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Date: 3/20/2006 11:44:50 AM
Subject: Grassy Trail Dam - Seismic update 3/17/06

During the week PGA values increased significantly from a previous high of 0.235g on the Hillside to 0.348g, and on the Dam from 0.171g to 0.268g. These accelerations were generated during a 2.6 mag earthquake on 3/11/06, see attached reports for details. Reconnaissance of the area was completed by both West Ridge and RB&G Engineering and no evidence of damage was noted.

Now that we have several readings for Inclinometer # 2 we are sending the data files out to be corrected for errors.

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RB&G ENGINEERING
Grassy Trail Dam, Seismic Summary for March 17, 2006

For the one-week period between March 10, and March 17, 2006 the number of earthquakes increased from five to ten earthquakes were recorded near the site by the UUSS. These MIS earthquakes ranged in magnitude from 1.4 to a high of 2.6. This 2.6 magnitude earthquake occurred at about 8:01 PM on Saturday March 11 and is the largest magnitude event recorded since monitoring began over a year ago. During the past week the area also had a 2.2 and 2.3 magnitude events. All of these earthquakes were recorded on both the Dam and Hillside units.

The number of events recorded on the Hillside accelerometer increased during the past week from 35 to 43 seismic events. The Dam unit increased from 27 to 41 events.

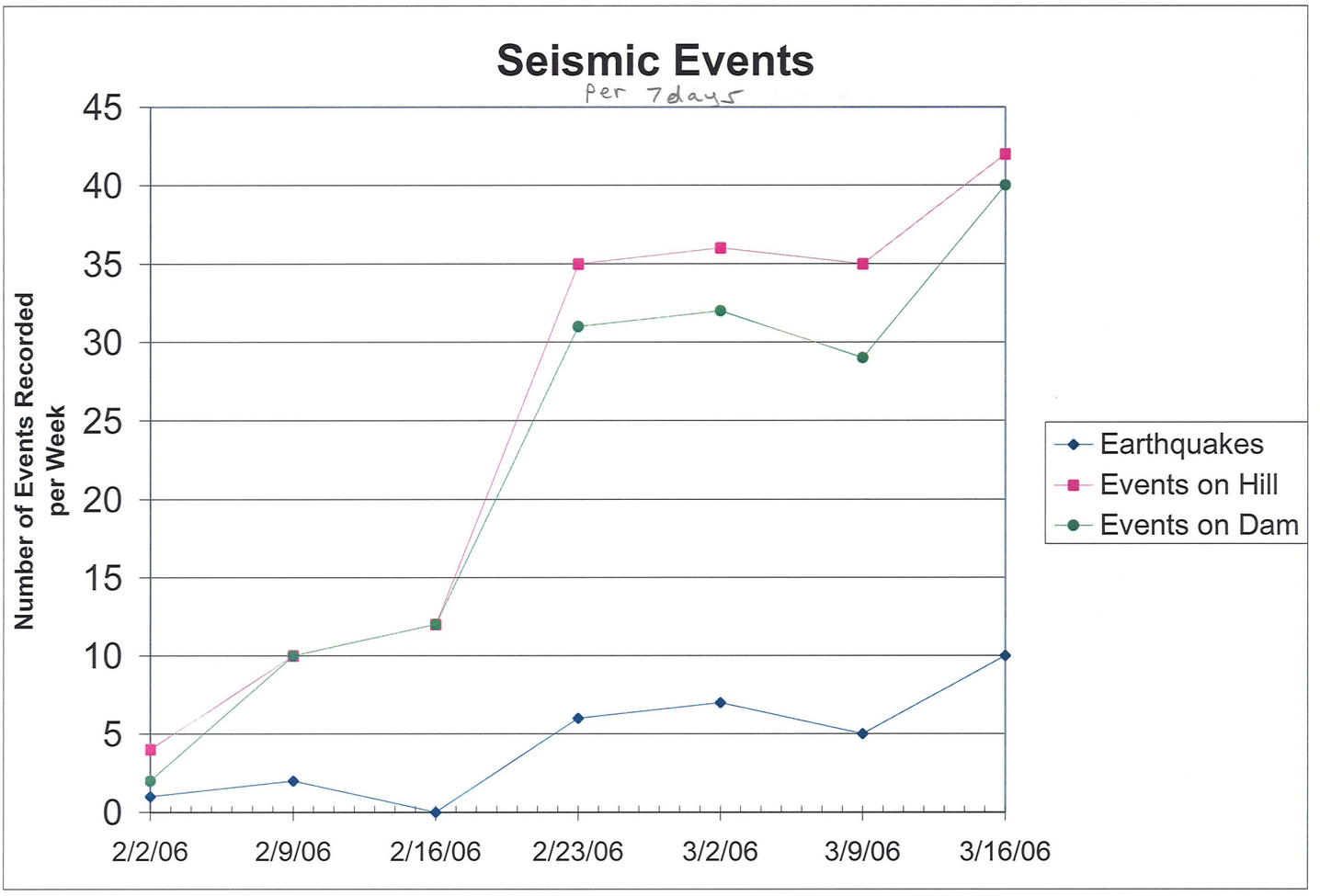
During the week PGA values increased significantly from a previous high of 0.235g on the Hillside to **0.348g**, and on the Dam from 0.171g to **0.268g**. You may recall that during the previous week the number of events and PGA values decreased from the week before. This decrease may have indicated that fewer events contributed to a greater buildup of pressure which eventually broke loose this week as the larger 2.6 mag event. Many small events are better than fewer but larger events.

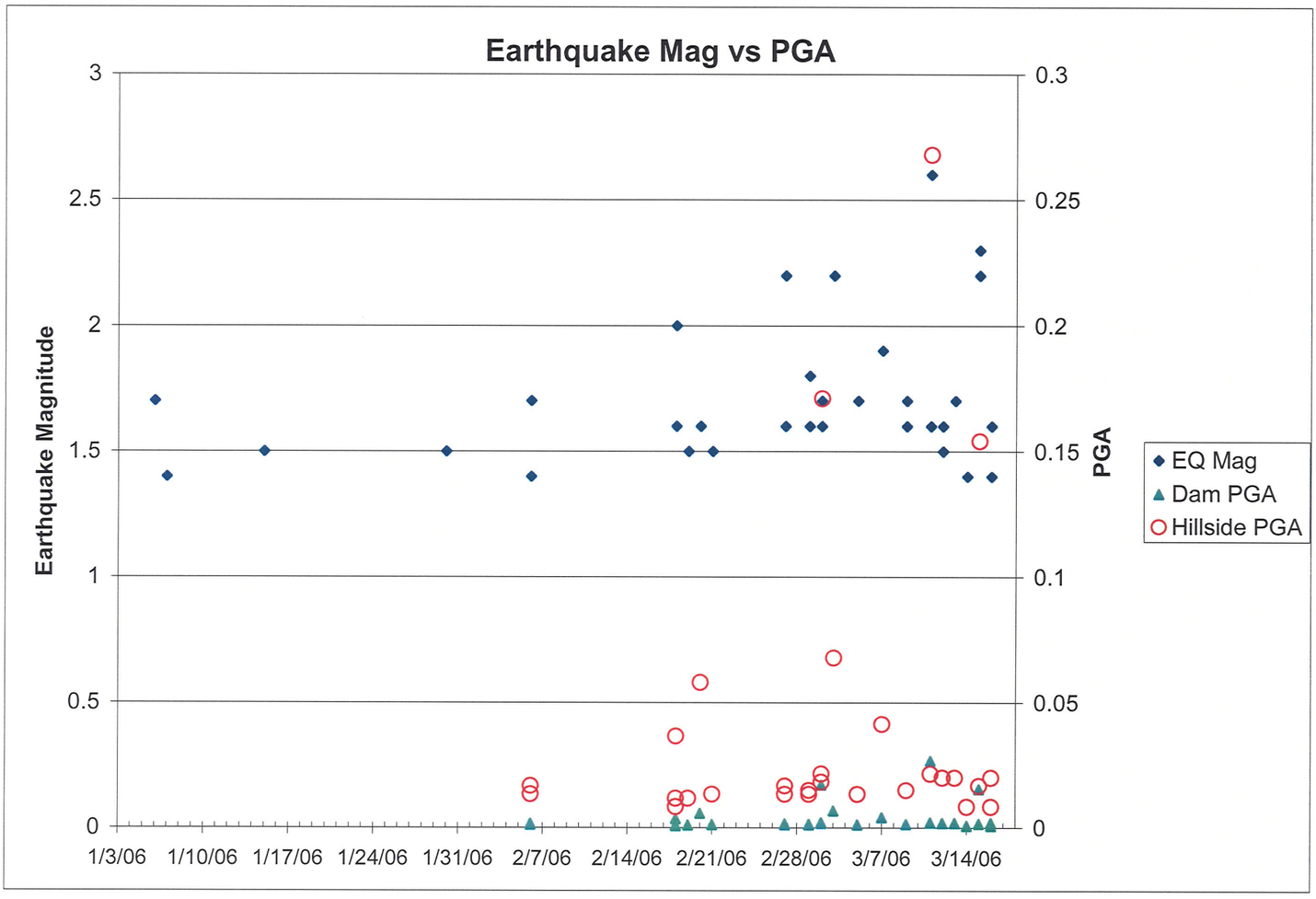
While mining continues to move away from the axis of the dam the lag time between mining and the rock-bursts will likely lead to additional rock-bursts in the area nearest the dam. Events may also increase due to the transition from an area of less to thicker overburden.

