	320.00	319.47	319.64	320.04	319.92	319.87	-0.03%
360.00	360.00	359.42	359.58	360.07	359.93	359.86	-0.03%
400.00	400.00	399.35	399.54	400.05	399.92	399.84	-0.04%

**CALIBRATION EQUIPMENT USED:**

Omega load cell s/n 1476853 and display s/n 0931501 cal by Trescal on report # 3805640001. Traceable to NIST. Cal date- 03/23/2017.

**CALIBRATION DATE:** 11/07/2017

**CERTIFICATE NUMBER:** 3495

**CALIBRATED BY:** DM

**HUMIDITY:** 48 %

**TEMPERATURE:** 77 F

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**DMD FORCE MEASUREMENT SYSTEMS**

**CERTIFICATE OF CALIBRATION**

*TN-BOO2*  
*STATION 3*  
*INSTALLED*  
*11-16-2017*

TRACEABLE TO THE UNITED STATES NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY AND PERFORMED IN ACCORDANCE WITH ANSI/NC SL Z540-1-1994.

THIS DEVICE IS CERTIFIED TO BE WITHIN  $\pm 0.50$  % OF FULL SCALE READING AT EACH TEST POINT AT TIME OF SHIPMENT

**CUSTOMER:** COMANCO

**MODEL NUMBER:** SBO-1K

**SERIAL NUMBER:** 259186

**CALIBRATED IN:** Tensile

Applied Value	Expected Value	As Found	Run 1	Run 2	Run 3	Average	Full Scale Error
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0%
40.00	40.00	39.00	39.86	39.88	39.86	39.87	-0.03%
80.00	80.00	79.92	79.92	79.90	79.84	79.89	-0.03%
120.00	120.00	119.86	119.86	119.85	119.79	119.83	-0.04%
160.00	160.00	159.83	159.83	159.79	159.73	159.78	-0.05%
200.00	200.00	199.75	199.75	199.75	199.68	199.73	-0.07%
240.00	240.00	239.72	239.72	239.72	239.62	239.69	-0.08%
280.00	280.00	279.68	279.68	279.60	279.58	279.62	-0.09%
320.00	320.00	319.63	319.63	319.59	319.54	319.59	-0.1%
360.00	360.00	359.60	359.60	359.53	359.48	359.54	-0.11%
400.00	400.00	399.51	399.51	399.46	399.43	399.47	-0.13%

**CALIBRATION EQUIPMENT USED:**

Omega load cell s/n 1476853 and display s/n 0931501 cal by Trescal on report # 3805640001. Traceable to NIST. Cal date- 03/23/2017.

**CALIBRATION DATE:** 11/07/2017

**CERTIFICATE NUMBER:** 3494

**CALIBRATED BY:** DM

**HUMIDITY:** 47 %

**TEMPERATURE:** 77 F

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**DMD FORCE MEASUREMENT SYSTEMS**  
**CERTIFICATE OF CALIBRATION**

*TN-B002*  
*STATION 2*  
*INSTALLED*  
*11-16-2017*

TRACEABLE TO THE UNITED STATES NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY AND PERFORMED IN ACCORDANCE WITH ANSI/NCSL Z540-1-1994.

THIS DEVICE IS CERTIFIED TO BE WITHIN  $\pm 0.50$  % OF FULL SCALE READING AT EACH TEST POINT AT TIME OF SHIPMENT

**CUSTOMER:** COMANCO

**MODEL NUMBER:** SBO-1K

**SERIAL NUMBER:** 259185

**CALIBRATED IN:** Tensile

Applied Value	Expected Value	As Found	Run 1	Run 2	Run 3	Average	Full Scale Error
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0%
40.00	40.00	39.96	39.77	39.96	39.76	39.83	-0.04%
80.00	80.00	80.01	79.74	80.01	79.73	79.83	-0.04%
120.00	120.00	120.01	119.63	120.01	119.68	119.77	-0.06%
160.00	160.00	160.01	159.58	160.01	159.65	159.75	-0.06%
200.00	200.00	199.98	199.42	199.98	199.59	199.66	-0.08%
240.00	240.00	239.96	239.33	239.96	239.53	239.61	-0.1%
280.00	280.00	279.97	279.26	279.97	279.54	279.59	-0.1%
320.00	320.00	319.93	319.17	319.93	319.50	319.53	-0.12%
360.00	360.00	359.97	359.10	359.97	359.40	359.49	-0.13%
400.00	400.00	399.91	399.60	399.91	399.39	399.63	-0.09%

**CALIBRATION EQUIPMENT USED:**

Omega load cell s/n 1476853 and display s/n 0931501 cal by Trescal on report # 3805640001. Traceable to NIST. Cal date- 03/23/2017.

**CALIBRATION DATE:** 11/07/2017

**CERTIFICATE NUMBER:** 3493

**CALIBRATED BY:** DM

**HUMIDITY:** 46 %

**TEMPERATURE:** 77 F

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**DMD FORCE MEASUREMENT SYSTEMS**

**CERTIFICATE OF CALIBRATION**

*TN-B002  
INSTALLED  
11-16-2017  
STATION 1*

TRACEABLE TO THE UNITED STATES NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY AND PERFORMED IN ACCORDANCE WITH ANSI/NCSL Z540-1-1994.

THIS DEVICE IS CERTIFIED TO BE WITHIN  $\pm 0.50$  % OF FULL SCALE READING AT EACH TEST POINT AT TIME OF SHIPMENT

**CUSTOMER:** COMANCO

**MODEL NUMBER:** SBO-1K

**SERIAL NUMBER:** 259184

**CALIBRATED IN:** Tensile

Applied Value	Expected Value	As Found	Run 1	Run 2	Run 3	Average	Full Scale Error
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0%
40.00	40.00	39.82	39.87	39.95	39.91	39.91	-0.02%
80.00	80.00	79.74	79.85	80.00	79.93	79.93	-0.02%
120.00	120.00	119.73	119.83	119.97	119.91	119.90	-0.02%
160.00	160.00	159.71	159.83	160.01	159.91	159.92	-0.02%
200.00	200.00	199.61	199.80	199.99	199.92	199.90	-0.02%
240.00	240.00	239.52	239.75	239.99	239.95	239.90	-0.02%
280.00	280.00	279.51	279.75	279.96	279.97	279.89	-0.03%
320.00	320.00	319.43	319.72	319.99	320.02	319.91	-0.02%
360.00	360.00	359.39	359.60	360.01	359.99	359.87	-0.03%
400.00	400.00	399.35	399.59	399.97	400.02	399.86	-0.03%

**CALIBRATION EQUIPMENT USED:**

Omega load cell s/n 1476853 and display s/n 0931501 cal by Trescal on report # 3805640001. Traceable to NIST. Cal date- 03/23/2017.

**CALIBRATION DATE:** 11/07/2017

**CERTIFICATE NUMBER:** 3492

**CALIBRATED BY:** DM

**HUMIDITY:** 49 %

**TEMPERATURE:** 77 F

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