

Rio Algom Mining Corp.

Marvin D. Freeman
Vice President

Return Receipt Requested P 144 785 075

May 13, 1997

Mr. Joe Holonich
Nuclear Regulatory Commission
Uranium Recovery Branch
Division of Low Level Waste Management & Decommissioning
Mail Stop T7J9
11555 Rockville Pike
Rockville, MD 20850

Dear Mr. Holonich:

Re: License SUA-1119
Docket # 40-8084
Tailing Settlement Monitoring

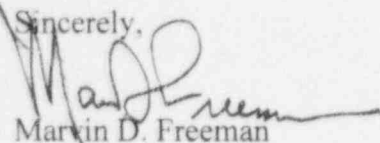
By letter dated March 18, 1997, NRC requested additional support documents related to Rio Algom's January 28, 1997 submittal requesting approval to terminate the Lisbon tailings settlement monitoring program. Specifically NRC requested actual survey records and that settlement monument elevation data be graphed on a scale that provides for a more qualitative analysis.

In response to that request, Attachment A to this letter includes copies of the surveyor's signed reports and copies of his field notes, and Attachment B includes new graphs of the settlement monument data showing the elevation changes in more detail.

In reviewing the data, it was noted that the original Table 1 - Settlement Monitor Survey Data included some entry errors in the data on the lower tailings impoundment under the 01/25/96 and 04/25/96 survey data headings. This data has been corrected on a revised Table 1 which is included with the new graphs in Attachment B. Also included in Attachment B is a map that shows the final locations of the settlement monuments as approved by NRC in License Amendment 50 and as installed. The map included with my January 28, 1997 letter showed the monument locations as originally submitted to NRC, not the NRC approved locations.

If you or your staff have any questions on this submittal or require additional information on the settlement monitoring program, please call me at (405) 848-1187.

Sincerely,


Marvin D. Freeman

MDF:kb

cc: L. Axtell/F. Fossey
File - Utah Tails Reclamation

9705290214 970513
PDR ADOCK 04008084
C PDR



APPENDIX A
SURVEY RECORDS

	<u>Page No.</u>
Monitor Survey 07/25/95 (map)	A-1
Monitor Survey 10/17/95	A-5
Monitor Survey 01/25/96	A-9
Monitor Survey 04/25/96	A-12
Monitor Survey 08/19/96	A-15
Monitor Survey 11/07/96	A-22
Monitor Survey 01/15/97	A-27

STA	+	HT	-	EL
SM-11	1 ⁶²	6653 ⁷²		6654 ¹⁰
SM-1			3 ⁷⁷	6651 ⁹⁵
SM-12			3 ⁶⁵	6652 ⁹⁷
SM-5			1 ⁷²	6654 ⁹⁰
SM-13			3 ⁹⁹	6651 ⁷³
SM-5	5 ⁰²	6659 ⁵²		6654 ⁵⁰
SM-4	4 ²¹	6658 ⁸¹	4 ⁹²	6654 ⁶⁰
SM-3			5 ⁰⁰	6653 ⁷³
SM-2			4 ³⁵	6654 ⁴⁹
SM-11	8 ⁶²	6662 ⁷²		6654 ¹⁰
SM-6			6 ⁹¹	6655 ⁸¹
SM-7			6 ¹³	6656 ⁵⁹
SM-9			4 ⁴⁵	6658 ²⁷
SM-8			5 ¹¹	6657 ⁶¹
SM-10			0 ³³	6662 ³⁹

CONT.

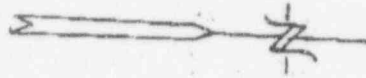
7-20-95

(71)

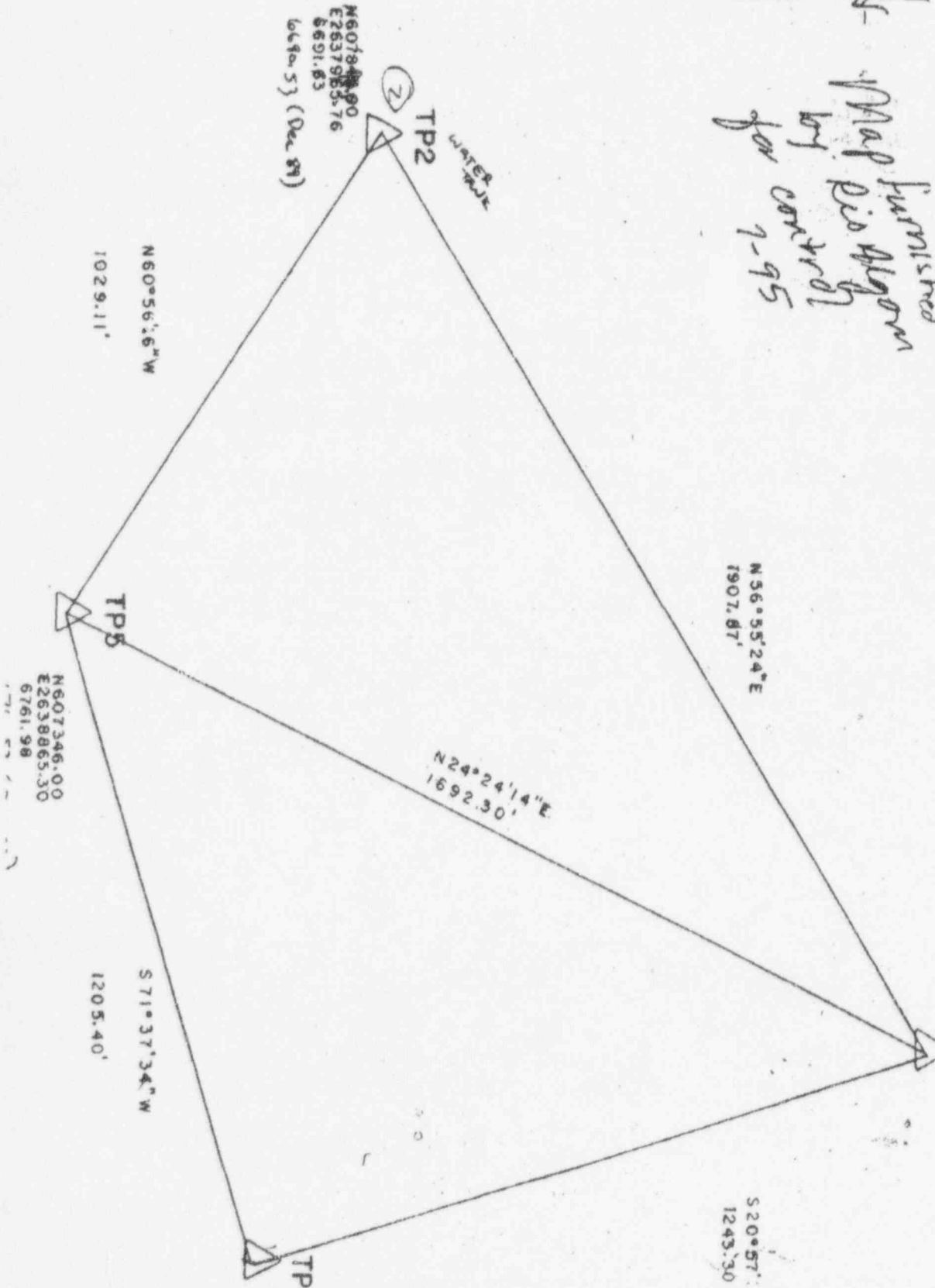
STA	+	HI	-	EL.
JV1	1 ⁹³	6699 ⁷⁹		6698 ⁰⁶
SM-20			2 ⁵⁵	6697 ⁴⁹
SM-21			-0 ⁰⁶	6700 ⁰⁵
SM-23			0 ¹³	6698 ⁸⁶
SM-19			-0 ²⁷	6700 ²⁶
SM-14			1 ⁰⁰	6698 ⁹⁹
SM-15			2 ⁶⁸	6697 ³¹
SM-16			2 ⁸³	6697 ¹⁶
SM-23	7 ⁰⁴	6706 ⁹⁰		6699 ⁸⁴
SM-18			8 ⁰⁴	6698 ⁸⁶
SM-17			8 ⁴⁴	6698 ⁴⁶
SM-26			9 ³⁷	6697 ⁵¹
SM-25			3 ⁷⁹	6703 ¹¹
SM-24			1 ⁶⁰	6705 ³⁴
SM-22			3 ¹⁸	6703 ⁷²
JV1				6698 ⁰⁶
J.P.	0 ⁴⁸	6698 ⁵⁴		
J.P.	1 ⁰⁸	6676 ⁷⁸	22 ⁸⁴	6675 ⁷⁰
J.P.			19 ⁹¹	6656 ⁸²

7-20-95
E10 Adam Court
122 (70)

STA	+	HI	-	EL.
SM-11	2 ⁵⁵	6657 ⁰⁶		6654 ¹¹
JV1	0 ³³	6698 ³⁹		6698 ⁰⁶
J.P.	1 ⁰²	6684 ⁷¹	12 ⁷²	6685 ⁰⁷
J.P.	1 ⁰³	6694 ⁰⁴	13 ⁷⁰	6678 ⁰¹
J.P.	1 ⁷²	6643 ⁷⁶	12 ⁷⁰	6661 ⁷⁹
SM-11	1 ³⁹	6645 ⁷⁹	8 ⁹⁶	6654 ¹⁰
J.P.	1 ⁴²	6679 ²⁵	0 ²²	6645 ²⁷
J.P.	1 ⁴³	6698 ³⁵	0 ⁷⁹	6679 ⁰³
JV1			0 ⁴⁹	6698 ⁰⁶



*Map furnished
by control
for 7-95*



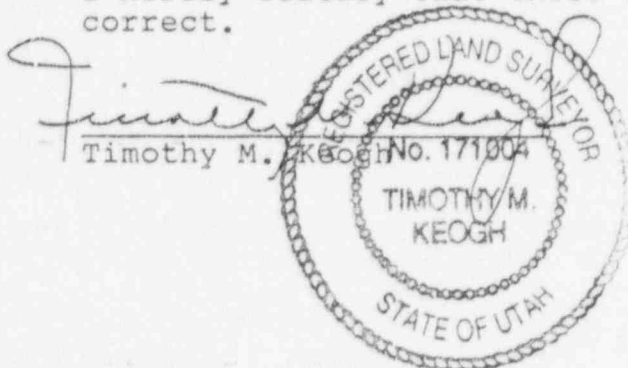
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MOAB, UT 84532

(801) 259-8171

RIO ALGOM
MONITOR HOLE ELEVATIONS AS OBSERVED OCT. 17, 1995

<u>Hole</u>	<u>Elevation</u>
SM-1	6651.95
SM-2	6654.51
SM-3	6653.73
SM-4	6654.60
SM-5	6654.50
SM-6	6655.81
SM-7	6656.58
SM-8	6657.62
SM-9	6658.28
SM-10	6662.39
SM-11	6654.10
SM-12	6652.46
SM-13	6651.72
SM-14	6698.99
SM-15	6697.32
SM-16	6697.17
SM-17	6698.45
SM-18	6698.85
SM-19	6700.25
SM-20	6697.44
SM-21	6700.07
SM-22	6703.69
SM-23	6699.83
SM-24	6705.28
SM-25	6703.09
SM-26	6697.49

I hereby certify that these elevations are true and correct.



10-18-95
Date

Upper Pond		
TP-2 6.45		6691.63
(Top Deck)		66
SM-16 0.78	1.34	6696.12
SM-15 1.95	0.63	6696.37
SM-14 0.14	0.28	6698.54
SM-20 2.75	1.69	6696.90
SM-21 0.97	0.12	6699.62
SM-19 0.39	0.79	6699.80
SM-23 3.93	0.81	6699.38
SM-22 1.98	0.07	6703.24
SM-24 0.65	0.39	6704.825
SM-25 0.29	2.83	6702.45 Nor
SM-18 0.05	4.54	6698.395
SM-26 1.02	1.41	6692.035

Rio Delgona		Sett: pade.	Notes
SM-21, 22, 23, 24			TP-2 W.A.
97.17			
97.32			
98.99			
97.44			
6700.07			
6700.25			
99.83			
93.49			
95.27			
Location in OK	03.09		
8.815			
0.44	97.485		

		"	
SM-17	3.27	0.06	6697.995
TD-2			
(TOP BOLT)		9.63	6694.635
<hr/>			
Lower Pond			
SM-12	0.29		6652.46
SM-1	0.42	0.80	6651.95
SM-13	4.68	0.65	6651.72
SM-5	4.18	1.90	6654.50
SM-4	1.50	4.08	6654.60
SM-3	2.337	2.37	6653.73
SM-2	2.38	56897	1.55 6654.517
SM-7	1.093		0.315 6656.582

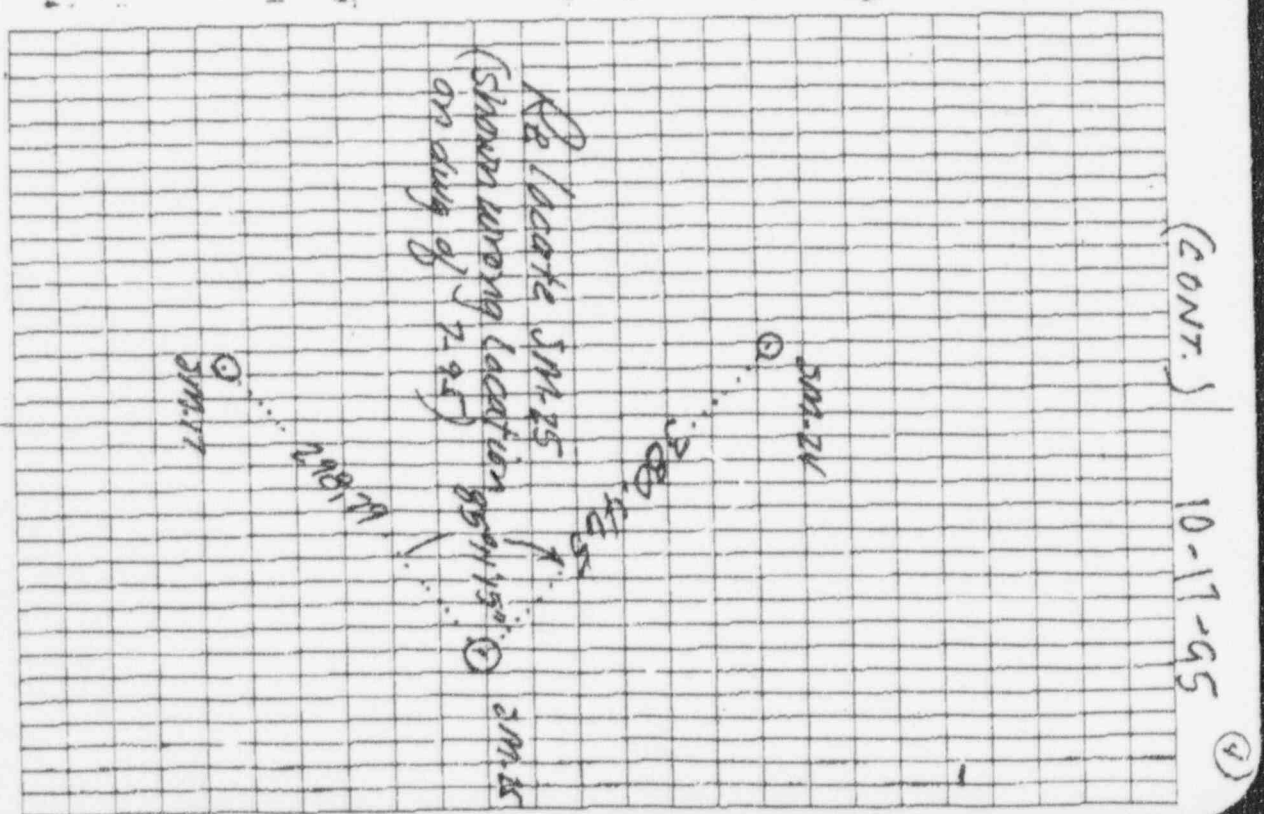
down 0.45	78.45
same	
same	
0.163	
0.163	
0.1 high	
0.1 high	
0.1 high	
0.1 high	

R10 (cont.)

