0039

Document Information Form

Mine Number: **C0070041**

File Name: **INCOMING**

To: WAYNE HEDBERG

From:

Person DAVE SHAVER

Company ANDALEX RESOURCES INC.

Date Received: APRIL 12, 2006

Explanation:

Information Presented During The Emery County Water Users Meeting

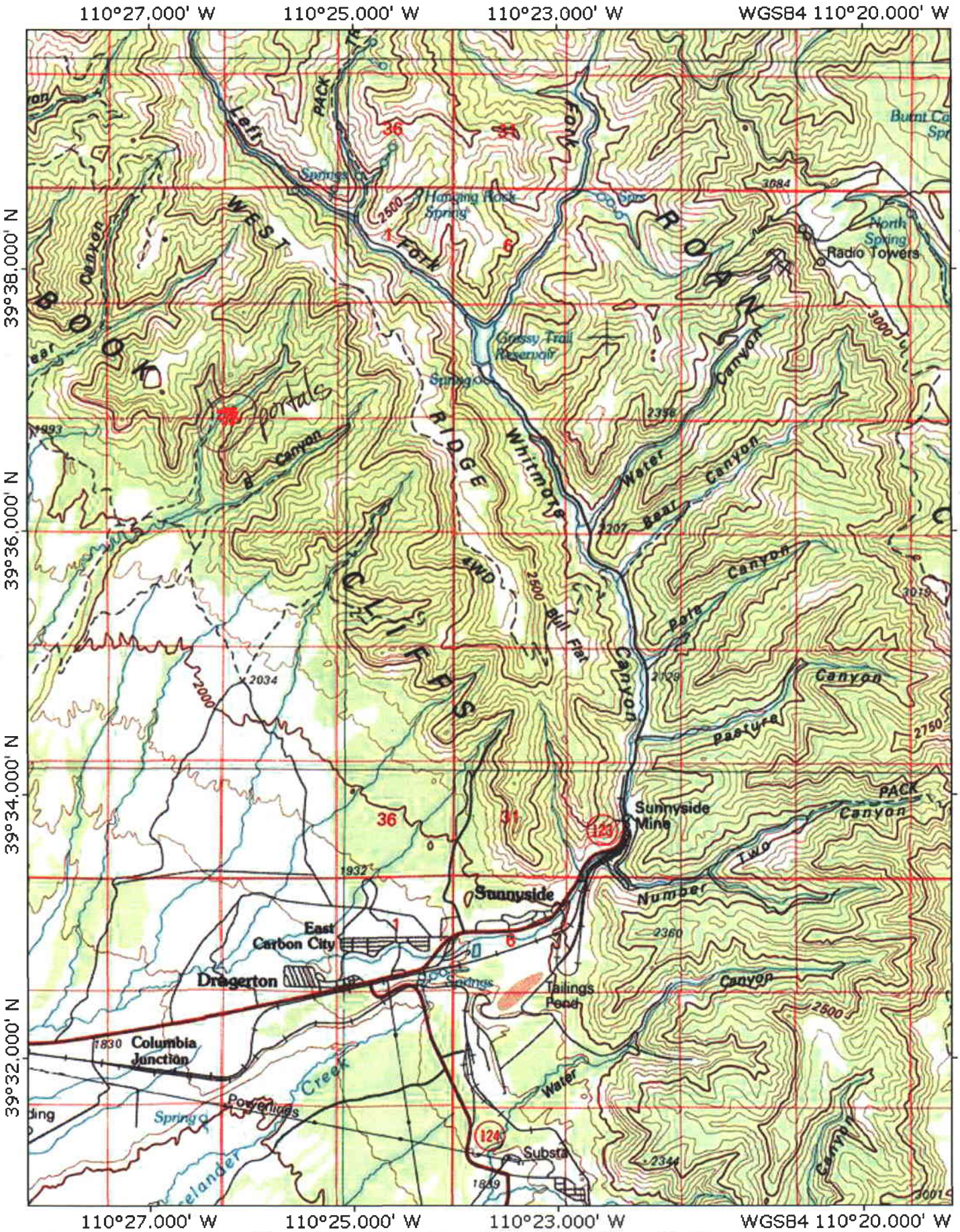
cc:

RECEIVED
APR 1 2 2006
DIV. OF OIL, GAS & MINING

GRASSY TRAIL DAM AND RESERVOIR MONITORING PROGRAM

WEST RIDGE
RESOURCES, INC.

Grassy Trail Dam and Reservoir Monitoring Program



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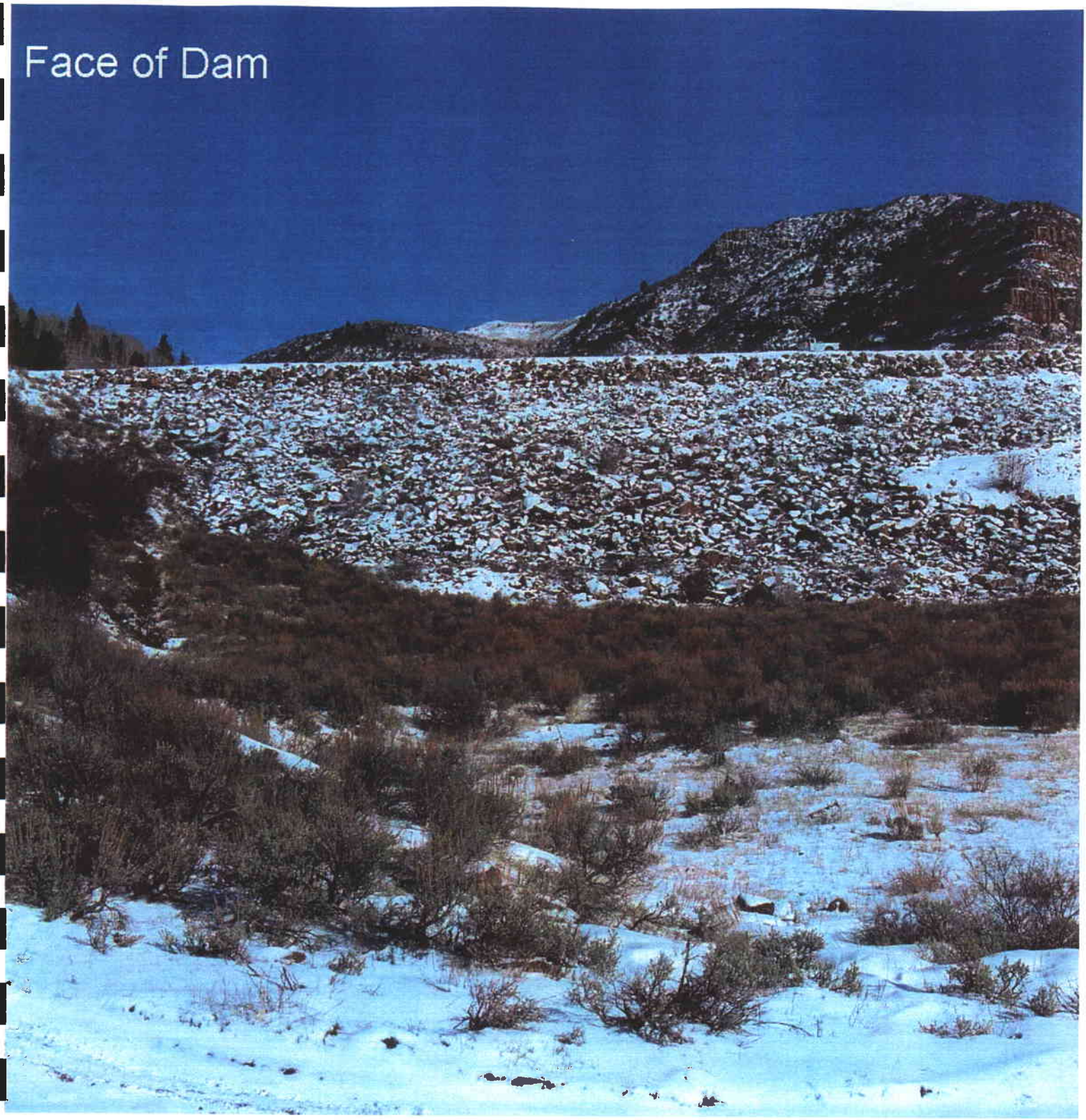
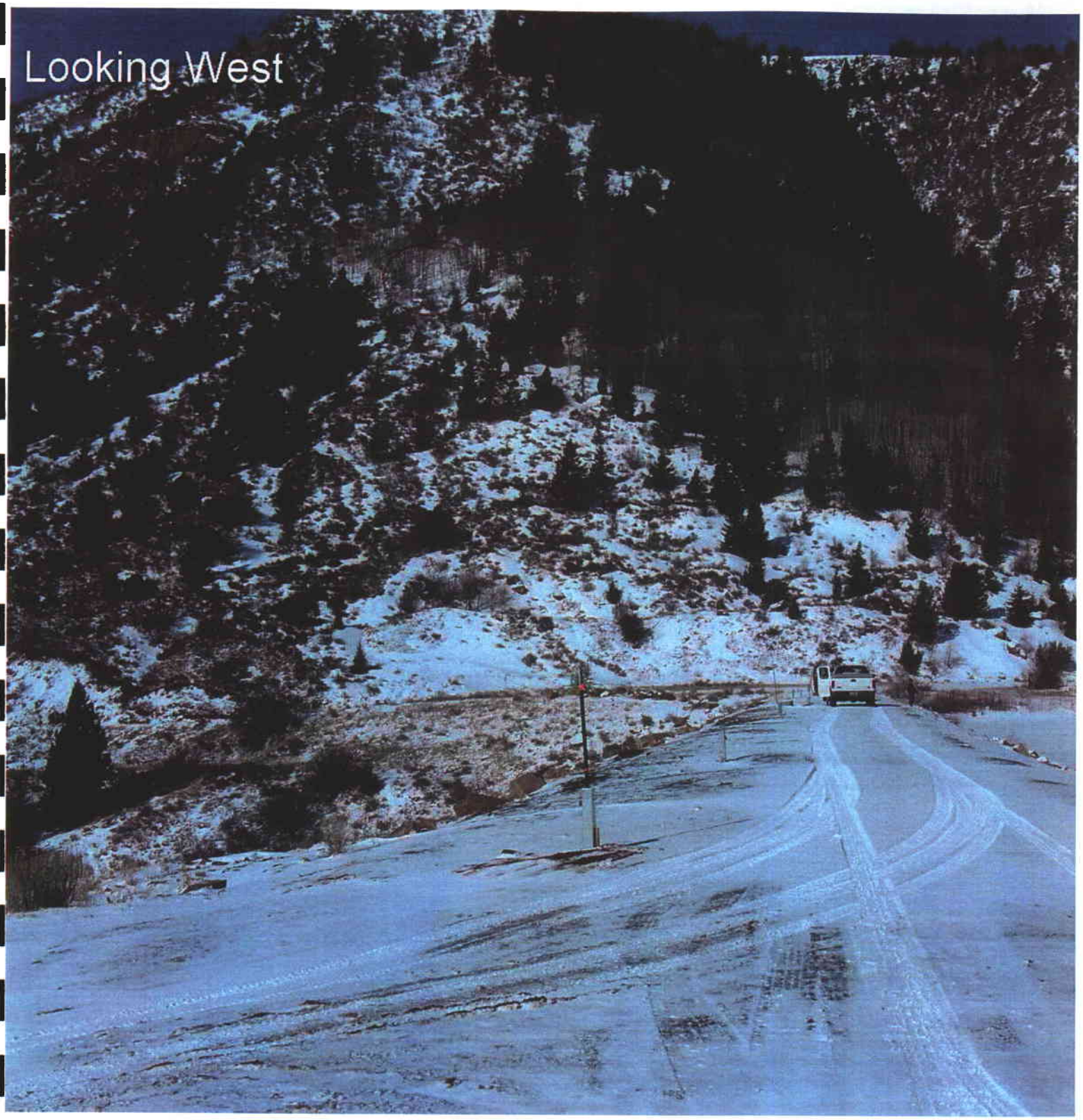
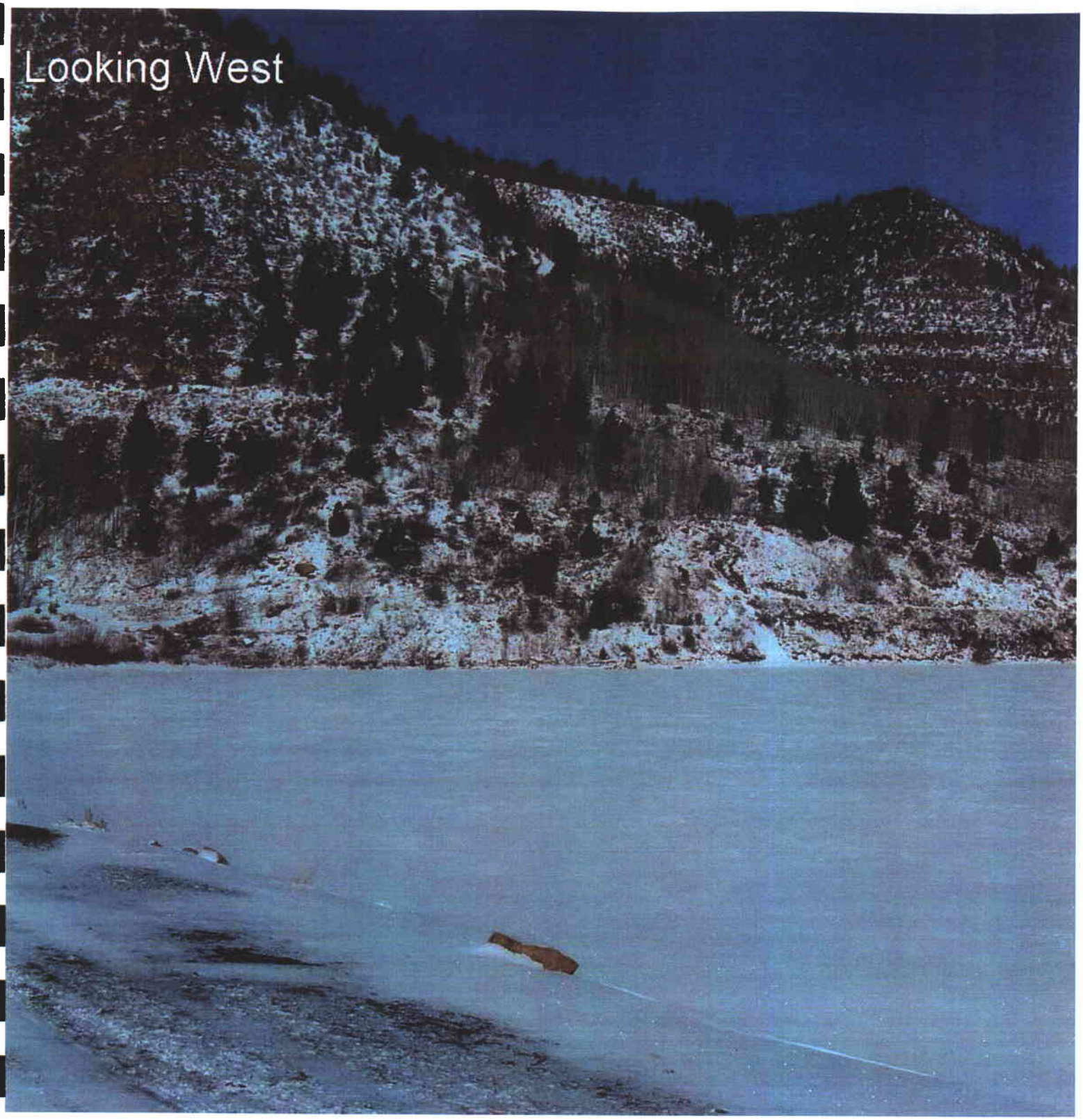
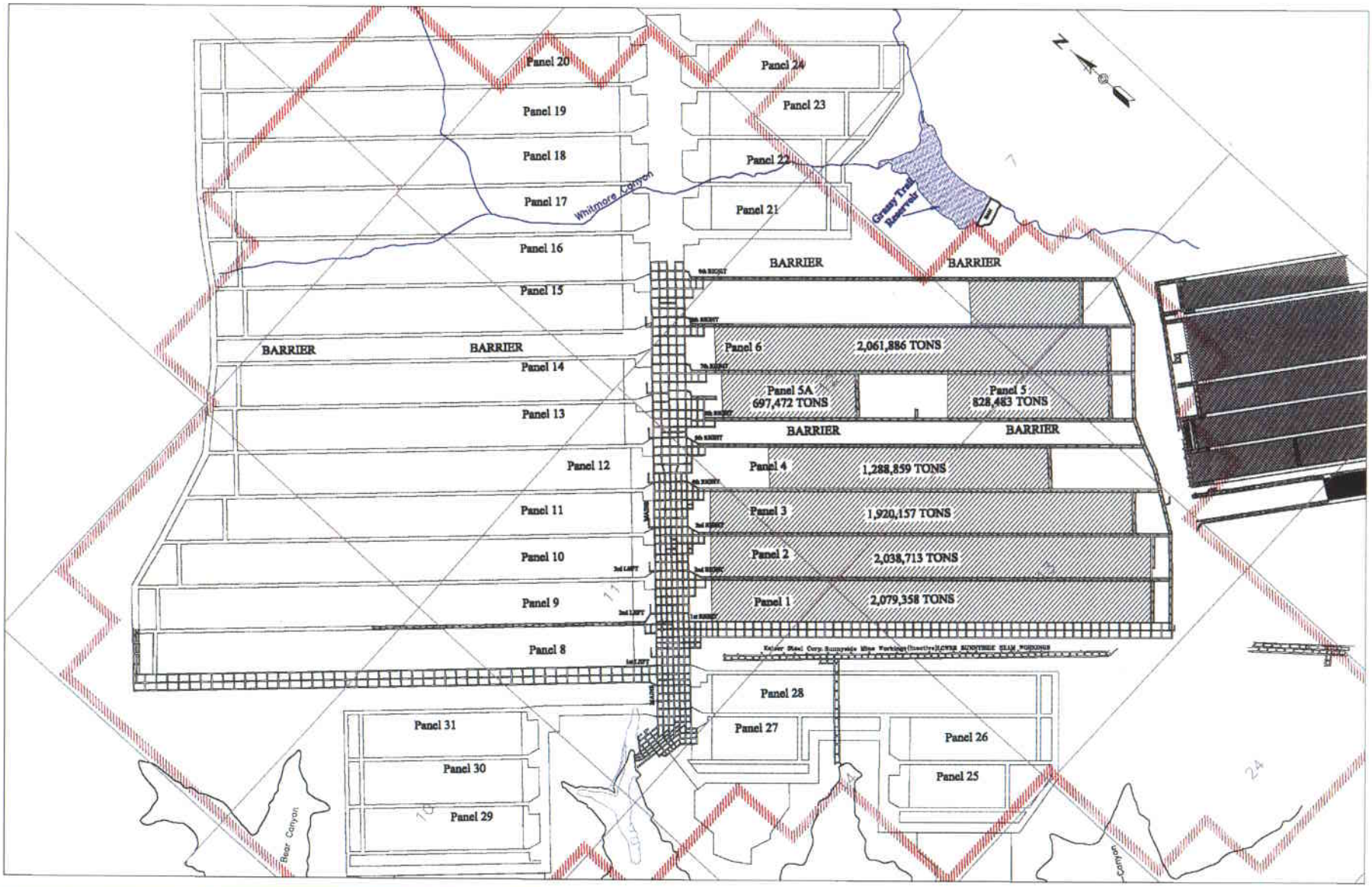
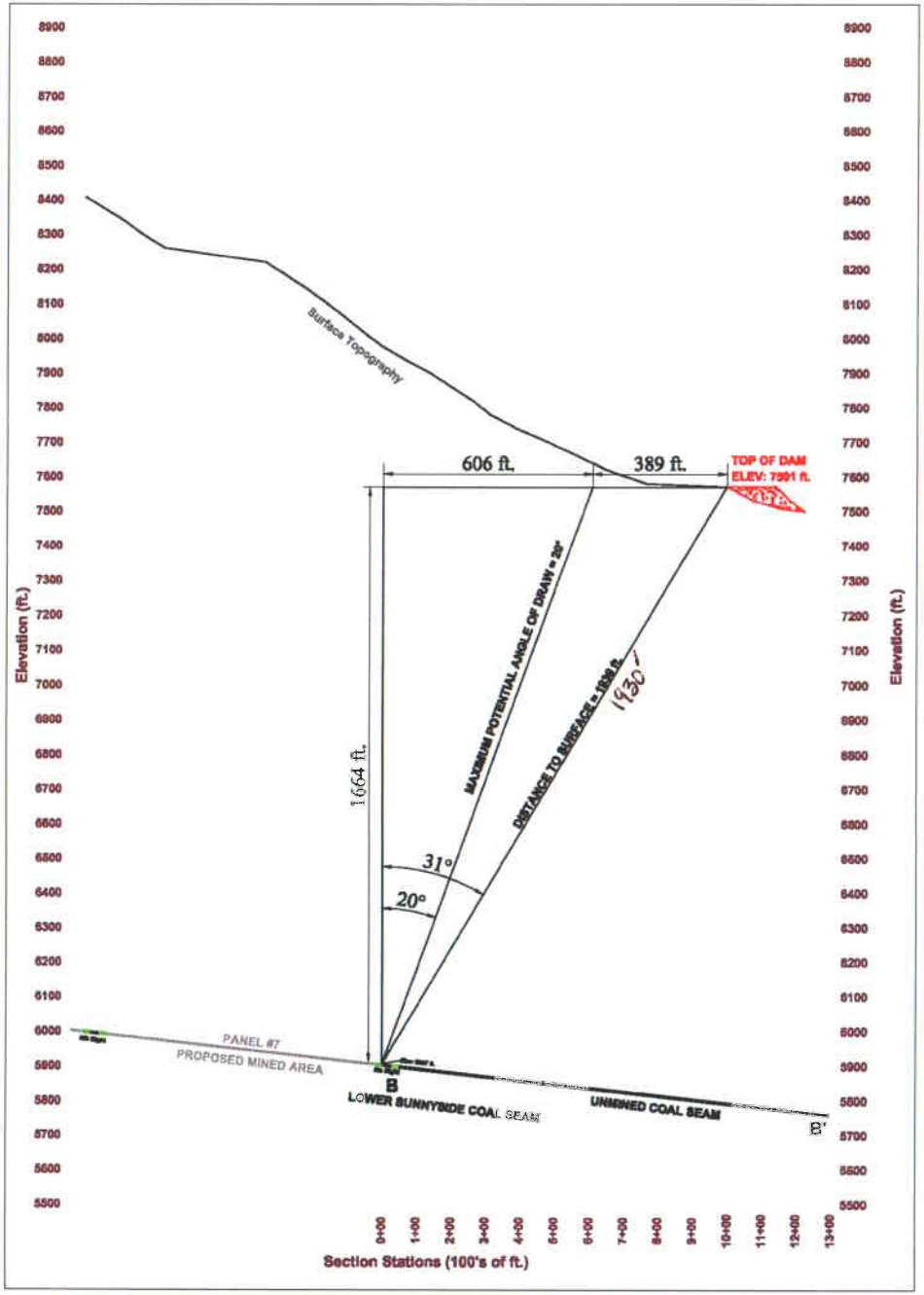


~ 50' High
~ 700' long


Looking West


Looking West


Panel 20
Panel 19
Panel 18
Panel 17
Panel 16
Panel 15
Panel 14
Panel 13
Panel 12
Panel 11
Panel 10
Panel 9
Panel 8
Panel 24
Panel 23
Panel 22
Panel 21
Whitmore Canyon
Grassy Trail Reservoir
BARRIER
BARRIER
BARRIER
BARRIER
BARRIER
BARRIER
Panel 6
2,061,886 TONS
Panel 5A
697,472 TONS
Panel 5
828,483 TONS
Panel 4
1,288,859 TONS
Panel 3
1,920,157 TONS
Panel 2
2,038,713 TONS
Panel 1
2,079,358 TONS
Panel 28
Panel 27
Panel 26
Panel 25
Panel 31
Panel 30
Panel 29
Bear Canyon
Canyon
N


Surface Topography
606 ft.
389 ft.
TOP OF DAM
ELEV: 7591 ft.
MAXIMUM POTENTIAL ANGLE OF DRAW = 20°
DISTANCE TO SURFACE = 1930 ft.
1930'
1664 ft.
31°
20°
PANEL #7
PROPOSED MINED AREA
B
LOWER SUNNYSIDE COAL SEAM
UNMINED COAL SEAM
B'
Elevation (ft.)
Section Stations (100's of ft.)

Action Plan

1- Initial interagency planning process
2- Collection of initial baseline data (Panel #6)
3- Prepare preliminary evaluation report (RB&G)
4- Interagency review of report; additional requirements
5- Collection of additional data
6- Prepare final report
7- Implement monitoring plan
8- Regulatory authority to stop or limit mining activity

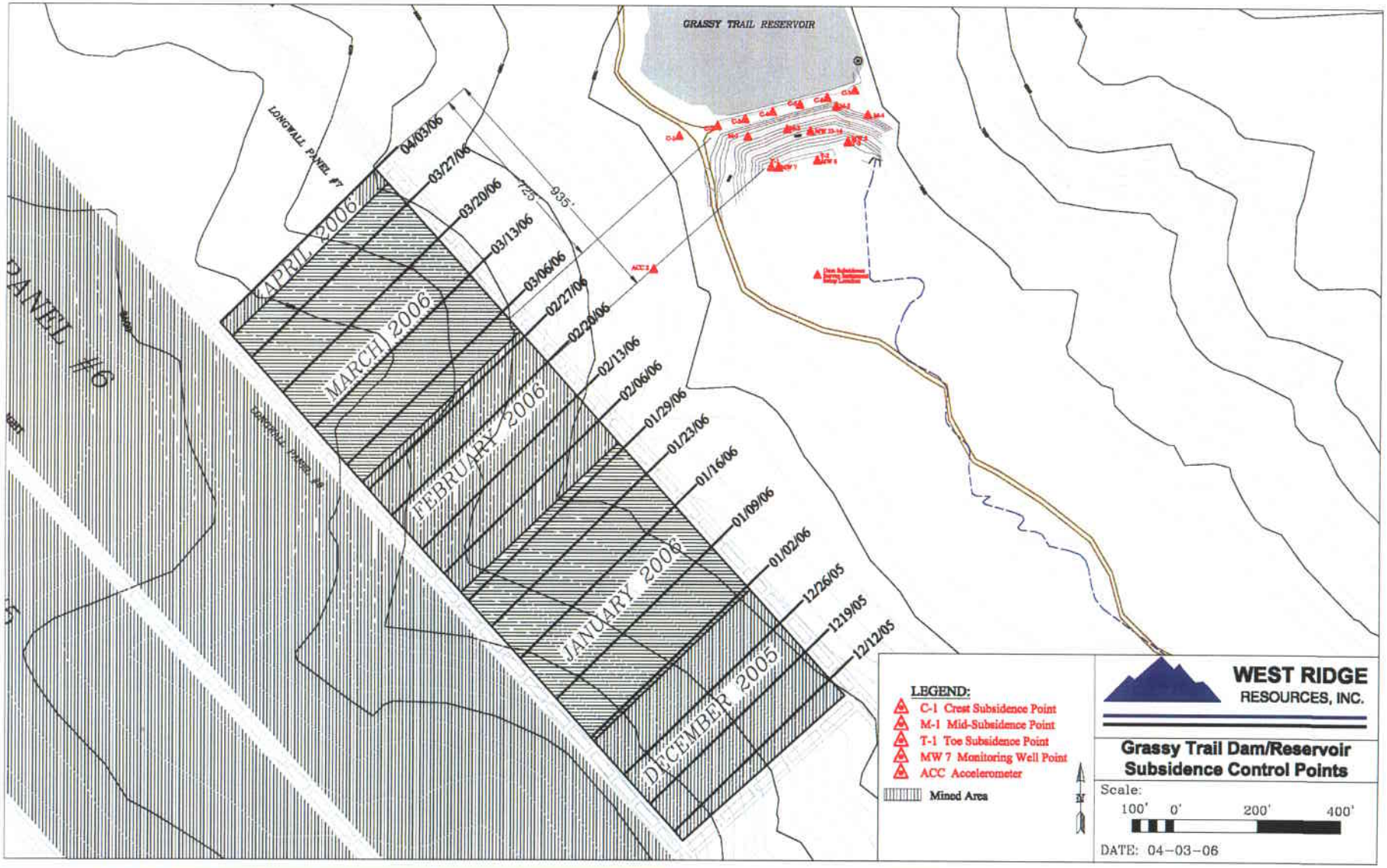
Participants

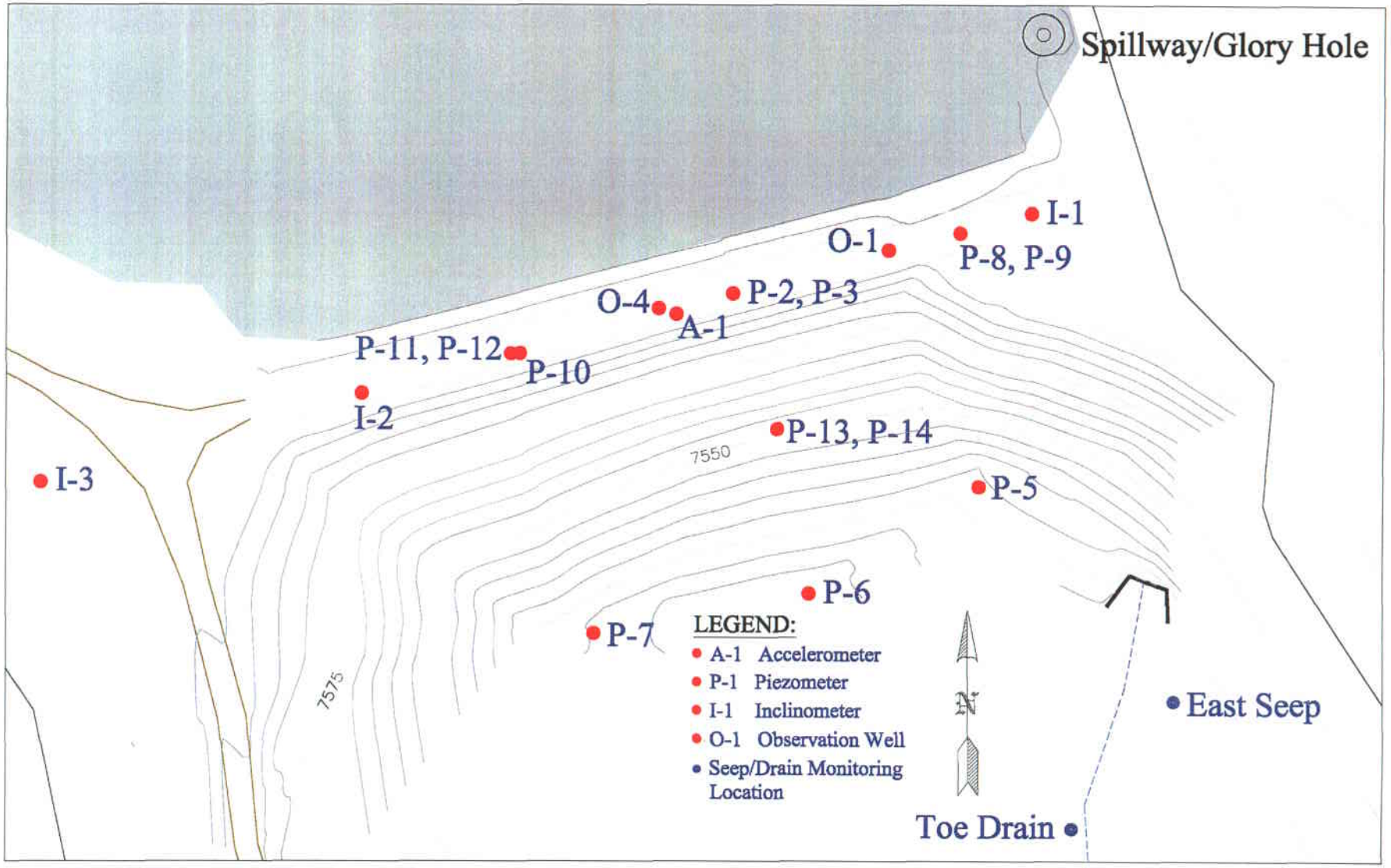
Bureau of Land Management

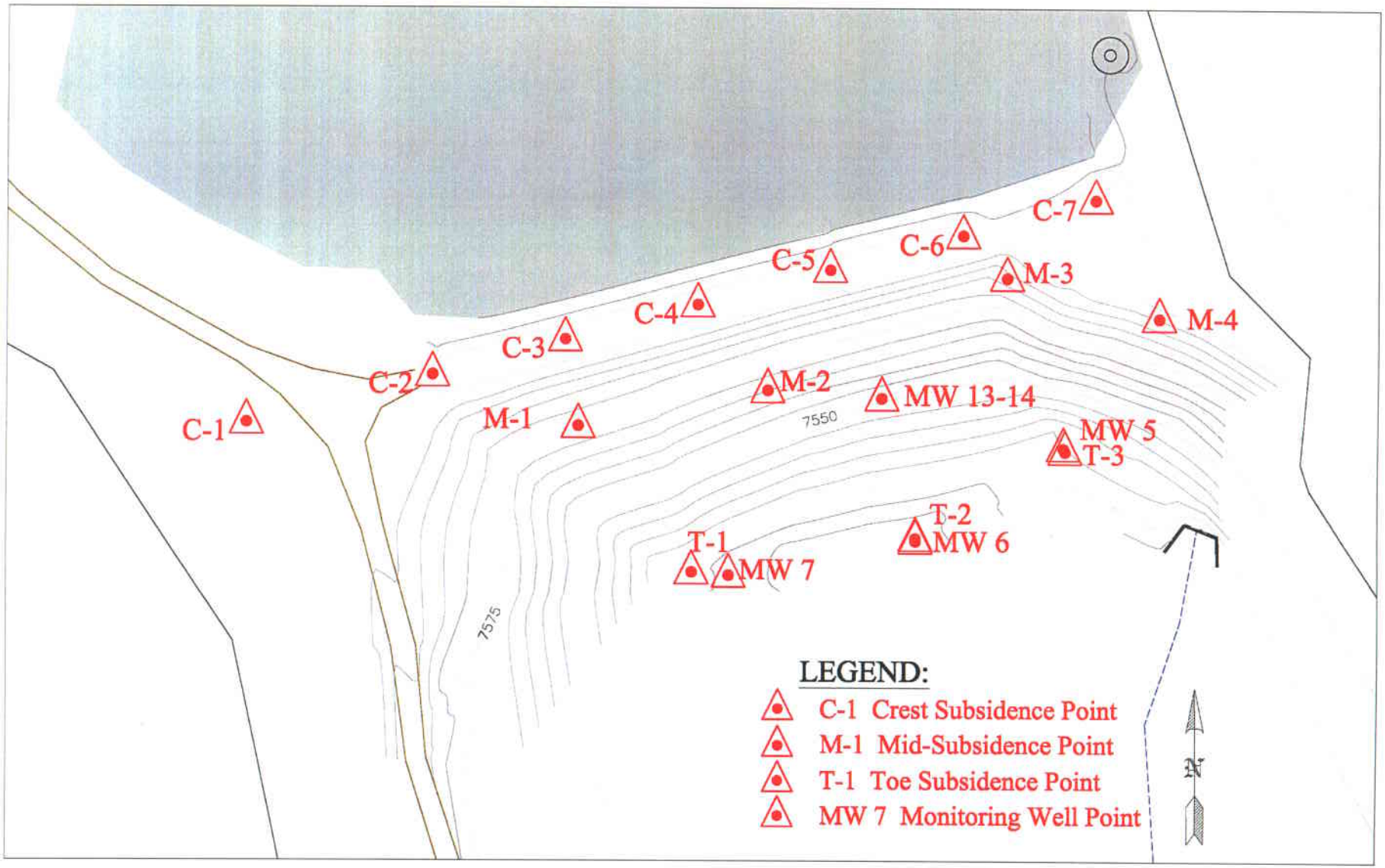
- Utah Division of Oil Gas and Mining
- Utah Division of Dam Safety
- East Carbon City
- Sunnyside City
- RB&G Engineering
- West Ridge Resources

Significant Values

	Seismic Reading	Accelerometer Reading
Typical Max.	2.0	0.02
On-site Recon	3.0	0.20
Study: Max Credible Event	3.9	1.07
Highest Recorded to Date (03/11/06)	2.6	0.268
Closest Mining to Dam (03/05/06)	1.7	0.013


GRASSY TRAIL RESERVOIR
LONGWALL PANEL #7
LONGWALL PANEL #6
PANEL #6
APRIL 2006
MARCH 2006
FEBRUARY 2006
JANUARY 2006
DECEMBER 2005
04/03/06
03/27/06
03/20/06
03/13/06
03/06/06
02/27/06
02/20/06
02/13/06
02/06/06
01/29/06
01/23/06
01/16/06
01/09/06
01/02/06
12/26/05
12/19/05
12/12/05
725'
935'
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:
100' 0' 200' 400'
DATE: 04-03-06

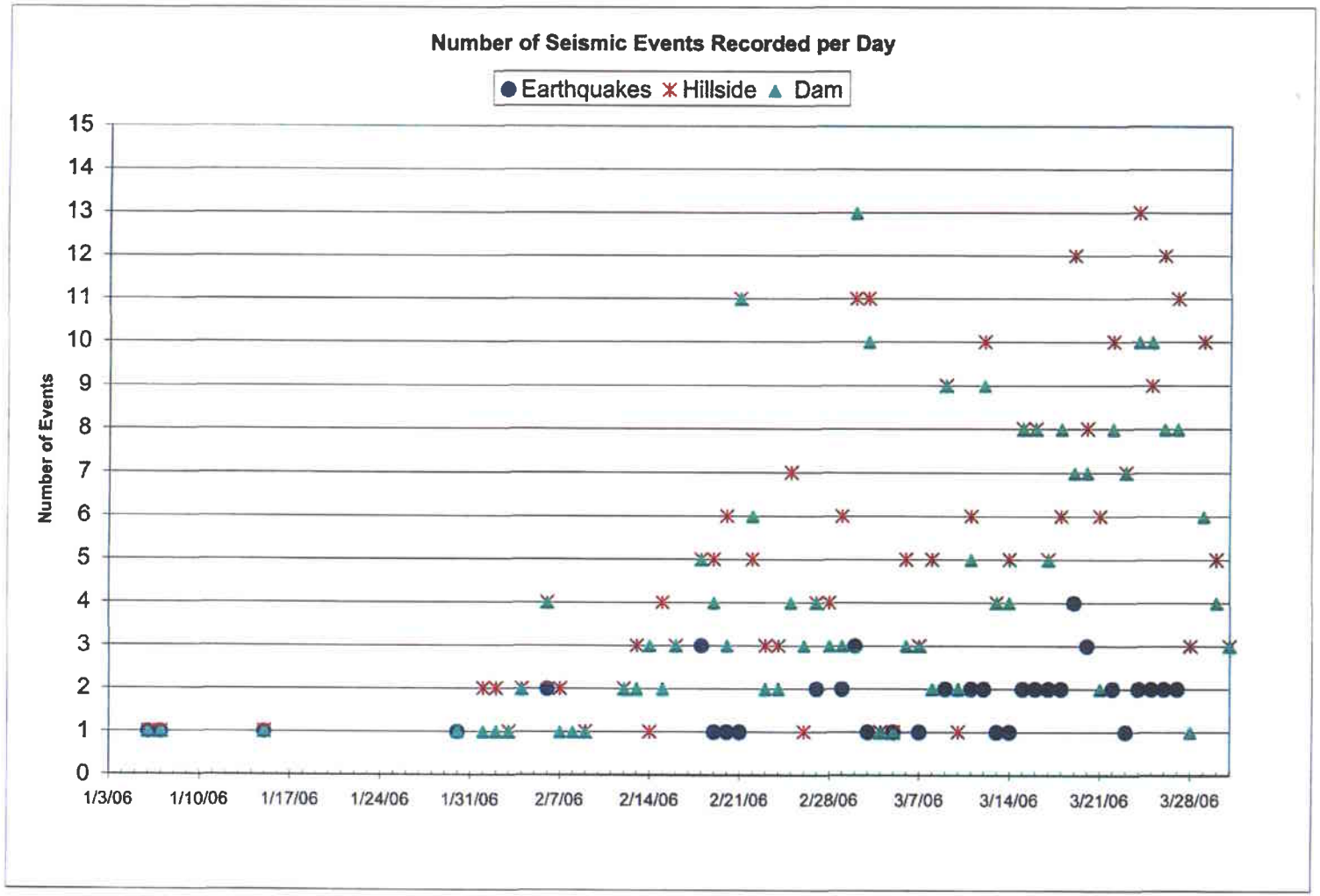

Spillway/Glory Hole
I-1
O-1
P-8, P-9
O-4
A-1
P-2, P-3
P-11, P-12
P-10
I-2
P-13, P-14
7550
I-3
P-5
P-6
P-7
7575
LEGEND:
A-1 Accelerometer
P-1 Piezometer
I-1 Inclinometer
O-1 Observation Well
Seep/Drain Monitoring Location
N
East Seep
Toe Drain


C-1
C-2
C-3
C-4
C-5
C-6
C-7
M-1
M-2
M-3
M-4
MW 13-14
MW 5
T-3
T-2
MW 6
T-1
MW 7
7550
7575
LEGEND:
C-1 Crest Subsidence Point
M-1 Mid-Subsidence Point
T-1 Toe Subsidence Point
MW 7 Monitoring Well Point
N

