



Environment and Social Responsibility

Newmont Mining Corporation  
Cripple Creek & Victor Gold Mining Co.  
P.O. Box 191  
Victor, CO 80860  
T 719-689-2977  
F 719-689-3254  
brigitte.florquist@newmont.com

**RECEIVED**

DEC 17 2015

DIVISION OF RECLAMATION  
MINING AND SAFETY

Transmitted by e-mail

December 17, 2015

Mr. Tim Cazier  
Environmental Protection Specialist  
Office of Mine Land Reclamation  
Division of Reclamation, Mining & Safety  
1313 Sherman Street, RM 215  
Denver, CO. 80203

Re: Cresson Project Permit M-1980-244, "Cripple Creek & Victor Gold Mining Company Squaw Gulch VLF Phase I (9450'-9550' Bench) Project Final Report Quality Assurance Monitoring & Test Results."

Dear Mr. Cazier:

We are providing as per your request, via e-mail responses to the items raised in your correspondence of December 15, 2015 regarding the certification report of the "Cripple Creek & Victor Gold Mining Company Squaw Gulch VLF Phase I (9450'-9550' Bench) Project Quality Assurance Monitoring & Test Results" as completed by Amec Earth & Environment, dated October 2015.

Please contact me at 719-689-4048 [Christopher.Hanks@Newmont.com](mailto:Christopher.Hanks@Newmont.com) should you have questions or need anything else.

Sincerely,

Chris Hanks  
Chief Environmental Coordinator

ENCL.



December 17, 2015

Mr. Timothy A. Cazier, PE  
Environmental Protection Specialist  
Colorado Division of Reclamation Mining and Safety  
1313 Sherman Street, Room 215  
Denver, Colorado 80203

**RE: Cripple Creek & Victor Mining, Co. Cresson Project M-1980-244;  
Review Comments for Quality Assurance Monitoring & Test Results Final Report for Squaw Gulch  
VLF Phase 1 (9,450 to 9,550 Bench)**

Dear Mr. Cazier,

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) has prepared this letter on behalf of Cripple Creek & Victor Mining Company (CC&V) in response to comments provided by the Colorado Division of Reclamation Mining and Safety (DRMS) regarding review comments of the above referenced letter dated December 15, 2015. Only an electronic copy of this letter and attachment will be provided for resubmittal. DRMS comments appear in italics followed by Amec Foster Wheeler's responses. The numbering presented below corresponds to the comment numbering sequence provided by DRMS.

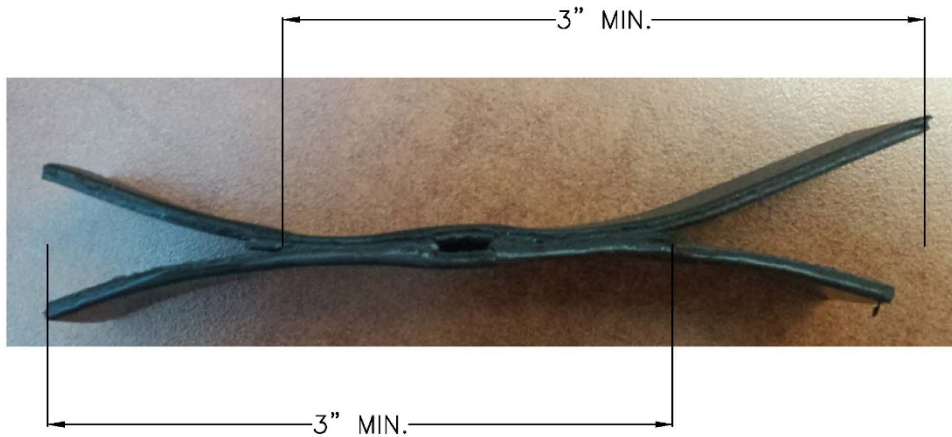
*Report Text:*

2. *Sect 6.3.2, Seaming Observations: The response is partially adequate The Division accepts installation recommendations from Agru for a minimum overlap of 75 mm (3"), but we are confused as to how 3 inches on the top layer and 3 inches on the bottom layer add up to 6 inches. The standard overlap diagrams shown below (Figure 2 for a hot wedge seam and Figure 4 for an extrusion weld seam) would suggest an eight-inch overlap (Figure 2) and a 12-inch overlap (Figure 4) if we understand the statement in the response. Please confirm that is what is meant or provide a sketch explaining how two three-inch overlaps results in a six-inch overlap*

Response:

The 6-inch overlap called out in Appendix J is how we document in the field showing the minimum overlap during deployment has been met in order to complete a successful weld. Adding 3 inches from the top (edge of weld to tail) and 3 inches on the bottom (edge of weld to tail) together, it is noted as 6 inches. The installer sometimes exceeds this minimum overlap during geomembrane deployment, which is acceptable as the excess length is cut off the tail after fusion welding is complete. Photo 1 demonstrates the above description. This allows for destructive testing of the weld.