10-17-95

(3)

SM-8	1.60	0.05	6657.625	.02 high
SM-9	4.877	0.942	6658.283	.12 high
SM-10	0.362	0.77	6662.39	.01 high
SM-6	0.148	6.94	6655.812	.01 high
SM-11	1.50	1.86	6654.10	SM-12
SM-12		3.14	6652.46	SM-12



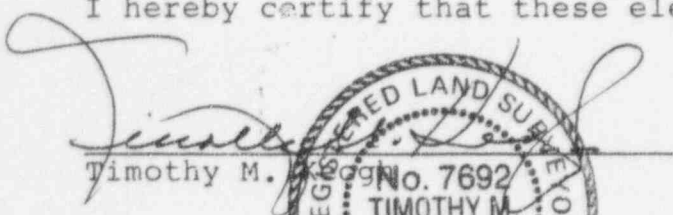
KEOGH LAND SURVEYING
REGISTERED LAND SURVEYORS
45 E. Center • P.O. Box 396
MOAB, UT 84532

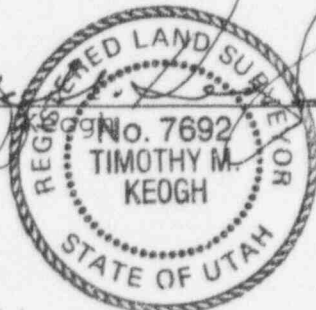
(801) 259-8171
Telephone and Fax

RIO ALGOM
MONITOR HOLE ELEVATIONS AS OBSERVED JAN. 25, 1996

<u>HOLE</u>	<u>ELEVATION</u>
SM-1	6651.92
SM-2	6654.49
SM-3	6653.71
SM-4	6654.60
SM-5	6654.49
SM-6	6655.78
SM-7	6656.53
SM-8	6657.59
SM-9	6658.26
SM-10	6662.38
SM-11	6654.07
SM-12	6652.44
SM-13	6651.71
SM-14	6698.97
SM-15	6697.30
SM-16	6697.16
SM-17	6698.44
SM-18	6698.82
SM-19	6700.24
SM-20	6697.44
SM-21	6700.06
SM-22	6703.68
SM-23	6699.83
SM-24	6705.26
SM-25	6703.10
SM-26	6697.48

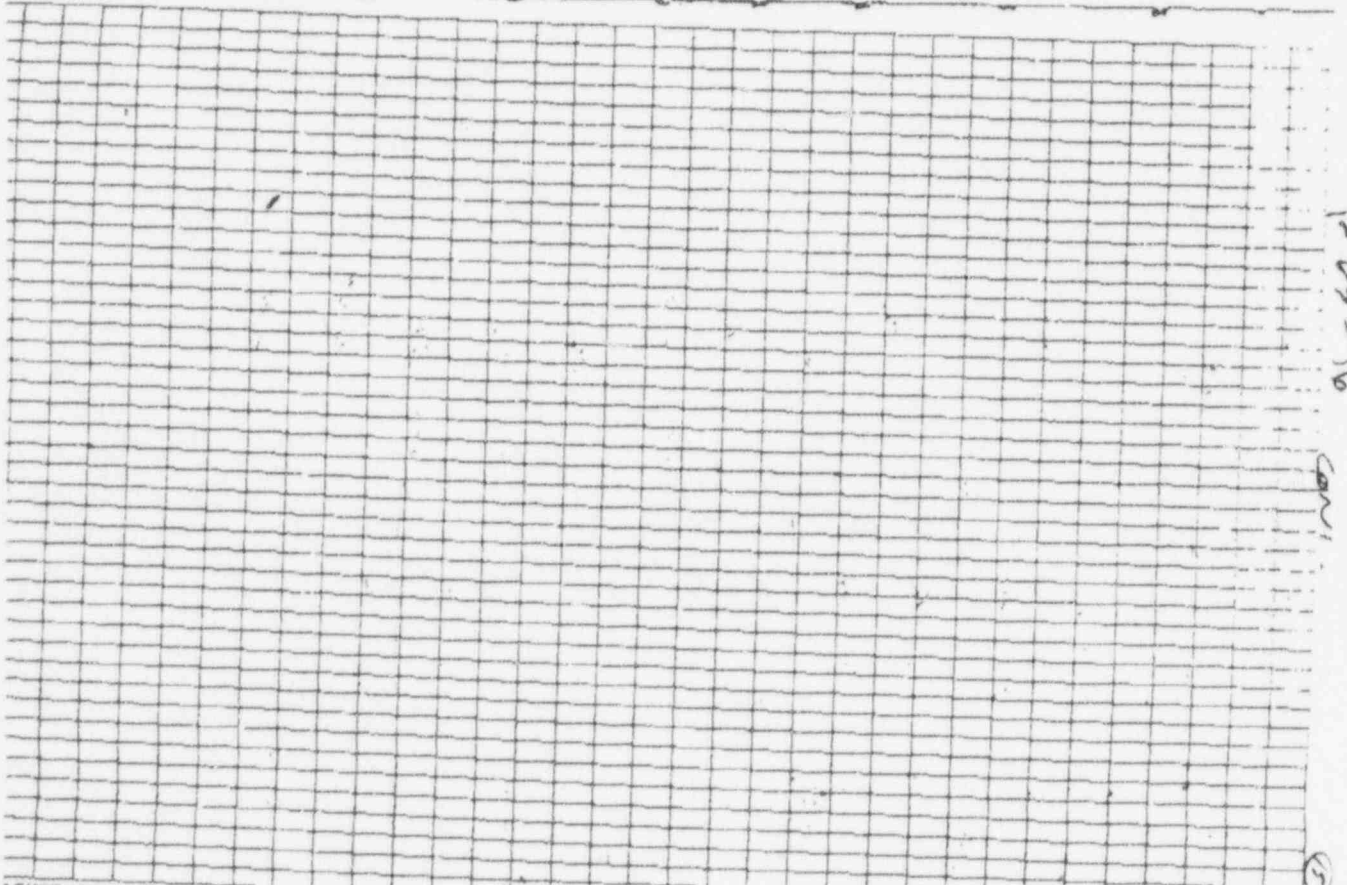
I hereby certify that these elevations are true and correct.


Timothy M. Keogh



Feb. 8, 1996
Date

STATION	+	HI	-	EL.
SM-4	4 ⁹⁵	6659 ⁴¹	4 ⁸¹	6640
SM-3	4 ⁵¹	6638 ⁸¹	5 ²⁰	6653 ⁷¹
SM-2	5 ⁴⁰	6659 ³¹	4 ⁸²	6654 ⁴⁹
T.D.	4 ⁹⁵	6659 ⁴⁵	6 ⁵²	6653 ¹²
SM-7	5 ⁷⁹	6659 ¹²	0 ⁸⁶	6658 ²⁶
SM-8	1 ⁹⁴	6659 ⁷⁶	2 ¹¹	6657 ⁵⁹
SM-7	1 ⁷⁴	6659 ⁵³	3 ⁰⁰	6656 ⁵³
SM-6	2 ³⁰	6658 ⁸³	3 ⁰⁵	6655 ⁷⁸
SM-10	1 ⁴¹	6663 ²⁰	0 ⁸²	6662 ⁵⁸
T.D.	11 ¹⁴	6673 ⁵²	2 ²²	6671 ³²
T.D.	12 ¹⁴	6683 ⁴⁴	0 ⁶¹	6682 ⁸³
T.D.	12 ⁰⁹	6694 ⁹²	0 ²⁸	6694 ⁶⁴
SM-1	5 ³²	6700 ¹⁴	2 ⁰⁷	6698 ⁰⁷



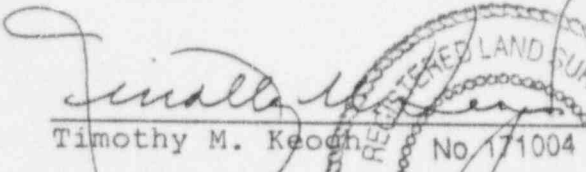
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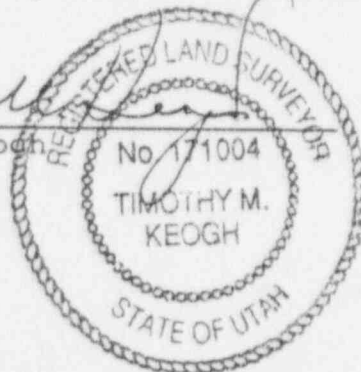
(801) 259-8171
Telephone and Fax

RIO ALGOM
MONITOR HOLE ELEVATIONS AS OBSERVED APRIL 25, 1996

<u>HOLE</u>	<u>ELEVATION</u>
SM-1	6651.93
SM-2	6654.50
SM-3	6653.71
SM-4	6654.60
SM-5	6654.49
SM-6	6655.73
SM-7	6656.53
SM-8	6657.59
SM-9	6658.27
SM-10	6662.36
SM-11	6654.07
SM-12	6652.43
SM-13	6651.69
SM-14	6698.97
SM-15	6697.29
SM-16	6697.15
SM-17	6698.43
SM-18	6698.79
SM-19	6700.23
SM-20	6697.44
SM-21	6700.04
SM-22	6702.67
SM-23	6698.81
SM-24	6705.26
SM-25	6703.08
SM-26	6697.46

I hereby certify that these elevations are true and correct.


Timothy M. Keogh



May 3, 1996
Date

STN	1	Alt	-	EL
STN-8	1 ²⁵	6658 ⁸⁹	2 ³¹	6657 ⁵⁹
STN-1	2 ²⁴	6658 ⁷²	3 ⁰⁴	6657 ⁷³
STN-6	7 ⁴⁵	6663 ¹⁸	0 ⁸²	6662 ³⁶
STN-10	10 ⁷⁶	6673 ¹²	2 ²⁷	6668 ⁸⁵
7 ⁴¹	12 ⁵⁶	6683 ⁴¹	2 ²⁷	6668 ⁸⁵
5 ⁴¹	12 ²⁵	6695 ²⁶	0 ⁴⁰	6682 ⁸⁴
7 ⁴¹	16 ²⁸	6699 ⁴⁶	2 ²⁸	6692 ⁷⁸
STN-1	16 ²⁸	6699 ⁴⁶	1 ⁴⁰	6698 ⁰⁶

4-25-96

STA	T	M/E	EL
NA-1	3.81	6101.87	6696.74
SM-14	2.79	6101.76	6698.73
SM-15	4.14	6101.43	6692.29
SM-16	4.20	6101.45	6692.15
SM-20	4.00	6101.49	6697.44
T.D.	5.14	6101.94	6696.20
NA-1	4.40	6102.47	6698.06
SM-21	4.40	6102.49	6700.03
SM-22	3.79	6107.96	6703.61
SM-24	1.41	6106.74	6705.36
SM-25	1.98	6105.06	6703.08
SM-26	1.89	6697.35	6697.46
SM-17	0.70	6699.13	6698.43
SM-18	3.24	6102.02	6698.79
SM-23	2.72	6102.33	6699.81
SM-19	2.72	6102.45	6700.23
NA-1	4.88	6698.07	

NO. 21-4001
SERRAVALLE 4001/4001/5. 45
25.02

STA	T	M/E	EL
NA-1	0.82	6698.88	6698.95
T.D.	0.84	6698.87	6698.73
T.D.	0.84	6698.87	6698.73
T.D.	0.84	6698.87	6698.73
SM-11	0.32	6698.88	6698.73
SM-12	2.13	6696.49	6695.43
SM-13	1.85	6694.29	6691.69
SM-1	1.25	6695.74	6691.92
SM-5	6.74	6698.12	6691.92
SM-4	4.81	6694.36	6691.92
SM-3	5.95	6699.39	6693.71
SM-2	4.98	6699.44	6694.29
T.D.	4.03	6699.42	6699.09
SM-9	1.16	6699.44	6698.12
SM-8	1.04	6699.44	6698.12

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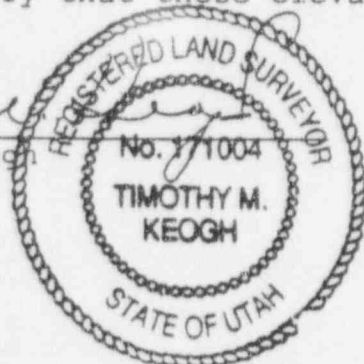
Telephone and Fax

RIO ALGOM
MONITOR HOLE ELEVATIONS AS OBSERVED AUG. 19, 1996

<u>HOLE</u>	<u>ELEVATION</u>
SM-1	6651.91
SM-2	6654.50
SM-3	6653.69
SM-4	6654.59
SM-5	6654.48
SM-6	6655.75
SM-7	6656.54
SM-8	6657.60
SM-9	6658.29
SM-10	6662.39
SM-11	6654.06
SM-12	6652.44
SM-13	6651.70
SM-14	6698.97
SM-15	6697.29
SM-16	6697.15
SM-17	6698.40
SM-18	6698.75
SM-19	6700.18
SM-20	6697.44
SM-21	6700.04
SM-22	6703.67
SM-23	6699.78
SM-24	6705.25
SM-25	6703.06
SM-26	6697.44

I hereby certify that these elevations are true and correct.

Timothy M. Keogh
Timothy M. Keogh



Aug. 19, 1996
Date

T	HI	-	ELEV	DESKIT
340	C70166		C698 DC	JV-1: 340 DESKIT
475	C70219	422	C69744	SM20
478	C70482	215	C70004	SM21
345	C70715	115	C70367	SM22
056	C70581	182	C70525	SM24
027	C70333	275	C70306	SM25
115	C69859	589	C69744	SM26
385	C70225	019	C69840	SM17
199	C70074	358	C69875	SM19
292	C70181	096	C69978	SM23
260	C70278	163	C70018	SM19
459	C70202	535	C69743	TP
333		396	C69884	JV-1
		333		

N. G. D. J. P. 4. 2. 1. 8. 2.

RIO ALGOM
SC21, T29, R2VEB-19-96 (K)
JH
MF

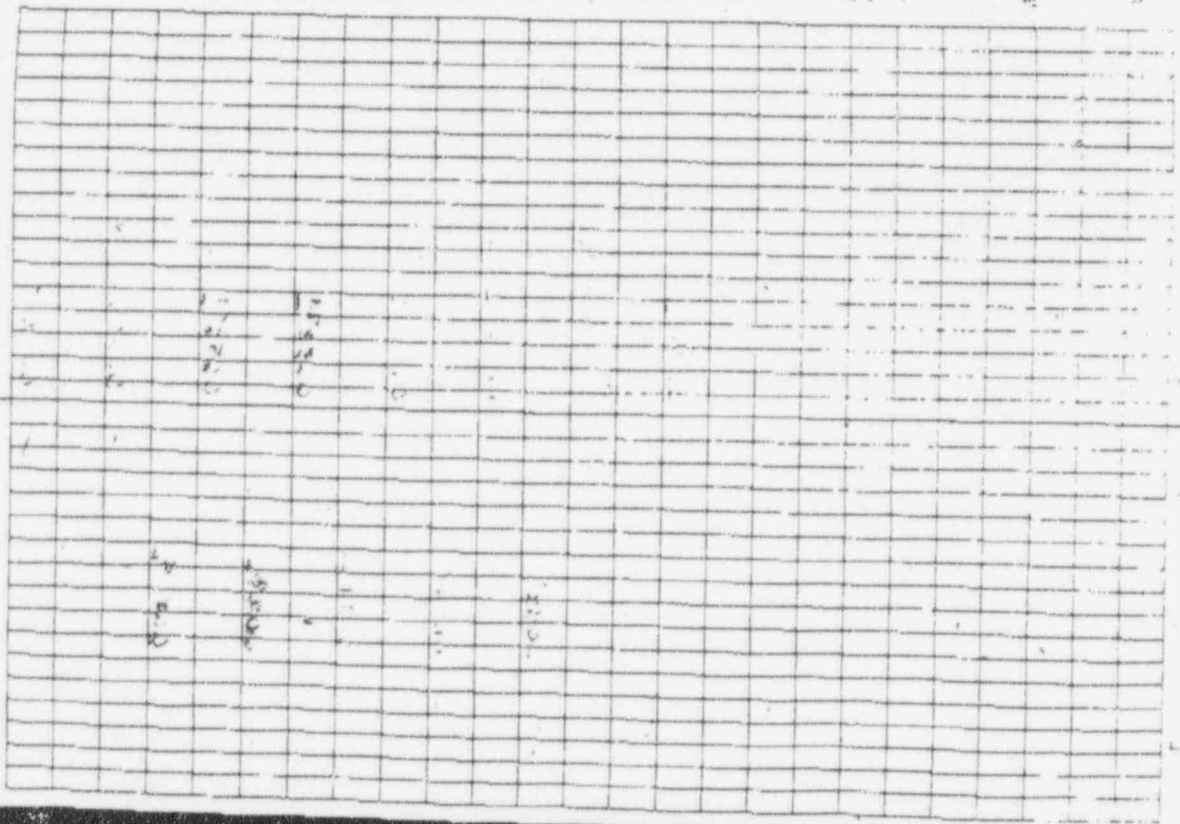
T	HI	-	ELEV	MARKING
360	670166		669806	JV-1
237	670124	269	669897	SM 14
357	670086	395	669729	SM 15
211	669986	371	669715	SM 16
819	670025	780	669206	TP 2.5 ft BOULDER 1.5 ft 16 ft
495	670086	384	669651	TP
264	670146	190	669886	TP
2708		355 2704	669805	JV-1
012	669818		669806	JV-1
031	669429	1439	669889	TP
042	669706	1492	669828	TP
149	665700	1359	665611	TP