Grassy Trail Dam, Carbon County, Utah
2006 Hillside unit #9690 Dam #9689

Event Report: Event List - c:\blast\event

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 first line
LOG	BE9689	Mar 24 /06 09:26:18	***	***	***	***	***	***	***	***	Start Monitoring	Start Monit
LOG	BE9690	Mar 24 /06 10:38:57	***	***	***	***	***	***	***	***	Start Monitoring	Start Monit
W	BE9689	Mar 24 /06 11:06:33	0.571	0.397	0.619	0.695	Long	0.00663	0.00663	0.0133	Grassy Tr. Dam Hillside	
W	BE9690	Mar 24 /06 11:06:33	0.349	0.302	0.651	0.652	Long	0.00497	0.00497	0.00663		
LOG	BE9689	Mar 24 /06 11:19:04	***	***	***	***	***	***	***	***	Keyboard Stop	No events
LOG	BE9689	Mar 24 /06 11:19:44	***	***	***	***	***	***	***	***	Start Monitoring	Start Monit
W	BE9689	Mar 24 /06 11:45:31	1.14	1.02	1.57	1.75	Vert	0.00994	0.00829	0.0116	Grassy Tr. Dam Hillside	
W	BE9690	Mar 24 /06 11:45:32	0.873	0.667	1.70	1.73	Vert	0.00663	0.00663	0.00994		
W	BE9689	Mar 24 /06 13:22:43	0.492	0.381	0.603	0.690	Long	0.00663	0.00497	0.0133	Grassy Tr. Dam Hillside	
W	BE9690	Mar 24 /06 13:22:44	0.651	0.286	0.841	0.961	Long	0.00663	0.00663	0.00663		
W	BE9689	Mar 24 /06 13:36:08	0.254	0.317	0.746	0.762	Long	0.00663	0.00663	0.0149	Grassy Tr. Dam Hillside	
W	BE9690	Mar 24 /06 14:44:45	0.524	0.270	0.825	0.835	Long	0.00663	0.00663	0.00663		
W	BE9690	Mar 24 /06 16:16:30	0.698	0.238	0.635	0.750	Long	0.00663	0.00663	0.00663	Hillside	
W	BE9689	Mar 24 /06 16:16:59	0.984	0.921	1.90	2.10	Vert	0.00994	0.00829	0.0149	Grassy Tr. Dam Hillside	> Eq Mag 1.6
W	BE9690	Mar 24 /06 16:17:00	0.873	0.698	1.98	1.99	Vert	0.00829	0.00994	0.0133		
W	BE9689	Mar 24 /06 16:43:18	0.206	0.206	0.619	0.626	Long	0.00663	0.00663	0.0133	Grassy Tr. Dam	
W	BE9689	Mar 24 /06 17:30:54	0.825	0.857	1.32	1.48	Vert	0.00663	0.00829	0.0149	Grassy Tr. Dam Hillside	> 1.5
W	BE9690	Mar 24 /06 17:30:54	1.03	0.635	1.89	1.98	Vert	0.00829	0.00829	0.00994		
W	BE9690	Mar 24 /06 18:11:04	0.492	0.349	0.778	0.819	Long	0.00663	0.00663	0.00829	Hillside	
W	BE9689	Mar 24 /06 20:41:54	0.873	0.778	1.16	1.36	Vert	0.00829	0.00663	0.0116	Grassy Tr. Dam Hillside	
W	BE9690	Mar 24 /06 20:41:55	0.683	0.556	1.37	1.37	Long	0.00663	0.00663	0.00994		
W	BE9689	Mar 24 /06 20:47:49	0.619	0.317	0.349	0.725	Tran	0.00829	0.00663	0.00663	Grassy Tr. Dam Hillside	
W	BE9690	Mar 24 /06 20:47:50	0.429	0.540	0.825	0.890	Long	0.00497	0.00829	0.00663		
W	BE9690	Mar 24 /06 21:35:37	0.444	0.317	0.635	0.657	Long	0.00663	0.00497	0.00663	Hillside	
W	BE9689	Mar 24 /06 22:38:18	26.9	13.8	17.4	30.4	Vert	0.182	0.0762	0.118	Grassy Tr. Dam Hillside	> 2.3
W	BE9690	Mar 24 /06 22:38:19	***	7.94	18.3	***	Vert	0.242	0.0646	0.131		
W	BE9690	Mar 25 /06 06:46:51	0.571	0.365	0.825	0.864	Long	0.00663	0.00497	0.00994	Hillside	
W	BE9689	Mar 25 /06 10:09:59	0.175	0.222	0.635	0.645	Long	0.00663	0.00663	0.0149	Grassy Tr. Dam	
W	BE9689	Mar 25 /06 10:26:20	1.14	1.37	1.81	2.16	Vert	0.0133	0.0116	0.0199	Grassy Tr. Dam Hillside	> 1.5
W	BE9690	Mar 25 /06 10:26:21	1.71	1.10	2.38	2.47	Vert	0.0166	0.00994	0.0199		
W	BE9690	Mar 25 /06 12:09:20	0.556	0.349	0.873	0.916	Long	0.00663	0.00497	0.00829	Hillside	
W	BE9689	Mar 25 /06 13:43:55	0.683	0.460	0.667	0.879	Long	0.00829	0.00663	0.00829	Grassy Tr. Dam Hillside	
W	BE9690	Mar 25 /06 13:43:56	0.651	0.365	1.08	1.09	Long	0.00829	0.00663	0.00829		
W	BE9689	Mar 25 /06 14:30:46	1.13	1.14	1.67	1.83	Vert	0.00994	0.00994	0.0166	Grassy Tr. Dam Hillside	> 1.4
W	BE9690	Mar 25 /06 14:30:47	1.11	0.794	1.97	2.04	Vert	0.00829	0.00663	0.0116		
W	BE9689	Mar 25 /06 15:53:43	0.714	0.397	0.444	0.805	Tran	0.00829	0.00663	0.0149	Grassy Tr. Dam	
W	BE9689	Mar 25 /06 17:53:24	0.857	0.429	0.714	0.954	Long	0.00829	0.00663	0.0149	Grassy Tr. Dam	
W	BE9690	Mar 25 /06 17:53:24	0.444	0.365	0.873	0.882	Long	0.00663	0.00663	0.00663	Hillside	
W	BE9689	Mar 25 /06 18:35:16	0.571	0.413	0.619	0.683	Long	0.00663	0.00663	0.0166	Grassy Tr. Dam Hillside	
W	BE9690	Mar 25 /06 18:35:16	0.778	0.381	0.889	0.956	Long	0.00663	0.00663	0.00829		
W	BE9689	Mar 25 /06 18:58:36	0.238	0.302	0.762	0.772	Long	0.00663	0.00663	0.0149	Grassy Tr. Dam Hillside	
W	BE9690	Mar 25 /06 19:47:45	0.683	0.270	0.825	0.838	Long	0.00663	0.00663	0.00994		
W	BE9689	Mar 25 /06 19:50:49	1.90	1.14	1.27	2.03	Tran	0.0199	0.00994	0.0199	Grassy Tr. Dam Hillside	
W	BE9690	Mar 25 /06 19:50:49	2.94	1.30	1.83	3.00	Vert	0.0249	0.0149	0.0149		
W	BE9689	Mar 25 /06 23:48:05	0.349	0.302	0.603	0.664	Long	0.00663	0.00829	0.0166	Grassy Tr. Dam	
W	BE9689	Mar 26 /06 08:22:06	0.778	0.476	0.571	0.953	Tran	0.00994	0.00663	0.0116	Grassy Tr. Dam	
W	BE9690	Mar 26 /06 08:22:06	0.508	0.651	1.05	1.17	Vert	0.00663	0.00829	0.00829	Hillside	
W	BE9690	Mar 26 /06 09:37:25	0.270	0.302	0.698	0.739	Long	0.00663	0.00497	0.00994	Hillside	
W	BE9690	Mar 26 /06 09:37:38	0.413	0.333	0.778	0.779	Long	0.00497	0.00663	0.00663	Hillside	
W	BE9689	Mar 26 /06 10:24:49	1.21	1.49	2.02	2.22	Vert	0.00994	0.0116	0.0133	Grassy Tr. Dam Hillside	> 1.7
W	BE9690	Mar 26 /06 10:24:50	1.56	0.937	2.67	2.79	Vert	0.00994	0.00994	0.0149		
W	BE9690	Mar 26 /06 12:38:30	0.413	0.317	0.651	0.666	Long	0.00663	0.00663	0.00663	Hillside	
W	BE9689	Mar 26 /06 13:00:48	0.651	0.492	0.810	0.978	Long	0.00663	0.00663	0.0199	Grassy Tr. Dam Hillside	
W	BE9690	Mar 26 /06 13:00:48	0.730	0.524	1.19	1.28	Long	0.00663	0.00663	0.00829		
W	BE9689	Mar 26 /06 13:23:41	0.619	0.651	1.05	1.13	Vert	0.00663	0.00663	0.0116	Grassy Tr. Dam Hillside	
W	BE9690	Mar 26 /06 13:23:41	0.746	0.508	1.17	1.25	Long	0.00829	0.00663	0.00829		
W	BE9690	Mar 26 /06 13:32:11	0.302	0.333	0.730	0.772	Long	0.00663	0.00829	0.00829	Hillside	
W	BE9689	Mar 26 /06 15:41:53	0.540	0.556	0.857	0.978	Long	0.00663	0.00663	0.00994	Grassy Tr. Dam Hillside	
W	BE9690	Mar 26 /06 15:41:53	0.635	0.381	1.06	1.11	Long	0.00663	0.00663	0.00663		
W	BE9690	Mar 26 /06 15:46:56	0.381	0.333	0.794	0.830	Long	0.00663	0.00663	0.00829	Hillside	
W	BE9689	Mar 26 /06 19:23:14	0.746	1.03	1.65	1.79	Vert	0.0116	0.00994	0.0149	Grassy Tr. Dam Hillside	
W	BE9690	Mar 26 /06 19:23:14	1.03	0.714	1.64	1.68	Vert	0.00829	0.00994	0.00994		


