Umetco Minerals Corporation

40-8681

X61166

WHITE MESA MILL • P. O. BOX 669 • BLANDING, UTAH 84511
☎ (801) 678-2221

04008681840R

RETURN ORIGINAL TO PDR, HQ.

August 31, 1993

Mr. Ramon E. Hall, Director
Uranium Recovery Field Office
Region IV
U. S. Nuclear Regulatory Commission
Box 25325
Denver, CO 80225

Re: Umetco Minerals Corporation
SUA-1358: Docket No. 40-8681
Semi Annual Effluent Report

Dear Mr. Hall:

Attached is the Semi Annual Effluent Report for the period of January 1, 1993 through June 30, 1993.

If I can answer any questions you or your staff may have, please feel free to contact me.

Sincerely yours,

Scott L. Schierman

Scott L. Schierman
HS&EA Department Head

100140

Mary C. Hook

D503

93-0643

1. Bioassays

1.1. Urinalysis

License condition 38, Part D requires that bioassays exceeding 15 ug/l be investigated. No bioassays exceeded the limit during this reporting period.

2. Stack Sampling

Due to a cessation of mill operations, no yellowcake drying was conducted during this reporting period. As a result, no stack samples were taken.

3. Environmental, Radiological, and Effluent Monitoring Data

3.1. Environmental Radon

Environmental radon concentration are determined by Trak Etch detectors furnished by Terradex Corporation. There is one detector at each of the five environmental monitoring stations with a duplicate at BHV-2, the nearest residence. Figure 1 shows the locations of the environmental stations in relation to the mill.

Table 1 and Graphs 1 through 6 show the results. Background has been subtracted from the graph values for comparison to the limit of 3 pCi/l (soon to be 0.1 pCi/l) in an unrestricted area. Table 2 is used for quality control purposes. Table 2 is the linear regression results comparing BHV-2 to BHV-6 (the duplicate at BHV-2). The calculated r^2 for Terradex analyses shows, for the most part, a correlation attributable to chance. The sample cups for BHV-2 and BHV-6 are located on a power pole, with no vertical spacing and within one inch of each other. The standard deviation of the differences between the measurements is 0.46 pCi/l. The differences in results between identical measuring devices located in essentially identical positions leads to the conclusion that radon probably cannot be reliably measured by these devices to 1.0 pCi/l.

The mill area (including the ore storage pad and yellowcake dryer) are on a line in the prevailing wind direction with BHV1 and BHV2. BHV1 shows lower radon measurements than BHV2, nearest resident. It is felt that the agricultural activity at BHV2 is the cause of higher radon readings. The agricultural activity includes tilling the earth and the application of fertilizers, either of which may cause elevated radon levels.

3.2. Environmental Gamma

Gamma radiation levels at the five environmental locations (with a duplicate at BHV 2, nearest resident) are determined by Thermal Luminescent Dosimeters (TLDs) furnished by Eberline Instruments. The badges are exchanged quarterly and the data is presented in Tables 3 through 7 and Graphs 7 through 13. Graph 7 shows the correlation of readings is more to one another than to location. That is, the levels tend to move up and down as a group. No trends are apparent.

3.3. Vegetation Samples

Vegetation samples are collected at 3 locations around the mill periphery. Tables 9 through 11 and Graphs 14 through 16 show the results, with no trends apparent.

3.4. Environmental Air Monitoring

Air monitoring at the White Mesa mill is accomplished by five high-volume stations. Figure 1 shows the locations. Tables 12 through 16 and Graphs 17 through 20 show the results.

Tables 17 and 17A show the results of the dose calculations including the 50 year dose commitment to the nearest residence. Graphs 21 through 23 show the yearly dose to the nearest resident. No trends are apparent.

3.5. Groundwater Monitoring

Tables 1[P] and 19 show the results of the groundwater monitoring program at the White Mesa mill. Table 20 shows the QC results. Quarterly results are plotted for this report in Graphs 24 through 51.

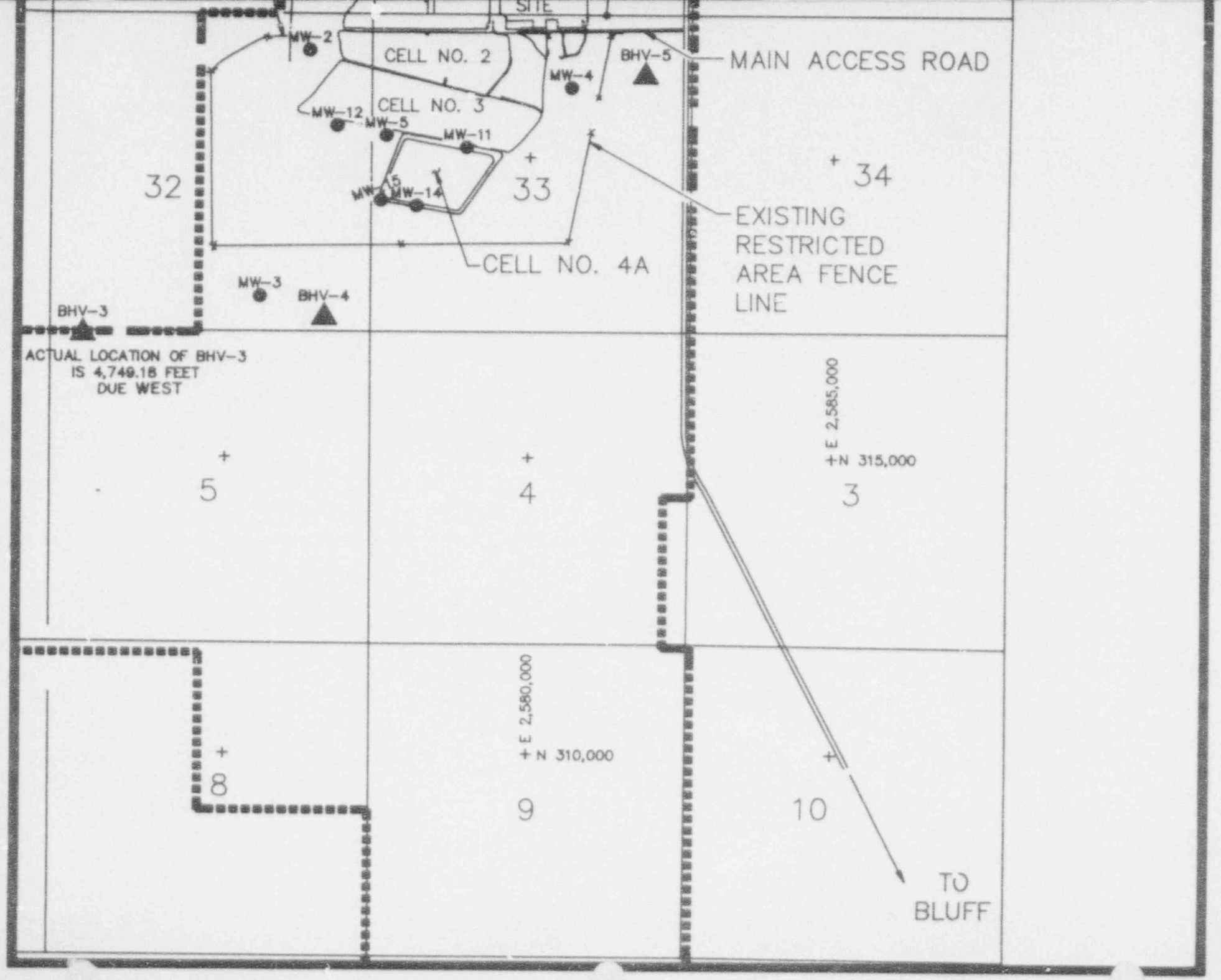
The QC results include a column where distilled water that has been flushed through the hose reel is analyzed (in addition to the blind duplicate). It is evident that there is some contamination introduced through the hose reel. It is also evident that the radionuclides are most affected, indicating that either radionuclide assays do not represent the true radionuclide content of the fluid, or that radionuclides preferentially dissolve in the distilled water over other constituents.