Continued...



*Photo 1 Completed Geomembrane Fusion Weld*

5. Drawing A400: The response that "Revision 4 was never re-issued for construction" conflicts with the revision block on Drawing A400 submitted in the October (ROC Report) which states on 07/15/15 "Revised Collection Pipes/Re-Issued for Construction". Please provide an explanation.

Response:

Drawing A400 Revision 4 was prepared at the request of the Earthworks Contractor through CC&V. The potential design change was evaluated in the field and it was determined there was no need to reissue the drawing, however the revised drawing had already been prepared. The Revision 4 drawing was not deleted and remained in our drawing folder. Rather than have The Division believe there was a Revision 4 drawing, the drawing was replaced in the Addendum with Revision 3, the correct one. The coversheet/index sheet is correct.

18. Appendix M: Please address the following Appendix M comments:

- a. M.1 Tables: The Division reviewed the original M.1 tables assuming the purpose of these tables was to assist in demonstrating the facility (SGVLF-Phase 1) was constructed in accordance with the approved design plan as required by Rule 7.3.2(2). The Division's review discovered some inconsistencies in Table M.1 and asked as the purpose of portions of the table that appear to reflect as constructed conditions. The response did not address the purpose, but apparently eliminated the discrepancies. The response is minimally adequate.

Response:

The original purpose of the notes and quantity table was for field use only and tracking of specific quantities for particular workings at the request of CC&V. For some of the workings, quantities in the notes were field estimates of materials used until documentation from the contractor and/or surveyor was provided leading to discrepancies between the notes and the table. The Project Resident reviewed the

tables, quantities, and field notes and made appropriate corrections to the tables to eliminate discrepancies.

b. M.1 Figures:

- i. *Note 3 on Figure UG27 states “25 CY of approved 4020 mix concrete and 45 CY of 300 psi mix concrete was placed as a substitution for cemented rockfill.” The response is unacceptable. Again, the Division cannot overemphasize the need for the Certifying Engineer to be familiar with the approved designs and specifications. Having excess material that does not meet the required specification is NOT justification for using the excess material. It must be demonstrated to the Division’s satisfaction that the admittedly lower compressive strength flowable fill material used in the remediation of Underground Working #6320 will have no adverse impact on the function and/or integrity of the VLF liner system over the design life of the VLF in the vicinity of UG #6320. Furthermore, it is not acceptable to change the unspecified “4020 Mix Concrete” to “Approved 4001 mix without any explanation. If it cannot be demonstrated to the Division’s satisfaction that the future integrity of the VLF liner has not been or will not be adversely impacted by this substitution of substandard material, the Division will require UG #6320 to be re-excavated and remediation performed to meet the approved Drawings and Specifications.*

Response:

Figure UG27 specific to Underground Working #6320 has been attached with this response letter to demonstrate the remediation and add clarification to the explanation presented below of the remediation of Underground Working #6320.

The bottom of the concrete plug elevation is established 15 feet below the subgrade elevation (12 inches below the design SLF surface). A 3-foot thickness of 4,000 psi concrete was placed to construct the plug. The thickness of the concrete was measured at the time of the pour using a grade stake marked at three feet. A 3-foot-thick plug is the minimum thickness required. Placement of additional 4,000 psi concrete is allowable. To achieve the required 7-foot-minimum thickness of cemented rockfill over the concrete plug, a 3.5-foot-thick layer of 4,000 psi concrete was placed. The additional concrete was “classified” as cemented rockfill. The compressive strength properties of the concrete far exceed those of the specified cemented rockfill. The required 7-foot thickness of cemented rockfill was completed by placement of a 3.5-foot-thick layer of flowable fill material. The flowable fill was also “classified” as cemented rockfill. The compressive strength properties of the flowable fill also exceed those of the cemented rockfill. The project specifications do not require a minimum compressive strength for cemented rockfill, but require a compressive strength of 300 psi for flowable fill. The remediation of Underground Working #6320 was completed with the

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placement of 5-foot-thick layer of structural fill material over the top of the flowable fill to achieve a total 15-foot-thick section below subgrade.

Neither the additional 4,000 psi concrete nor flowable fill material used as a substitution for cemented rockfill is substandard; they both exceed the project specifications. Per the project specifications, flowable fill material is required to have a minimum compressive strength of 300 psi. There is not requirement for compressive strength for cemented rockfill. During remediation of another underground working, a sample of cemented rockfill was cast and compressive strength testing was performed at 3 and 7 days. While a 28 day break was not performed, it is a general “rule of thumb” that a 7 day break is 60 to 75 percent of 28 day strength. The 7 day break for cemented rockfill had a compressive strength of 70 psi, correlating to a 28 day break range of 91 to 119 psi. As such, cemented rockfill has a lower compressive strength than flowable fill. Per a telephone conversation with the Division, we have included a photograph showing the appearance of cemented rockfill. Please note this picture is not from working UG#6320 and is for visual reference only.