Due to the PGA value on the dam exceeding 0.2g (0.268g), all piezometers and inclinometers were read. The landslides and dam were inspected for tension cracks and signs of movement. While much of the area is covered with snow no signs of significant movement were observed on the surrounding landslides. Some minor surface sloughing was noted at the vertical cut at Inclinometer # 4 northwest of the dam. On the east side of the reservoir about 1,000 feet upstream of the dam is a steep slope trending down into the reservoir. Some snow has sloughed off of a portion of this slope. It was also noted that one boulder approximately 1 foot in diameter had rolled down the slope and is now resting out on the ice of the reservoir. It is not known whether any of these movements are associated with the magnitude 2.6 earthquake or just with the heavy snowfall and melting during the week. It should also be noted that what appear to be small desiccation (shrinkage) cracks appear on the crest of the dam on the east end (left) between Peizometers #8/9 and Ob Well #1. (see photo)

Peizometer and inclinometer readings did not show any significant changes and seepage water showed no discoloration or sediment. (Inclinometer accuracy is +- 0.3 inch/100 feet)

RB&G Engineering
Michael Hansen


Seismic Events
per 7days
Number of Events Recorded per Week
45
40
35
30
25
20
15
10
5
0
2/2/06
2/9/06
2/16/06
2/23/06
3/2/06
3/9/06
3/16/06
Earthquakes
Events on Hill
Events on Dam


Earthquake Mag vs PGA
Earthquake Magnitude
PGA
3
2.5
2
1.5
1
0.5
0
0.3
0.25
0.2
0.15
0.1
0.05
0
1/3/06
1/10/06
1/17/06
1/24/06
1/31/06
2/7/06
2/14/06
2/21/06
2/28/06
3/7/06
3/14/06
EQ Mag
Dam PGA
Hillside PGA

Grassy Trail Dam, Carbon County, Utah
2006 Hillside unit #9690 Dam #9689
Printed: March 19, 2006 (V 4.37 - 4.37) Event Report: Event List - c:\blast\mar17

Type	Serial No.	Date/Time		Tran Peak (mm/s)	Vert Peak (mm/s)	Long Peak (mm/s)	PVS1 (mm/s)	Trigger	Tran Accel (g)	Vert Accel (g)	Long Accel (g)	Description	Post Event Note first line
LOG	BE9689	Mar 10 /06	10:39:40	***	***	***	***	***	***	***	***	Start Monitoring	Start Monitoring
LOG	BE9690	Mar 10 /06	11:33:49	***	***	***	***	***	***	***	***	Start Monitoring	Start Monitoring
W	BE9689	Mar 10 /06	20:13:42	0.333	0.270	0.714	0.737	Long	0.00663	0.00663	0.0166	Grassy Tr. Dam	
W	BE9689	Mar 11 /06	01:40:41	0.683	0.540	0.587	0.916	Tran	0.00829	0.00663	0.0166	Grassy Tr. Dam	
W	BE9690	Mar 11 /06	01:40:42	0.778	0.841	1.22	1.41	Vert	0.00663	0.00994	0.00994	Hillside	
W	BE9689	Mar 11 /06	11:45:45	2.92	1.46	1.49	3.38	Vert	0.0215	0.0133	0.0166	Grassy Tr. Dam	EQ Mag 1.6
W	BE9690	Mar 11 /06	11:45:46	2.06	1.37	2.25	2.73	Vert	0.0149	0.0133	0.0149	Hillside	EQ Mag 1.6
W	BE9690	Mar 11 /06	14:47:52	0.317	0.286	0.667	0.669	Long	0.00663	0.00663	0.00663	Hillside	
W	BE9689	Mar 11 /06	18:26:25	0.746	0.587	1.06	1.27	Long	0.00829	0.00663	0.0116	Grassy Tr. Dam	
W	BE9690	Mar 11 /06	18:26:26	0.841	0.587	1.46	1.47	Long	0.00663	0.00829	0.00994	Hillside	
W	BE9689	Mar 11 /06	19:20:56	0.317	0.333	0.873	0.895	Long	0.00663	0.00663	0.00829	Grassy Tr. Dam	
W	BE9690	Mar 11 /06	19:20:57	0.333	0.635	0.397	0.635	Vert	0.00663	0.00829	0.00829	Hillside	
W	BE9689	Mar 11 /06	20:01:16	***	21.8	***	***	Vert	0.196	0.108	0.268	Grassy Tr. Dam	Largest Earthquake, Mag 2.6, PGA 0.268g
W	BE9690	Mar 11 /06	20:01:17	***	13.2	27.0	***	Vert	0.348	0.101	0.167	Hillside	Largest Earthquake, Mag 2.6, PGA 0.348g
W	BE9689	Mar 12 /06	03:39:53	1.06	0.746	0.746	1.33	Vert	0.0133	0.00994	0.0166	Grassy Tr. Dam	
W	BE9690	Mar 12 /06	03:39:54	1.71	1.33	2.19	2.45	Vert	0.0149	0.0133	0.0133	Hillside	
W	BE9689	Mar 12 /06	08:08:39	0.556	0.508	0.857	1.07	Long	0.00663	0.00663	0.0149	Grassy Tr. Dam	
W	BE9690	Mar 12 /06	08:08:40	0.556	0.397	0.984	0.990	Long	0.00663	0.00663	0.00994	Hillside	
W	BE9689	Mar 12 /06	09:31:50	0.429	0.429	0.746	0.877	Long	0.00663	0.00663	0.0182	Grassy Tr. Dam	
W	BE9690	Mar 12 /06	09:31:51	0.524	0.365	0.889	0.895	Long	0.00663	0.00663	0.00829	Hillside	
W	BE9689	Mar 12 /06	11:43:41	0.508	0.508	0.905	1.06	Long	0.00829	0.00663	0.0133	Grassy Tr. Dam	
W	BE9690	Mar 12 /06	11:43:42	0.444	0.444	0.937	0.941	Long	0.00663	0.00663	0.00829	Hillside	
W	BE9689	Mar 12 /06	13:10:40	1.30	1.71	3.11	3.45	Vert	0.0133	0.0133	0.0199	Grassy Tr. Dam	EQ Mag 1.6, PGA 0.0199g
W	BE9690	Mar 12 /06	13:10:41	2.67	1.11	4.21	4.23	Vert	0.0249	0.0116	0.0282	Hillside	EQ Mag 1.6, PGA 0.0282g
W	BE9689	Mar 12 /06	18:42:24	0.365	0.365	0.984	0.999	Long	0.00663	0.00829	0.0149	Grassy Tr. Dam	
W	BE9690	Mar 12 /06	18:42:25	0.365	0.746	0.476	0.748	Vert	0.00663	0.00994	0.00663	Hillside	
W	BE9689	Mar 12 /06	19:33:43	1.76	1.02	2.05	2.08	Vert	0.0149	0.00994	0.0199	Grassy Tr. Dam	EQ Mag 1.5, PGA 0.0199g
W	BE9690	Mar 12 /06	19:33:44	2.68	1.02	2.44	3.27	Vert	0.0265	0.0133	0.0166	Hillside	EQ Mag 1.5, PGA 0.0166g
W	BE9690	Mar 12 /06	22:20:06	0.333	0.254	0.651	0.653	Long	0.00497	0.00663	0.00663	Hillside	
W	BE9689	Mar 12 /06	23:14:56	0.460	0.365	0.746	0.855	Long	0.00663	0.00663	0.0149	Grassy Tr. Dam	
W	BE9690	Mar 12 /06	23:14:57	0.476	0.333	0.873	0.876	Long	0.00497	0.00663	0.00663	Hillside	
W	BE9689	Mar 12 /06	23:21:49	0.810	0.476	0.571	1.02	Tran	0.00829	0.00994	0.0166	Grassy Tr. Dam	
W	BE9690	Mar 12 /06	23:21:50	0.968	0.952	1.59	1.75	Vert	0.00994	0.0116	0.0116	Hillside	
W	BE9689	Mar 13 /06	01:21:57	0.333	0.254	0.825	0.833	Long	0.00663	0.00663	0.0116	Grassy Tr. Dam	
W	BE9690	Mar 13 /06	01:21:58	0.365	0.619	0.429	0.627	Vert	0.00663	0.00994	0.00663	Hillside	
W	BE9689	Mar 13 /06	05:49:48	1.03	0.365	0.651	1.18	Tran	0.00994	0.00663	0.0133	Grassy Tr. Dam	
W	BE9690	Mar 13 /06	05:49:48	1.75	1.25	1.90	2.44	Vert	0.0215	0.0182	0.0166	Hillside	
W	BE9689	Mar 13 /06	09:35:13	1.27	1.60	2.70	2.93	Vert	0.0133	0.0149	0.0199	Grassy Tr. Dam	EQ Mag 1.7, PGA 0.0199g
W	BE9690	Mar 13 /06	09:35:14	1.54	1.11	3.10	3.12	Vert	0.00994	0.0116	0.0199	Hillside	EQ Mag 1.7, PGA 0.0199g
W	BE9689	Mar 13 /06	12:03:17	0.810	0.889	2.24	2.24	Vert	0.00994	0.00994	0.0232	Grassy Tr. Dam	
W	BE9690	Mar 13 /06	12:03:18	1.05	1.35	1.48	1.57	Vert	0.0133	0.0199	0.0133	Hillside	
W	BE9689	Mar 14 /06	08:09:56	0.778	0.365	0.365	0.833	Tran	0.00829	0.00663	0.00994	Grassy Tr. Dam	
W	BE9689	Mar 14 /06	08:44:47	0.921	0.857	1.43	1.67	Vert	0.00994	0.00829	0.0149	Grassy Tr. Dam	
W	BE9690	Mar 14 /06	08:44:48	0.762	0.587	1.60	1.60	Long	0.00663	0.00829	0.0116	Hillside	
W	BE9689	Mar 14 /06	12:44:08	0.746	0.651	1.06	1.24	Vert	0.00663	0.00663	0.00994	Grassy Tr. Dam	
W	BE9690	Mar 14 /06	12:44:10	0.714	0.444	1.32	1.32	Long	0.00663	0.00663	0.00994	Hillside	
W	BE9690	Mar 14 /06	16:45:38	0.333	0.746	0.365	0.747	Vert	0.00663	0.00994	0.00663	Hillside	
W	BE9689	Mar 14 /06	17:42:28	0.651	0.603	1.10	1.22	Vert	0.00829	0.00663	0.00829	Grassy Tr. Dam	EQ Mag 1.4, PGA 0.00829g
W	BE9690	Mar 14 /06	17:42:29	0.651	0.444	1.21	1.22	Long	0.00663	0.00663	0.00829	Hillside	EQ Mag 1.4, PGA 0.00829g
W	BE9690	Mar 14 /06	19:56:22	0.476	0.540	0.857	0.918	Long	0.00663	0.00663	0.00663	Hillside	