3.6. Surface Water Monitoring

The results of surface water monitoring are presented in Table 22. No trends are apparent.

4. Meteorological Data

The Semi Annual Air Quality and Meteorology Monitoring Report provided by Enecotech is attached as Appendix A.


SITE
MW-2
CELL NO. 2
BHV-5
MAIN ACCESS ROAD
MW-4
CELL NO. 3
MW-12
MW-5
MW-11
32
33
34
MW-15
MW-14
EXISTING
RESTRICTED
AREA FENCE
LINE
CELL NO. 4A
MW-3
BHV-4
BHV-3
ACTUAL LOCATION OF BHV-3
IS 4,749.18 FEET
DUE WEST
E 2,585,000
+N 315,000
5
4
3
E 2,580,000
+ N 310,000
8
9
10
TO
BLUFF

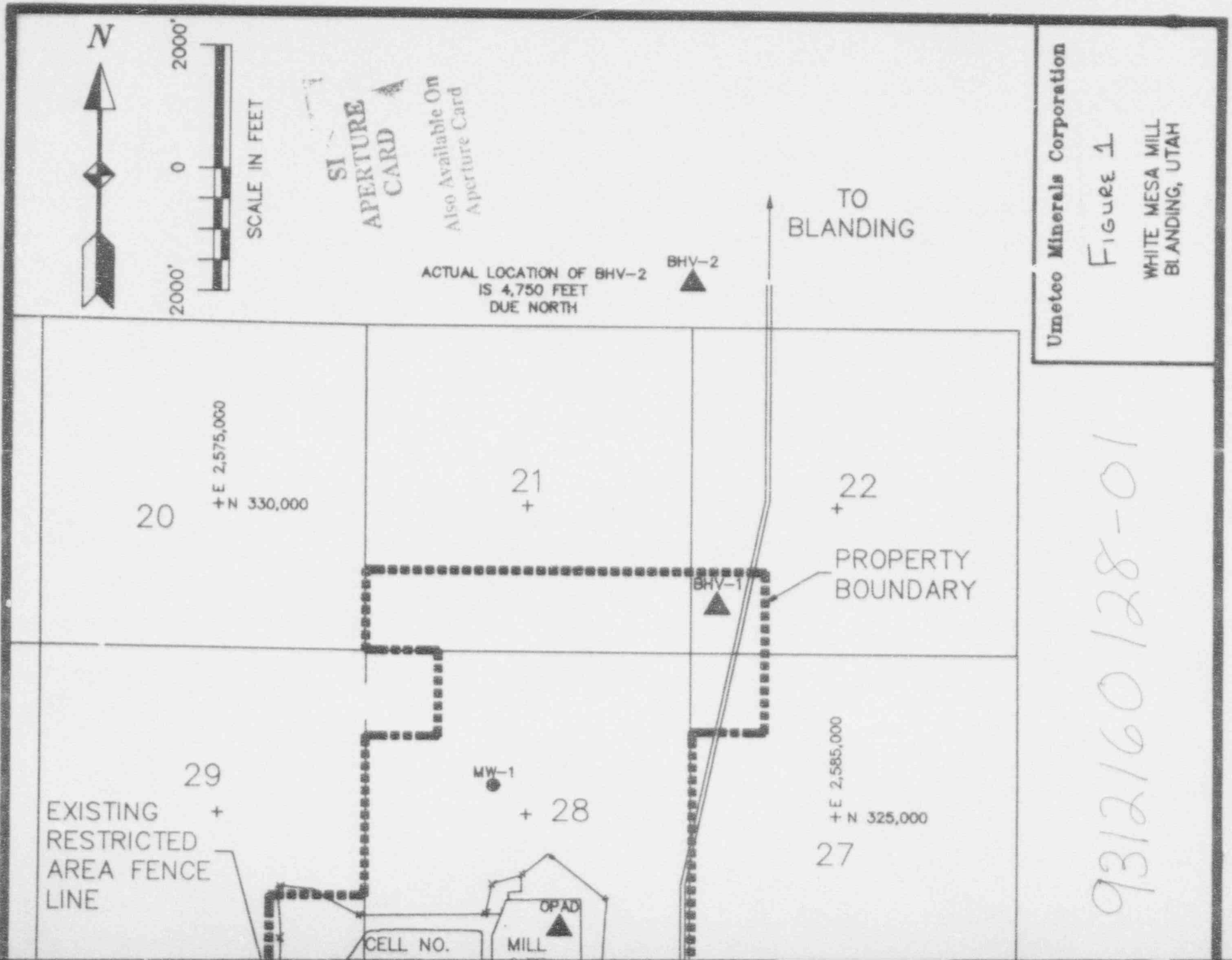


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TABLE 1

UMETCO MINERALS CORPORATION
WHITE MESA MILL
AMBIENT RADON LEVELS
pCi/Liter

PERIOD ENDING	BHV-1	BHV-2	BHV-3	BHV-4	BHV-5	BHV-6*
09-Sep-86	0.56	0.57	0.13	0.60	0.72	0.37
21-Dec-86	0.5	0.6	0.4	0.6	1.1	0.4
23-Mar-87	0.4	0.4	0.2	0.6	1.0	0.4
18-Jun-87	1.7	1.9	1.7	1.7	2.0	3.0
09-Sep-87	0.6	0.7	0.3	0.5	0.7	0.7
31-Dec-87	1.4	0.8	0.7	0.7	1.3	0.6
