



STATE OF  
COLORADO

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

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## RE: SGVLF Weekly CQA Report (WE 3/22/2014)

1 message

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**Comer, Timm** <TComer@anglogoldashanti.com>  
To: "Cazier - DNR, Tim" <tim.cazier@state.co.us>

Tue, Apr 22, 2014 at 7:57 AM

Tim,

Below is response (highlighted) to your questions from Mike Nelson with AMEC.

**Michael E. Nelson, P.E.**  
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**Timm**

**Timm Comer**

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Consider the environment. Think before you print.

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**From:** Cazier - DNR, Tim [mailto:[tim.cazier@state.co.us](mailto:tim.cazier@state.co.us)]  
**Sent:** Friday, April 04, 2014 10:47 AM  
**To:** Comer, Timm  
**Subject:** SGVLF Weekly CQA Report (WE 3/22/2014)

Timm,

The Division has some concern with respect to the reported cave-in of UG#6153 and the required additional backfill. The CQA report for the WE 3/15/14 indicated that UG#6153 was backfilled and prepared for the installation of the concrete plug.

- 1) How is the backfill for underground workings evaluated for stability prior to concrete plug installation?

Coarse shaft backfill is placed into the shaft opening using an excavator until it reaches a level where the excavator can use the back of the bucket to compact the material. The stability of the shaft backfill is based on the visual observation of the compacted material and its ability to support the pressure applied by the bucket during compaction.

Technical Specification Section 02210, 3.02 Fill Placement addresses this procedure.

"CONTRACTOR shall compact and condition the final surface of the Coarse Shaft Backfill using a method specification that results in a firm surface that will be approved by CERTIFYING ENGINEER."

Coarse shaft backfill conforms to the following specifications:

100% passing 12-inch sieve

0-15% passing No. 200 sieve

The area prepared for the concrete plug is shaped into a cone where a minimum of 3 sides are competent rock.

Technical Specification Section 03320, 3.01 Installation addresses this procedure.

The 3-foot thick concrete plug and 7-foot thick cemented rockfill are placed according to Technical Specification Section 03320 and Section 03310.

The intent of the conical shape of the concrete plug and cemented rockfill is to prevent the structure from settling.

The coarse shaft backfill provides a platform similar to concrete forms that are removed after the concrete has cured.

2) Has CC&V had any experience with underground workings caving in or collapsing after the concrete plug has been installed? The concern of course is the long term integrity of the PSSA liner system.

We are not aware of any instances where the concrete plug has collapsed.

Tim Cazier

Environmental Protection Specialist



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