RIO ALBERT

8-18-96

(17)

+	H1	-	LEV	DECRIP
1 ⁷⁴	CC557C	3 ⁵⁸	CC540C	SM11
0 ⁸⁶	CC533B	3 ³⁴	CC524E	SM12
0 ⁴⁵	CC5233	1 ⁴⁰	CC518B	SM1
3 ²⁴	CC5551	0 ⁵⁶	CC5167	SM13
4 ⁷⁶	CC5921	1 ⁰⁵	CC5445	SM5
4 ⁰⁹	CC586C	4 ⁶⁴	CC5457	SM4
5 ²⁵	CC5891	5 ⁰⁹	CC536C	SM3
3 ⁷²	CC5819	4 ⁴⁴	CC5447	SM2
5 ⁹³	CC5901	5 ¹⁸	CC530C	TP
0 ⁷⁶	CC5804	0 ⁷⁶	CC5825	SM9
1 ²⁶	CC5781	2 ⁴⁶	CC5655	SM7
0 ⁴⁶	CC5802	0 ¹⁹	CC5762	SM8
		2 ³¹	CC557C	SM6



R10 ALG004

8-14-96

(8)

+	M1	-	ELEV	DEVIATION
842	CC6425	104	CC6241	SM10
626	CC6062	434	CC6428	TP
1381	CC7809	138	CC7672	TP
1436	CC9106	132	CC8974	TP
1025	CC9999	186	CC9813	JV-1
8869		8897	CC9813	
0585	CC9864		CC9806	JV-1
029	CC6773	1126	CC8738	TP
056	CC7903	1115	CC7651	TP
126	CC6794	1035	CC6658	TP
118	CC5844	1045	CC6723	TP
1535	CC5558	441	CC6904	SM11
		314	CC5244	SM12

Rio Alabon 8-M-2

(A)

+	41	-	Elev	DESCR
0 235	CC52 CC5			
0 40	CC52 21	0 355	CC51 91	SM 1
3 11	CC54 81	0 61	CC51 70	SM 13
4 225	CC58 80	0 33	CC54 48	SM 5
3 57	CC58 16	4 215	CC54 59	SM 4
4 345	CC58 035	4 47	CC58 59	SM 3
2 70	CC57 205	3 53	CC54 505	SM 2
4 89	CC58 035	3 30	CC53 905	TP
4 21	CC59 815	3 20	CC55 595	TP
0 21	CC58 50	1 525	CC58 29	SM 9
1 545	CC58 085	1 96	CC58 54	SM 7
0 69	CC58 275	0 48	CC57 605	SM 8
7 42	CC63 45	2 55	CC55 745	SM 6

Rio Alcorn

5-19-92

(2)

+	HI	-	ELEV	DESCRIP.
161	CC6498	0715	CC6232	SHID
1119	CC7492	0110	CC6384	TP
1264	CC8695	0625	CC7434	TP
1377	CC9915	1105	CC8588	TP
8179		108	CC9807	JY-1
		8178		

R10 ALCON 5-19-82

(21)

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REGISTERED LAND SURVEYORS
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MOAB, UT 84532

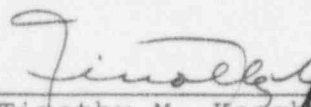
(801) 259-8171
Telephone and Fax

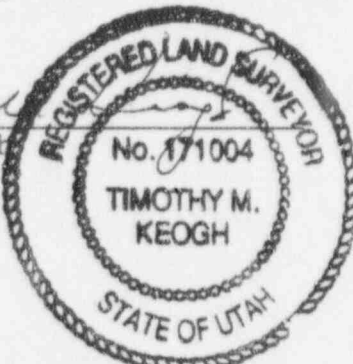
RECEIVED NOV 11 1996

RIO ALGOM
MONITOR HOLE ELEVATIONS AS OBSERVED NOV. 7, 1996

<u>HOLE</u>	<u>ELEVATION</u>
SM-1	6651.90
SM-2	6654.46
SM-3	6653.65
SM-4	6654.57
SM-5	6654.46
SM-6	6655.70
SM-7	6656.48
SM-8	6657.56
SM-9	6658.25
SM-10	6662.35
SM-11	6654.03
SM-12	6652.41
SM-13	6651.67
SM-14	6698.97
SM-15	6697.28
SM-16	6697.15
SM-17	6698.40
SM-18	6698.74
SM-19	6700.19
SM-20	6697.44
SM-21	6700.02
SM-22	6703.66
SM-23	6699.79
SM-24	6705.25
SM-25	6703.07
SM-26	6697.45

I hereby certify that these elevations are true and correct.


Timothy M. Keogh



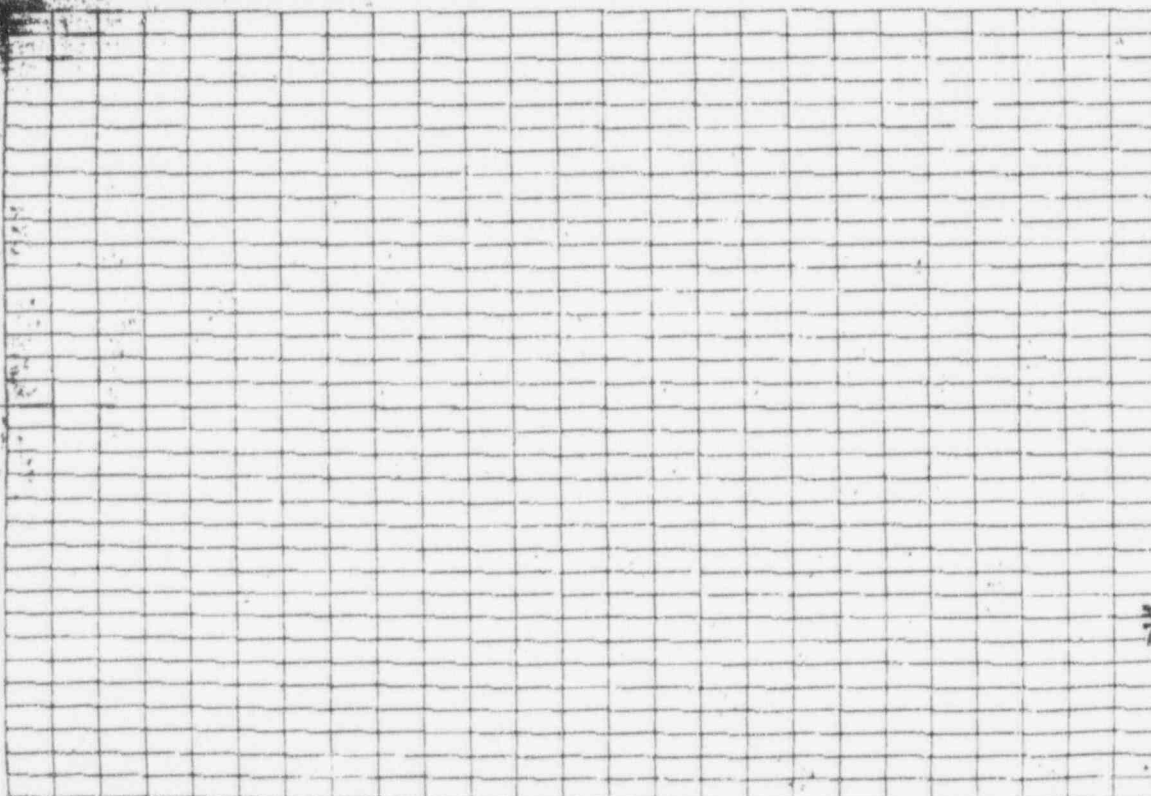
11-7-96
Date

#	BL	-	ELEV.	DESCR.
075	CC9879		CC9806	JV-1 5/16 RABAR.
053	CC8781	1145	CC8784	TP
021	CC7665	1144	CC7642	TI
028	CC6657	1127	CC6598	TP
1408		1286	CC5281	TP
395	CC5676	106	CC5520	SM6
005	CC5575	172	CC5403	SM11
034	CC5471	247	CC5180	SM1
075	CC5265	034	CC5241	SM12
047	CC5288	121	CC5167	SM13
295	CC5464	016	CC5446	SM5
439	CC5885	428	CC5457	SM4
402	CC5859			

RIO ALGOM
SEC 21 T29S R24E

11/7/96

JH
HFC



+	H1	-	ELEV	DESCR
519	CC5884	494	CC5365	SH3
330	CC5776	438	CC5446	SH2
536	CC5872	440	CC5376	TP
492	CC5948	406	CC5465	TP
056	CC5881	123	CC5825	SM9
237	CC5885	233	CC5648	SM7
493	CC6249	129	CC5756	SM8
099	CC6334	014	CC6235	SM10
1203	CC7412	125	CC6208	TP
1154	CC8500	071	CC7341	TP
1180	CC9618	062	CC8438	TP
450	CC9932	136	CC9482	TP
8613		124	CC9806	JY-1
8613		8613		

CONT

11-7-96

2

+	MI	-	ELEV	DESCR
3 ³⁰	C70140	3 ³⁴	CC98 ⁰⁶	JV-1
3 ⁶¹	C70108	1 ⁰⁶	C700 ⁰²	SM21
4 ⁰⁴	C70498	1 ³¹	C703 ⁶⁶	SM22
2 ⁰⁴	C706 ⁶⁰	1 ³⁵	C705 ³⁵	SM24
0 ¹¹	C705 ⁷⁶	2 ⁶⁹	C703 ⁰¹	SM25
0 ¹¹	C703 ⁹⁸	6 ¹³	CC97 ⁴⁵	SM26
1 ⁰⁴	CC98 ⁵²	0 ¹²	CC98 ⁴⁰	SM17
3 ²⁰	C702 ¹¹	3 ³⁷	CC98 ⁷⁴	SM18
1 ⁰⁰	C700 ⁴⁸	0 ⁶⁹	CC99 ⁷⁹	SM23
2 ¹¹	C701 ⁹⁸	1 ⁷⁹	C700 ¹⁹	SM19
2 ²⁵	C702 ⁴⁴	5 ¹⁹	CC97 ²⁵	TP
4 ⁰¹	C701 ²⁹	3 ²²	CC98 ⁰⁷	JV-1
3 ⁰⁰		50 ⁸⁴		

CONT.

11-17-96

3

+	H1	-	ELEV	DESCRIP
<u>312</u>	<u>C70128</u>	<u>231</u>	<u>669806</u>	JV-1
<u>186</u>	<u>C70083</u>	<u>355</u>	<u>669728</u>	SM14
<u>209</u>	<u>669937</u>	<u>222</u>	<u>669715</u>	SM15
<u>262</u>	<u>669977</u>	<u>301</u>	<u>669676</u>	TP
<u>448</u>	<u>C70124</u>	<u>490</u>	<u>669634</u>	TP
<u>510</u>	<u>C70144</u>	<u>338</u>	<u>669806</u>	JV-1
<u>1937</u>		<u>1937</u>		

CONT.

11-17-96

4

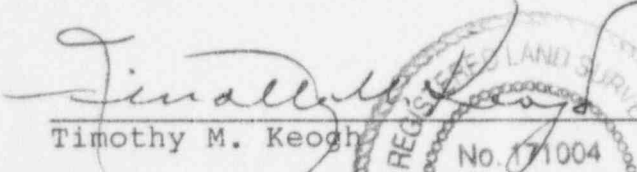
KEOGH LAND SURVEYING
REGISTERED LAND SURVEYORS
45 E. Center • P.O. Box 396
MOAB, UT 84532

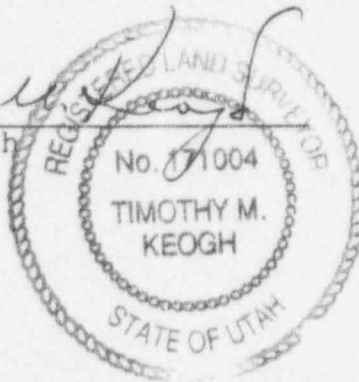
(801) 259-8171
Telephone and Fax

RIO ALGOM
MONITOR HOLE ELEVATIONS AS OBSERVED JAN. 15, 1997

<u>HOLE</u>	<u>ELEVATION</u>
SM-1	6651.94
SM-2	6654.48
SM-3	6653.67
SM-4	6654.58
SM-5	6654.47
SM-6	6655.71
SM-7	6656.52
SM-8	6657.58
SM-9	6658.26
SM-10	6662.36
SM-11	6654.05
SM-12	6652.44
SM-13	6651.71
SM-14	6698.98
SM-15	6697.30
SM-16	6697.16
SM-17	6698.40
SM-18	6698.71
SM-19	6700.17
SM-20	6697.43
SM-21	6700.02
SM-22	6703.68
SM-23	6699.78
SM-24	6705.24
SM-25	6703.08
SM-26	6697.46

I hereby certify that these elevations are true and correct.


Timothy M. Keogh



1-15-97
Date

JV-1	3.129			6698.06
SM-20	3.565		3.752	97.436
SM-21	4.178	420	0.979	00.082
SM-22	3.782		0.513	03.687
SM-24	1.310	6.562	2.217	05.252
SM-25	-1.949		3.469	03.093
SM-26	1.072		3.670	97.48
SM-17	2.908	101.324	0.138	99.98.414
SM-18	3.232	101.964	2.588	98.754
SM-23	1.729		2.162	99.804
SM-19	2.548	2.745	1.334	00.199
SM-20	4.882		5.282	97.436
JV-1			4.255	98.092846

Rio Algom Platforms

35

SECT 1, T295, R24E

1-15-97

NEW
V4

97.433	
00.017	
03.679	
5.241	
3.080	
2.464	
0.395	
0.715	
9.780	
0.172	
97.436	
98.060	

JV-1	3.710			98.06
SM-14	2.197	2.788	25.77	98.982
SM-15	1.680	3.877	100.88	97.302
SM-16	0.894	1.823	82.67	97.159
7P	0.678	12.730	88.81	85.313
7P	2.517	12.457	73.578	
7P	0.347	12.230	68.87	
SM-12	0.485	11.746	52.492	
SM-1	0.732	0.990	51.817	
SM-13	3.780	0.962	51.871	
SM-5	5.010	1.020	54.57	
SM-4	4.128	4.90	54.567	
7P	3.598	6.340	52.155	
SM-3	1.902	2.300	53.653	
7P	3.310	2.408	53.17	
SM-2	5.168	2.050	54.437	
7P	6.644	9.825	49.80	
7P	7.212	4.780	51.894	
7P	5.486	4.950	53.956	
SM-9-0.738		1.201	58.241	
SM-7	1.205	1.01	56.501	

85.318	98.983
73.544	97.304
	97.162
52.440	
51.936	
51.708	
54.469	
54.580	
57.668	
53.163	
54.484	
49.830	
51.713	
54.174	
53.26	
50.524	

(cont.) 1-15097

		57.700		
USM-8	5.215	0.150	57.556	
USM-24 -1				
USM-10	3.15	0.440	62.331	
USM-6	1.006	3.498	55.603	
USM-11	9.193	2.669	54.02	
TP	12.01	1.154	62.059	
TP	12.600	0.739	71.330	
TP	11.802	1.155	84.715	
TP	5.188	3.611	92.966	
SV-1		0.128	98.020	

57.580	
62.358	
55.711	
54.049	
98.04	

(cont.) 1-15-97

APPENDIX B

Page No.

Table 1 (Revised) Settlement Monitor Survey Data.....	B-1
Lower Tailing Impoundment Settlement Graphs	B-2
Upper Tailings Impoundment Settlement Graphs	B-9
Settlement Monument Locations (map).....	B-16

TABLE 1 (Revised)

SETTLEMENT MONITOR SURVEY DATA

Lisbon Tailing Impoundment

Rio Algom Mining Corp.

Monument Elevation - Feet Above MSL

	Survey Date							Chg. from
	<u>07/25/95*</u>	<u>10/17/95</u>	<u>01/25/96</u>	<u>04/25/96</u>	<u>08/19/96</u>	<u>11/07/96</u>	<u>01/15/97</u>	<u>Baseline Ft.</u>
Lower Tailing Impoundment								
SM-1	6651.95	6651.95	6651.92	6651.93	6651.91	6651.90	6651.94	0.01
SM-2	6654.49	6654.51	6654.49	6654.50	6654.50	6654.46	6654.48	0.01
SM-3	6653.72	6653.73	6653.71	6653.71	6653.69	6653.65	6653.67	0.05
SM-4	6654.59	6654.60	6654.60	6654.60	6654.59	6654.57	6654.58	0.01
SM-5	6654.49	6654.50	6654.49	6654.49	6654.48	6654.46	6654.47	0.02
SM-6**	6655.80	6655.81	6655.78	6655.73	6655.75	6655.70	6655.71	0.09
SM-7**	6656.58	6656.58	6656.53	6656.53	6656.54	6656.48	6656.52	0.06
SM-8	6657.60	6657.62	6657.59	6657.59	6657.60	6657.56	6657.58	0.02
SM-9	6658.26	6658.28	6658.26	6658.27	6658.29	6658.25	6658.26	0.00
SM-10	6662.38	6662.39	6662.38	6662.36	6662.39	6662.35	6662.36	0.02
SM-11	6654.10	6654.10	6654.07	6654.07	6654.06	6654.03	6654.05	0.05
SM-12	6652.46	6652.46	6652.44	6652.43	6652.44	6652.41	6652.44	0.02
SM-13	6651.73	6651.72	6651.71	6651.69	6651.70	6651.67	6651.71	0.02
Average settlement for all monuments								0.03
Average settlement without monument on berms								0.02
Upper Tailing Impoundment								
SM-14	6698.98	6698.99	6698.97	6698.97	6698.97	6698.97	6698.98	0.00
SM-15	6697.31	6697.32	6697.30	6697.29	6697.29	6697.28	6697.30	0.01
SM-16	6697.16	6697.17	6697.16	6697.15	6697.15	6697.15	6697.16	0.00
SM-17*	6698.45	6698.45	6698.44	6698.43	6698.40	6698.40	6698.40	0.05
SM-18*	6698.85	6698.85	6698.82	6698.79	6698.75	6698.74	6698.71	0.14
SM-19*	6700.26	6700.25	6700.24	6700.23	6700.18	6700.19	6700.17	0.09
SM-20	6697.44	6697.44	6697.44	6697.44	6697.44	6697.44	6697.43	0.01
SM-21	6700.05	6700.07	6700.06	6700.04	6700.04	6700.02	6700.02	0.03
SM-22	6703.71	6703.69	6703.68	6703.67	6703.67	6703.66	6703.68	0.03
SM-23	6699.86	6699.83	6699.83	6699.81	6699.78	6699.79	6699.78	0.08
SM-24	6705.28	6705.28	6705.26	6705.26	6705.25	6705.25	6705.24	0.04
SM-25	6703.11	6703.09	6703.10	6703.08	6703.06	6703.07	6703.08	0.03
SM-26	6697.49	6697.49	6697.48	6697.46	6697.44	6697.45	6697.46	0.03
Average settlement for all monuments								0.04
Average settlement without monument on berms								0.03

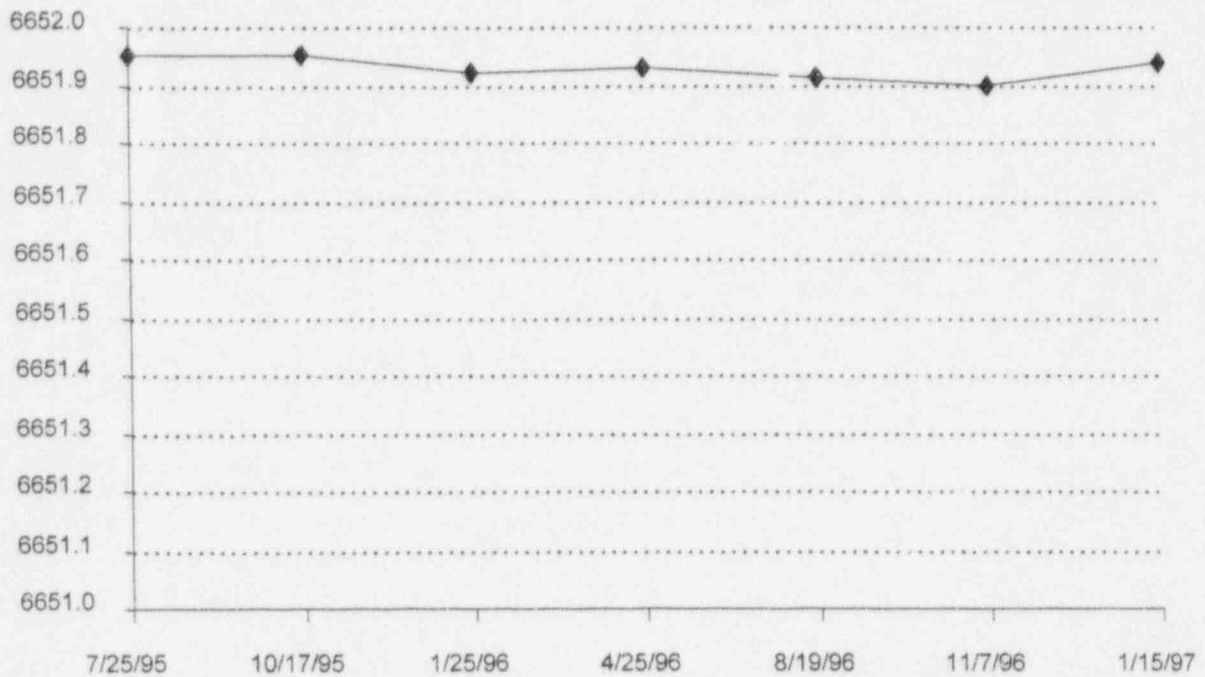
* Initial (Baseline) Survey

** Monuments on downwind berm of evaporation cell

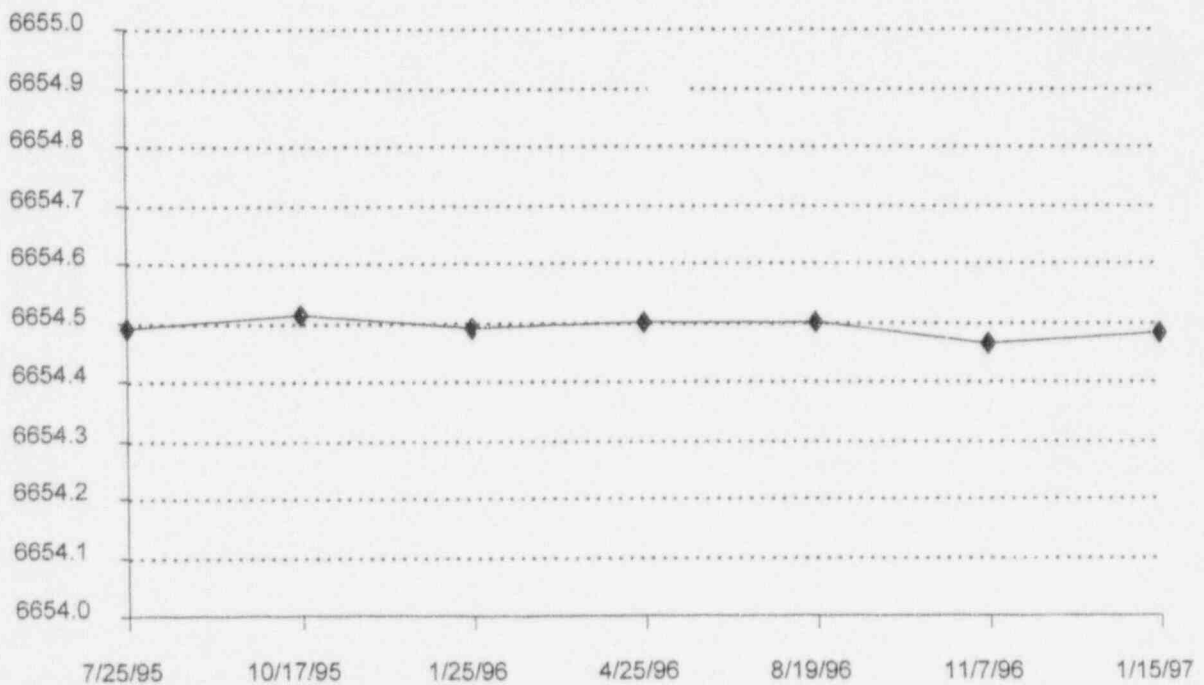
SETTLEMENT MONITOR SURVEY DATA

Lower Tailing Impoundment
Elevations - Feet Above MSL

Settlement Monument
SM-1

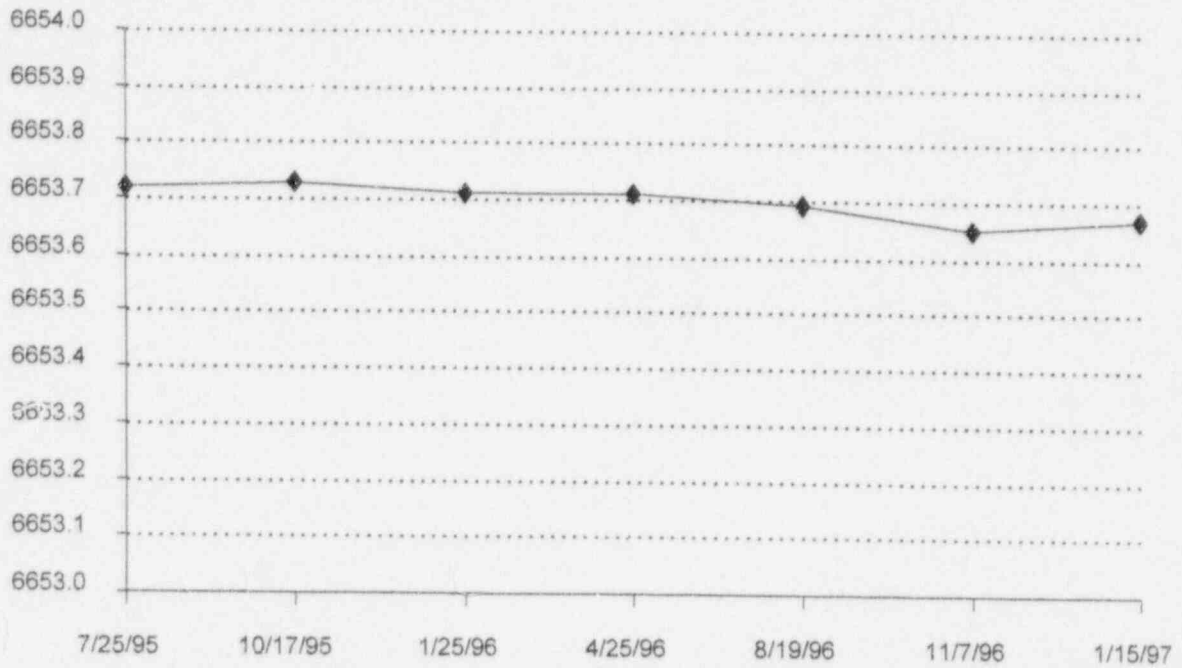


Settlement Monument
SM-2

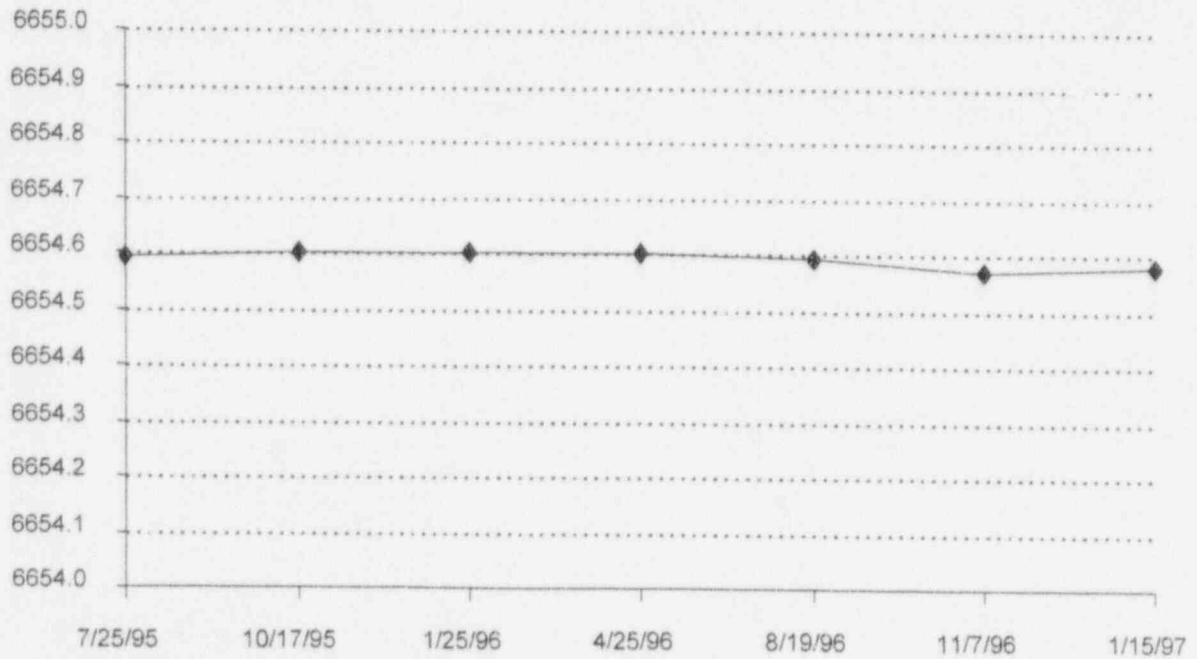


SETTLEMENT MONITOR SURVEY DATA
Lower Tailing Impoundment
Elevations - Feet Above MSL