Number of Seismic Events Recorded per Day
Earthquakes
Hillside
Dam
Number of Events
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1/3/06
1/10/06
1/17/06
1/24/06
1/31/06
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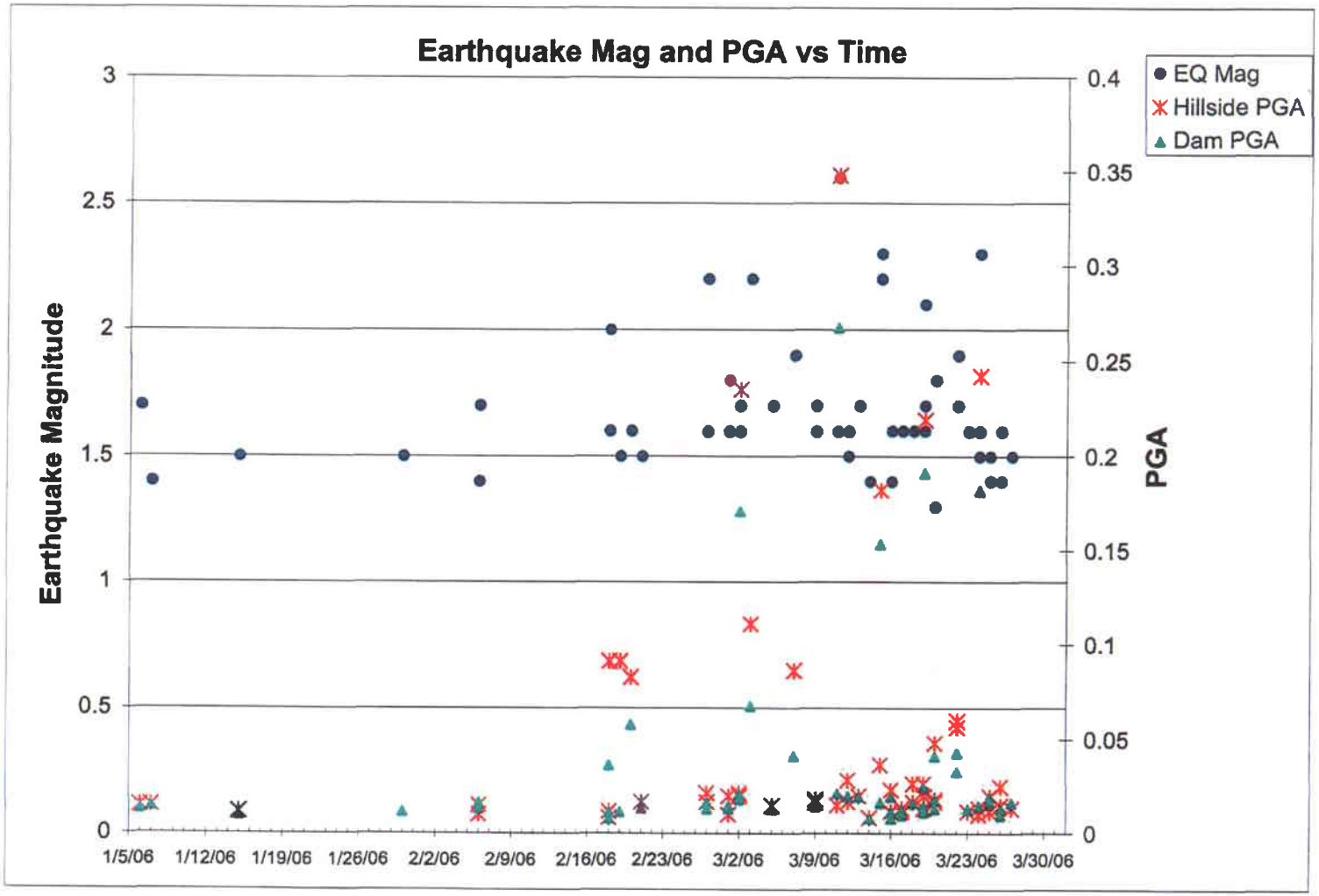
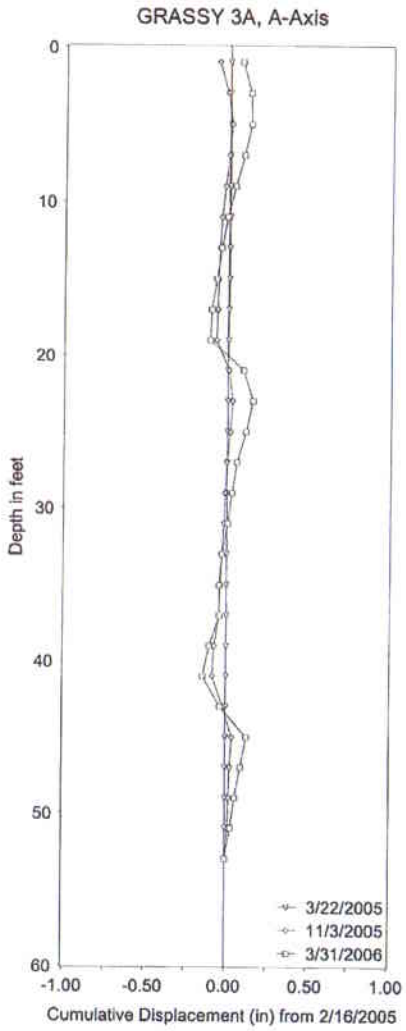
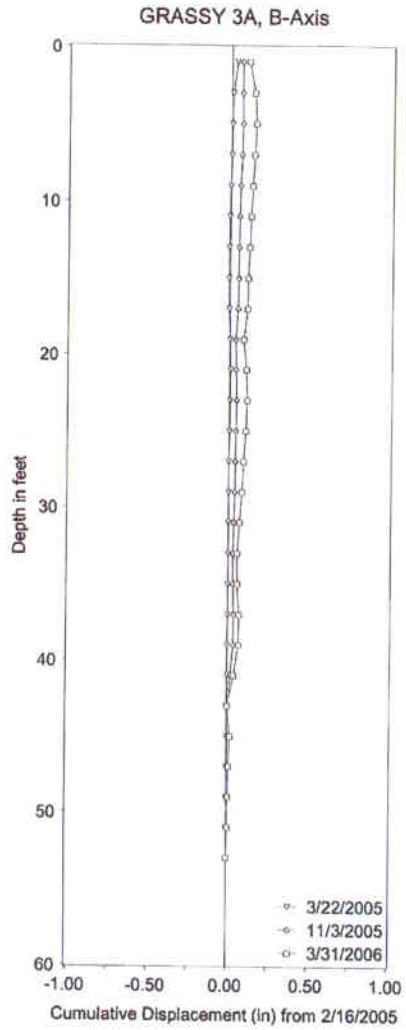
3/21/06
3/28/06


Earthquake Mag and PGA vs Time
Earthquake Magnitude
PGA
EQ Mag
Hillside PGA
Dam 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
3/30/06

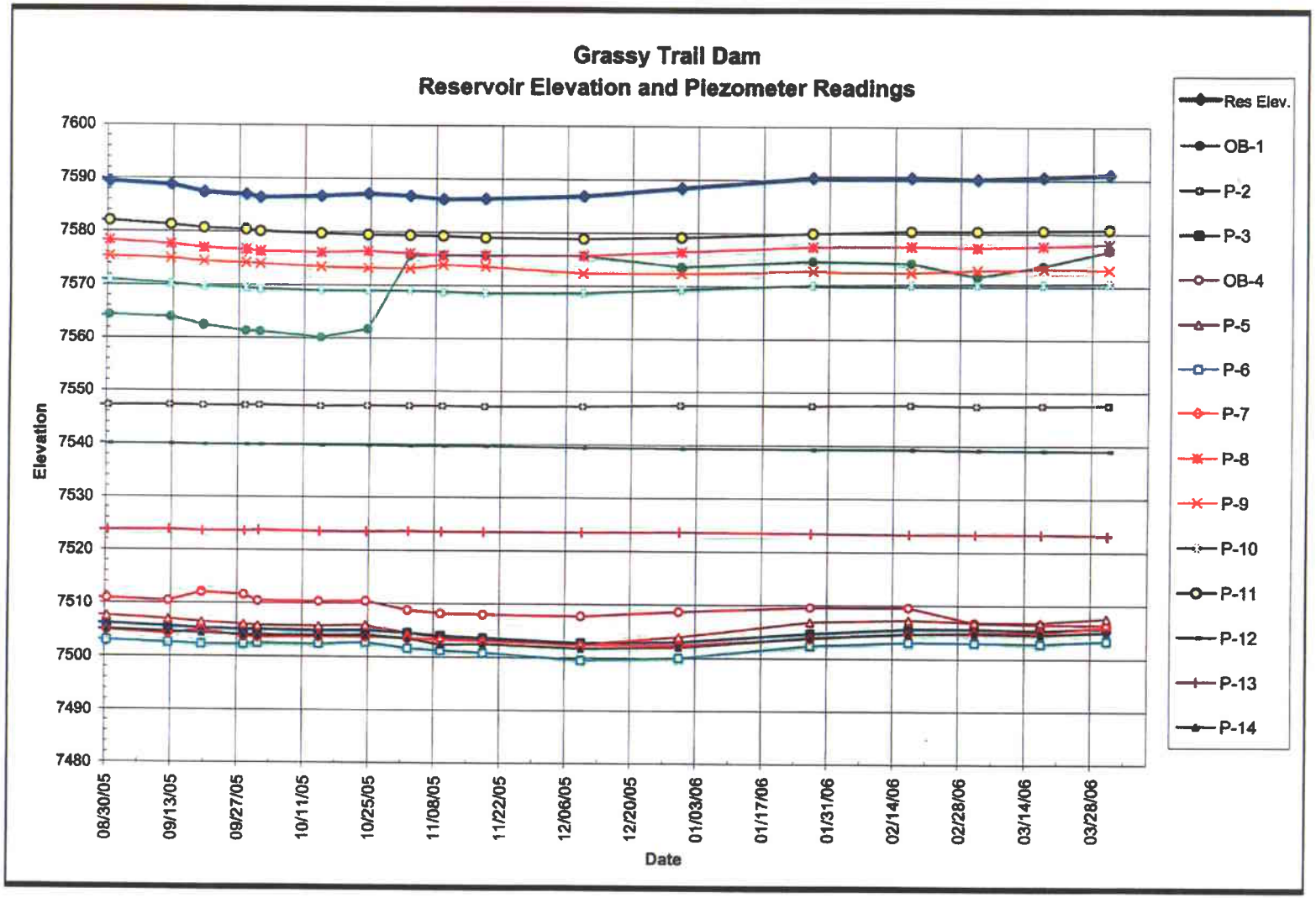




-30 degree skew

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	21.8	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
3/31/06	MNH	-17" ice	23.5	28.3	25.0	54.2	96.0	35.8	53.9	95.4	31.1	21.0	62.7	21.3	8.8	13.5



