From: Randall Fedors
Sent: Thursday, September 27, 2007 10:12 AM
To: Kevin Smart; Goodluck Ofoegbu
Cc: Danielle Wyrick; 'rlenhard@cnwra.swri.edu'; Jack Guttmann; Mysore Nataraja; 'cmanepally@swri.edu'
Subject: RE: tunnel locations

As I said in the email, use of the muck pile for an absolute value of a bulking factor would be misleading. However, what I am putting out for discussion is the use of the muck pile to get an idea of how much this (non-ideal) pile of rocks compresses with a static load of ~ 30 m. My inclination is to say the compression would be substantially different, but someone else might have a different opinion and want to follow up. I mentioned it in the email so that others would think about it, and decide for themselves.

I tried to leave an open mind on the part about compressing a pile of rocks. I suggest that there are too many fines (eyeball estimate in muck pile 30% by volume) in the muck pile. With this many fines, the compression at the bottom may not be the same as compression at the bottom of a pile with 1-2% fines (current conceptualization of rubble in drifts).

--Randy

>>> Goodluck Ofoegbu <ofoegbu@cnwra.swri.edu> 09/27/2007 9:46:48 AM >>>
I agree that using this kind of muck pile as a rubble analogue could be misleading.

> -----Original Message-----
> **From:** Kevin Smart [mailto:ksmart@cnwra.swri.edu]
> **Sent:** Thursday, September 27, 2007 8:34 AM
> **To:** 'Randall Fedors'; 'Goodluck Ofoegbu'
> **Cc:** 'Robert Lenhard'; 'Jack Guttmann'; 'Mysore Nataraja'; cmanepally@swri.edu; 'Danielle Wyrick'
> **Subject:** RE: tunnel locations
>
> All,
>
> Regarding the muck pile comment - I agree completely with Randy that the muck pile is not a good analog to the natural rubble. Both the size and shape of the particles in the muck pile not likely to be representative of the natural rubble material.
>
> --Kevin
>
> **********
> Kevin J. Smart, Ph.D., P.G.
> Dept. of Earth, Material, & Planetary Sciences
> Geosciences & Engineering Division
> Southwest Research Institute
> 6220 Culebra Road
> San Antonio, TX 78238-5166
> Phone: 210-522-5859 Fax: 210-522-5155
> Email: ksmart@swri.org

From: Randall Fedors [mailto:RWF@nrc.gov]
Sent: Thursday, September 27, 2007 7:08 AM
To: Goodluck Ofoegbu
Cc: Kevin Smart; Robert Lenhard; Jack Guttmann; Mysore Nataraja; cmanepally@swri.edu
Subject: RE: tunnel locations

Goodluck

I selected locations based on the following considerations:

1. geology (Tptpmn and Tptpll considered);
2. fracture density from both the full periphery maps and the detailed line survey (thanks to Kevin Smart);
3. indications of fragments detaching in mine safety logs;
4. drift wall support limited to short rib, rock bolt, and wire mesh (I avoided areas that had ribs with slats/lagging);
5. proximity to stops for other observations (non-NRC, such as MPBX readings).

The stations are 37+00, 43+40, and 51+00. Three sequences of photographs covering the full periphery were taken at each 10-m section. In addition, the material collecting in tarps near Niche 3 was photographed for comparisons with future observations. The tarps were hanging from the ceiling, and were intended to act as baffles for the open section of the ventilation duct system.

Knowing that the Tptpll was exposed near the curve to the South Ramp, but was only from the springline down, I had planned only to inspect that zone (and not baseline a 10-m section) during the train drive-by. After seeing it, I would now like to include 10-m baselining in the next tunnel entry around 60+00. Note that deviations from plans during the tunnel entry are verboten, thus I had to provide the station stops for the train the day before the trip using my best judgement without actually seeing any of the stations. The reason I think it would be useful to include 60+00 as a 10-m baseline is that the middle nonlith that comprises the ceiling in this area of the tunnel contains up to 10% lithophysae.

Of interest to Raj is the muck pile outside the North Ramp. He has suggested that the muck pile would be a good analog for the rubble in degraded drifts. The muck pile has has 2 sonic cores drilled top to bottom. The sonic cores may disturb bulk density estimates, but still might provide a relative difference between the top and bottom. This relative difference could be used to provide information on compression of rubble caused by a static load of up to 30 meters (approx height of muck pile). I am leaving it up to you and Raj to follow up on this, mostly because I do not think the muck pile is a good analog (the tunnel boring machine ground its way through the mountain creating more fines than would be produced by drift degradation; plus all fragments were ground up small enough so that they fit through the holes in the "grinder"). If you're interested in the sonic core data, I recommend a request for the information to be made available at LSO.

--Randy

>>> Goodluck Ofoegbu <ofoegbu@cnwra.swri.edu> 09/26/2007 3:17:47 PM >>>
Hi Randy,

I was away all of last week, so could not respond to this message on time. I saw it on Monday (9/24) and realized today from YM team meeting notes that you've already done the tunnel entry. I was going to suggest that the locations be chosen more or less randomly, especially if we expect the monitoring to go on for a long time. This suggestion is late, but probably is consistent with the choices you made or could be implemented at the next opportunity. Thanks.

Goodluck

-----Original Message-----
From: Randall Fedors [mailto:RWF@nrc.gov]
Sent: Monday, September 17, 2007 7:40 AM
To: Goodluck Ofoegbu
Cc: Mysore Nataraja
Subject: tunnel locations

Goodluck,

After looking at the mine safety log books, I came up with several locations to evaluate for baseline rock fragments along the tunnel. I did notice that observations included fragments at niche locations. I realize the stress field is different at locations where niches begin. Note that I am talking about locations in the tunnel, not locations inside the niches. Do you think I should avoid these locations for baselining and monitoring during future tunnel entries? Specifically, would you discount these locations and suggest that we focus on typical tunnel locations that would be a better analog for emplacement drifts?

Thanks,
Randy

Hearing Identifier: HLW_YuccaMountain_Hold_EX
Email Number: 173

Mail Envelope Properties (Randall.Fedors@nrc.gov20070927101216)

Subject: RE: tunnel locations
Sent Date: 9/27/2007 10:12:16 AM
Received Date: 9/27/2007 10:12:16 AM
From: Randall Fedors

Created By: Randall.Fedors@nrc.gov

Recipients:
"Danielle Wyrick" <dwyrick@cnwra.swri.edu>
Tracking Status: None
"'rlenhard@cnwra.swri.edu'" <rlenhard@cnwra.swri.edu>
Tracking Status: None
"Jack Guttmann" <Jack.Guttmann@nrc.gov>
Tracking Status: None
"Mysore Nataraja" <Mysore.Nataraja@nrc.gov>
Tracking Status: None
"'cmanepally@swri.edu'" <cmanepally@swri.edu>
Tracking Status: None
"Kevin Smart" <ksmart@cnwra.swri.edu>
Tracking Status: None
"Goodluck Ofoegbu" <ofoegbu@cnwra.swri.edu>
Tracking Status: None

Post Office:

Files	**Size**	**Date & Time**
MESSAGE	6321	9/27/2007 10:12:16 AM

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received: