0050

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Date: 5/22/2006 9:52:16 AM
Subject: Grassy Trail Seismic Summary

Seismic update and inclinometers 3 and 4

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RB&G ENGINEERING
Grassy Trail Dam, Seismic Summary for May 19, 2006

For the one-week period between May 12 and May 19, 2006 the number of MIS (Mining Induced Seismicity) micro earthquakes recorded near the site by the UUSS decreased from 15 to **4**. These MIS earthquakes ranged in magnitude from 1.5 to a high of 1.9. The It should be noted that at the time of this report the last reported earthquake by the UUSS was on the morning of May 19th. The number of earthquake may increase when the website is updated.

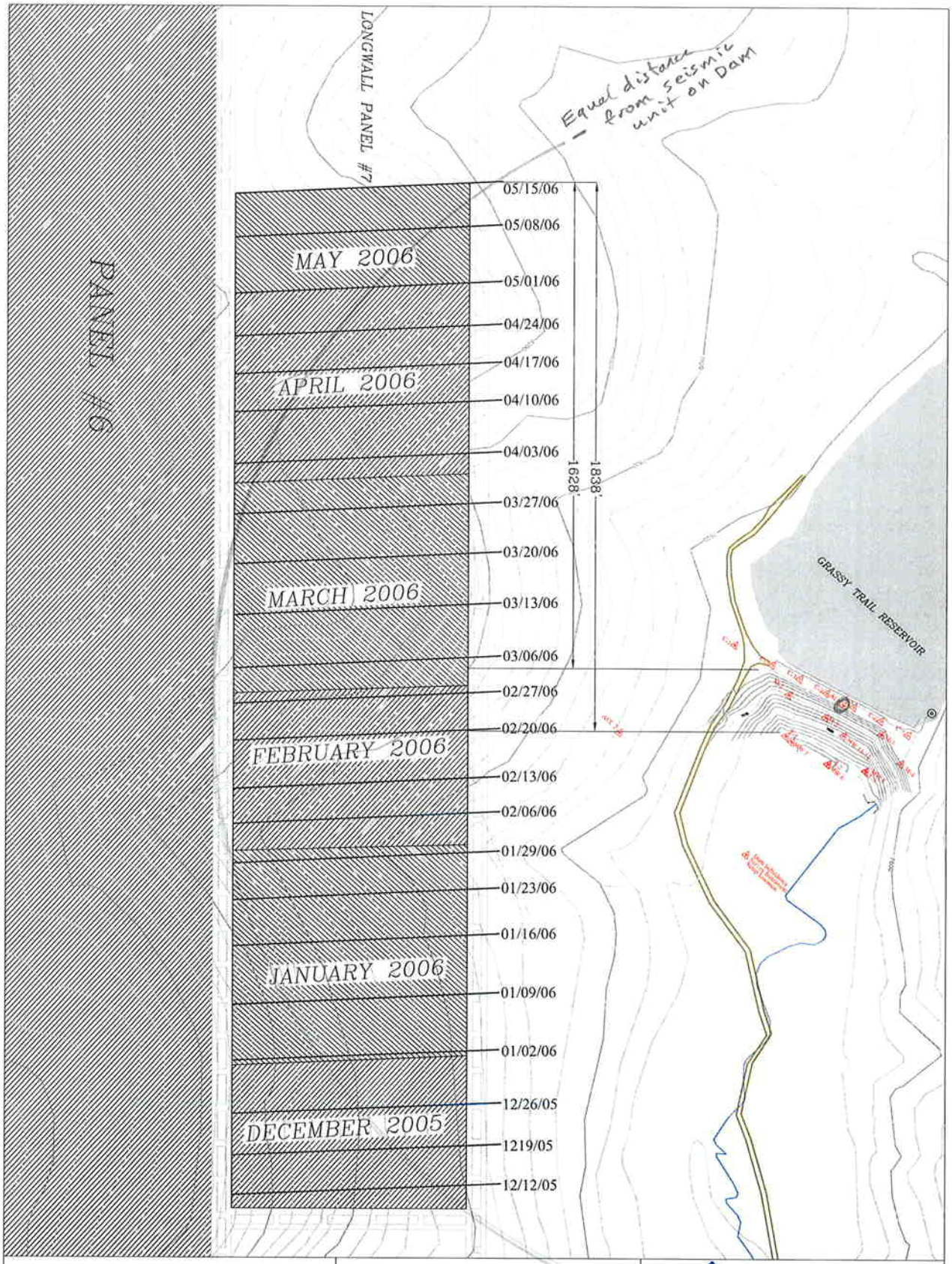
Longwall mining has now reach the point where mining is as far away from the dam in Panel 7 as it was at its closest point to the dam in Panel 6 last year. The number of events recorded on the Hillside seismic unit decreased significantly during the past week from 48 to **25** seismic events with no PGA values of 0.1g or greater. MIS events on the Dam unit decreased from 37 to **12** events with no PGA values greater than 0.1g. There were also 5 additional events recorded on the dam which were generated by people or other movement directly on the dam, which were not mining related.

During the week the highest Peak Ground Acceleration (PGA) value recorded on the Hillside decreased from last weeks high of 0.0646g to **0.0315g**. Highest PGA value on the Dam decreased from 0.0663g to **0.0348g**. These PGA values occurred during a 1.9 magnitude earthquake on May 13.

Inclinometer I-4 continues to show similar movement as in recent weeks. Inclinometer I-3 shows slightly less movement overall. Inclinometer I-2 shows the most significant decrease in movement. Maximum movement on the A-axis of I-2 during the past week was only 0.06 inches. Since March 17 to May 12, 2006 movement has ranged between 0.11 to 0.16 inches per week with an average of 0.14 inches per week.

No cracks or signs of movement were noted on the dam or abutments above the dam.

Michael Hansen
RB&G ENGINEERING



LEGEND:

- C-1 Crest Subsidence Point
- M-1 Mid-Subsidence Point
- T-1 Toe Subsidence Point
- MW 7 Monitoring Well Point
- ACC Accelerometer
- Mined Area

N

WEST RIDGE
RESOURCES, INC.

Grassy Trail Dam/Reservoir
Subsidence Control Points

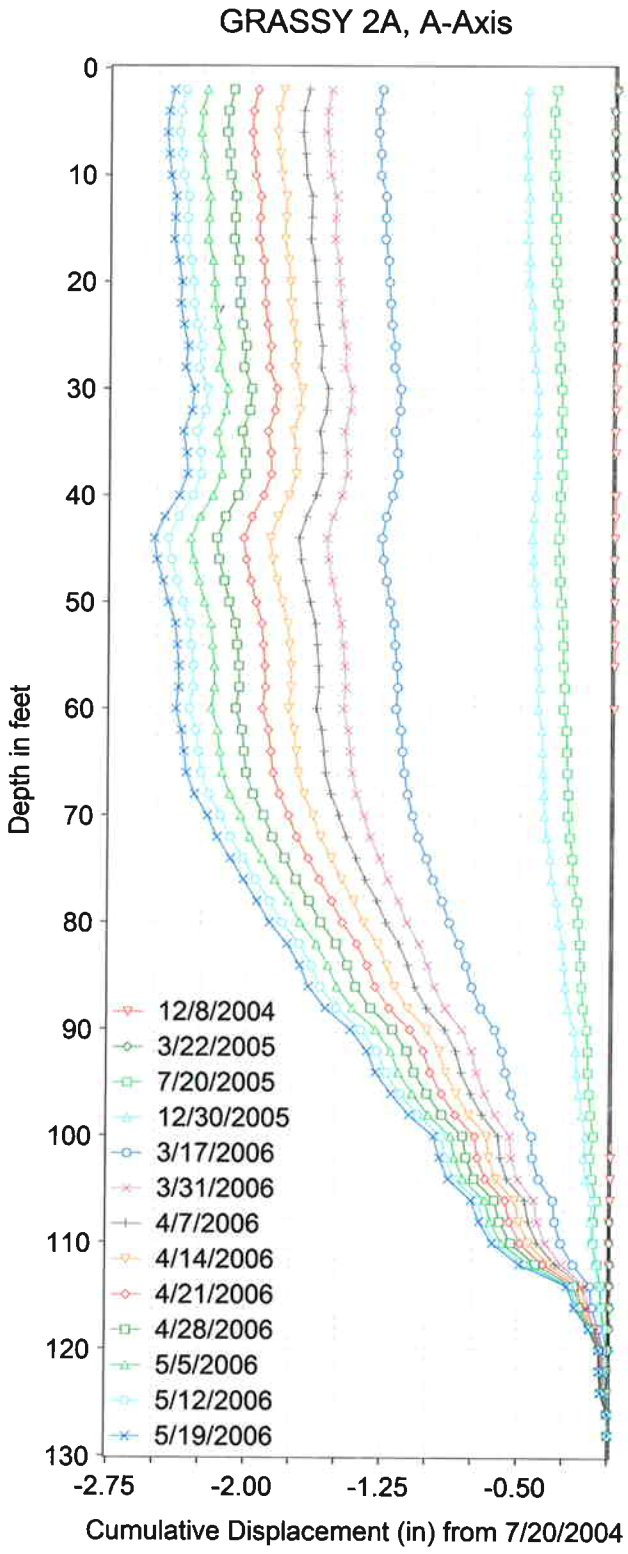
Scale:
150' 0' 300' 600'

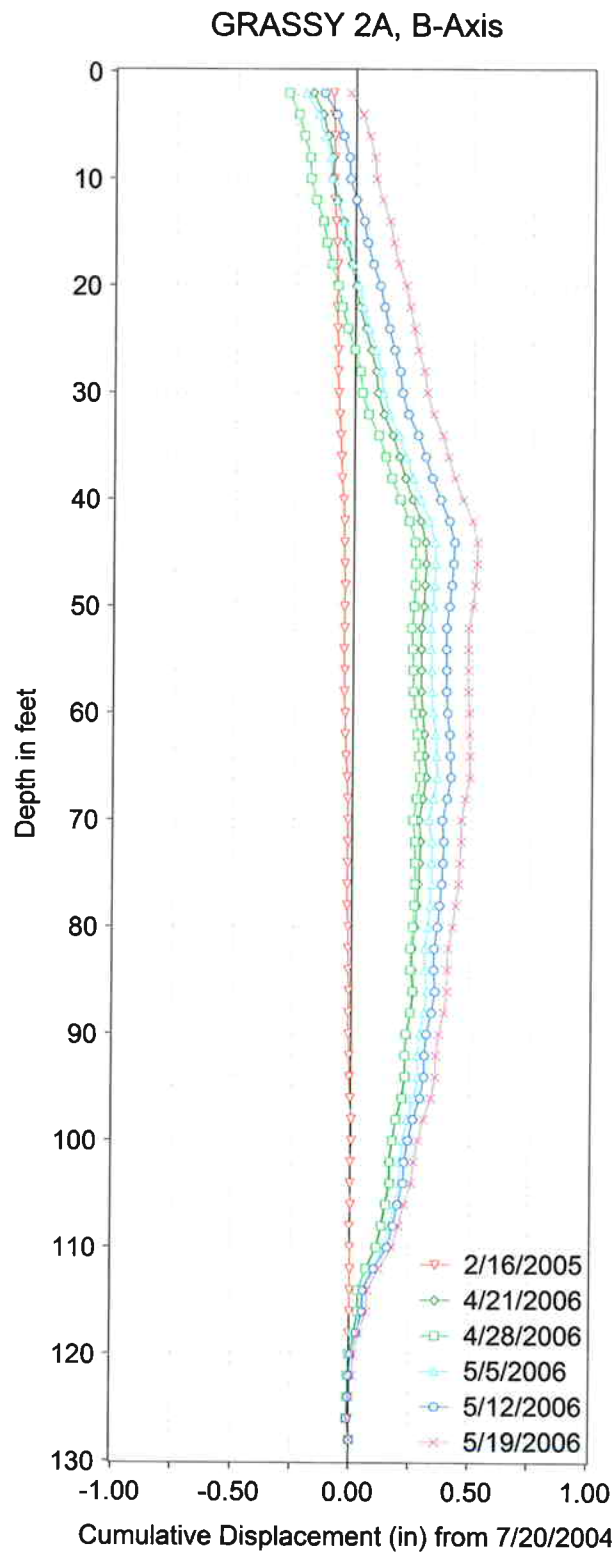
DATE: 05-15-06

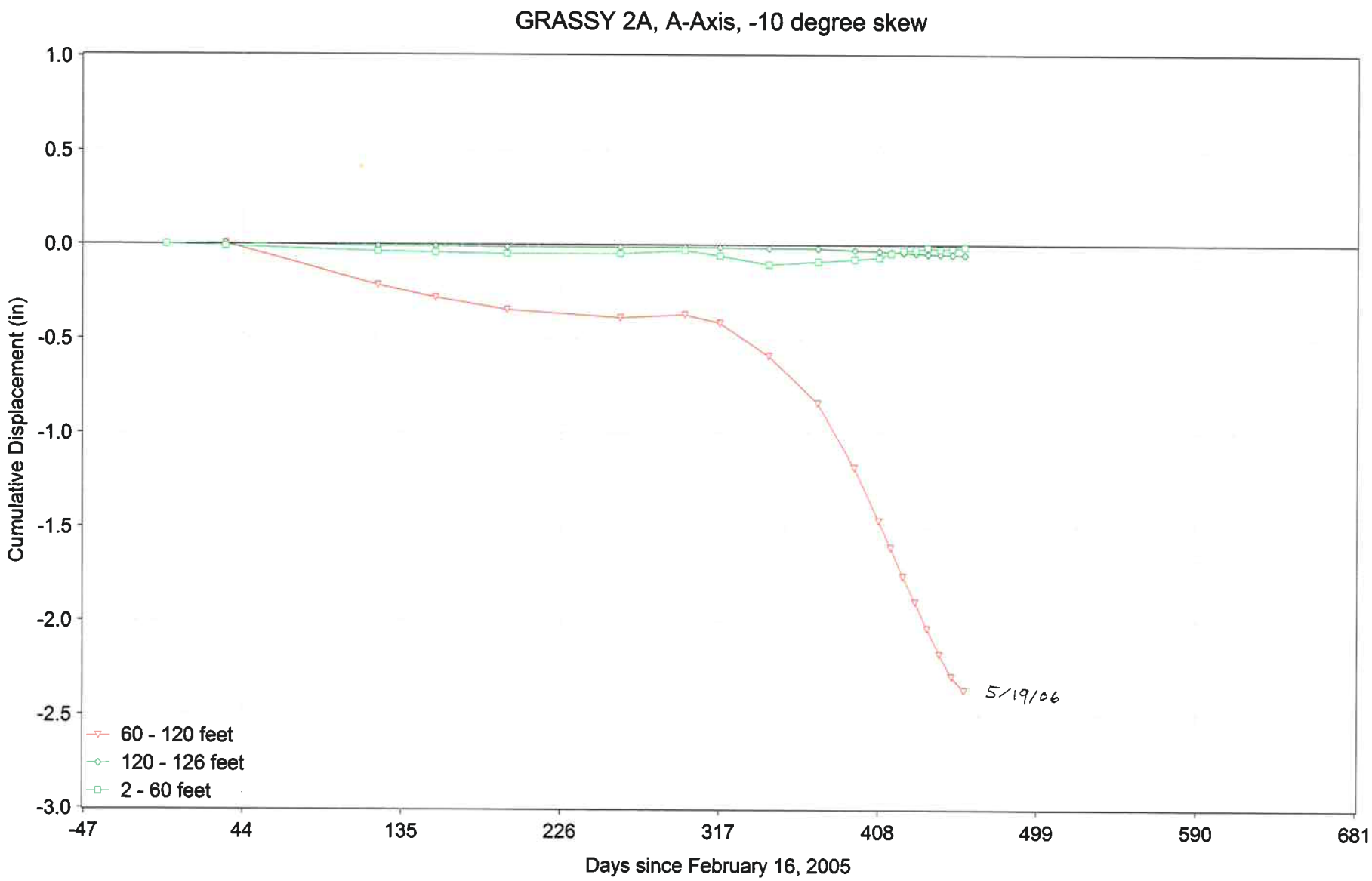
Grassy Trail Dam, Carbon County, Utah

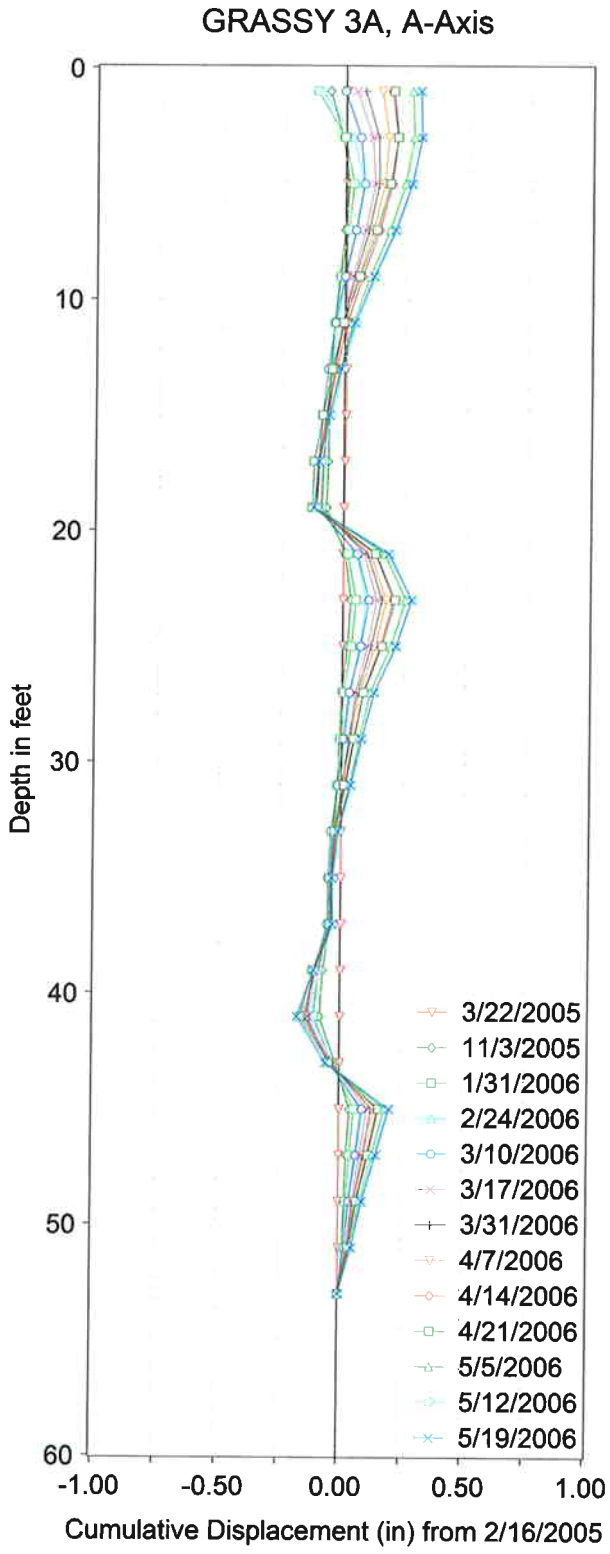
May 19, 2006

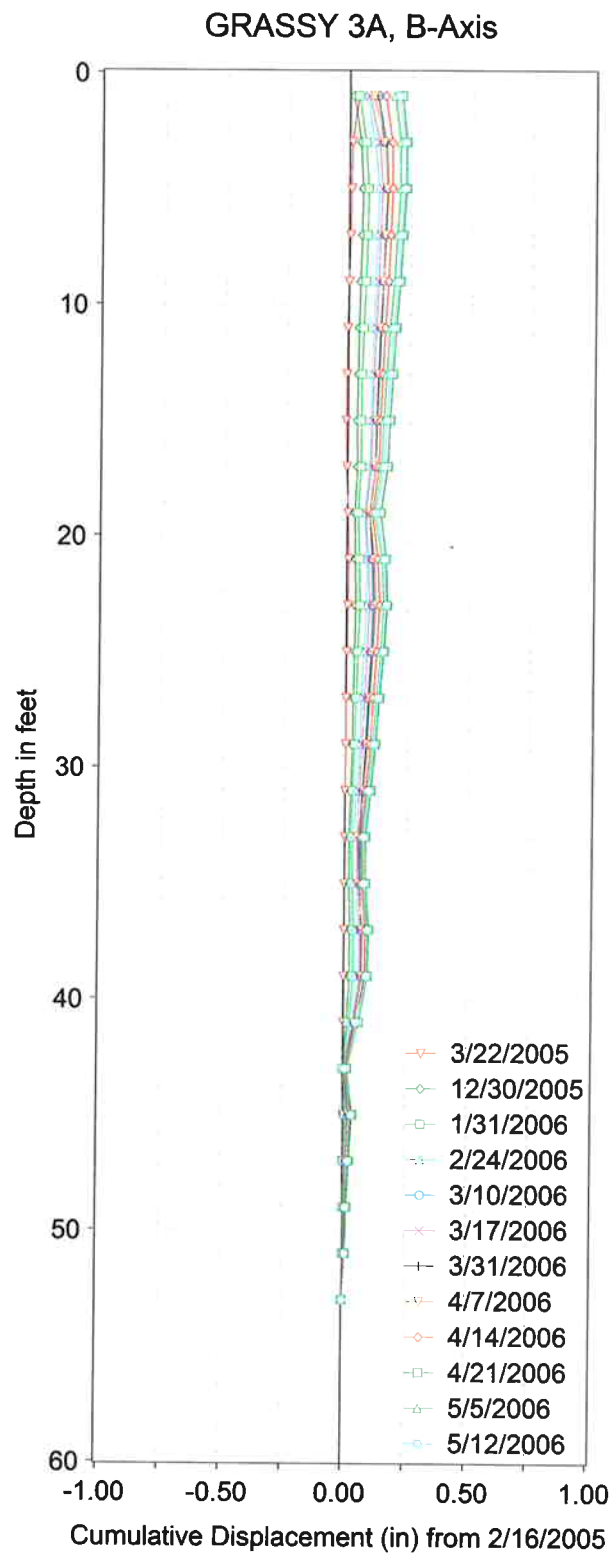
Type	Serial No.	Date	Time	PVS1 (mm/s)	Trigger	Tran Accel (g)	Vert Accel (g)	Long Accel (g)	Description	Post Event Note first line
LOG	BE9689	5/12/06	11:37:24	***	***	***	***	***	Start Monitoring	
LOG	BE9690	5/12/06	12:15:14	***	***	***	***	***	Start Monitoring	
W	BE9690	5/13/06	1:24:51	0.981	Long	0.00663	0.00829	0.00829	Hillside	
W	BE9689	5/13/06	10:13:24	0.966	Long	0.00829	0.00663	0.0149	Grassy Tr. Dam	
W	BE9690	5/13/06	10:13:24	0.966	Tran	0.00829	0.00663	0.00663	Hillside	
W	BE9690	5/13/06	13:32:06	1	Tran	0.00829	0.00663	0.00994	Hillside	
W	BE9689	5/13/06	13:32:07	1.1	Long	0.00994	0.00663	0.0182	Grassy Tr. Dam	
W	BE9690	5/13/06	19:49:15	0.858	Long	0.00663	0.00663	0.00829	Hillside	
W	BE9690	5/13/06	20:19:56	4.19	Vert	0.0315	0.0149	0.0315	Hillside	EQ Mag 1.9
W	BE9689	5/13/06	20:19:57	4.55	Vert	0.0348	0.0249	0.0298	Grassy Tr. Dam	Mag 1.9
W	BE9690	5/14/06	12:00:37	1.25	Vert	0.00994	0.00994	0.0116	Hillside	Mag 1.6
W	BE9689	5/14/06	12:00:38	1.22	Vert	0.00829	0.00829	0.0166	Grassy Tr. Dam	Mag 1.6
W	BE9690	5/14/06	15:00:54	0.749	Long	0.00829	0.00663	0.00663	Hillside	
W	BE9689	5/14/06	15:00:55	0.729	Tran	0.00663	0.00663	0.0182	Grassy Tr. Dam	
W	BE9690	5/14/06	15:04:42	0.732	Long	0.00663	0.00663	0.00829	Hillside	
W	BE9690	5/14/06	21:32:34	0.737	Tran	0.00663	0.00663	0.00663	Hillside	
W	BE9689	5/14/06	21:32:35	0.703	Tran	0.00829	0.00829	0.0166	Grassy Tr. Dam	
W	BE9690	5/15/06	8:33:21	0.973	Long	0.00829	0.00829	0.00829	Hillside	
W	BE9689	5/15/06	14:37:20	0.627	Tran	0.00829	0.00663	0.0182	Grassy Tr. Dam	
W	BE9690	5/15/06	19:10:28	0.725	Long	0.00663	0.00663	0.00829	Hillside	
W	BE9690	5/15/06	21:44:34	0.888	Long	0.00663	0.00829	0.00994	Hillside	
W	BE9690	5/15/06	22:23:03	0.709	Long	0.00663	0.00829	0.00829	Hillside	
W	BE9690	5/15/06	22:44:39	0.615	Long	0.00663	0.00497	0.00663	Hillside	
W	BE9690	5/15/06	23:06:11	0.758	Long	0.00663	0.00663	0.00663	Hillside	
W	BE9689	5/15/06	23:06:12	0.688	Long	0.00663	0.00663	0.0166	Grassy Tr. Dam	
W	BE9690	5/16/06	11:29:19	1.52	Vert	0.0116	0.00829	0.0149	Hillside	Mag 1.6
W	BE9689	5/16/06	11:29:20	1.92	Vert	0.00994	0.00829	0.0166	Grassy Tr. Dam	Mag 1.6
W	BE9690	5/16/06	15:42:43	1.15	Tran	0.0133	0.00994	0.00829	Hillside	
W	BE9690	5/16/06	18:25:35	2.02	Vert	0.0116	0.0116	0.0166	Hillside	
W	BE9689	5/16/06	18:25:37	1.5	Long	0.00829	0.00829	0.0149	Grassy Tr. Dam	
W	BE9690	5/17/06	0:23:52	1.35	Vert	0.00829	0.00829	0.00994	Hillside	
W	BE9690	5/17/06	0:53:50	0.665	Long	0.00663	0.00663	0.00663	Hillside	
W	BE9690	5/17/06	10:57:15	0.894	Long	0.00663	0.00663	0.00994	Hillside	
W	BE9690	5/17/06	15:11:31	0.735	Long	0.00663	0.00663	0.00829	Hillside	
W	BE9690	5/17/06	18:09:29	0.917	Long	0.00829	0.00663	0.00663	Hillside	Mag 1.5
W	BE9689	5/17/06	18:09:31	1.11	Long	0.00994	0.00663	0.0166	Grassy Tr. Dam	Mag 1.5
W	BE9690	5/17/06	19:52:02	2.2	Vert	0.0232	0.00994	0.0199	Hillside	
W	BE9689	5/17/06	19:52:05	2.68	Vert	0.0249	0.0133	0.0182	Grassy Tr. Dam	
W	BE9690	5/18/06	8:31:12	0.636	Long	0.00663	0.00663	0.00663	Hillside	
LOG	BE9689	5/19/06	9:20:25	***	***	***	***	***	Keyboard Stop	1 events recorded. (Keyboard Exit)
LOG	BE9690	5/19/06	10:01:25	***	***	***	***	***	Keyboard Stop	1 events recorded. (Keyboard Exit)
					Max	0.0348	0.249	0.0315		