*Photo 2 Example of Cemented Rockfill Material*

The concrete mix as outlined on the Appendix M.3 Underground Workings Concrete summary table and the individual test report #17 located in Appendix M.4 call out “4001 Mix Design”; “4020” on Figure UG27 included in the October 2015 ROC report was incorrect. It is speculated that while the

Continued...

figure was being drawn, the technician began with "40" for the mix design and ended the second half of the number of the UG working number "20". The figure was revised to show the correct mix design as those documented in Appendix M.3 and Appendix M.4.

Please do not hesitate to contact me at 303-975-2192 or [Andrea.Meduna@amecfw.com](mailto:Andrea.Meduna@amecfw.com) with any questions.

Sincerely,

**Amec Foster Wheeler Environment & Infrastructure, Inc.**



Andrea L. Meduna, PE  
Project Manager/Certifying Engineer

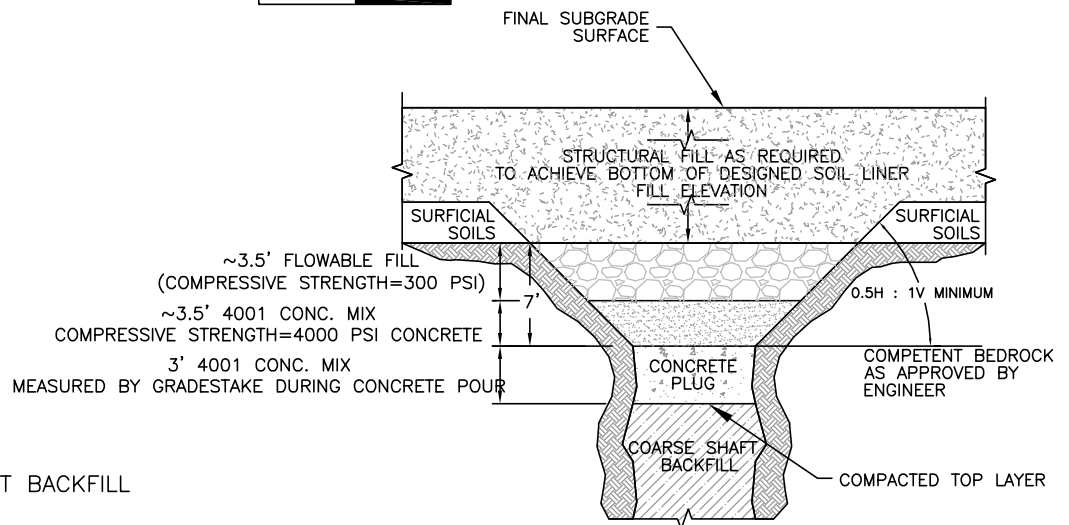
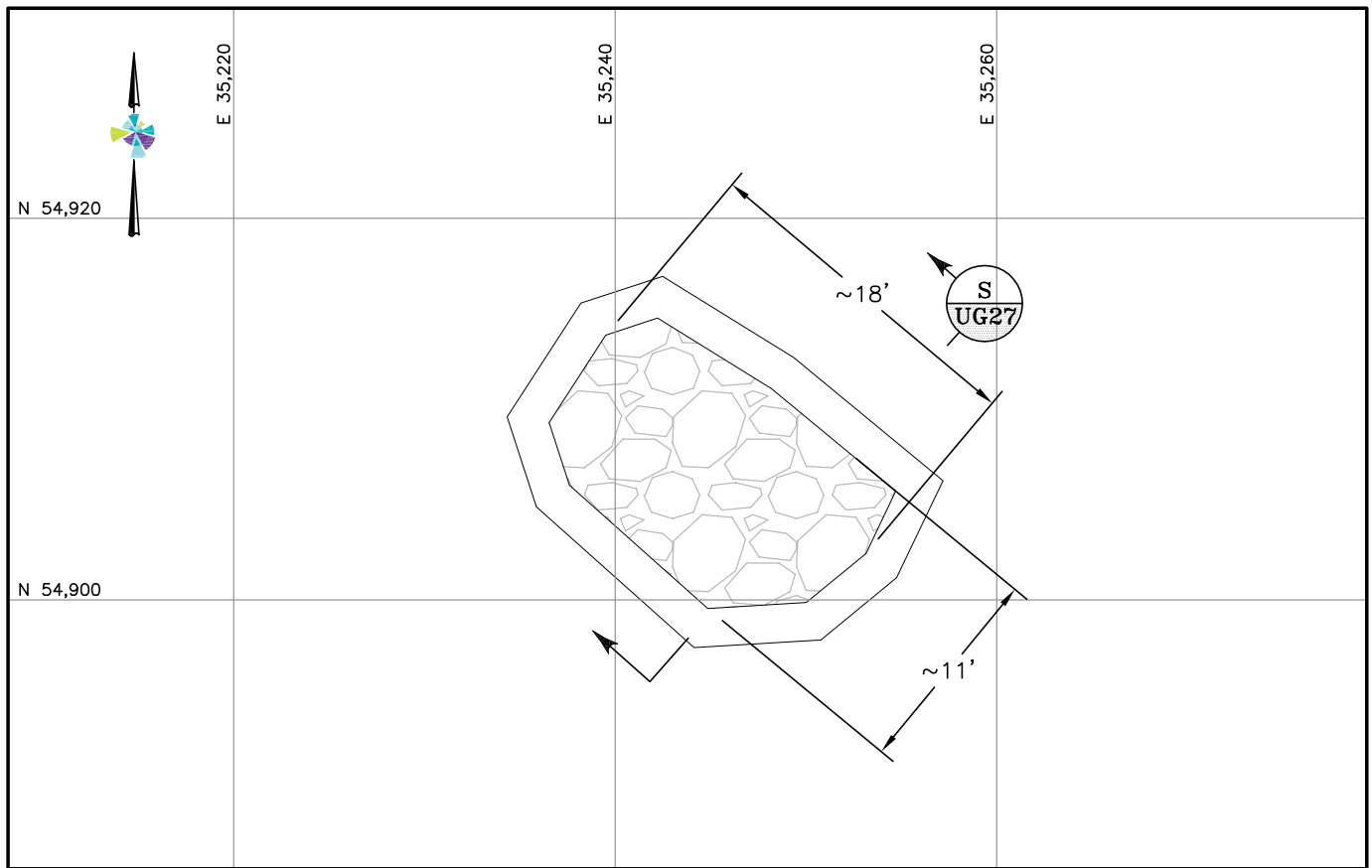
Attachments:

Figure UG27

cc: Mr. Ron Roberts, Project Manager, CC&V  
Mr. Ron DiDonato, Project Superintendent, CC&V  
Mr. Jeff Gaul, Project Superintendent, CC&V  
Mr. Chris Hanks, Chief Environmental Coordinator, CC&V  
Mr. Marc Tidquist, Sr. Environmental Coordinator, CC&V  
Ms. Meghan Duck, Document Control, CC&V  
Ms. Katie Holybee, Document Control, CC&V  
Mr. Robert Redd, Project Resident, Amec Foster Wheeler

Amec Foster Wheeler Environment & Infrastructure, Inc.  
2000 S. Colorado Blvd., Suite 2-1000  
Denver, CO 80222  
Tel: (303) 935-6505  
Fax: (303) 935-6575  
[amecfw.com](http://amecfw.com)

S:\Projects\1125N Squaw Valley\8.0 Engineer-Design\8.1 Reports-Docs\Phase I ROC Report\18.Appendix M-UG Work\M-1-Summary and Figures-DONE\CADD\Revised UG27.dwg-12/17/2015 10:43 AM



### QUANTITIES:

6,335 CY - COARSE SHAFT BACKFILL

0 CY - STRUCTURAL FILL

63 CY - APPROVED CEMENTED ROCK FILL (SEE NOTE #3)

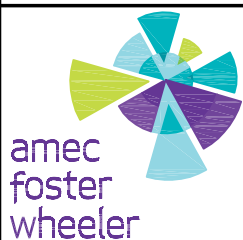
18 CY - CONCRETE PLUG

### NOTES:

1. SLOPE = 0.5H:1V MINIMUM.
2. STRUCTURAL FILL USED IN REMEDIATION EFFORT.
3. 25 CY OF APPROVED 4001 MIX CONCRETE WAS PLACED FOLLOWED BY 38 CY OF 300 PSI FLOWABLE FILL PLACED AS SUBSTITUTION FOR CEMENTED ROCK FILL.



**REMEDIATION SECTION**  
N.T.S.



CHK BY  
RBR  
APR BY  
ALM  
DRN BY  
JBB/CS  
DSN BY  
JBB

CLIENT  
PROJECT  
TITLE

CRIPPLE CREEK & VICTOR GOLD MINING COMPANY  
SQUAW GULCH VALLEY LEACH FACILITY - PHASE 1  
**CONCRETE REMEDIATION OF  
UNDERGROUND WORKING #6320  
PLAN VIEW**

ISSUED DATE  
**09/28/2015**  
PROJECT No.  
**74201125N0**  
FIGURE No.  
**UG27**  
REV  
**1**