W	BE9689	Mar 15 /06	00:24:12	0.937	0.460	0.587	1.01	Tran	0.00994	0.00663	0.00663	Grassy Tr. Dam		
W	BE9690	Mar 15 /06	00:24:13	0.603	0.381	0.619	0.754	Long	0.00663	0.00663	0.00829	Hillside		
W	BE9689	Mar 15 /06	10:32:17	0.603	0.587	1.14	1.26	Long	0.00663	0.00663	0.0133	Grassy Tr. Dam		
W	BE9690	Mar 15 /06	10:32:18	0.667	0.492	1.17	1.18	Long	0.00829	0.00829	0.00829	Hillside		
W	BE9689	Mar 15 /06	11:33:48	2.73	1.49	2.33	3.39	Vert	0.0166	0.0133	0.0166	Grassy Tr. Dam	EQ Mag 2.2,	PGA 0.0166g
W	BE9690	Mar 15 /06	11:33:50	3.43	2.22	5.18	5.41	Vert	0.0282	0.0249	0.0365	Hillside	EQ Mag 2.2,	PGA 0.0365g
W	BE9689	Mar 15 /06	12:02:23	0.619	0.429	0.683	0.924	Long	0.00829	0.00663	0.0116	Grassy Tr. Dam		
W	BE9690	Mar 15 /06	12:02:25	0.317	0.397	0.714	0.738	Long	0.00497	0.00663	0.00829	Hillside		
W	BE9689	Mar 15 /06	17:07:23	0.905	0.746	1.11	1.36	Vert	0.00829	0.00663	0.0116	Grassy Tr. Dam		
W	BE9690	Mar 15 /06	17:07:24	0.921	0.603	1.56	1.56	Vert	0.00829	0.00663	0.00994	Hillside		
W	BE9689	Mar 15 /06	20:23:16	0.460	0.413	0.683	0.824	Long	0.00663	0.00829	0.0149	Grassy Tr. Dam		
W	BE9690	Mar 15 /06	20:23:17	0.381	0.317	0.841	0.844	Long	0.00663	0.00663	0.00663	Hillside		
W	BE9689	Mar 15 /06	21:10:43	14.3	9.32	13.1	15.9	Vert	0.154	0.0696	0.0911	Grassy Tr. Dam	EQ Mag 2.3,	PGA 0.154g
W	BE9690	Mar 15 /06	21:10:45	25.8	7.45	13.8	26.1	Vert	0.182	0.0613	0.106	Hillside	EQ Mag 2.3,	PGA 0.182g
W	BE9689	Mar 15 /06	21:25:22	0.968	0.984	1.62	1.83	Vert	0.00829	0.00994	0.0166	Grassy Tr. Dam		
W	BE9690	Mar 15 /06	21:25:23	0.810	0.698	1.76	1.77	Vert	0.00829	0.00829	0.0116	Hillside		
W	BE9689	Mar 16 /06	07:51:20	0.254	0.317	0.635	0.663	Long	0.00663	0.00663	0.0133	Grassy Tr. Dam		
W	BE9690	Mar 16 /06	07:51:22	0.333	0.683	0.476	0.683	Vert	0.00663	0.00829	0.00829	Hillside		
W	BE9689	Mar 16 /06	10:14:36	0.603	0.524	0.921	1.04	Long	0.00663	0.00663	0.00829	Grassy Tr. Dam		
W	BE9690	Mar 16 /06	10:14:38	0.524	0.381	0.984	1.01	Long	0.00663	0.00663	0.00829	Hillside		
W	BE9689	Mar 16 /06	11:58:10	0.397	0.333	0.603	0.661	Long	0.00663	0.00663	0.00663	Grassy Tr. Dam		
W	BE9690	Mar 16 /06	11:58:11	0.302	0.286	0.714	0.726	Long	0.00663	0.00663	0.00829	Hillside		
W	BE9689	Mar 16 /06	12:02:00	1.10	1.14	1.95	2.21	Vert	0.00994	0.00994	0.0166	Grassy Tr. Dam		
W	BE9690	Mar 16 /06	12:02:02	0.905	0.714	1.95	1.96	Vert	0.00663	0.00829	0.0133	Hillside		
W	BE9689	Mar 16 /06	14:05:30	0.857	0.619	1.03	1.12	Vert	0.00829	0.00663	0.00829	Grassy Tr. Dam	EQ Mag 1.4,	PGA 0.00829g
W	BE9690	Mar 16 /06	14:05:31	0.540	0.476	1.21	1.22	Long	0.00663	0.00829	0.0116	Hillside	EQ Mag 1.4,	PGA 0.0116g
W	BE9689	Mar 16 /06	14:52:15	1.44	0.937	1.59	1.68	Vert	0.0116	0.00829	0.0133	Grassy Tr. Dam		
W	BE9690	Mar 16 /06	14:52:16	1.79	0.810	2.22	2.70	Vert	0.0133	0.00994	0.0166	Hillside		
W	BE9689	Mar 16 /06	17:33:16	1.73	1.46	2.41	2.50	Vert	0.0133	0.0133	0.0199	Grassy Tr. Dam	EQ Mag 1.6,	PGA 0.0199g
W	BE9690	Mar 16 /06	17:33:17	3.24	1.19	3.41	3.69	Vert	0.0232	0.0116	0.0199	Hillside	EQ Mag 1.6,	PGA 0.0232g
W	BE9689	Mar 16 /06	17:53:57	0.667	0.365	0.460	0.792	Tran	0.00994	0.00663	0.0133	Grassy Tr. Dam		
W	BE9690	Mar 16 /06	17:53:58	0.556	0.444	0.730	0.780	Long	0.00663	0.00829	0.00663	Hillside		
W	BE9689	Mar 17 /06	04:30:44	0.968	0.683	0.984	1.37	Vert	0.0116	0.00663	0.00829	Grassy Tr. Dam		
W	BE9690	Mar 17 /06	04:30:46	0.476	0.587	1.11	1.15	Long	0.00663	0.00663	0.00994	Hillside		
W	BE9689	Mar 17 /06	08:26:18	0.905	0.778	1.41	1.52	Vert	0.00663	0.00829	0.0166	Grassy Tr. Dam		
W	BE9690	Mar 17 /06	08:26:20	0.810	0.540	1.56	1.57	Long	0.00663	0.00663	0.00994	Hillside		
LOG	BE9689	Mar 17 /06	08:53:32	***	***	***	***	***	***	***	***	Keyboard Stop	No events recorded.	(Keyboard Exit)
LOG	BE9690	Mar 17 /06	09:56:51	***	***	***	***	***	***	***	***	Keyboard Stop	No events recorded.	(Keyboard Exit)

Instantel®

Event Report

Date/Time	Vert at 20:01:16 March 11, 2006
Trigger Source	Geo: 0.600 mm/s
Range	Geo :31.7 mm/s
Record Time	11.75 sec (Auto=6Sec) at 1024 sps
Job Number:	1

Serial Number	BE9689 V 8.01-8.0 MiniMate Plus
Battery Level	6.3 Volts
Calibration	November 9, 2005 by Instantel Inc.
File Name	K689B250.Y40

Notes
Location: Grassy Tr. Dam
Client:
User Name:
General:

Extended Notes

Post Event Notes
Largest Earthquake, Mag 2.6, PGA 0.268g

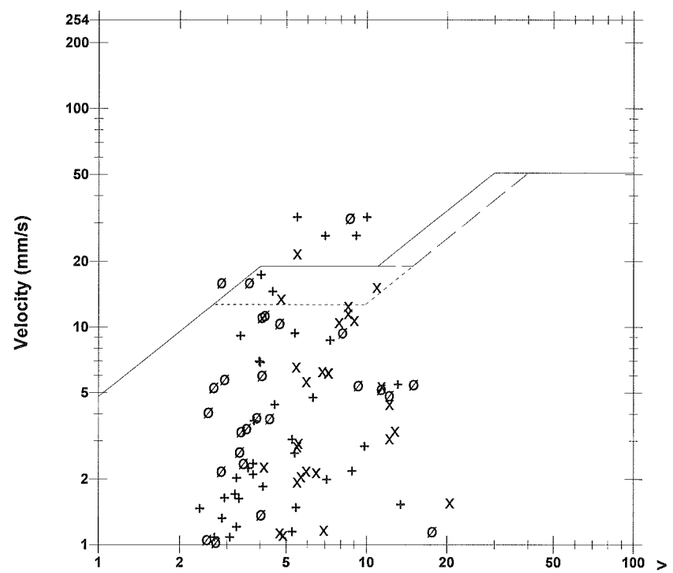
Microphone	Disabled
PSPL	N/A
ZC Freq	N/A
Channel Test	N/A

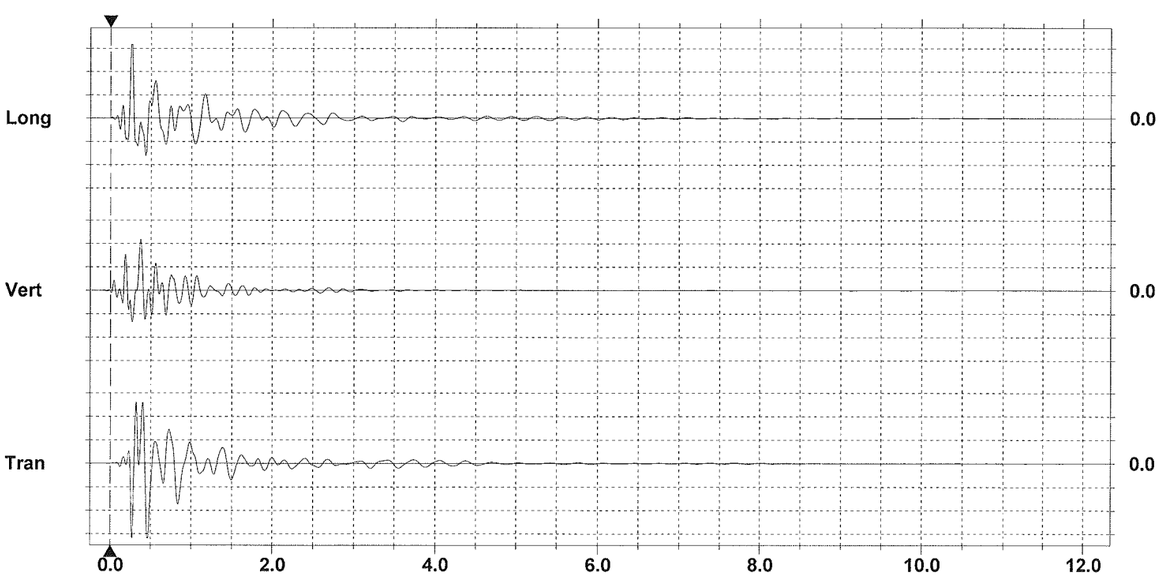
	Tran	Vert	Long	
PPV	***	21.8	***	mm/s
ZC Freq	10	5.5	8.7	Hz
Time (Rel. to Trig)	0.266	0.373	0.255	sec
Peak Acceleration	0.196	0.108	0.268	g
Peak Displacement	0.819	0.465	0.724	mm
Sensorcheck	Check	Check	Check	