21-Apr-87	0.3	0.5	0.5	0.6	0.6	0.4
27-Jun-88	0.4	0.6	0.7	1.0	1.2	1.0
03-Oct-88	1.0	0.4	0.2	0.6	1.4	0.5
03-Jan-89	0.6	0.6	0.6	0.9	2.3	1.7
04-Apr-89	1.3	3.1	0.5	0.7	2.5	1.0
30-Jun-89	0.6	1.3	0.6	3.0	3.3	1.1
28-Sep-89	0.4	0.4	0.4	0.5	1.9	0.7
02-Jan-90	0.8	1.7	0.5	1.4	2.5	1.2
02-Apr-90	0.5	0.4	0.5	0.8	1.1	0.6
02-Jul-90	0.4	0.5	0.3	0.3	0.5	0.3
01-Oct-90	1.0	1.5	0.7	0.6	1.0	0.7
02-Jan-91	0.6	0.4	0.2	0.5	1.1	0.4
01-Apr-91	0.4	0.6	0.3	0.6	1.2	0.4
01-Jul-91	0.5	0.3	0.2	0.3	0.5	0.3
30-Sep-91	0.6	0.6	0.3	0.4	0.8	0.5
03-Jan-92	0.8	1.2	0.3	0.4	0.9	0.6
06-Apr-92	1.0	0.5	0.7	0.8	1.3	1.0
02-Jul-92	0.7	0.4	0.1	0.3	0.5	0.6
01-Oct-92	0.8	0.8	0.4	0.5	1.1	0.8
04-Jan-93	0.8	0.5	0.2	0.9	1.5	0.6
05-Apr-93	0.5	0.2	0.3	0.3	0.7	0.2
08-Jul-93	0.9	0.9	0.4	0.6	0.8	0.4
MEAN	0.72	0.80	0.44	0.74	1.27	0.73
Count	28	28	28	28	28	28
Std Dev	0.335	0.621	0.307	0.544	0.700	0.555

* BHV-6 is a duplicate located at BHV-2.

Note: Vendor laboratories and analytical methods were switched third quarter, 1986.