Settlement Monument
SM-3



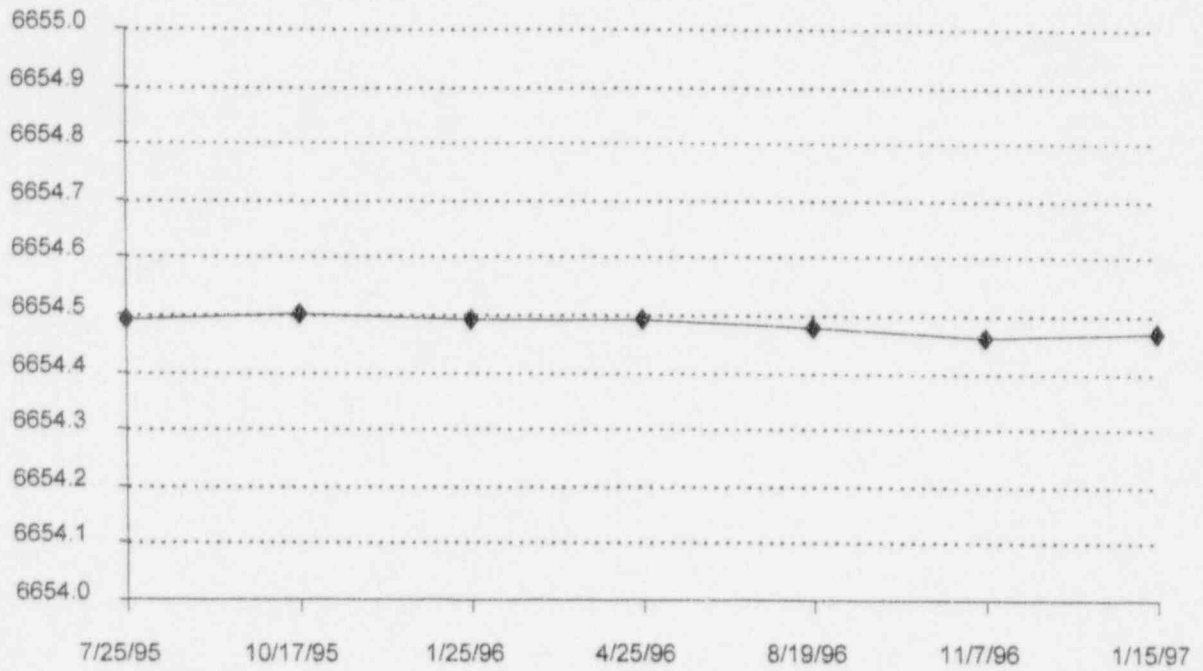
Settlement Monument
SM-4



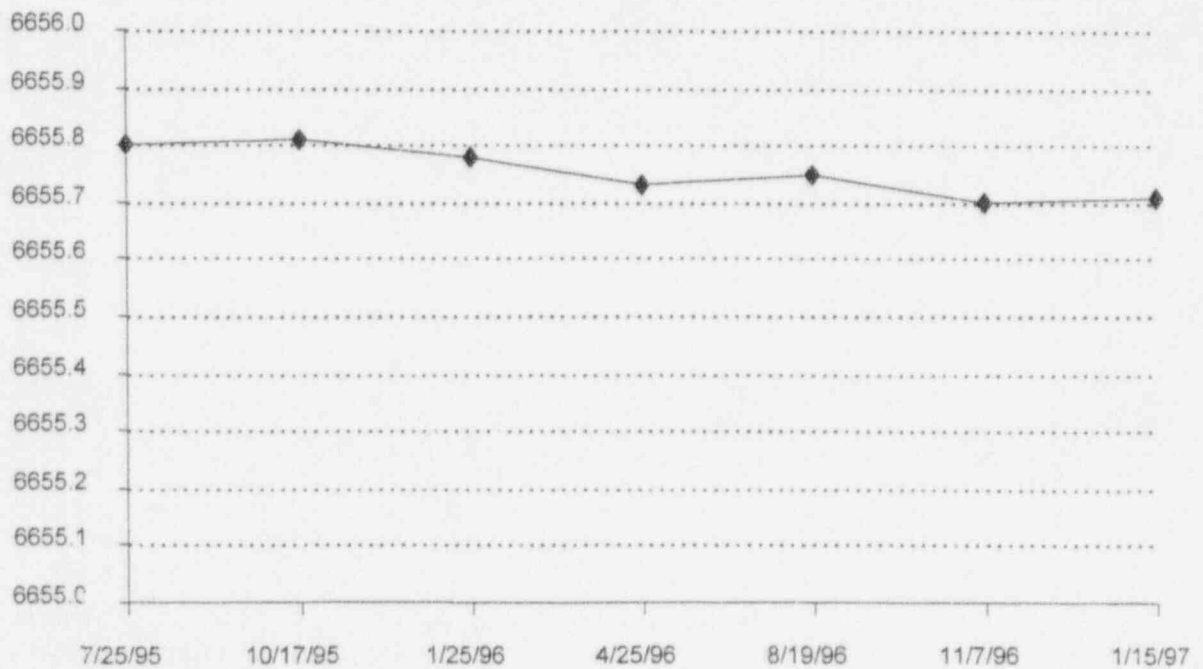
SETTLEMENT MONITOR SURVEY DATA

Lower Tailing Impoundment
Elevations - Feet Above MSL

Settlement Monument
SM-5



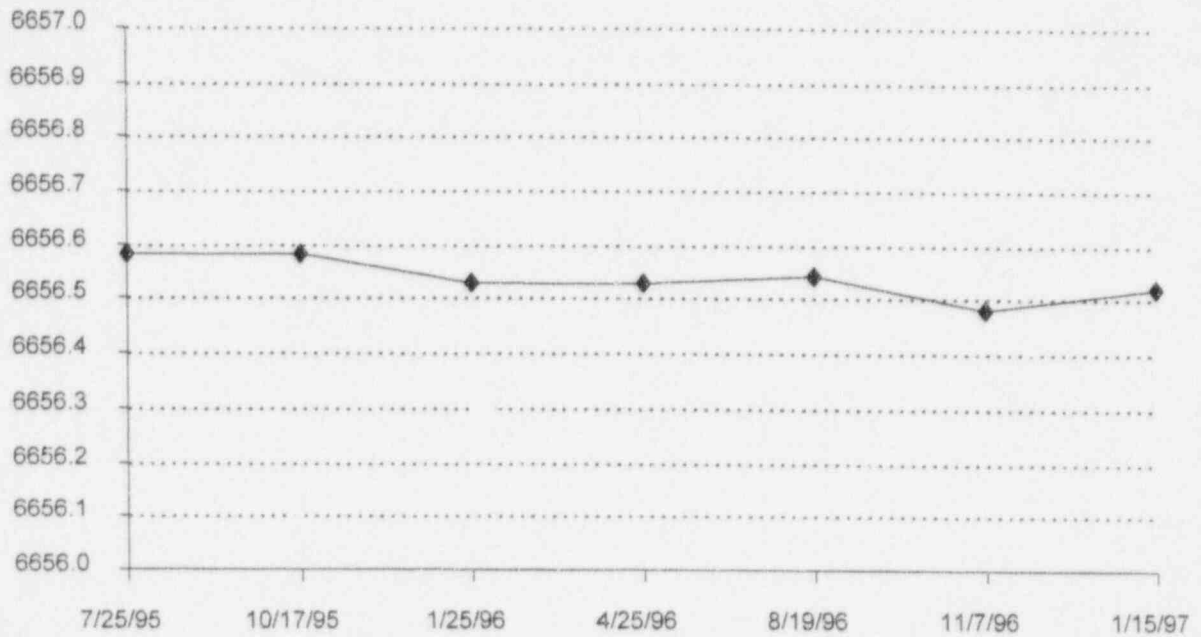
Settlement Monument
SM-6



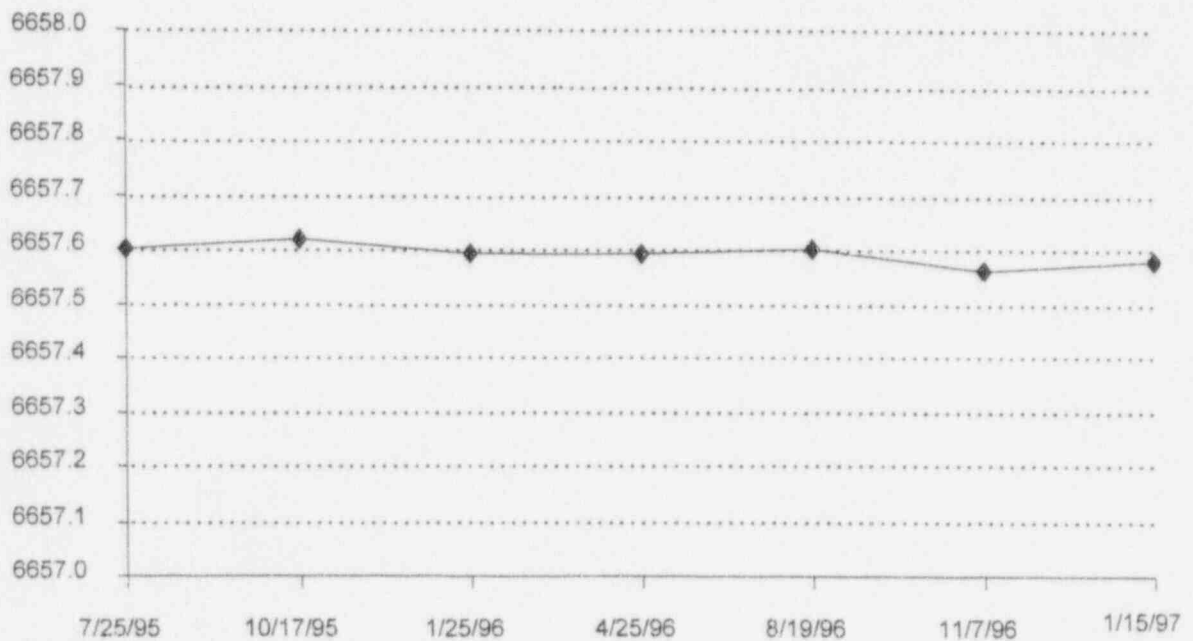
SETTLEMENT MONITOR SURVEY DATA

Lower Tailing Impoundment
Elevations - Feet Above MSL

Settlement Monument
SM-7



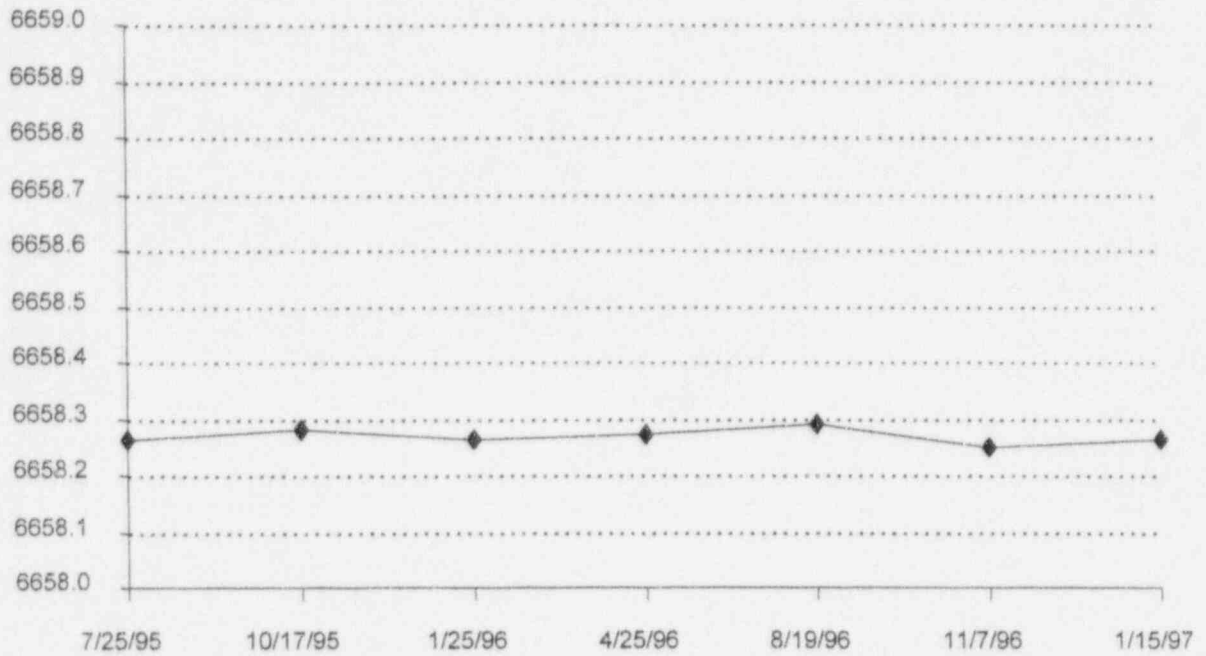
Settlement Monument
SM-8



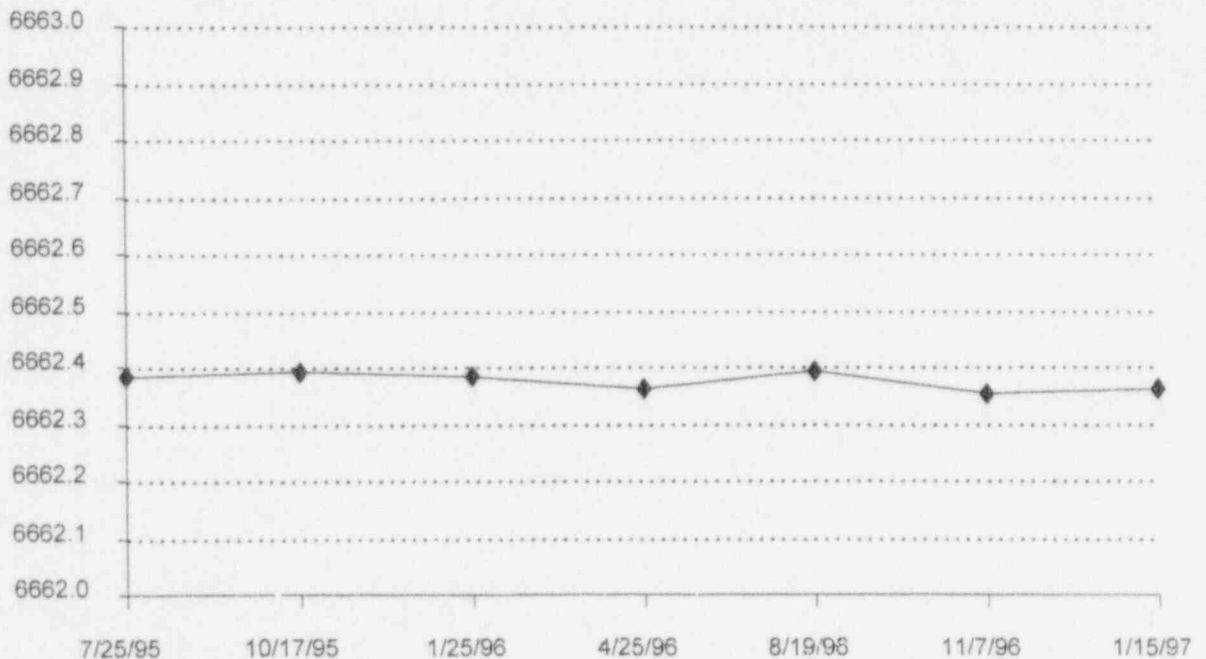
SETTLEMENT MONITOR SURVEY DATA

Lower Tailing Impoundment
Elevations - Feet Above MSL

*Settlement Monument
SM-9*



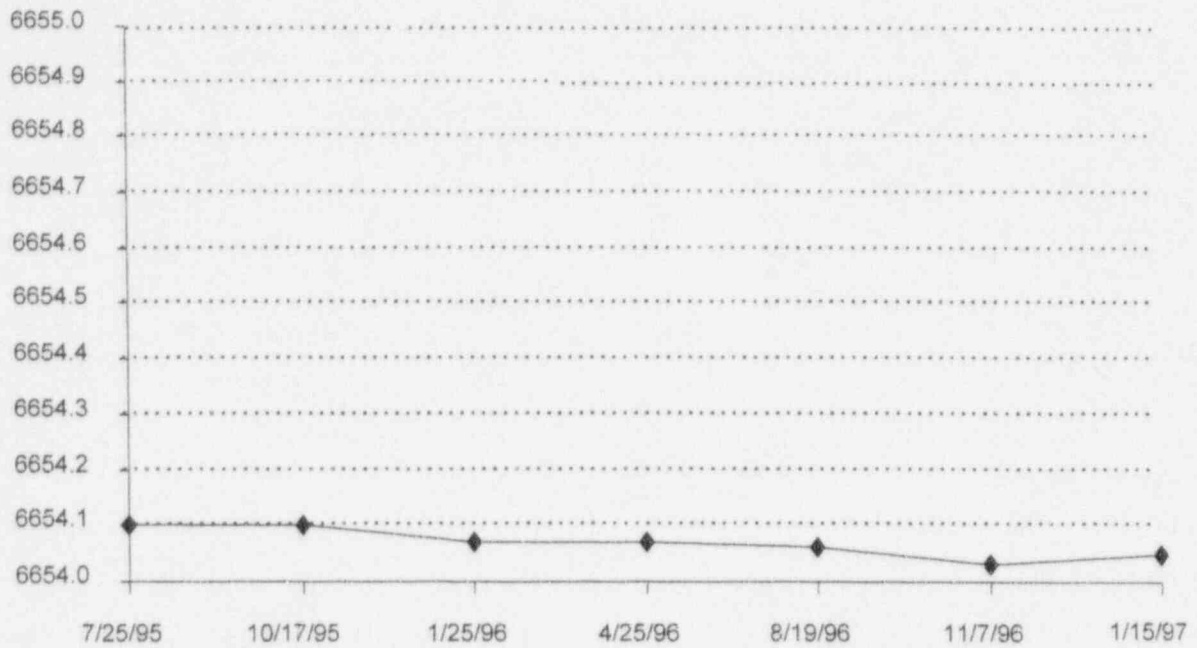
*Settlement Monument
SM-10*



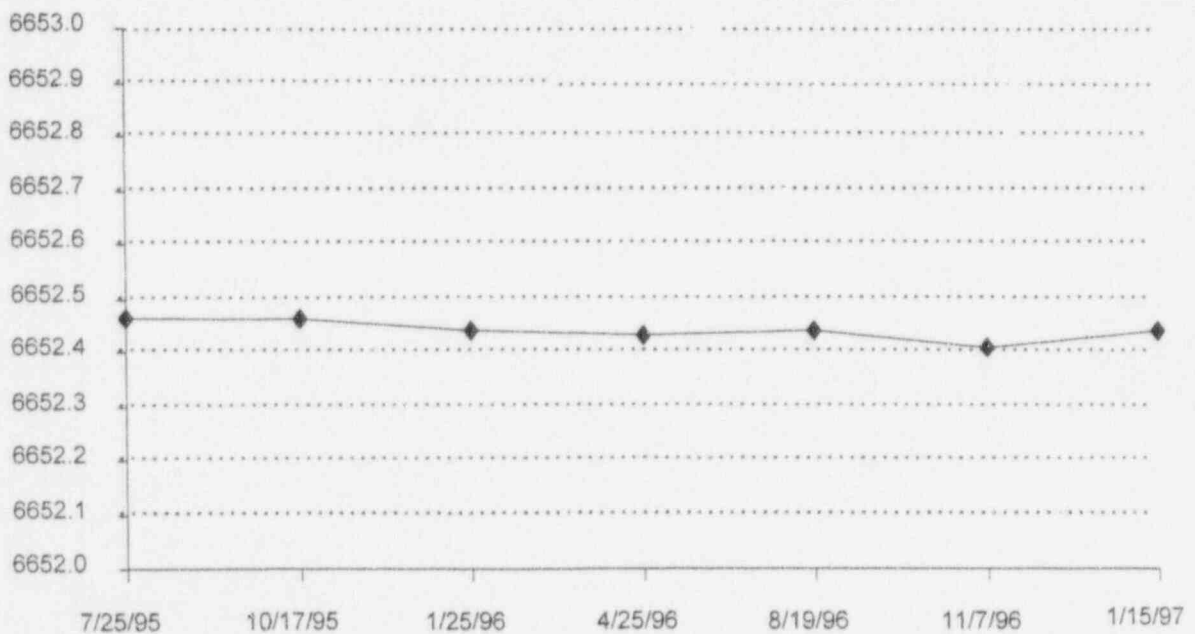
SETTLEMENT MONITOR SURVEY DATA

Lower Tailing Impoundment