Peak Vector Sum *** mm/s at 0.270 sec

N/A: Not Applicable
*** : Out of Range

USBM RI8507 And OSMRE





Time Scale: 0.50 sec/div **Amplitude Scale:** Geo: 10.00 mm/s/div
Trigger =

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Event Report

Date/Time	Vert at 20:01:17 March 11, 2006
Trigger Source	Geo: 0.600 mm/s
Range	Geo :31.7 mm/s
Record Time	9.75 sec (Auto=6Sec) at 1024 sps
Job Number:	2

Serial Number	BE9690 V 8.01-8.0 MiniMate Plus
Battery Level	6.1 Volts
Calibration	November 29, 2005 by Instantel Inc.
File Name	K690B250.Y50

Notes
Location: Hillside
Client: WEST RIDGE MINE
User Name: RB&G ENGINEERING
General:

Extended Notes

Post Event Notes
Largest Earthquake, Mag 2.6, PGA 0.348g

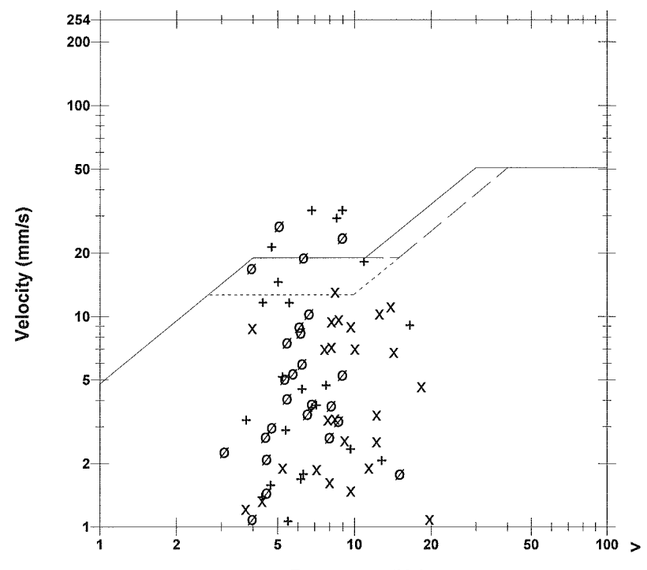
Microphone Disabled
PSPL N/A
ZC Freq N/A
Channel Test N/A

	Tran	Vert	Long	
PPV	***	13.2	27.0	mm/s
ZC Freq	9.0	8.4	5.1	Hz
Time (Rel. to Trig)	0.249	0.446	0.316	sec
Peak Acceleration	0.348	0.101	0.167	g
Peak Displacement	0.908	0.244	0.645	mm
Sensorcheck	Passed	Passed	Passed	

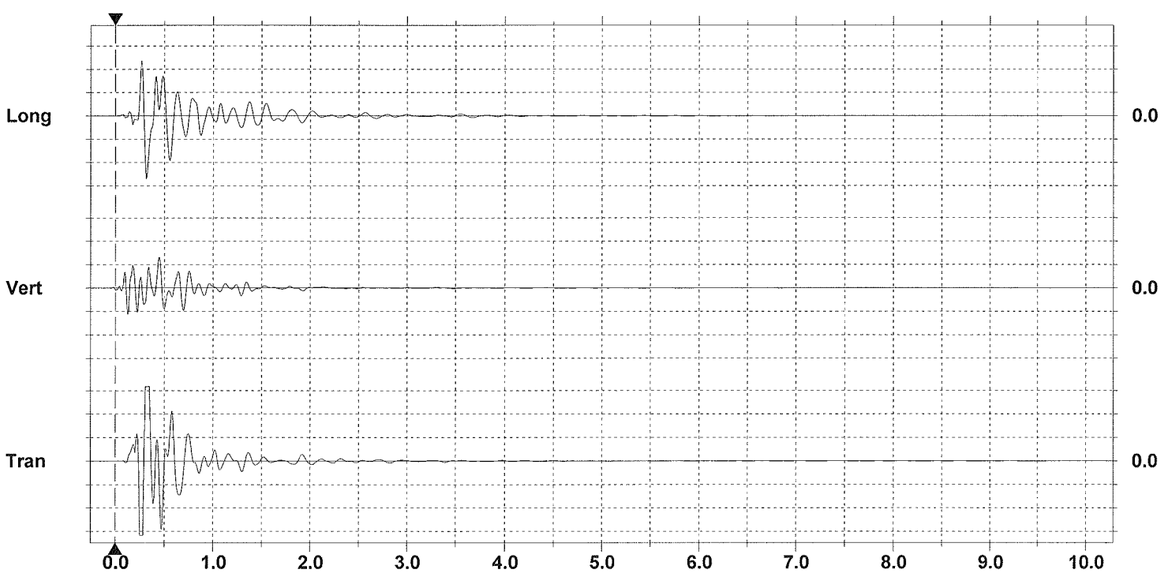
Peak Vector Sum *** mm/s at 0.315 sec

N/A: Not Applicable
*** : Out of Range

USBM RI8507 And OSMRE



Tran: + Vert: x Long: ø



Time Scale: 0.50 sec/div **Amplitude Scale** Geo: 10.00 mm/s/div
Trigger = ▶— — —◀