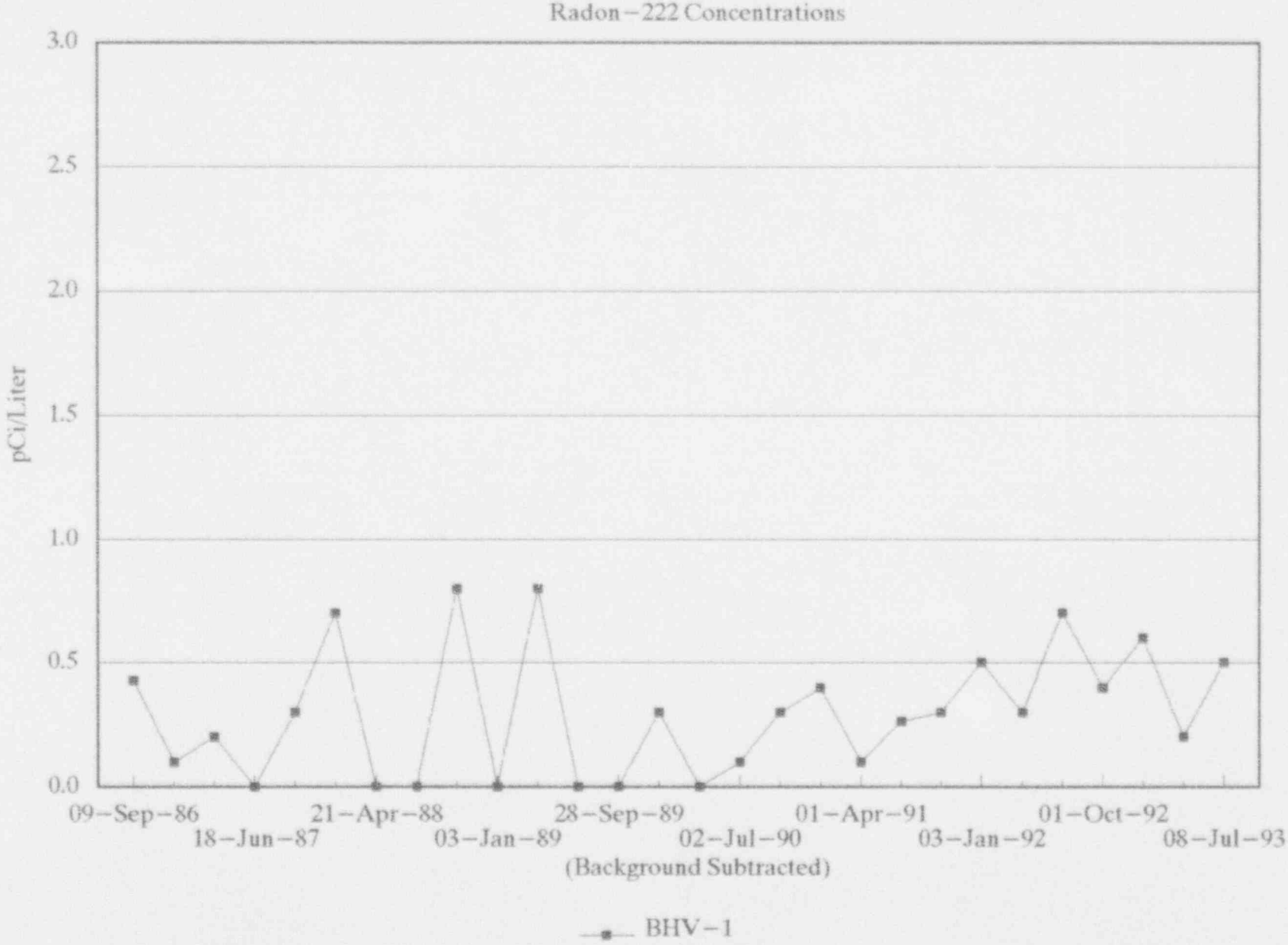
TABLE 2

UMETCO MINERALS CORPORATION
WHITE MESA MILL
BHV-2 versus BHV-6

Regression Output:

Constant	0.03358
Std Err of Y Est	0.46
R Squared	0.35
No. of Observations	28
Degrees of Freedom	26
X Coefficient(s)	0.97357
Std Err of Coef.	0.2624

