

Incoming
2/12/2008/0013 gk

From: "Brad Price" <Bprice@rbgengineering.com>
To: "Pete Hess" <petehess@utah.gov>
Date: 2/12/2008 4:45 PM
Subject: Re: My concerns @ Grassy Trail Dam

CC: <ecc@emerytelcom.net>, <BRETDXON@utah.gov>, "Dana Dean"
 <DANADEAN@utah....

Pete,

We appreciate your comments and offer the following responses to your recommendations. I am copying the State Engineers Dam Safety office, Dave Shaver, and Orlando LaFontaine of East Carbon City for their review. We are asking the City to provide snow removal and assistance in repair of the manhole blocking access to the reservoir bank inclinometer.

While a number of mining induced seismic events are being recorded at the U of U Seismograph station, the accelerations at the dam site are very low due to the distance from the dam to current mining activity. For example, the maximum event of 2.5 showed a maximum acceleration on the dam of only 0.0256g. The critical inclinometer on the dam I-2, is not showing significant movement during the past 3 months.

- 1) We agree that the snow should be removed from all survey monuments. It was extremely difficult to access the site in January, and we will request that the City also remove snow from the access road.
- 2) We consider the probability of a snow slide into the reservoir causing an overtopping event to be extremely remote. If the State Dam Safety Engineer considers this to be a viable concern, we recommend the evaluation include input from the US National Weather Service Avalanche Control section regarding expected size and volume of such an event.
- 3) We received the hillside instrument from InstanTel today and will install this instrument on the dam this week. The instrument that is currently on the dam will be sent to InstanTel to determine the cause of the "Check Sensor" message on the vertical sensor. The transverse and longitudinal sensors appear to be functioning properly. With the distance that mining is occurring from the dam, we expect the longitudinal peak to be the maximum and believe the peak recorded PGA's to be valid. Since the hillside instrument will be placed on the dam, we do not see a need for a portable seismic unit to be placed on the dam.

We were informed that Nielson Construction were responsible for repairing the manhole cover for Inclinometer No. 4 located adjacent to the road on the west side of the reservoir. We spoke with Mr. Don Bennett (435-630-0473) of Nielson Construction. Mr. Bennett stated that they were working for Jake Oil with the road widening and had not been paid for their work. He could not tell Michael when they could repair the damage. We recommend that the City contact Nielson or perform the repairs themselves so that monitoring of this instrument can go forth.

- 4) While we do not see the need at this time for monitoring at 48 hour intervals, we defer to the State Engineer's Dam Safety Engineer for his direction.

Brad

>>> "Pete Hess" <petehess@utah.gov> 2/7/2008 4:54 PM >>>
 Mr. Price...

Thank you for calling me per Dave Shaver's request. It appears we are playing phone tag however. I did not want to call you while you were driving, as indicated by the young lady answering my call.

I basically have two concerns at this point, the first of which is based on the RB&G report titled "Grassy Trail Dam, Seismic Summary for January 26, 2008" by Mr. Michael Hansen.

- 1) It appears that the seismic instrument on the Dam (reporting check sensor message) and the one on the Hillside (improper connection with power supply cord) are not functioning correctly, although eight

events have been recorded by the instrument located on the Dam through January 12, 2008.

Inclinometer I-2 located on the Dam has shown no sign of movement. However, I-3 could not be read without error messages and I-4 is not capable of being monitored.

Piezometer readings on the Dam are missing due to snow depths on the Dam itself.

It appears that one monitoring instrument is functioning as it should.

I have the Ware Engineering report / E-mail of January 9, 2008, in which he indicates that only the straight line survey across the Dam was capable of being conducted due to the snow depths on the Dam proper. The City is not keeping the snow accumulations off of the Dam such that the monitoring surveys can be properly conducted, and has actually heaped snow on several of the survey monuments (please refer to the attachment).

East Carbon and Sunnyside Cities should be made to correct this such that Ware Engineering can properly conduct these surveys, particularly in light of the fact that several of the other monitoring devices can not be monitored, or are not functioning as they should.

2) A lot of seismic events are occurring, as determined from Mr. Hansen's report. From December 15 to January 26, 2008, 57 events have occurred, with a maximum event of 2.5.

I am aware that the emergency action plan for Grassy Trail does not require an evaluation of the Dam until a 3.0 event is recorded within five miles of the Dam. However, I am fearful that we may be placing too much faith in the instruments which, as I have stated above, are not functioning correctly.

Mr. Hansen's report states that no movement has occurred, but I fear that even very slight signs of movement may have been covered by the frequency of snow storms we have had in this area this winter.

Snow pack in the Book Cliffs about 5 miles to the NE approximates eight feet. I am concerned that the seismic events occurring (up to 2.5) could create a potential avalanche danger on the west side of the Dam. If overtopping of the Dam could occur from a snow slide into the reservoir, I believe we should consider avalanche control.

You are certainly more capable in this field than I, but I would like to recommend the following;

- 1) Have the Cities remove the snow from all survey monuments such that Ware Engineering can do the job we expect them to do.
- 2) Evaluate and implement (if necessary) avalanche control above the reservoir to prevent snow slides into the impoundment.
- 3) If I remember correctly, the west abutment is the problem child. I believe an area on the Dam should be cleaned of snow and a portable seismic unit be installed and monitored while mining activities are occurring until the Dam and Hillside unit can be repaired.
- 3) Until the instruments are repaired, at a minimum, have a qualified person inspect this facility, and the slopes above the reservoir (visual) every 48 hours until all monitoring instruments can be properly repaired.

Please call me to discuss these issues.

Thank you.