GRASSY 2A, A-Axis
Depth in feet
Cumulative Displacement (in) from 7/20/2004
0
10
20
30
40
50
60
70
80
90
100
110
120
130
-2.75
-2.00
-1.25
-0.50
12/8/2004
3/22/2005
7/20/2005
12/30/2005
3/17/2006
3/31/2006
4/7/2006
4/14/2006
4/21/2006
4/28/2006
5/5/2006
5/12/2006
5/19/2006

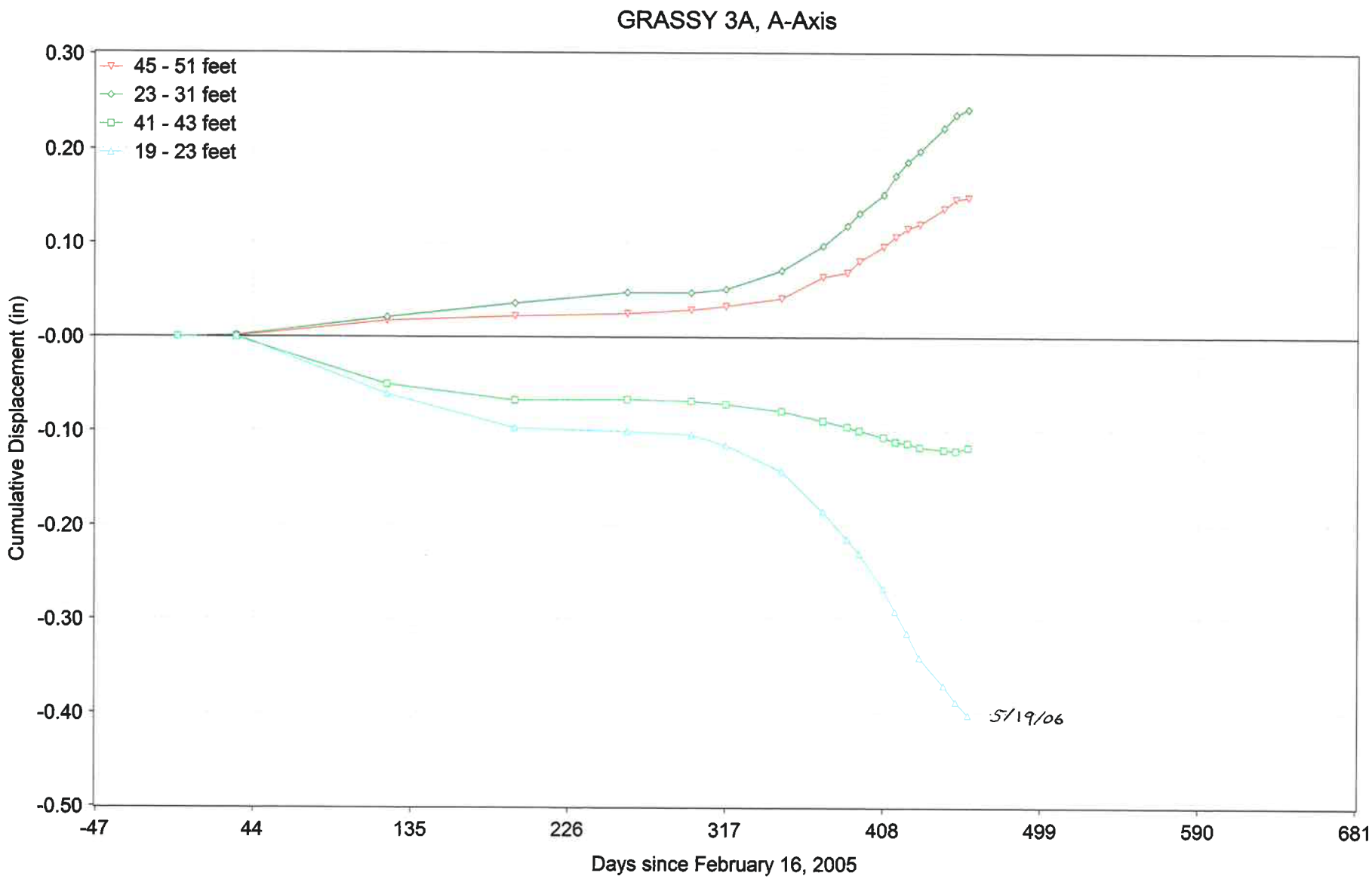

GRASSY 2A, B-Axis
Depth in feet
Cumulative Displacement (in) from 7/20/2004
0
10
20
30
40
50
60
70
80
90
100
110
120
130
-1.00
-0.50
0.00
0.50
1.00
2/16/2005
4/21/2006
4/28/2006
5/5/2006
5/12/2006
5/19/2006