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Top

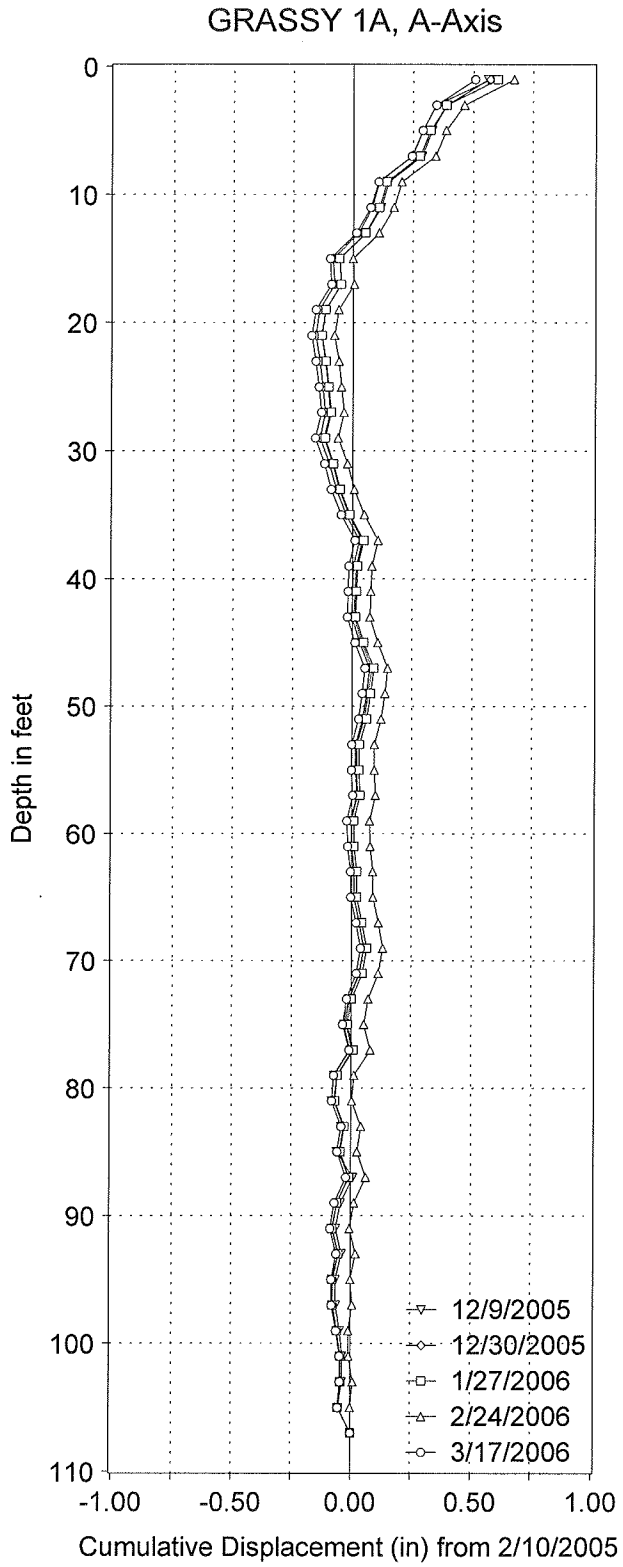
Bottom

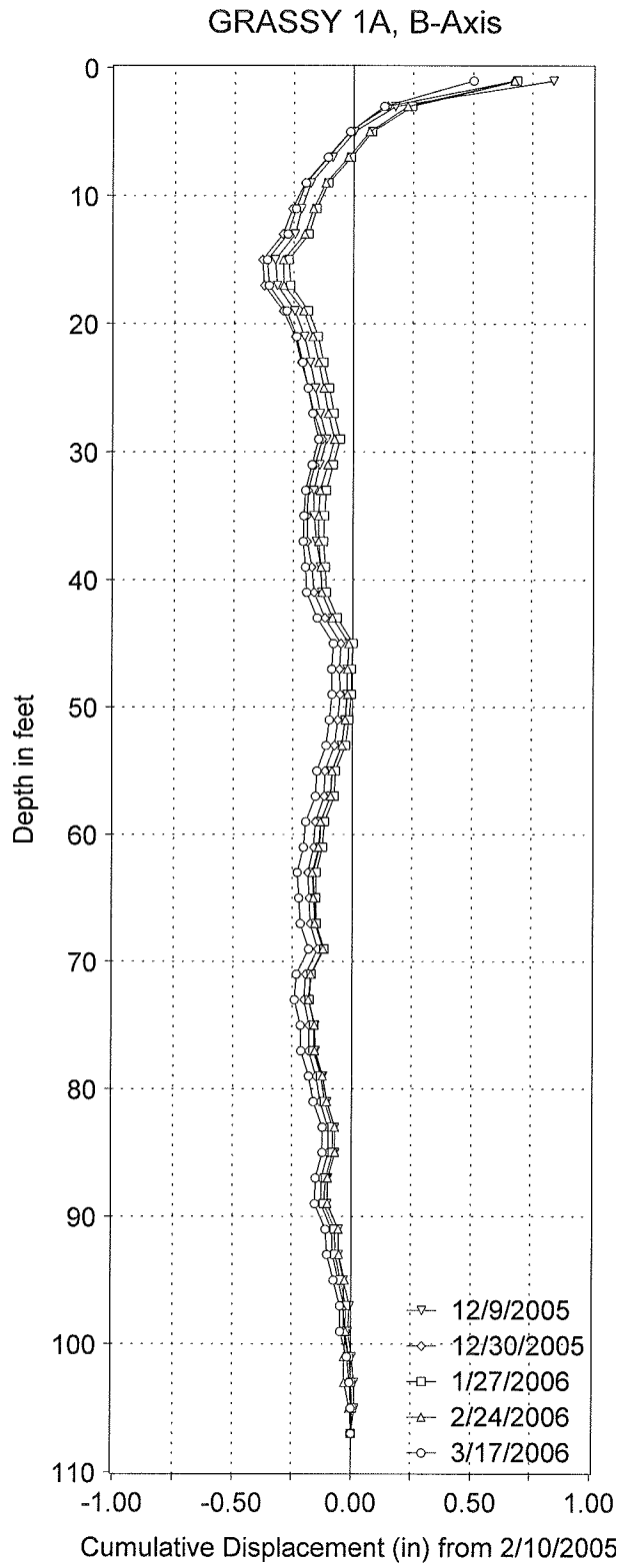
03/17/2006

03/17/2006

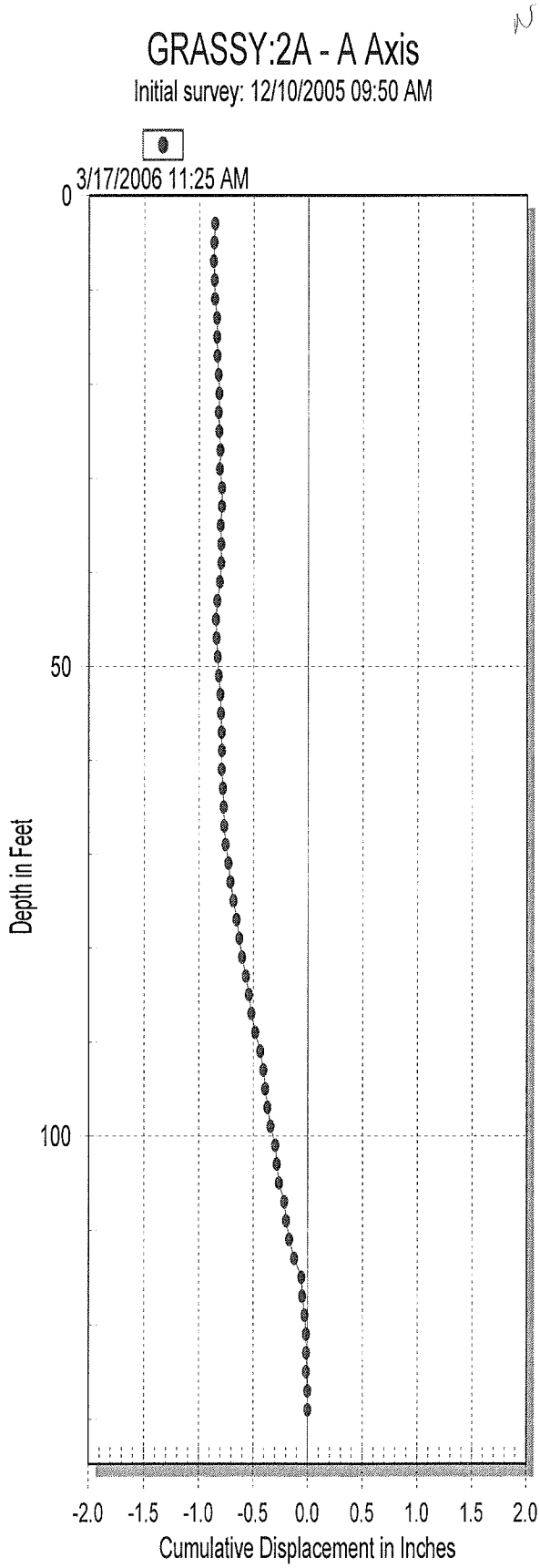
03/17/2006

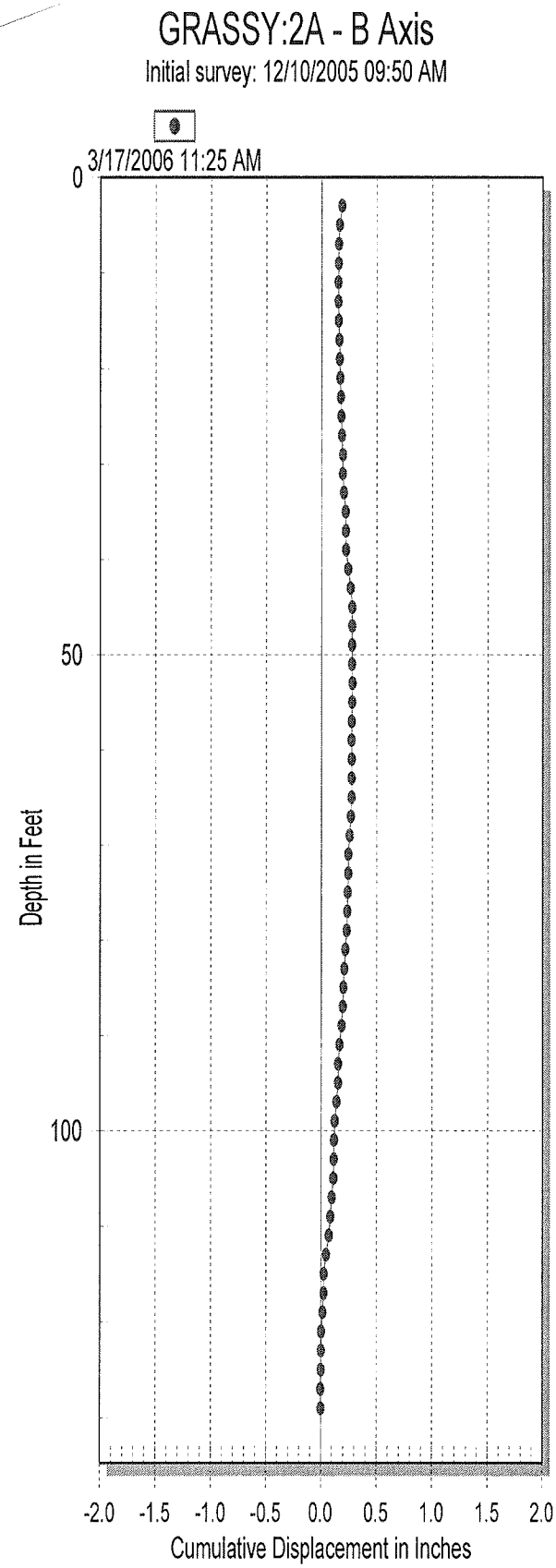
03/17/2006


GRASSY 1A, A-Axis
Depth in feet
Cumulative Displacement (in) from 2/10/2005
12/9/2005
12/30/2005
1/27/2006
2/24/2006
3/17/2006


GRASSY 1A, B-Axis
Depth in feet
Cumulative Displacement (in) from 2/10/2005
12/9/2005
12/30/2005
1/27/2006
2/24/2006
3/17/2006

