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**From:** "Rob johnson" <robj@rbgengineering.com>  
**To:** <bretdixon@utah.gov>, <dshaver@utahamerican.com>  
**Date:** 11/22/2006 10:31:54 AM  
**Subject:** Monitoring at Grassy Trail Reservoir

Our proposed monitoring schedule is attached for your review and comment.

The attached file also includes a distribution list for the monthly monitoring data. I've tried to round up a phone number and email address for everyone involved. Please notify me of any corrections, or of any names or contact information to be added to or removed from the list.

Thanks,

Rob

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# Memo

**To:** Bret Dixon, Utah Dam Safety  
Dave Shaver, West Ridge Resources

**From:** Brad Price

**Date:** November 22, 2006

**Re:** Proposed Monitoring Schedule, Grassy Trail Dam & Reservoir

An overview of data obtained to date from instrumentation at Grassy Trail Reservoir was presented at a meeting held November 8, 2006. At this time, the mining operation has moved to another location away from the dam, allowing a reduction in the monitoring frequency for some instrumentation. It was determined at the November 8 meeting that a new monitoring schedule should be established, and that another meeting would be held in approximately six months to re-evaluate the monitoring program. Our recommendations for monitoring during this six-month time period are summarized below.

#### *Accelerometers*

Based on the present rate of activity being recorded by the accelerometers, the memory of these devices does not need to be cleared more frequently than once per month. Under the present conditions, it is our opinion that monthly monitoring of the accelerometers will provide data on a sufficiently frequent basis during the next six months.

#### *Inclinometers*

It is our opinion that inclinometers should be monitored once a month during the next six months. These devices can be monitored during the same monthly site visit required to obtain accelerometer data.

#### *Piezometers and Drains*

We recommend that water elevations in piezometers and seepage flow from drains be recorded on a weekly basis during the next six months. The dam should also be visually inspected during this weekly visit. Care should be taken to note any new cracking, slumping, seepage, or other irregularities on the dam and surrounding slopes -- particularly in the vicinity of the right (west) abutment. As agreed upon at the meeting, an additional piezometer will be installed near the right abutment.

#### *Survey Points*

At the meeting, Dave Shaver indicated that West Ridge Resources will provide a monthly survey of subsidence monitoring points located on the dam. The basis for the survey will be a point located on the left abutment, which is assumed to be stationary based on monitoring performed to date.

Monitoring of Events Reported by University of Utah Seismic Station (UUSS)

It was agreed at the November 8 meeting that daily reviews of the UUSS web site should continue through the next six months. The threshold criteria used to trigger an immediate site visit will remain in effect. If an event of magnitude greater than 3.0 is reported within 5 miles of the dam, thorough site reconnaissance and reading of accelerometer data will be performed within 24 hours. Reading of all other instrumentation will be performed if any recorded ground acceleration exceeds 0.4g.

Under the anticipated conditions, the proposed schedule of monitoring frequencies and responsibilities is summarized on the table below. The recommended frequency may be changed at any time if instrumentation readings, visual observations, or any other factor indicates that this program is insufficient.

ITEM(S) TO BE MONITORED	MONITORING FREQUENCY	MONITORING RESPONSIBILITY	FREQUENCY OF DATA DISTRIBUTION*
Accelerometers, Inclinometers, & Reconnaissance by Geologist/Engineer	Monthly	RB&G Engineering  East Carbon City (forward data to RB&G weekly)  RB&G Engineering	Monthly

\*Data to be distributed monthly to persons on the list below. Any unusual readings or observations should be reported to the group immediately.

**DISTRIBUTION LIST – GRASSY TRAIL RESERVOIR MONITORING INFORMATION**

Name	Organization	Telephone	
Blake, John	Trust Lands	801-538-5152	iblake@utah.gov
Brinton, Peter	BLM / USO	801-539-4162	Peter Brinton@blm.gov
Dixon, Bret	Utah Dam Safety	801-538-7373	bret@dixon@utah.gov
Faddies, Tom		801-538-5150	tomfaddies@utah.gov
Falk, Stephen	BLM – Price	435-636-3605	Steve_Falk@blm.gov
	DOGM	801-538-5259	stevefluke@utah.gov
Grubauch-Littia, Pam	DOGM	801-538-5268	pamgrubauchlittia@utah.gov
Hansen, Michael	RB&G Engineering	801-374-5771	mhansen@rbaengineering.com
Hedberg, Wayne	DOGM	801-538-5286	waynehedberg@utah.gov
Hess, Pete	DOGM – Price	435-613-1146 x203	petehess@utah.gov
Houskeeper, Karl	DOGM – Price	435-613-1146 x201	karlhouskeeper@utah.gov
Hudson, Greg	BLM / USO	801-539-4040	Gregg_Hudson@blm.gov
Kohler, James		801-539-4037	James_Kohler@blm.gov
Llewelyn, Jason	Carbon Co. Emerg. Services	435-636-3251	jlllewelyn@co.carbon.ut.us
Marble, Dave	Utah Dam Safety	801-538-7376	davemarble@utah.gov
McKenzie, Jeff		801-539-4038	Jeff_McKenzie@blm.gov
Perkes, Stan		801-539-4036	Stan_Perkes@blm.gov
Price, Brad	RB&G Engineering	801-374-5771	brprice@rbaengineering.com
Riabv, Steve	BLM / FS – Price	435-636-3604	steve_riabv@blm.gov
Shaver, Dave	West Ridge Resources	435-888-4017	dshaver@utahamerican.com
	Water Rights – Price	435-637-1303	marcstilson@utah.gov
Western, Wayne	DOGM	801-538-5263	
	East Carbon City	435-888-6613	ecc@emervtelecom.net
		435-888-4444	sunrv1@emervtelcom.net