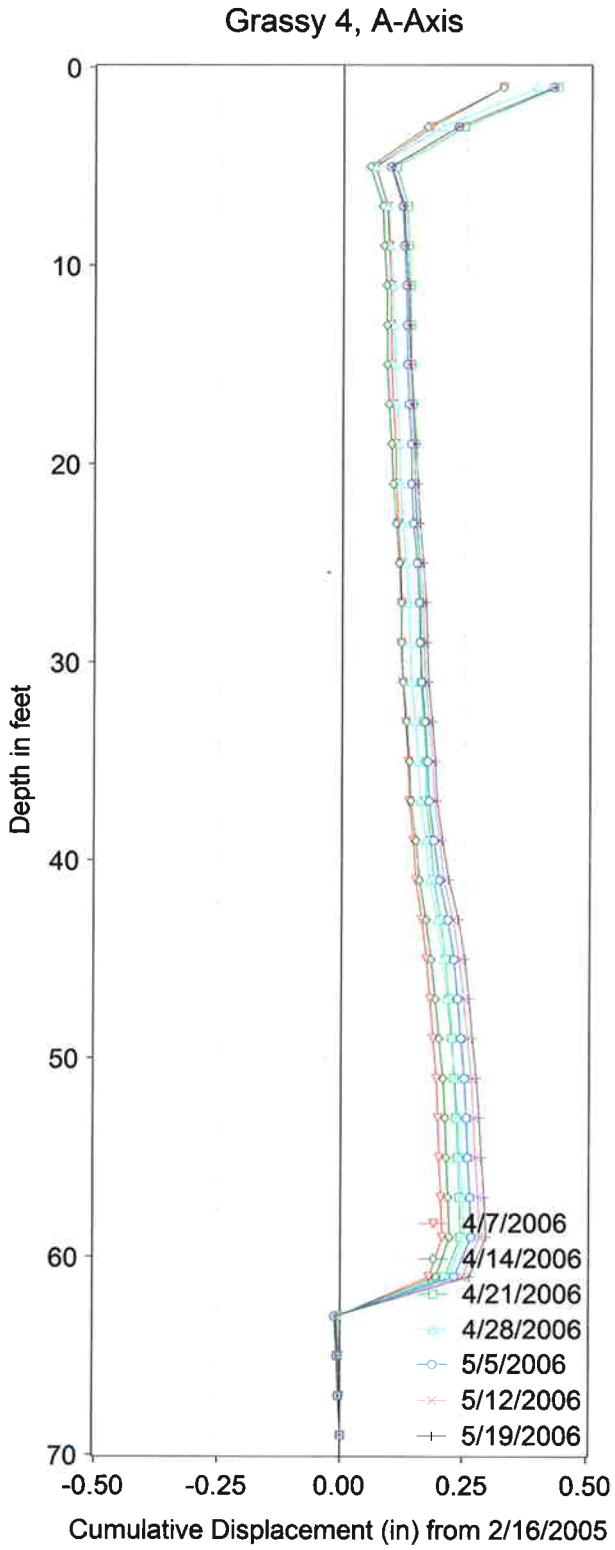

GRASSY 2A, A-Axis, -10 degree skew
Cumulative Displacement (in)
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-47
44
135
226
317
408
499
590
681
Days since February 16, 2005
60 - 120 feet
120 - 126 feet
2 - 60 feet
5/19/06