Not corrected

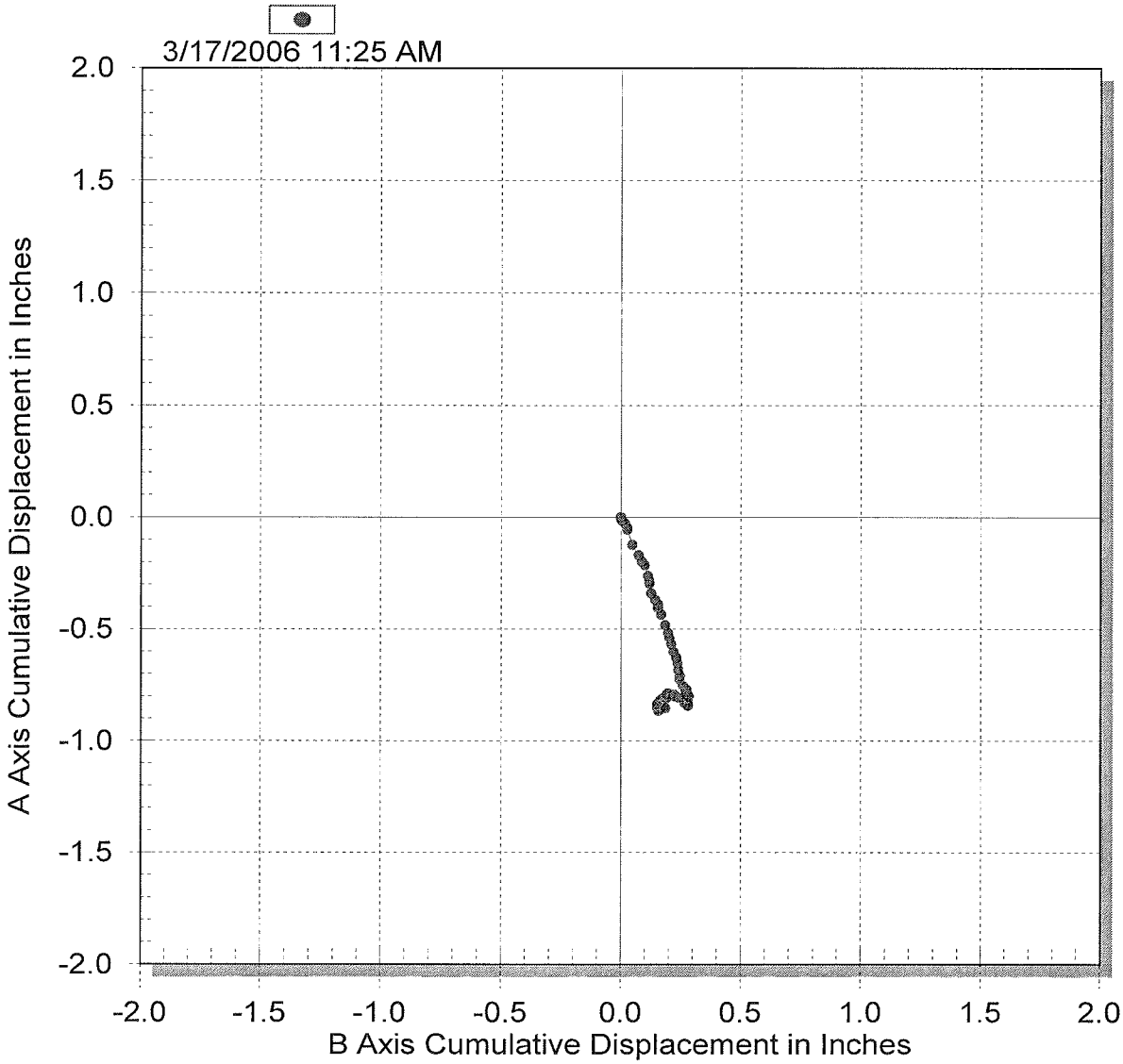


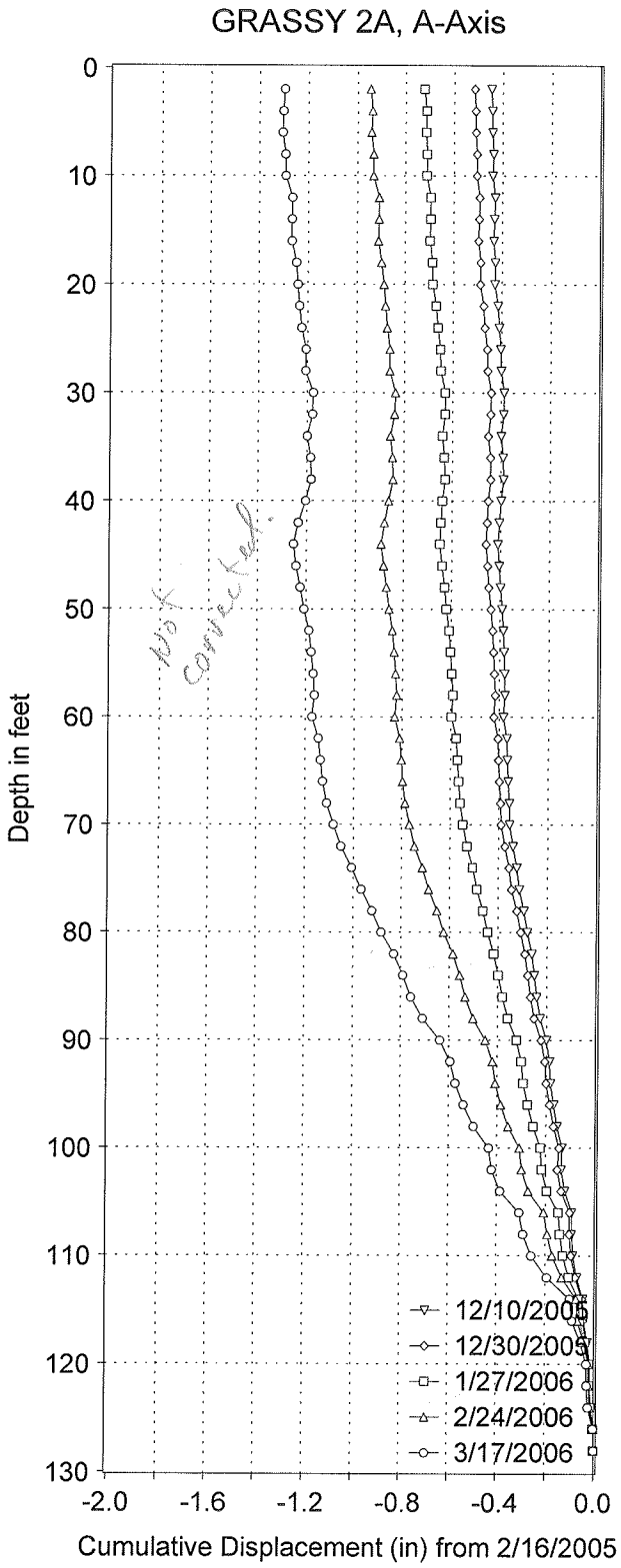


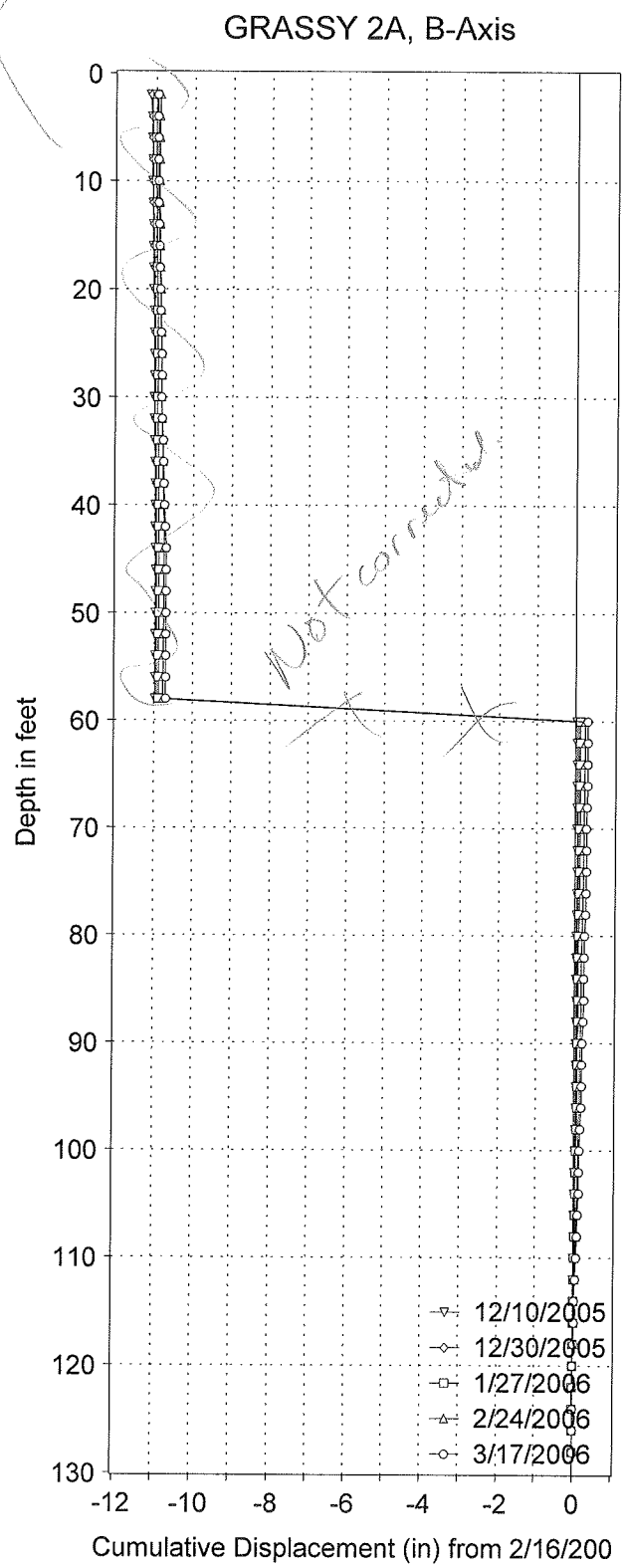
not corrected

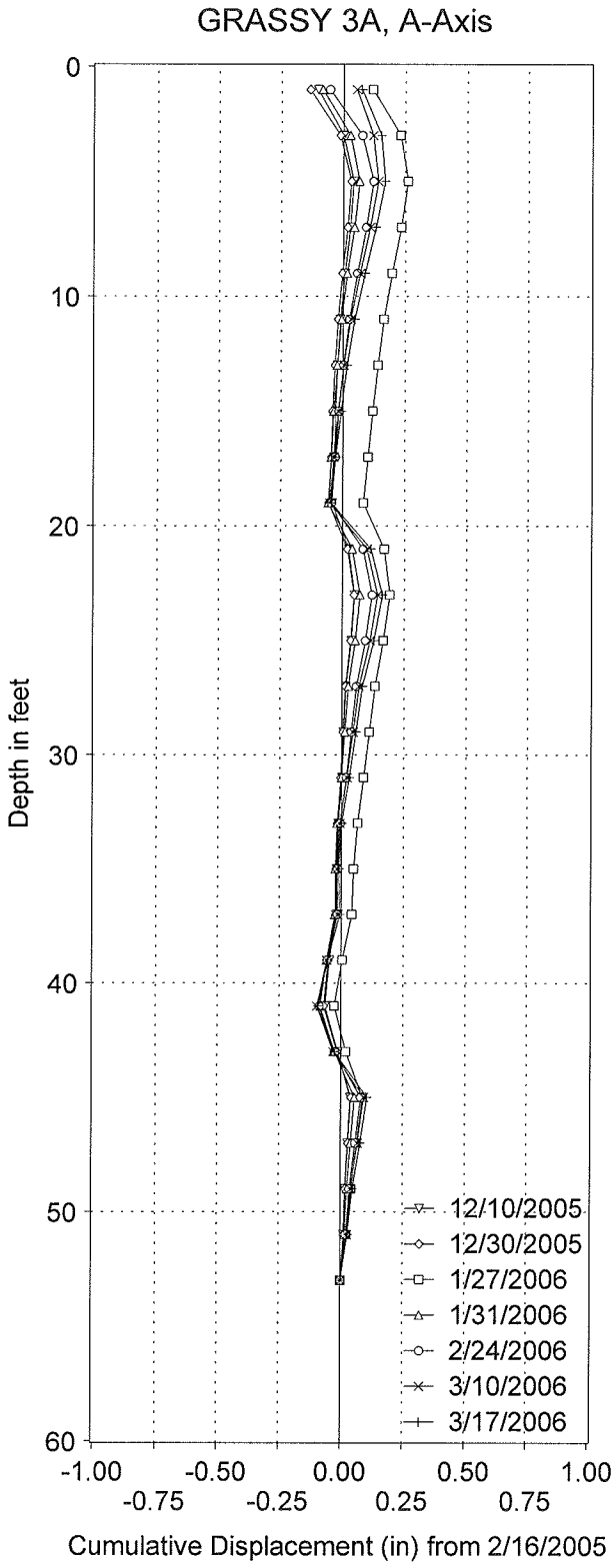
GRASSY:2A - A Axis vs B Axis

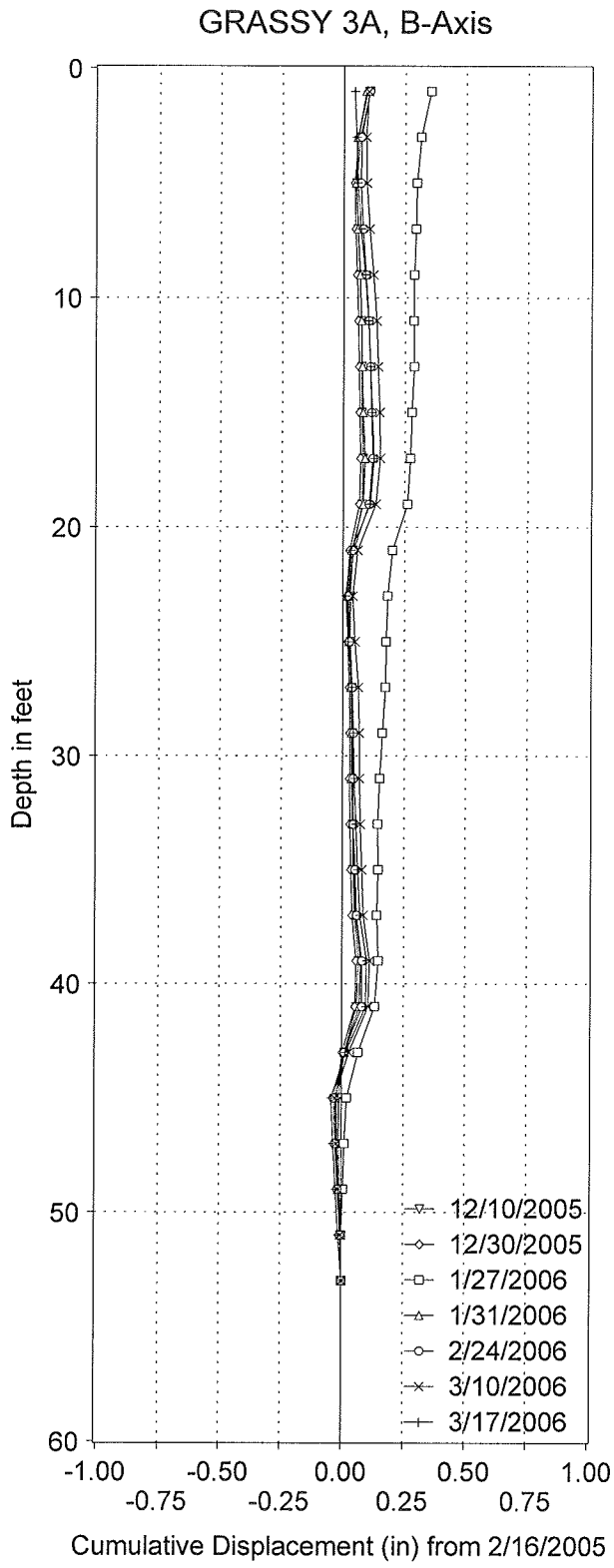