Elevations - Feet Above MSL

*Settlement Monument
SM-11*



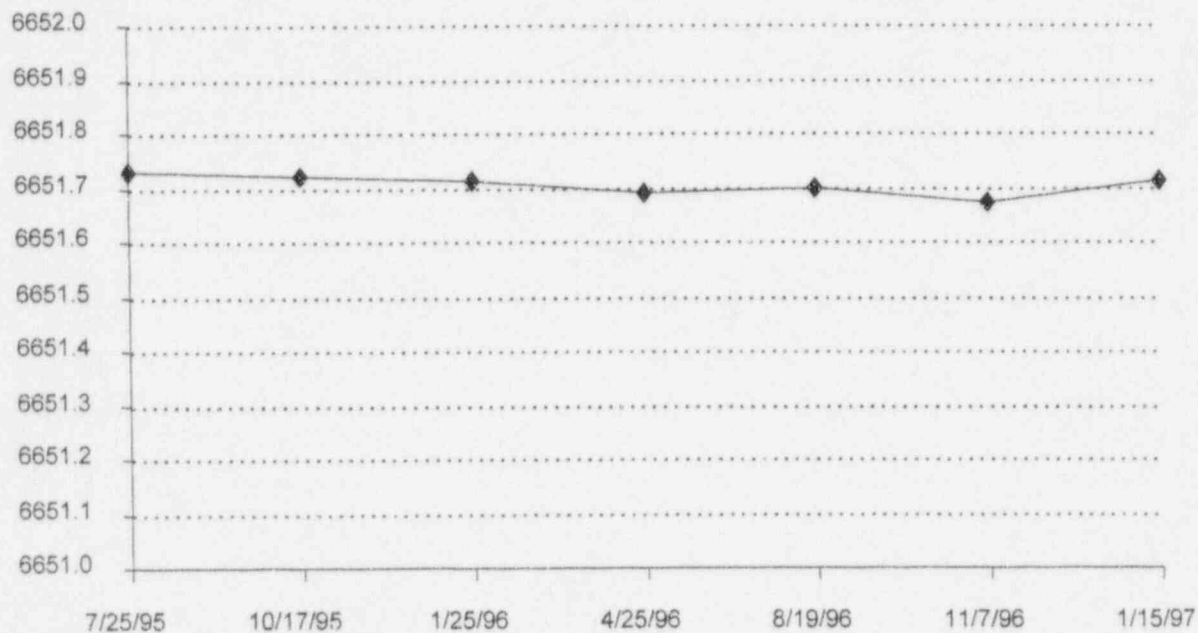
*Settlement Monument
SM-12*



SETTLEMENT MONITOR SURVEY DATA

Lower Tailing Impoundment
Elevations - Feet Above MSL

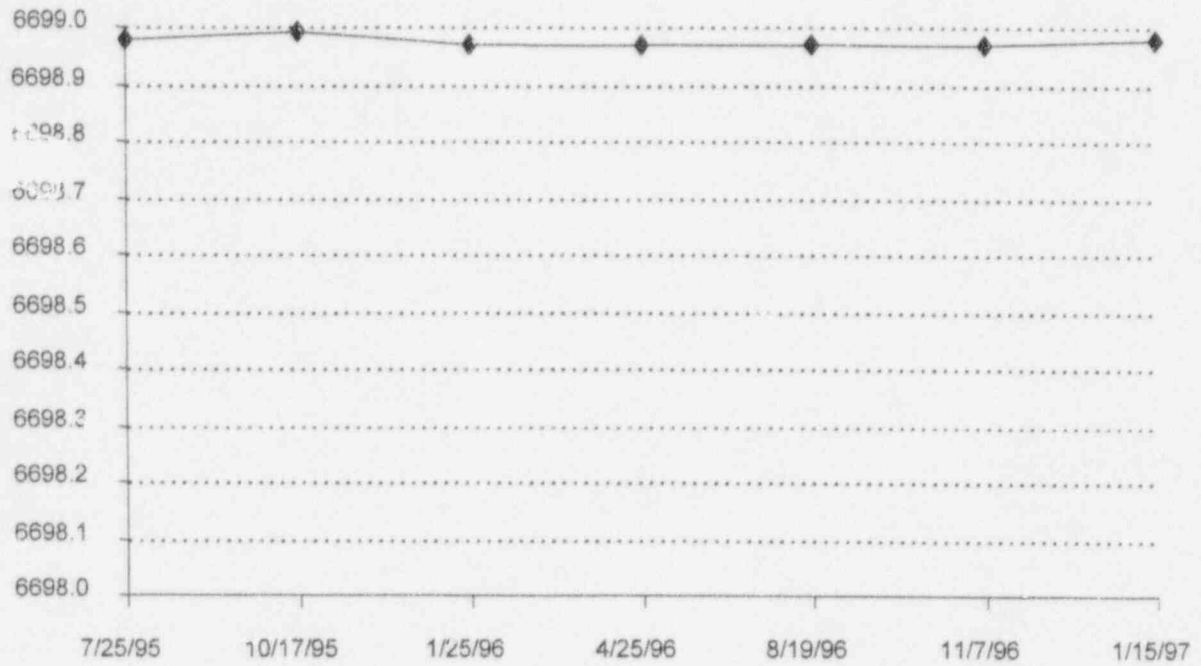
Settlement Monument
SM-13



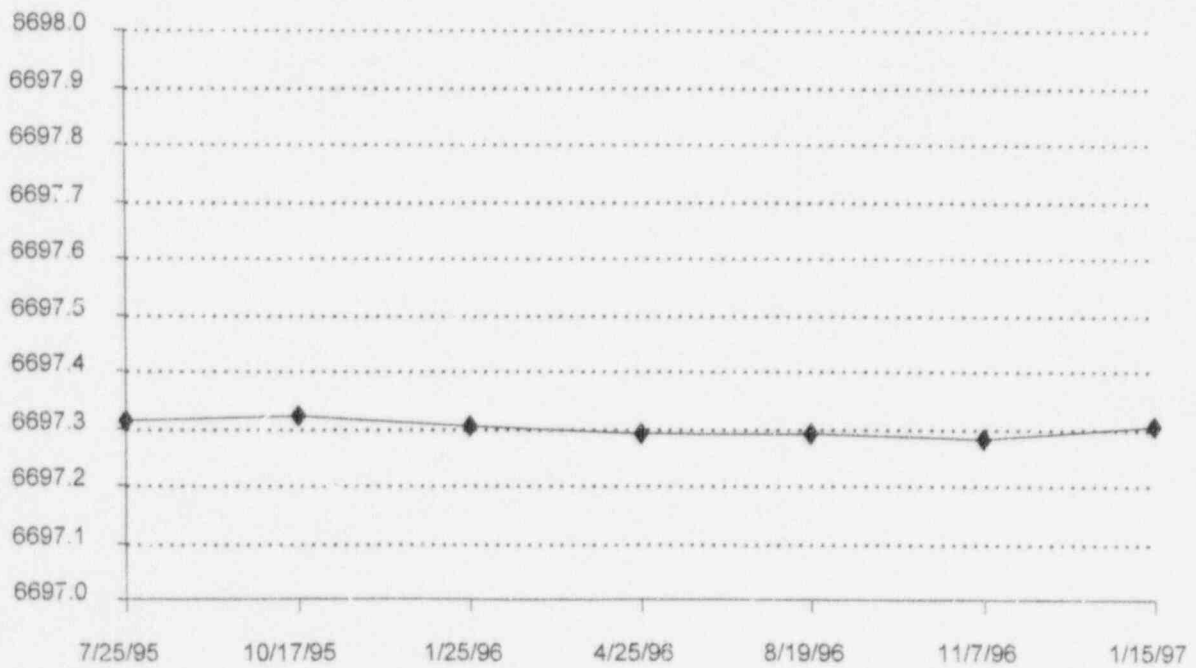
SETTLEMENT MONITOR SURVEY DATA

Upper Tailing Impoundment
Elevations - Feet Above MSL

*Settlement Monument
SM-14*



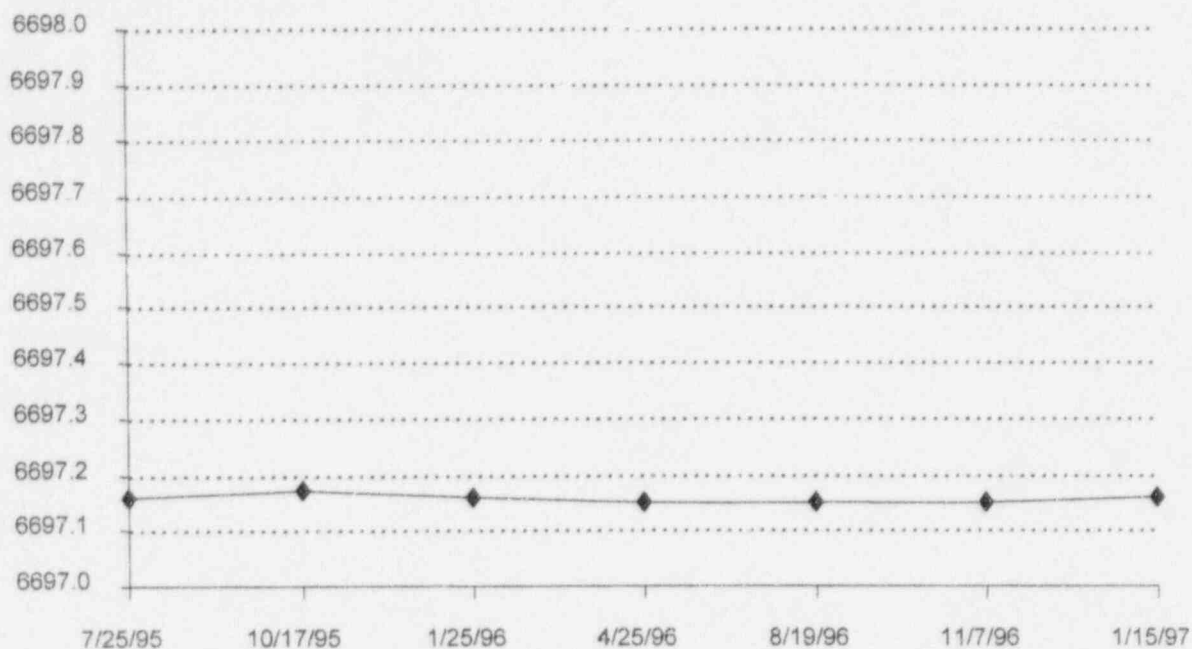
*Settlement Monument
SM-15*



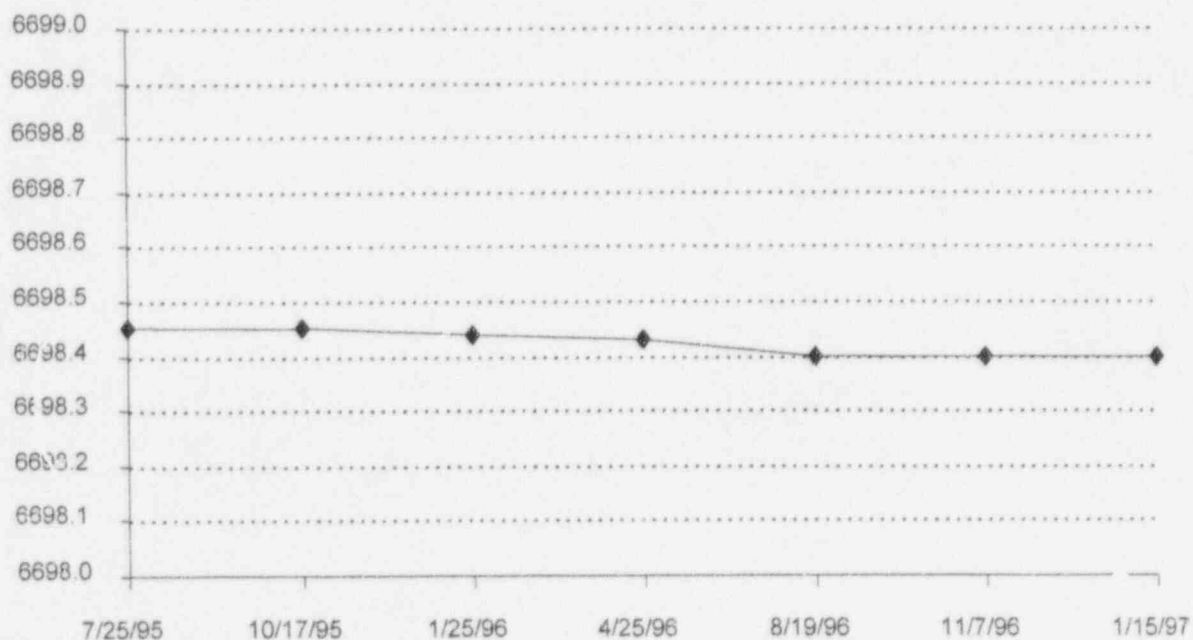
SETTLEMENT MONITOR SURVEY DATA

Upper Tailing Impoundment
Elevations - Feet Above MSL

*Settlement Monument
SM-16*



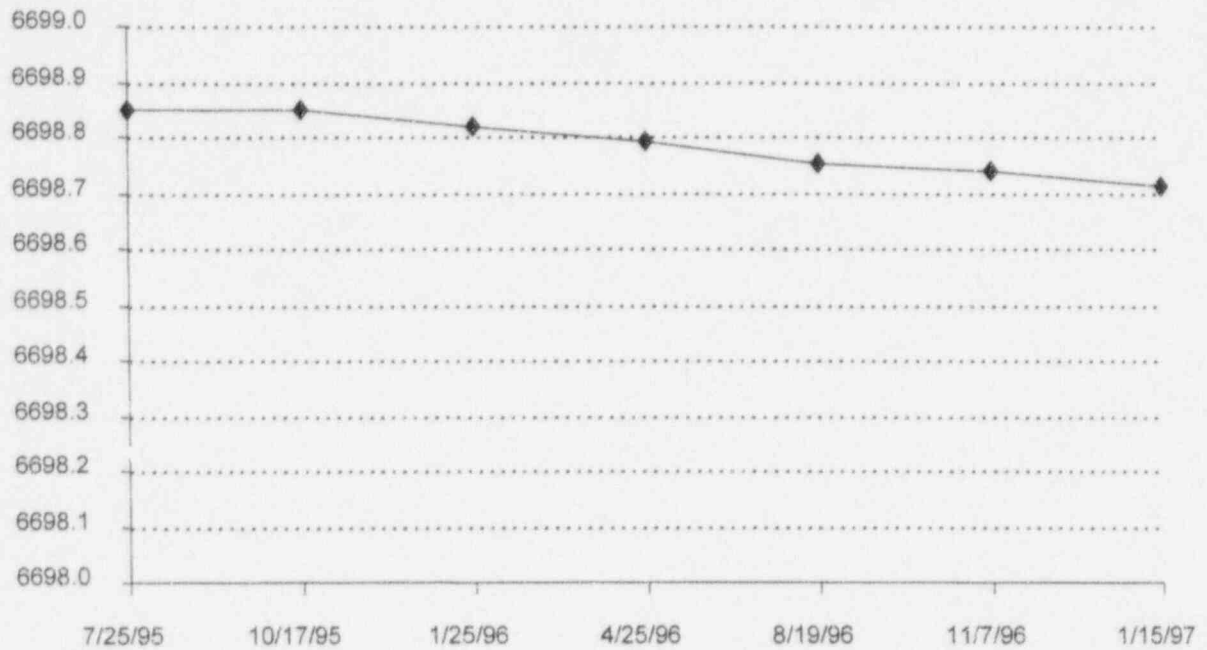
*Settlement Monument
SM-17*



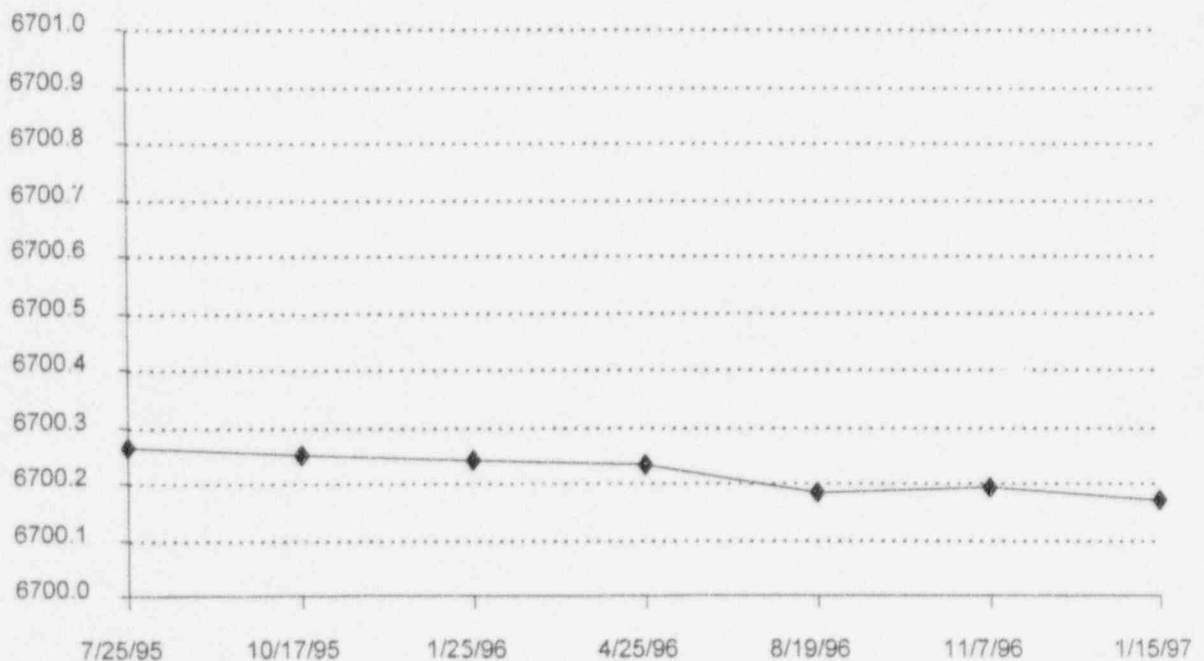
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Upper Tailing Impoundment
Elevations - Feet Above MSL