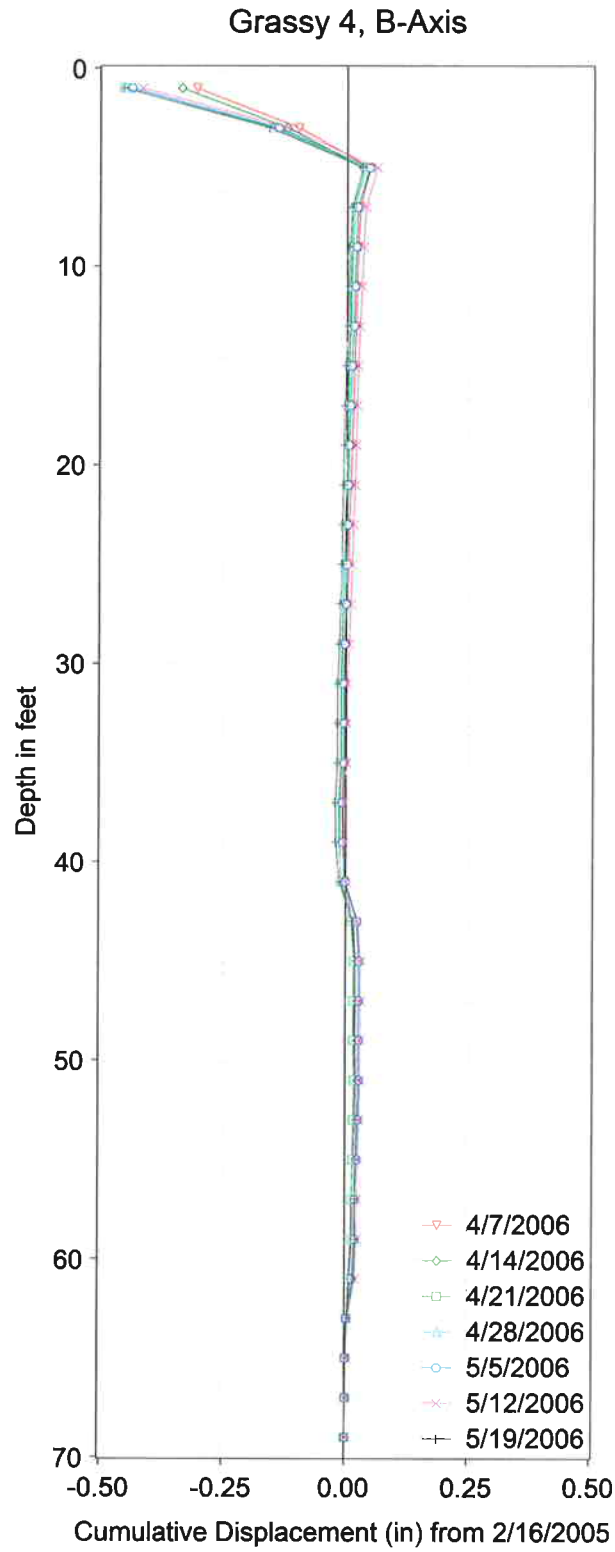


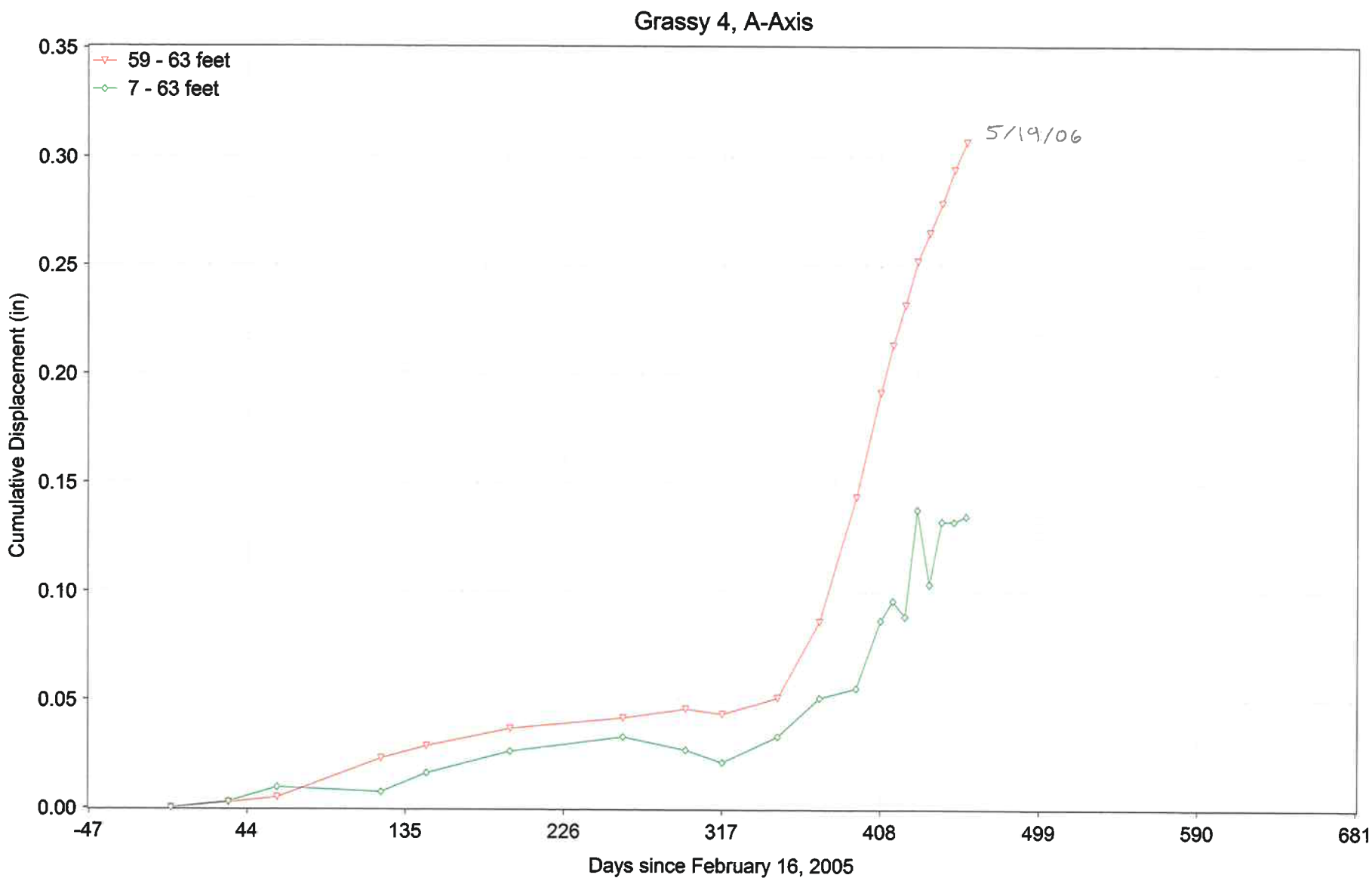


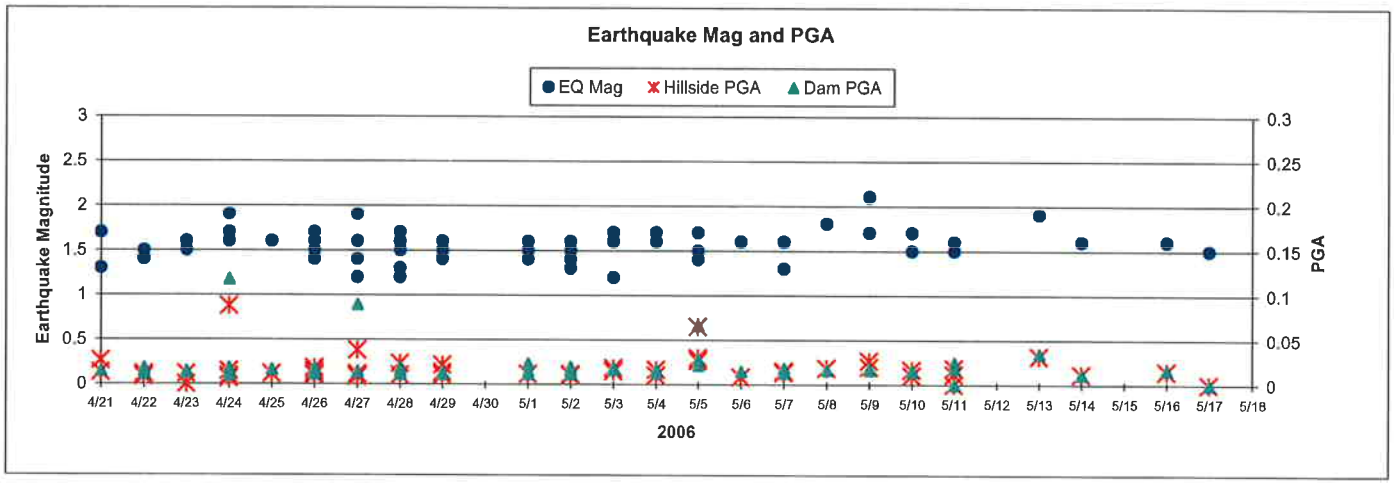
-30 degree skew

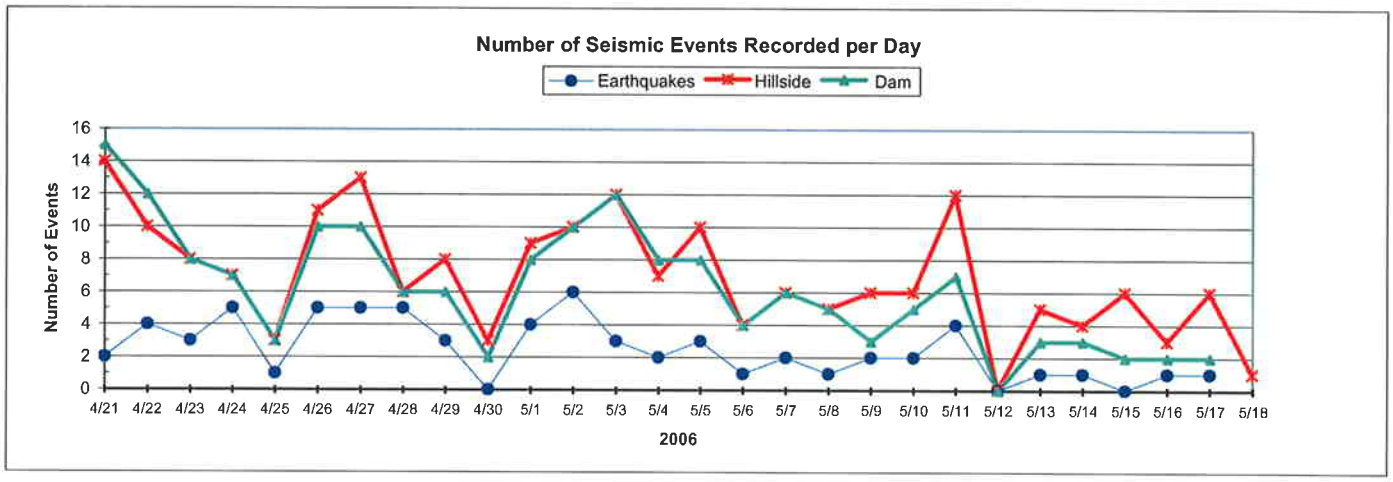

GRASSY 3A, A-Axis
45 - 51 feet
23 - 31 feet
41 - 43 feet
19 - 23 feet
0.30
0.20
0.10
-0.00
-0.10
-0.20
-0.30
-0.40
-0.50
Cumulative Displacement (in)
-47
44
135
226
317
408
499
590
681
Days since February 16, 2005
5/19/06

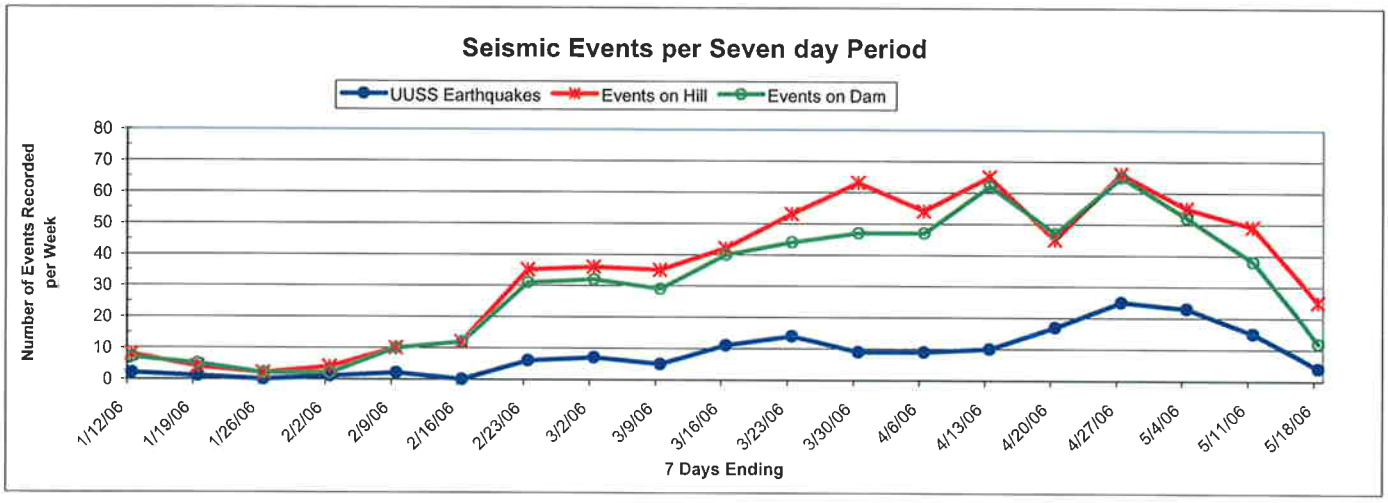

Grassy 4, A-Axis
Depth in feet
0
10
20
30
40
50
60
70
-0.50
-0.25
0.00
0.25
0.50
Cumulative Displacement (in) from 2/16/2005
4/7/2006
4/14/2006
4/21/2006
4/28/2006
5/5/2006
5/12/2006
5/19/2006