Initial survey: 12/10/2005 09:50 AM

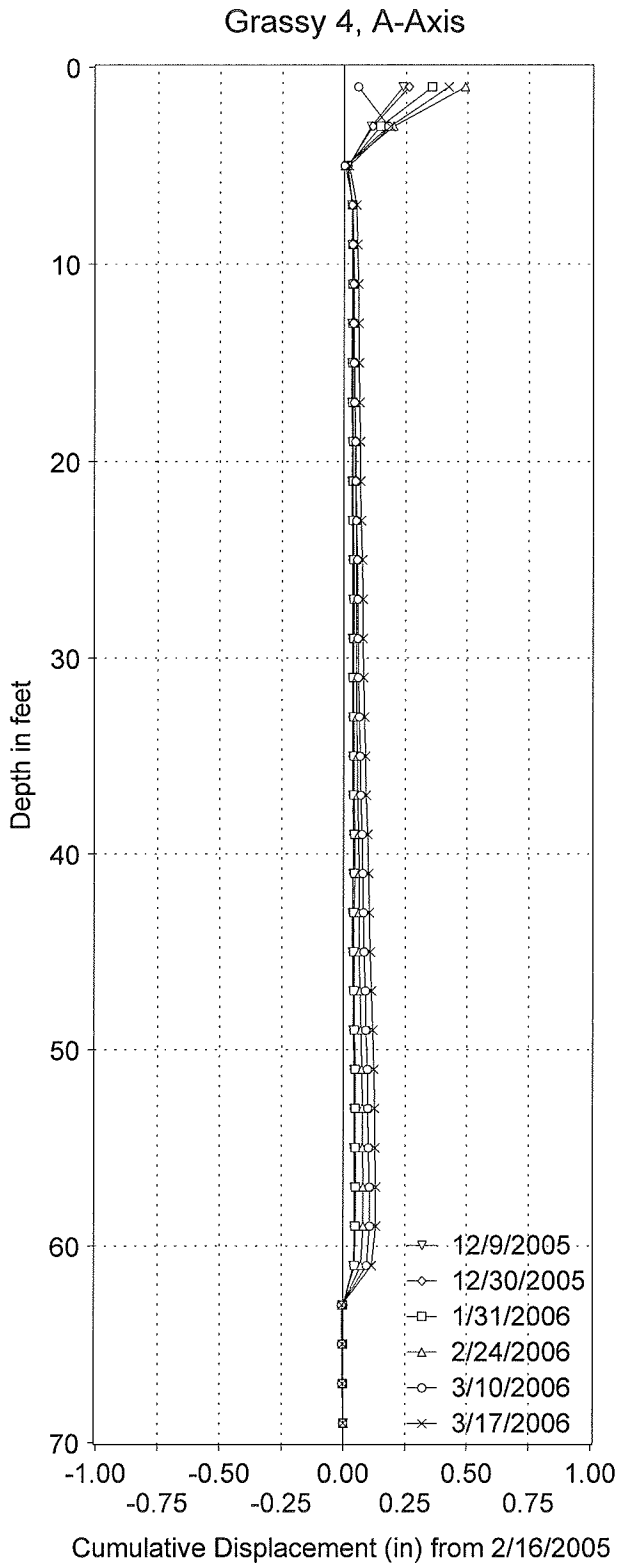


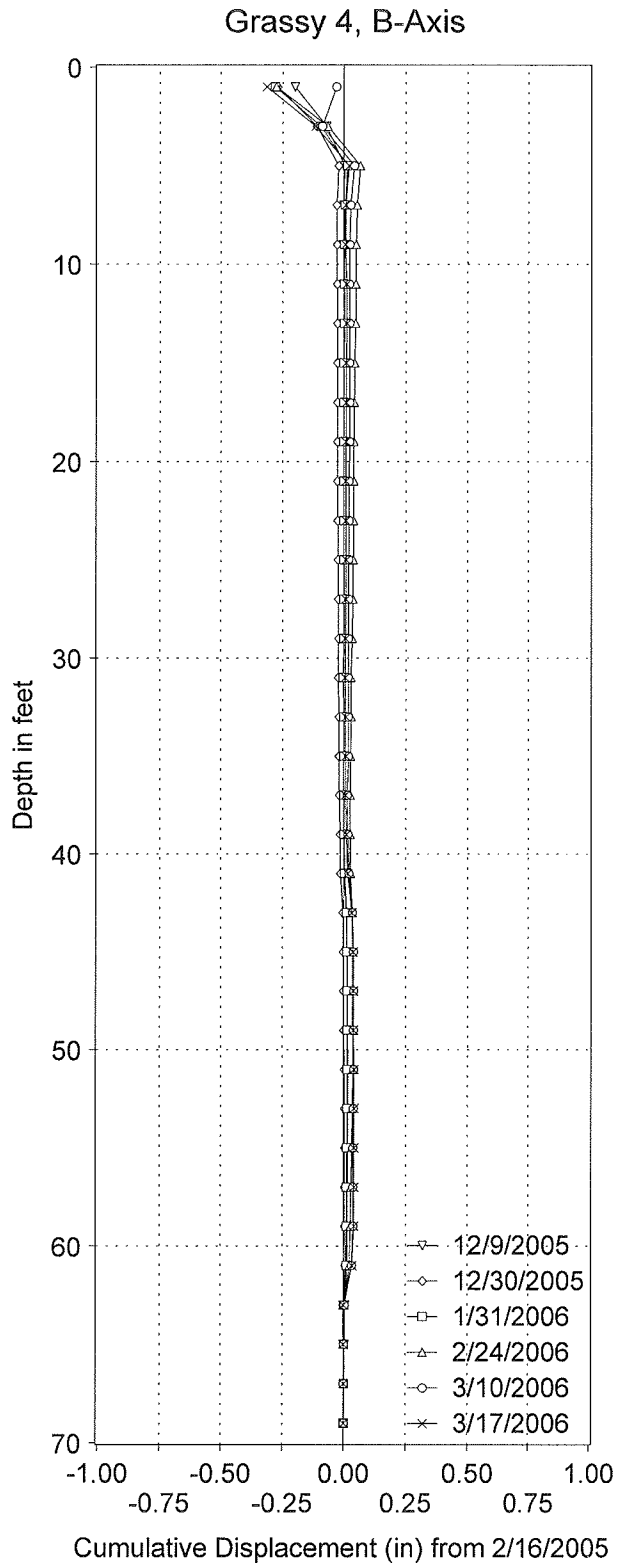

GRASSY 2A, A-Axis
Depth in feet
Cumulative Displacement (in) from 2/16/2005
12/10/2005
12/30/2005
1/27/2006
2/24/2006
3/17/2006
Not corrected.