*Settlement Monument
SM-18*



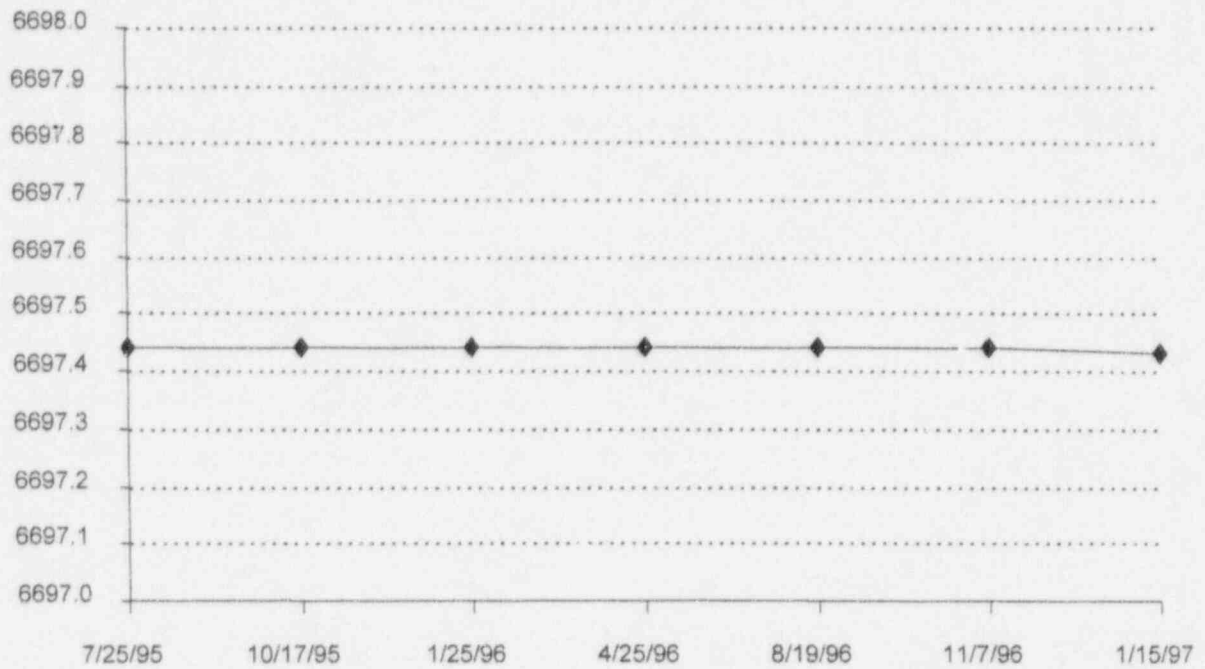
*Settlement Monument
SM-19*



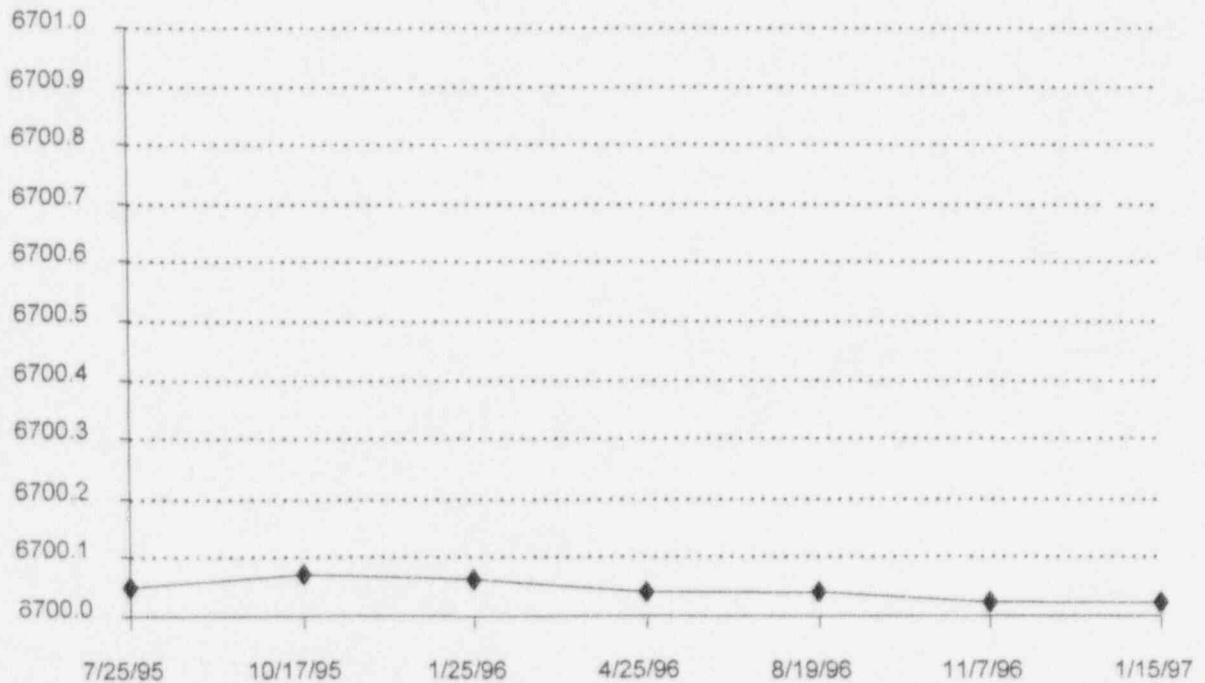
SETTLEMENT MONITOR SURVEY DATA

Upper Tailing Impoundment
Elevations - Feet Above MSL

*Settlement Monument
SM-20*



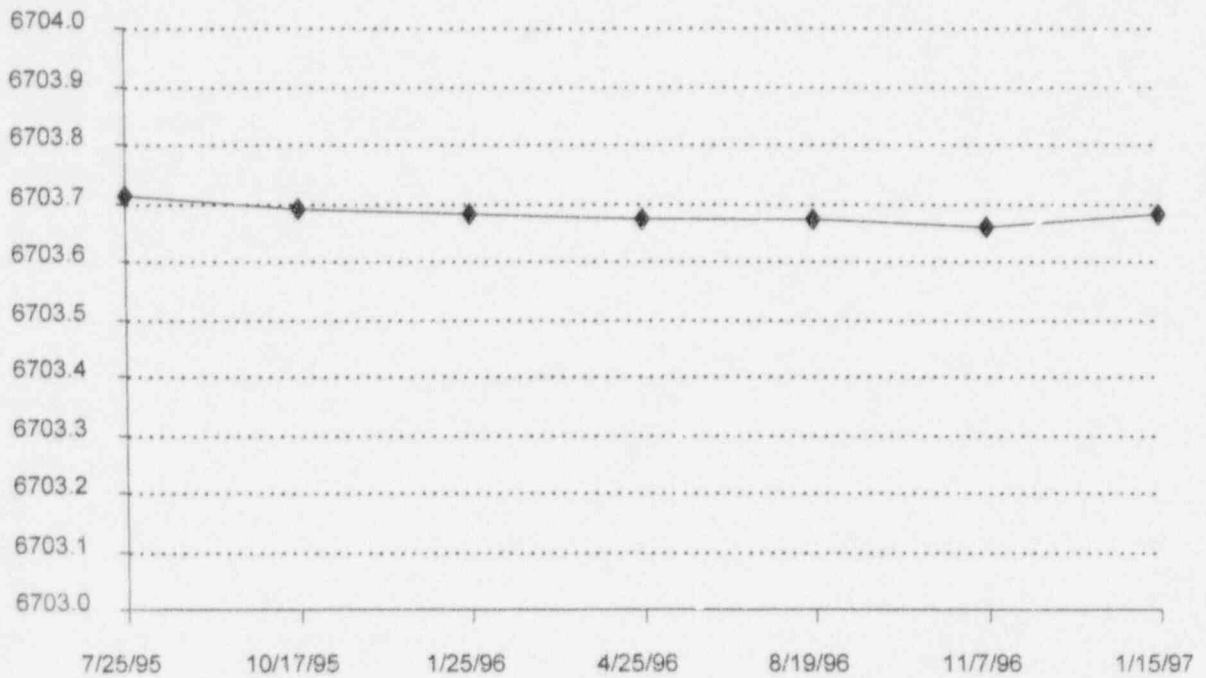
*Settlement Monument
SM-21*



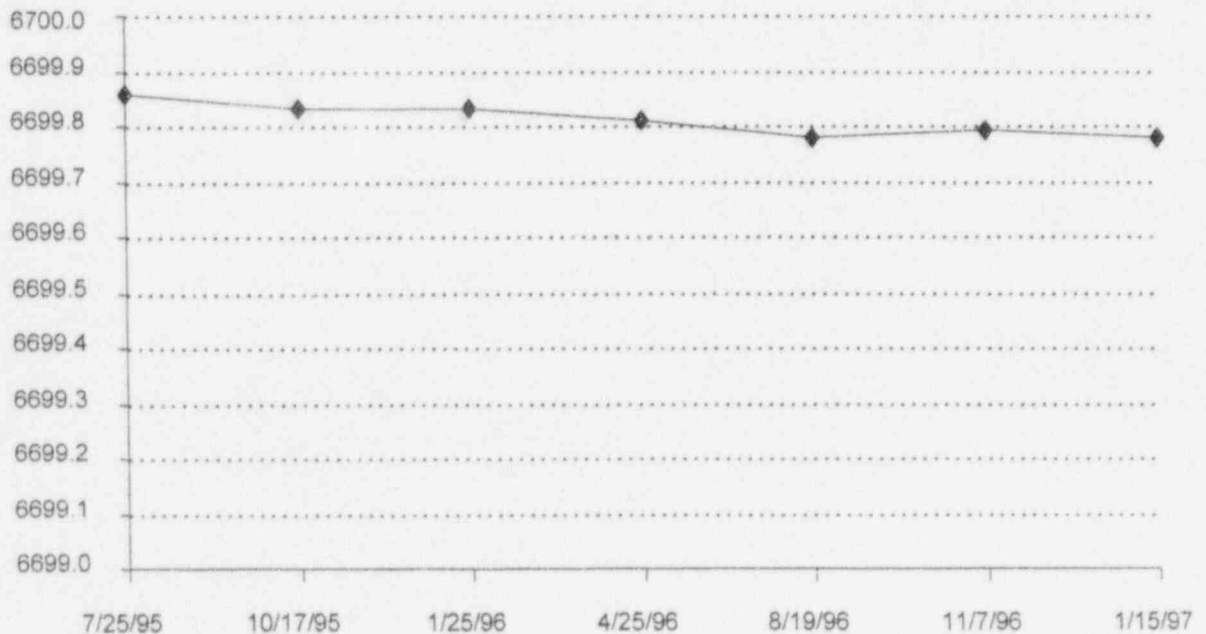
SETTLEMENT MONITOR SURVEY DATA

Upper Tailing Impoundment
Elevations - Feet Above MSL

Settlement Monument
SM-22



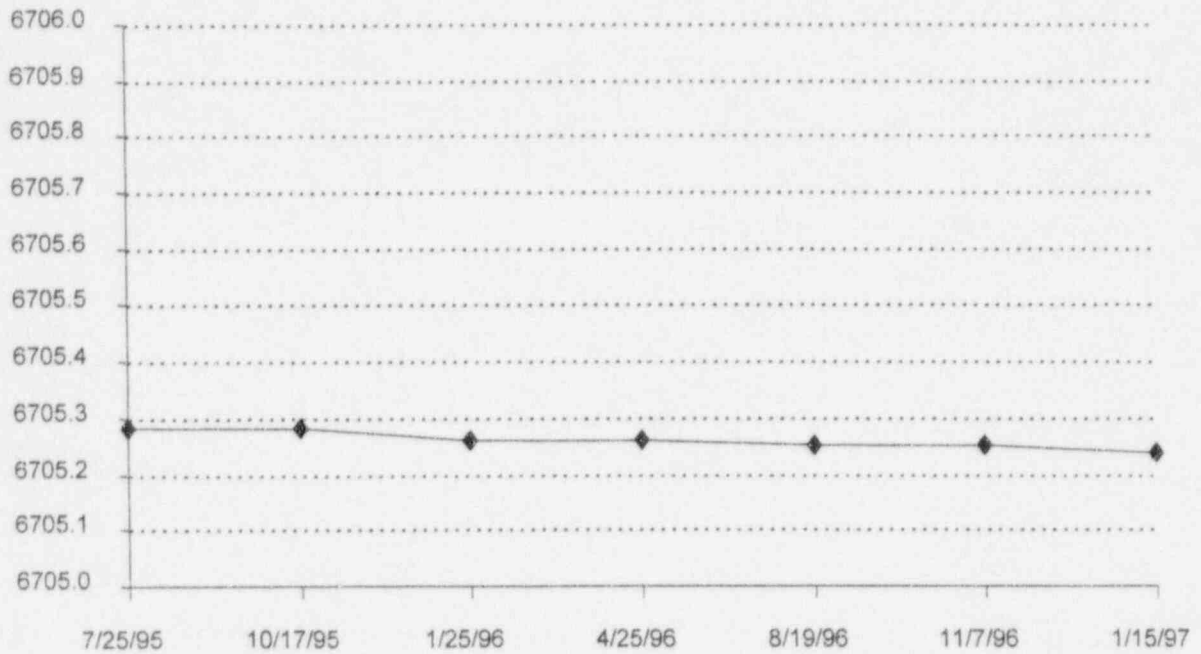