RB&G ENGINEERING INC.
Provo, Utah

Figure Reservoir Elevation and Piezometer Readings
August 30, 2005 to March 31, 2006

Grassy Trail Dam and Reservoir

GRASSY TRAIL DAM SEEPAGE READINGS

Dam Crest Elev. (ft) 7600.0
Spillway Elev. (ft) 7592.5

Date	Initials	Reservoir Elevation	Seep Location	Reservoir Characteristics	Seep 1: Toe Drain (GAL/MIN)	Seep 1: Toe Drain Water Characteristics	Seep 2: Left Abutment (East Seep) (GAL/MIN)	Seep 2: Left Abutment (East Seep) Water Characteristics	Seep 3: Right Abutment (West Seep) (GAL/MIN)	Seep 3: Right Abutment (West Seep) Water Characteristics	Weather Conditions	Temperature (°F)
11/08/05	JDS	7586.38			Dry		14.3	Clear	0.1	Clear	Slightly Overcastted	47
11/16/05	JDS	7586.38			Dry		14.3	Clear	Frozen		Clear and Sunny	23
11/23/05	JDS	7585.79			Dry		13.5	Clear	Frozen		Clear, Sunny, Breezy	27
11/29/05	JDS	7586.82		Frozen~2.5" of ice	Dry		13.5	Clear	Frozen		Cloudy	24
12/07/05	JDS	7586.71	See Note	Froze	Dry		13.5	Clear	Frozen		Clear and Sunny	19
12/14/05	JDS	7587.29	See Note	Frozen	Dry		13.5	Clear	Frozen		Clear and Sunny	24
12/21/05	JDS	7587.65	See Note	Frozen	Dry		14.3	Clear	Frozen		Clear and Sunny	26
12/28/06	RA/JN	7588.31	See Note	Frozen	Dry		15.9	Clear	Frozen		Slightly Overcastted	30
01/04/06	JDS	7588.94	See Note	Frozen	Dry		16.2	Clear	Frozen		Slightly Overcastted	28
01/11/06	JDS	7589.48	See Note	Frozen	Dry		16.3	Clear	Frozen		Cloudy	31
01/17/06	JDS	7590.00	See Note	Frozen	Dry		16.6	Clear	Frozen		Clear and Sunny	28
01/25/06	JDS	7590.50	See Note	Frozen	Dry		17.4	Clear	Frozen		Clear and Sunny	27
01/31/06	JDS	7590.52	See Note	Frozen	Dry		19.0	Clear	Frozen		Clear and Sunny	38
02/08/06	JDS	7590.50	See Note	Frozen	1.0	Clear	20.1	Clear	Frozen		Clear and Sunny	42
02/15/06	JDS	7590.44	See Note	Frozen	2.0	Clear	20.3	Clear	Frozen		Clear and Sunny	37
02/22/06	JDS	7590.42	See Note	Frozen	1.5	Clear	19.5	Clear	Frozen		Slightly Overcastted	27
03/01/06	JDS	7590.40	See Note	Frozen	1.5	Clear	18.2	Clear	Frozen		Clear and Sunny	32
03/08/06	JDS	7590.40	See Note	Frozen	1.5	Clear	18.2	Clear	Frozen		Cloudy and Light Snow	28
03/15/06	JDS	7590.54	See Note	Frozen	1.3	Clear	18.4	Clear	Frozen		Slightly Overcastted	28
03/21/06	JDS	7590.50	See Note	Frozen	1.3	Clear	18.3	Clear	Frozen		Windy and Snowing	25
03/28/06	JDS	7590.35	See Note	Frozen	1.3	Clear	17.9	Clear	Frozen		Windy and Light Snow	29
04/06/06	JDS	7590.44	See Note	Frozen	5.2	Clear	17.9	Clear	Frozen		Heavy Snow	31

NOTE: Elevation measured to top of ice

4/6/2006

GRASSY TRAIL DAM MONITORING/INSPECTION PLAN, PANEL #7

- *Prior to longwall mining of Panel No. 7 additional subsidence control monuments will be established across the crest of the dam on 100' centers, across the face of the dam midway down the slope on 200' centers, and along the toe of the dam on 200' centers.*

- *Prior to longwall mining the upper hillside accelerometer will be removed, recalibrated, and relocated at the dam. The dam site accelerometer will be removed, recalibrated, and relocated at a new location on the hillside approximately midway between the dam and the previous upper hillside location.*

- *Prior to longwall mining a seepage collection system will be installed at the seep area located along the east abutment of the dam. This system will be designed to collect the entire flow of the seep to a common point to allow accurate measurement of the seepage flow.*

- *Prior to longwall mining a complete set of premining baseline data will be established including:*
  - *-Peizometer readings.*
  - *-Accelerometer readings.*
  - *-Inclinometer readings.*
  - *-Relative elevations of all subsidence monitoring monuments located on the dam. (Absolute elevations of all monuments will be surveyed before and after extraction of longwall Panel No. 7)*
  - *-Flow rates at the east abutment seep, west abutment seep, and toe drain.*
  - *-Visual inspection of the dam, seeps, and slide area.*
  - *-Electronic photographs at predetermined designated viewpoints.*

- *RB&G will be responsible for compiling and distributing the following weekly, monthly, and event-driven inspection and monitoring reports. These reports will be generated in an electronic format and emailed on a timely basis to the Division of Dam Safety, Division of Oil, Gas & Mining, Bureau of Land Management, East Carbon City, Sunnyside City, and WEST RIDGE Resources (herein after referred to as the designated parties).*

- ***Weekly basis:** After longwall mining has commenced in Panel No. 7 the following monitoring will be done on a weekly basis:*
  - *-Site reconnaissance/visual inspection (weekly inspections will be done by the same individual from WEST RIDGE Resources to ensure consistency of visual observation interpretations).*

-Electronic photographs from predetermined viewpoints.
-Flow rates at the east seep, west seep, and toe drain. (These flow rates will be determined by actual measurements not by visual estimates.)
-Reservoir level.
-Electronic reports including all reading and photos will be emailed immediately after the inspection to the designated parties.

- ***Monthly basis:*** *In addition to the weekly monitoring the following monitoring will be conducted on a monthly basis:*
  -Accelerometer readings This information will be downloaded by RB&G and attached to the monthly summary.
  -Piezometer readings (to be taken by RB&G)
  -Inclinometer readings (to be taken by RB&G)
  -Relative elevations of subsidence monitoring monuments located on the dam. These surveys will be conducted by a registered professional surveyor.
  -Electronic reporting (emails) of the monthly measurements will be combined with the fourth weekly inspection report sent to the designated parties.

- ***Event-driven basis:*** *In addition to the weekly and monthly inspections the following measures will be taken on an event-driven basis:*
  -The University of Utah seismic readings will be monitored on a daily basis, if any events are recorded greater than a magnitude 3.0 within 5 miles of the dam then, within 24 hours of such readings, a full site reconnaissance and visual inspection will be conducted, and accelerometer readings will be taken. If the accelerometer readings show any value greater than 0.2g then inclinometer readings, piezometer readings and drainflow measurements (east seep, west seep, and toe drain) will be taken at that time. The results of these measurements will be emailed immediately to all designated parties.

- *The standardized form of the inspection/monitoring reports is included in Appendix 1-17.*

- *Monitoring and reporting will continue on the prescribed weekly, monthly, and event driven basis during the mining of Panel No. 7 as long as seismic events continue to be recorded. At such time that the frequency and magnitude of the events diminishes sufficiently the agencies (Dam Safety, DOGM, BLM, East Carbon City, and Sunnyside City) will make a collective consensus determination to reduce, modify, and/or eliminate the various elements of the monitoring program.*

GRASSY TRAIL DAM
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