GRASSY 2A, B-Axis
Depth in feet
Cumulative Displacement (in) from 2/16/200
12/10/2005
12/30/2005
1/27/2006
2/24/2006
3/17/2006
Not corrected.


GRASSY 3A, A-Axis
Depth in feet
0
10
20
30
40
50
60
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Cumulative Displacement (in) from 2/16/2005
12/10/2005
12/30/2005
1/27/2006
1/31/2006
2/24/2006
3/10/2006
3/17/2006

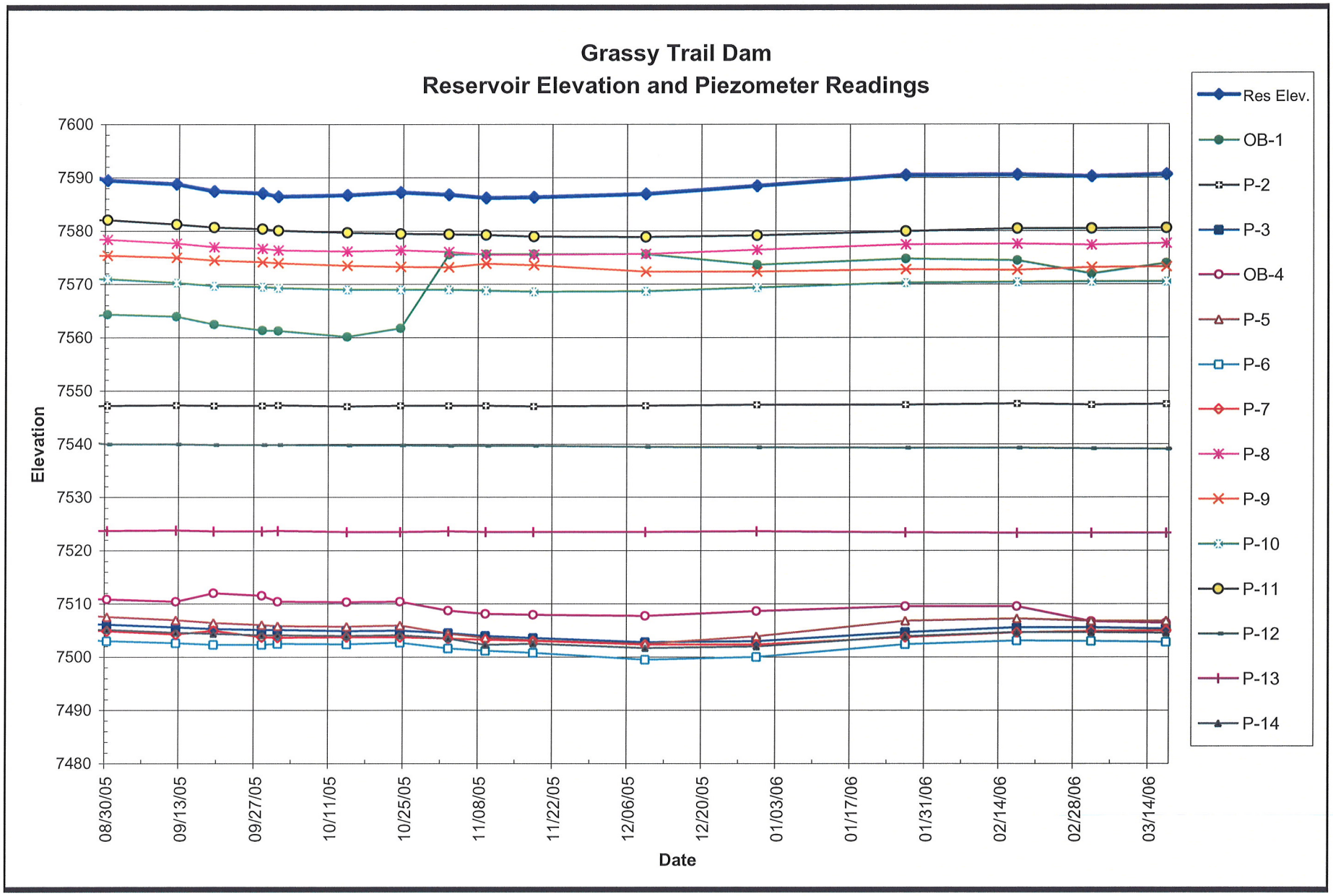

GRASSY 3A, B-Axis
Depth in feet
0
10
20
30
40
50
60
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Cumulative Displacement (in) from 2/16/2005
12/10/2005
12/30/2005
1/27/2006
1/31/2006
2/24/2006
3/10/2006
3/17/2006


Grassy 4, A-Axis
Depth in feet
0
10
20
30
40
50
60
70
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Cumulative Displacement (in) from 2/16/2005
12/9/2005
12/30/2005
1/31/2006
2/24/2006
3/10/2006
3/17/2006


Grassy 4, B-Axis
Depth in feet
0
10
20
30
40
50
60
70
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Cumulative Displacement (in) from 2/16/2005
12/9/2005
12/30/2005
1/31/2006
2/24/2006
3/10/2006
3/17/2006

GRASSY TRAIL DAM PIEZOMETER & OBSERVATION WELL READINGS

TAKE READINGS AT RIM ELEV.			05-2		79-4	98-3		05-4		79-3	05-3A	05-3		98-2	98-4	98-6
			5+62		5+15	4+14		~4+14		3+63	2+77	2+71				
Dam Crest Elev. (ft)		7600.0	PIEZ.	PIEZ.	O.W.	PIEZ.		PIEZ.		O.W.	PIEZ	PIEZ	PIEZ	PIEZ	PIEZ	PIEZ
Spillway Elev. (ft)		7592.5	8	9	1	2	3	13	14	4	10	11	12	5	6	7
Rim Elev. (ft)			7601.5		7601.8	7601.7		7558.9	7558.9	7601.7	7601.8	7601.7	7601.7	7528.8	7512.0	7519.5
Tip Elev. (ft)		(actual)	7554.5	7535.1	7491.8	7525.4	7491.0	7521.0	7499.5	7491.7	7550.8	7572.0	7529.5	7501.5	7479.5	7493.0
Piezometer Location:			CREST	CREST	CREST	CREST	CREST	D.S. SLOPE	D.S. SLOPE	CREST	CREST	CREST	CREST	TOE	TOE	TOE
			EMBANK.	FOUND.	EMBANK/FOUND	EMBANK.	FOUND.	EMBANK.	FOUND.	EMBANK/FOUND	EMBANK.	EMBANK.	FOUND.	FOUND.	FOUND.	FOUND.
Date	Initials	Reservoir Elevation	45.75' (47')	65' (66.4')	110'	76.2' (76.3')	110.7'	36.5' (37.9')	58.8' (59.4')	110'	49.5' (51')	28.5' (29.7')	84.0' (72.2')	27.3'	32.5'	26.5'
8/30/05	LW	-36"	23.2	26.2	37.4	54.5	95.6	35.2	53.8	90.9	30.8	19.6	61.7	21.3	9.0	14.6
9/12/05	LW	-44"	23.9	26.6	37.8	54.4	96.1	35.1	54.3	91.3	31.5	20.4	61.7	21.9	9.4	15.2
9/19/05	DC	-59"	24.6	27.1	39.3	54.5	96.4	35.3	54.5	89.7	32.1	21.0	61.8	22.4	9.7	14.5
9/28/05	LW	-65"	24.9	27.4	40.4	54.5	96.6	35.3	54.8	90.2	32.3	21.3	61.8	22.8	9.7	15.7
10/7/05	WD	-72"	25.2	27.6	40.5	54.4	96.6	35.2	54.8	91.3	32.5	21.6	61.8	23.0	9.5	15.8
10/14/05	LW	-69"	25.4	28.1	41.6	54.6	96.8	35.4	54.9	91.4	32.8	22.0	61.9	23.1	9.6	15.7
10/24/05	WD	-63"	25.2	28.3	40.0	54.5	96.7	35.4	54.8	91.3	32.8	22.2	61.8	22.9	9.3	15.7
11/2/05	WD	-68"	25.5	28.4	26.2	54.5	97.2	35.3	55.4	93.0	32.8	22.3	62.0	24.4	10.4	16.0
11/7/05	LW	-75"	26.0	27.7	26.7	54.5	97.7	35.4	56.6	93.6	33.0	22.4	62.0	25.2	10.8	16.2
11/18/05	WD	-73.5"	26.0	28.0	26.1	54.6	98.1	35.4	56.4	93.8	33.2	22.7	62.0	25.7	11.2	16.4
12/9/05	MKS	-66.5" ice	25.9	29.2	26.1	54.5	98.9	35.4	57.2	94.0	33.1	22.8	62.2	26.3	12.5	17.1
12/30/05	MKS	-48" ice	25.1	29.2	28.1	54.3	98.7	35.3	56.9	93.1	32.4	22.5	62.3	24.9	12.0	17.1
1/27/06	MKS	-24" ice	24.1	28.8	27.0	54.3	97.0	35.5	55.0	92.2	31.5	21.7	62.4	22.0	9.6	15.7
2/17/06	MNH	-23" ice	24.0	28.9	27.3	54.1	96.1	35.6	54.2	92.2	31.4	21.2	62.4	21.6	8.9	14.8
3/3/06	MNH	-27" ice	24.2	28.4	29.8	54.3	96.1	35.6	54.2	95.0	31.3	21.2	62.5	22.0	9.0	14.6
3/17/06	MNH	-22" ice	23.9	28.3	27.8	54.2	96.4	35.6	54.4	95.3	31.3	21.1	62.6	22.0	9.2	14.5



RB&G ENGINEERING INC.
Provo, Utah

Figure Reservoir Elevation and Piezometer Readings
August 30, 2005 to March 17, 2006

Grassy Trail Dam and Reservoir