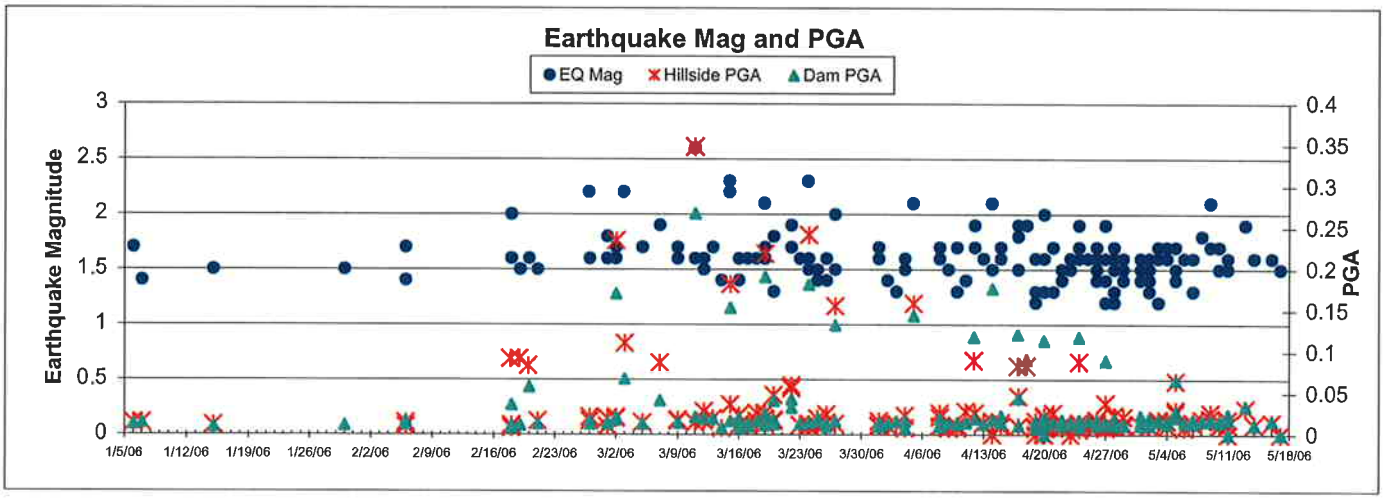

Grassy 4, B-Axis
Depth in feet
0
10
20
30
40
50
60
70
-0.50
-0.25
0.00
0.25
0.50
Cumulative Displacement (in) from 2/16/2005
4/7/2006
4/14/2006
4/21/2006
4/28/2006
5/5/2006
5/12/2006
5/19/2006


Grassy 4, A-Axis
59 - 63 feet
7 - 63 feet
5/19/06
Cumulative Displacement (in)
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-47
44
135
226
317
408
499
590
681
Days since February 16, 2005


Earthquake Mag and PGA
EQ Mag
Hillside PGA
Dam PGA
Earthquake Magnitude
PGA
2006


Number of Seismic Events Recorded per Day
Earthquakes
Hillside
Dam
Number of Events
2006


Seismic Events per Seven day Period
UUSS Earthquakes
Events on Hill
Events on Dam
Number of Events Recorded per Week
7 Days Ending


Earthquake Mag and PGA
EQ Mag
Hillside PGA
Dam PGA
Earthquake Magnitude
PGA
3
2.5
2
1.5
1
0.5
0
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1/5/06
1/12/06
1/19/06
1/26/06
2/2/06
2/9/06
2/16/06
2/23/06
3/2/06
3/9/06
3/16/06
3/23/06
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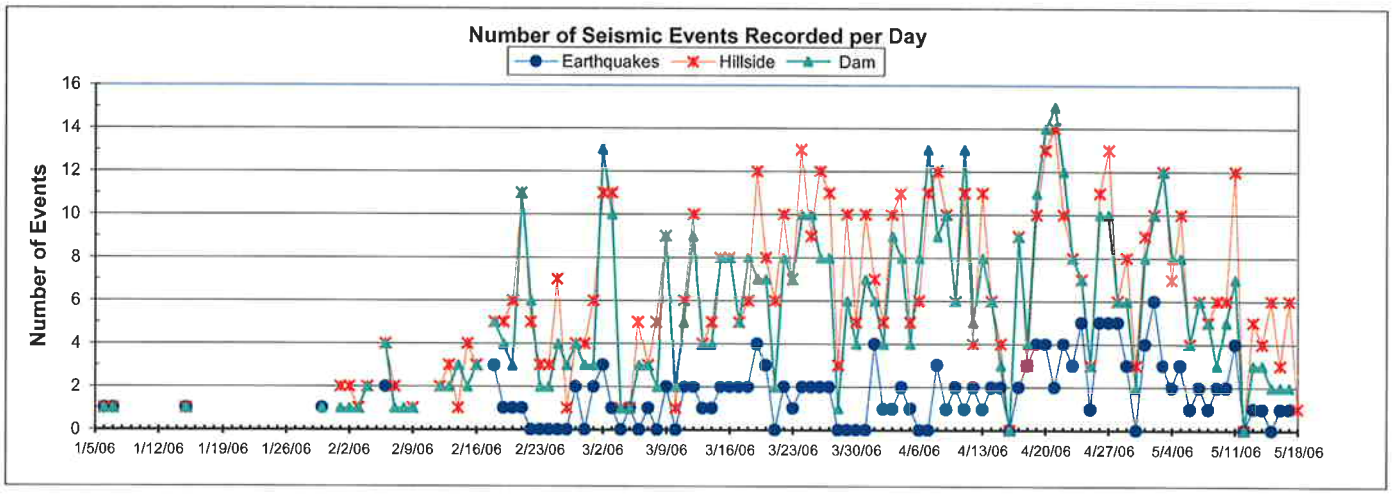
5/11/06
5/18/06


Number of Seismic Events Recorded per Day
Earthquakes
Hillside
Dam
Number of Events
16
14
12
10
8
6
4
2
0
1/5/06
1/12/06
1/19/06
1/26/06
2/2/06
2/9/06
2/16/06
2/23/06
3/2/06
3/9/06
3/16/06
3/23/06
3/30/06
4/6/06
4/13/06
4/20/06
4/27/06
5/4/06
5/11/06
5/18/06

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	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	7519.5
Tip Elev. (ft)		(actual)	7554.5	7535.1	7491.8	7525.4	7491	7521	7499.5	7491.7	7550.8	7572	7529.5	7501.5	7479.5	7493
Piezometer Locat			CREST EMBANK.	CREST FOUND.	CREST EMBANK/FOUND	CREST EMBANK.	CREST FOUND.	D.S. SLOPE EMBANK.	D.S. SLOPE FOUND.	CREST EMBANK/FOUND	CREST EMBANK.	CREST EMBANK.	CREST FOUND.	TOE FOUND.	TOE FOUND.	TOE 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	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	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	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	61.9	23.1	9.6	15.7
10/24/05	WD	-63"	25.2	28.3	40	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	32.8	22.3	62	24.4	10.4	16
11/7/05	LW	-75"	26	27.7	26.7	54.5	97.7	35.4	56.6	93.6	33	22.4	62	25.2	10.8	16.2
11/18/05	WD	-73.5"	26	28	26.1	54.6	98.1	35.4	56.4	93.8	33.2	22.7	62	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	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	17.1
1/27/06	MKS	-24" ice	24.1	28.8	27	54.3	97	35.5	55	92.2	31.5	21.7	62.4	22	9.6	15.7
2/17/06	MNH	-23" ice	24	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	31.3	21.2	62.5	22	9	14.6
3/17/06	MNH	-22" ice	23.9	28.3	27.8	54.2	96.35	35.6	54.35	95.3	31.3	21.1	62.6	22	9.15	14.45
3/31/06	MNH	-17" ice	28.3	28.3	25	54.15	95.95	35.75	53.85	95.35	31.1	20.95	62.65	21.25	8.6	13.45
4/7/06	MNH	-34" ice	23.7	28.3	24.35	54.1	95.8	35.7	53.7	95	31.2	20.9	62.65	21.4	8.5	13.23
4/21/06	MNH	-36"	23.7	28.15	24.55	54.25	95.9	34.65	53.9	94.8	31.15	20.9	62.7	21.5	8.75	13.5
5/5/06	MNH	-27"	23.9	28	24.4	54.2	96.7	34.7	54.7	95	31.3	20.8	62.8	23.2	9.8	14.3
5/11/06	LW	-24	23.6	28.1	24.1	54.2	96.4	34.3	54.5	?	31.2	21	62.7	23.2	9.1	14
5/19/06	LW	-20.5	23.2	28	23.5	54.2	96.1	34.6	54.1	?	31	20.9	62.7	21.5	8.8	13.9
		Change	***0.4***	***0.1***	***0.6***	***0***	***0.3***	***-0.3***	***0.4***		***0.2***	***0.1***	***0***	***1.7***	***0.3***	***0.1***