Settlement Monument
SM-23



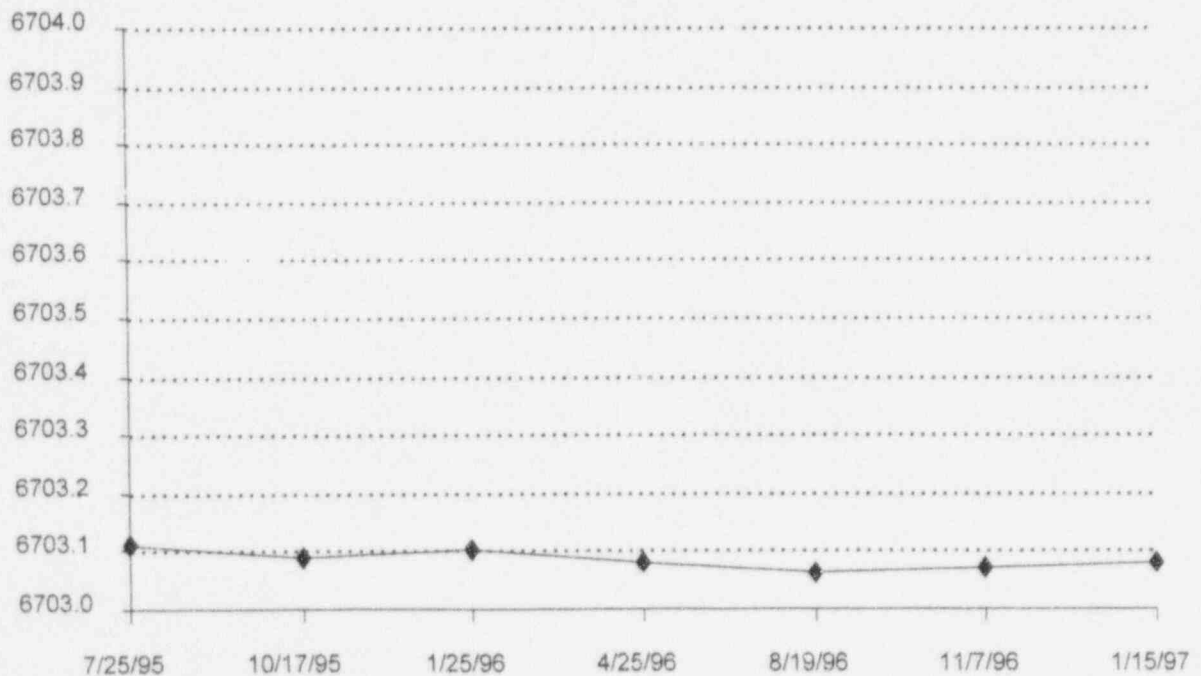
SETTLEMENT MONITOR SURVEY DATA

Upper Tailing Impoundment
Elevations - Feet Above MSL

Settlement Monument
SM-24



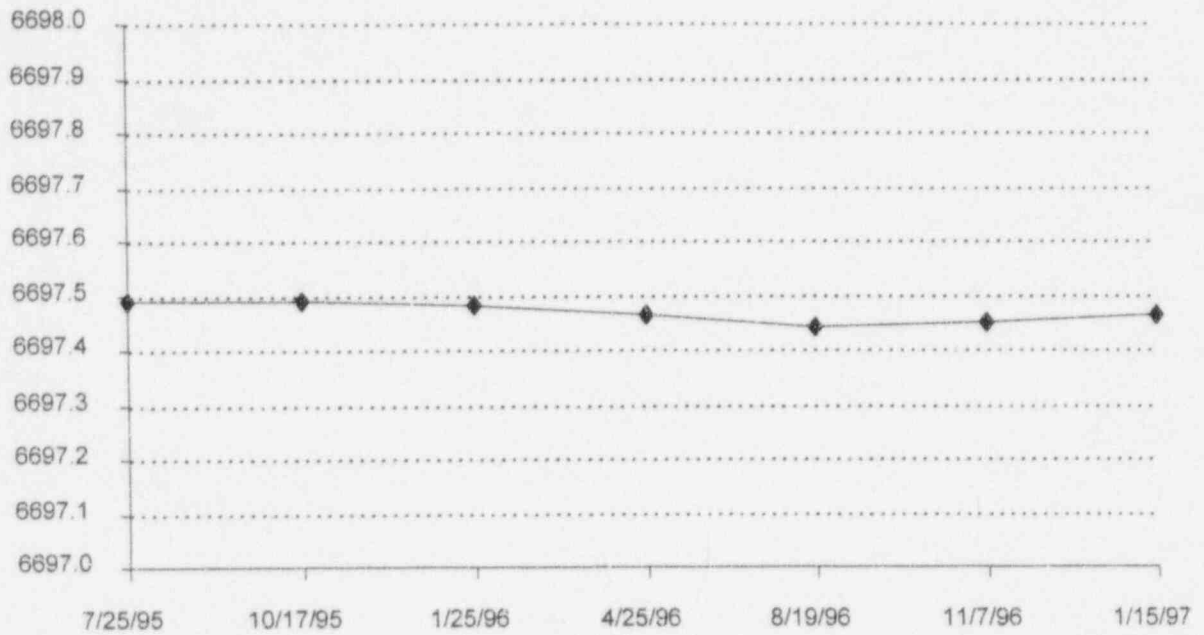
Settlement Monument
SM-25

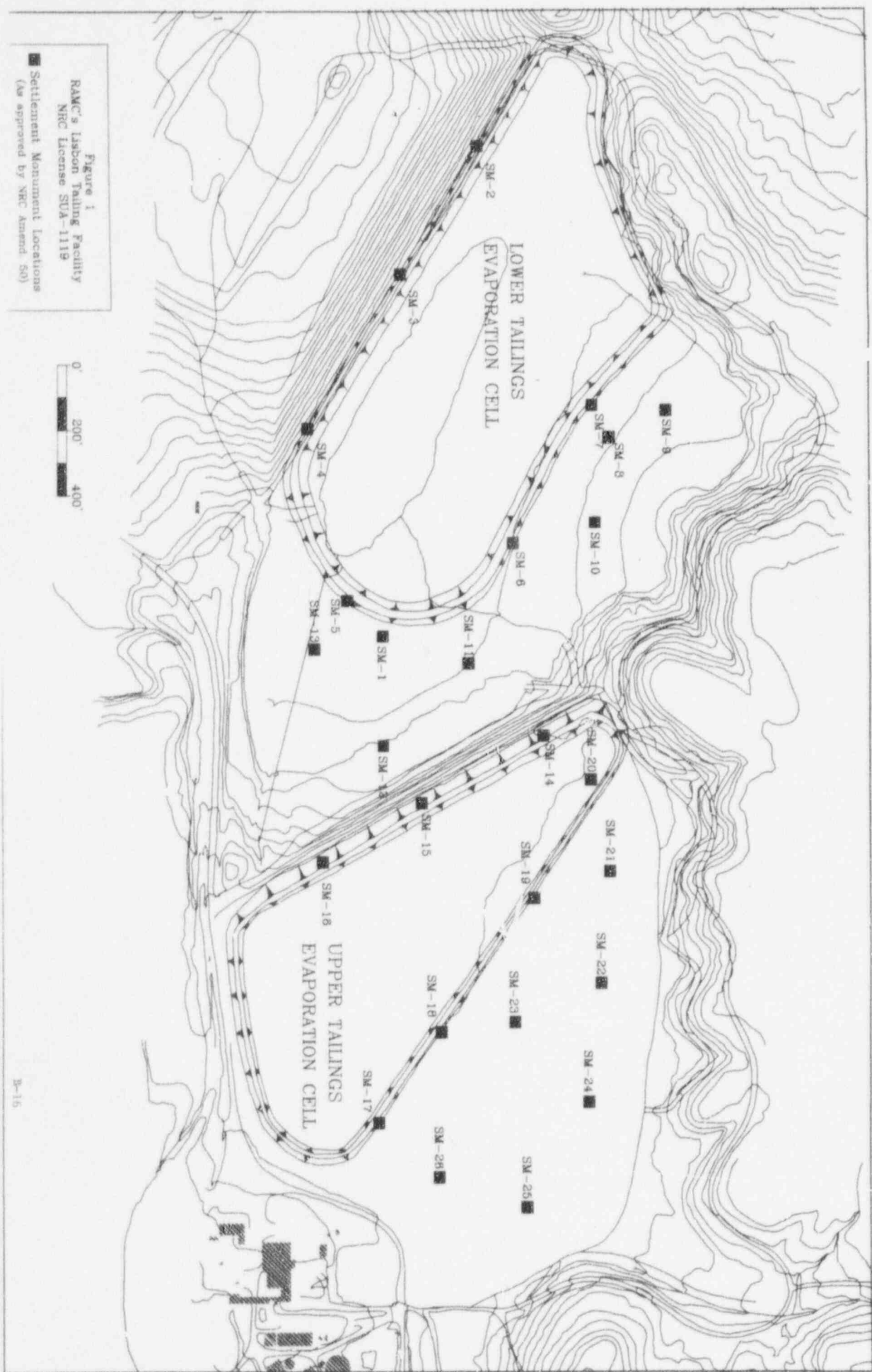


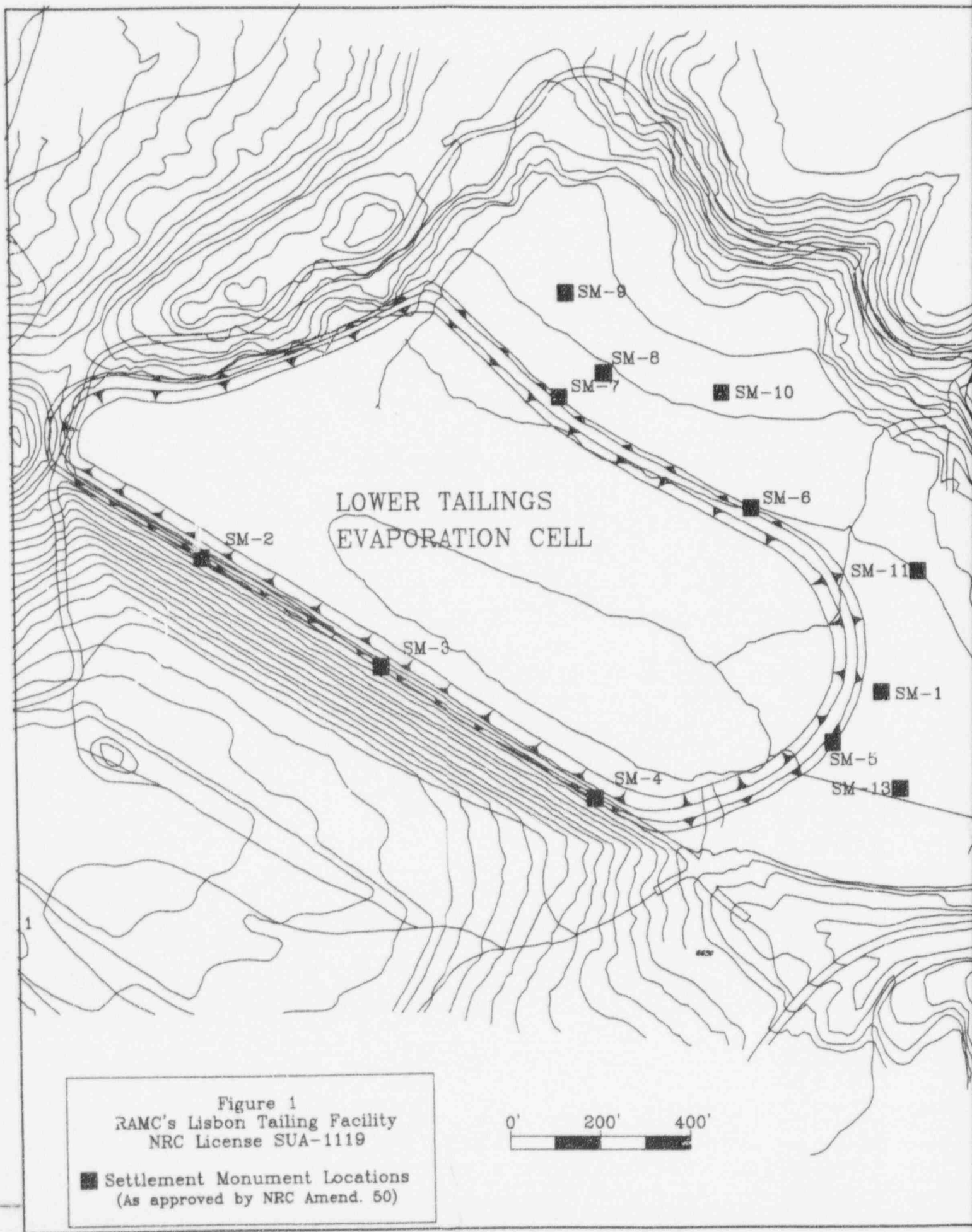
SETTLEMENT MONITOR SURVEY DATA

Upper Tailing Impoundment
Elevations - Feet Above MSL

Settlement Monument
SM-26

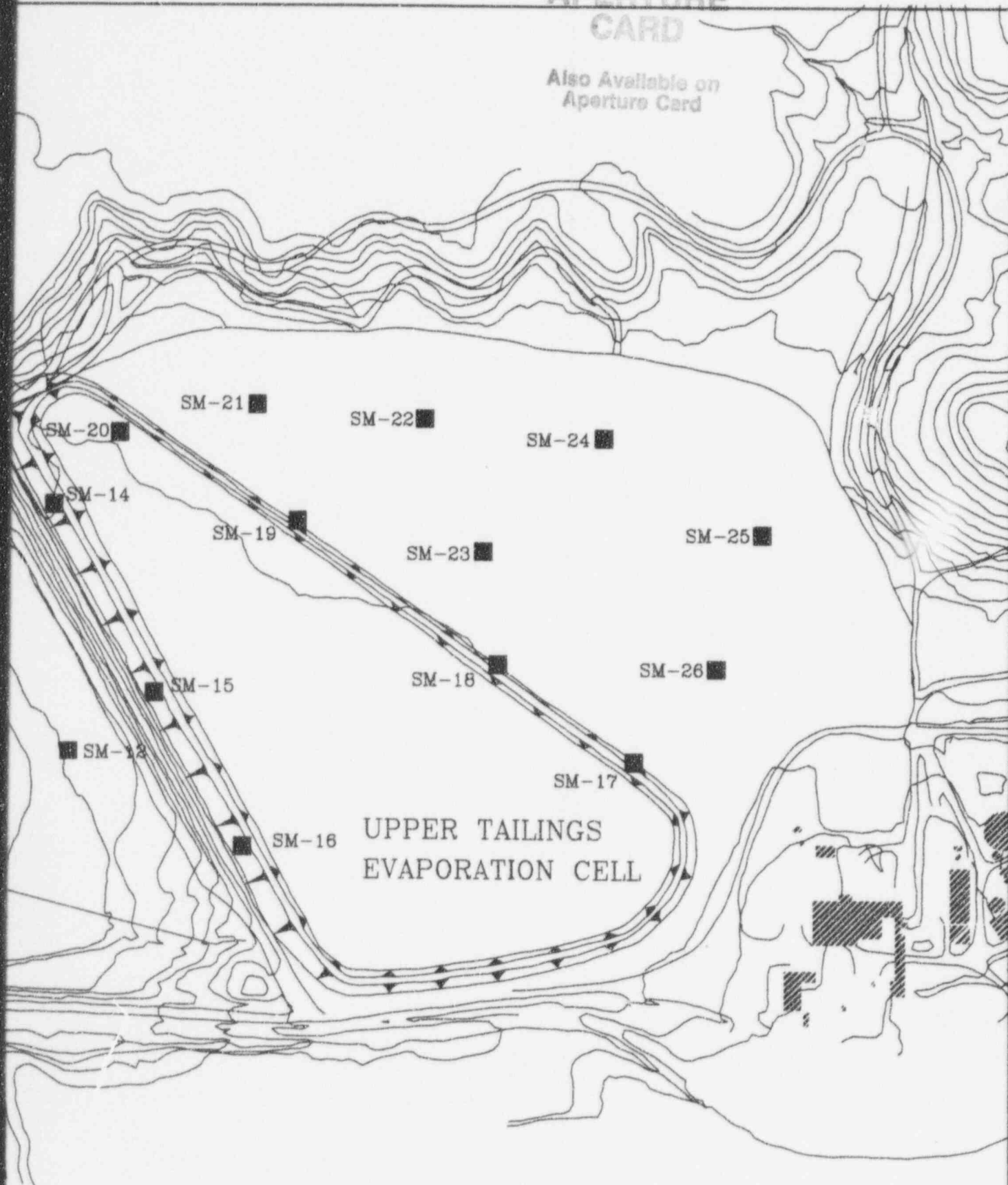






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