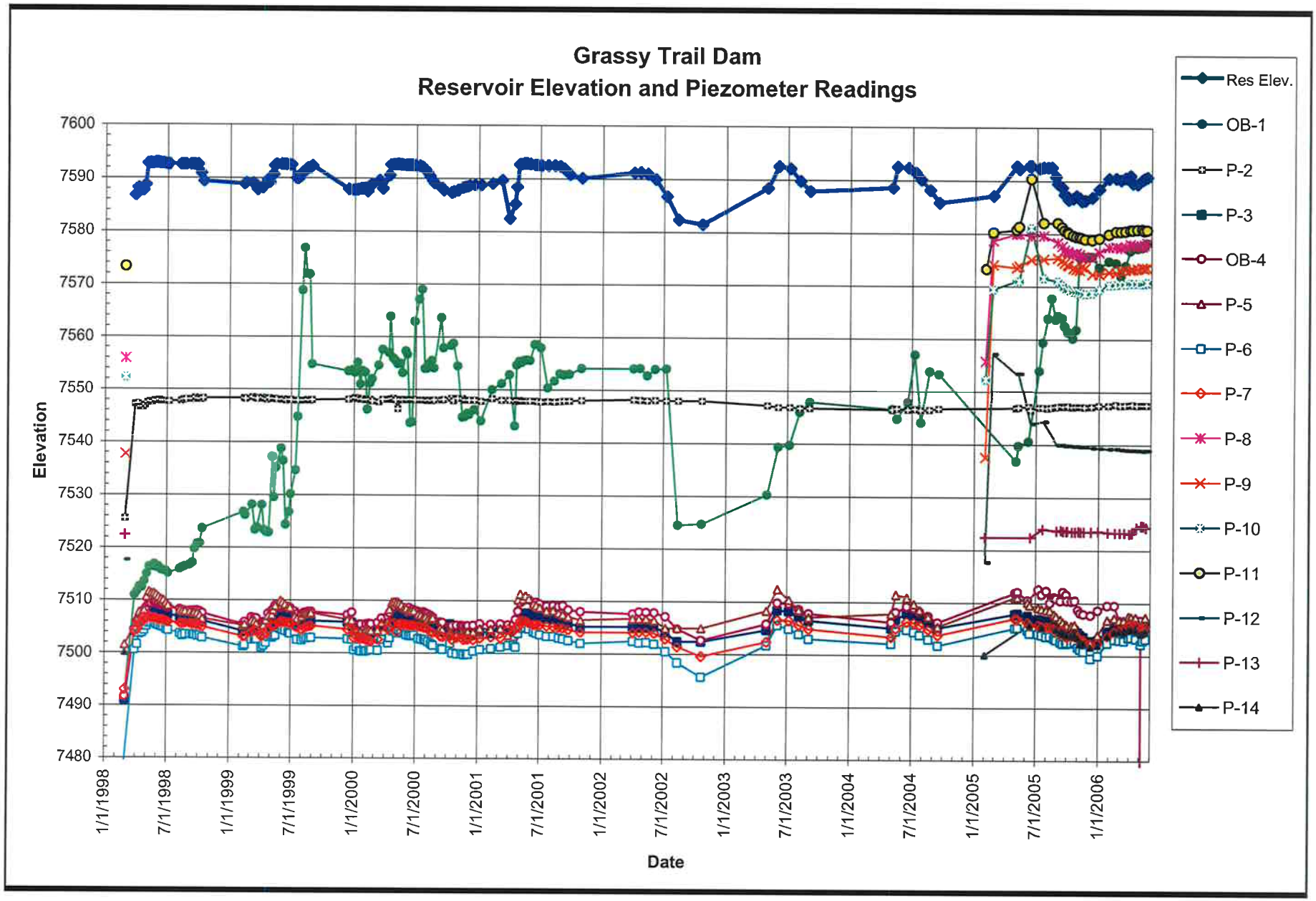


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Figure Reservoir Elevation and Piezometer Readings
March 1998 to May 19, 2006

Grassy Trail Dam and Reservoir

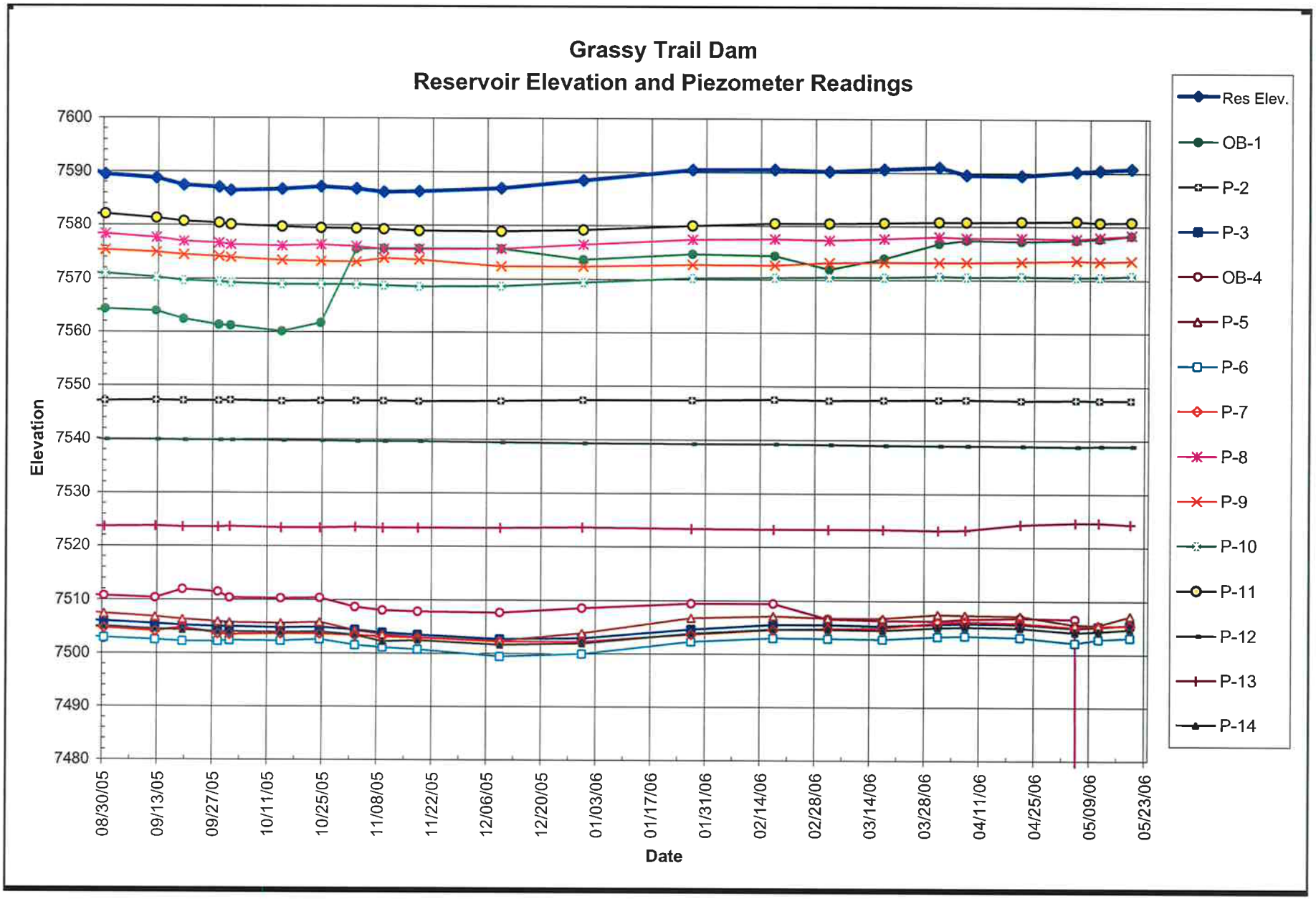

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Figure Reservoir Elevation and Piezometer Readings
August 30, 2005 to May 19, 2006

Grassy Trail Dam and Reservoir