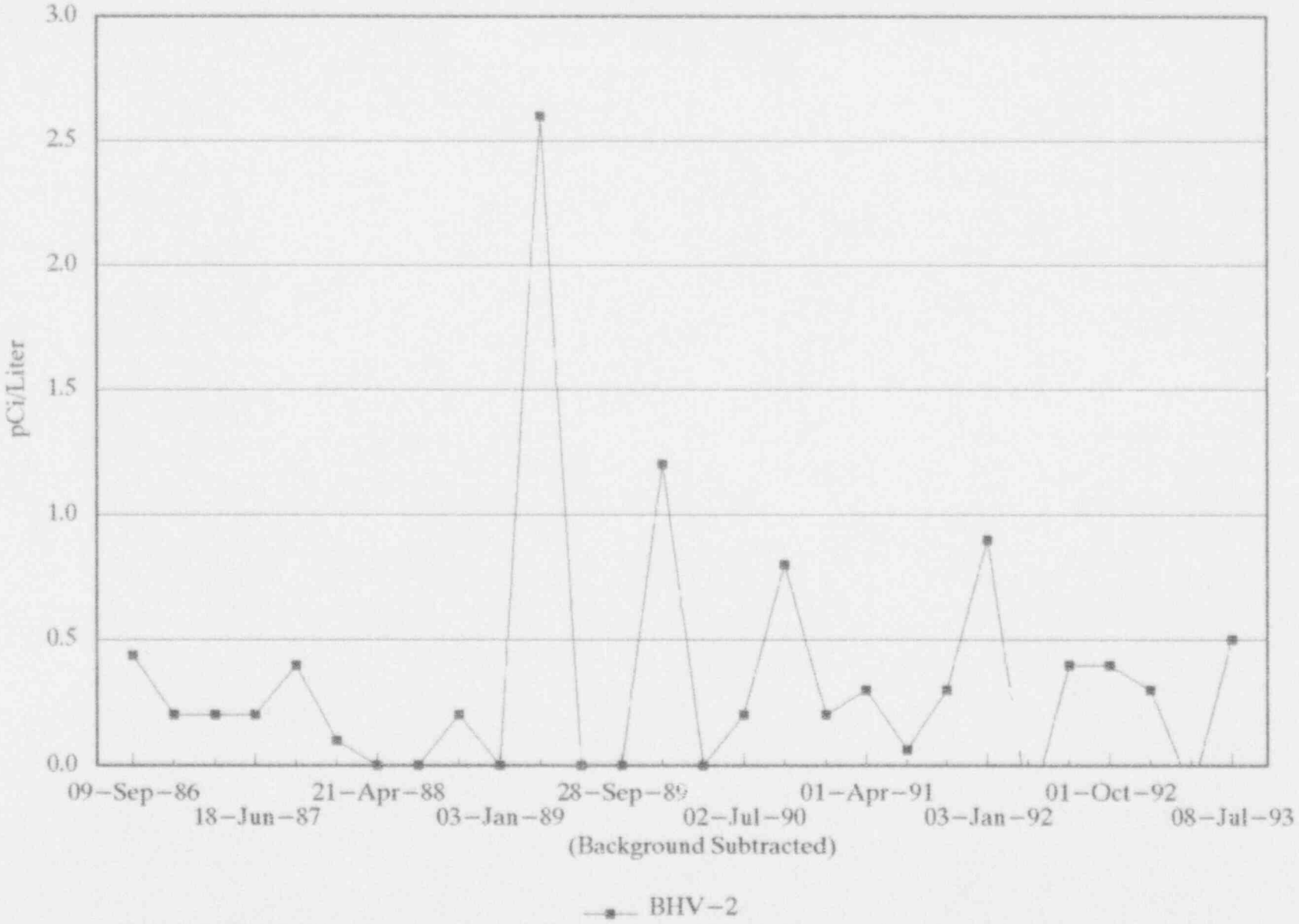
UMETCO MINERALS CORPORATION



Graph 1

UMETCO MINERALS CORPORATION

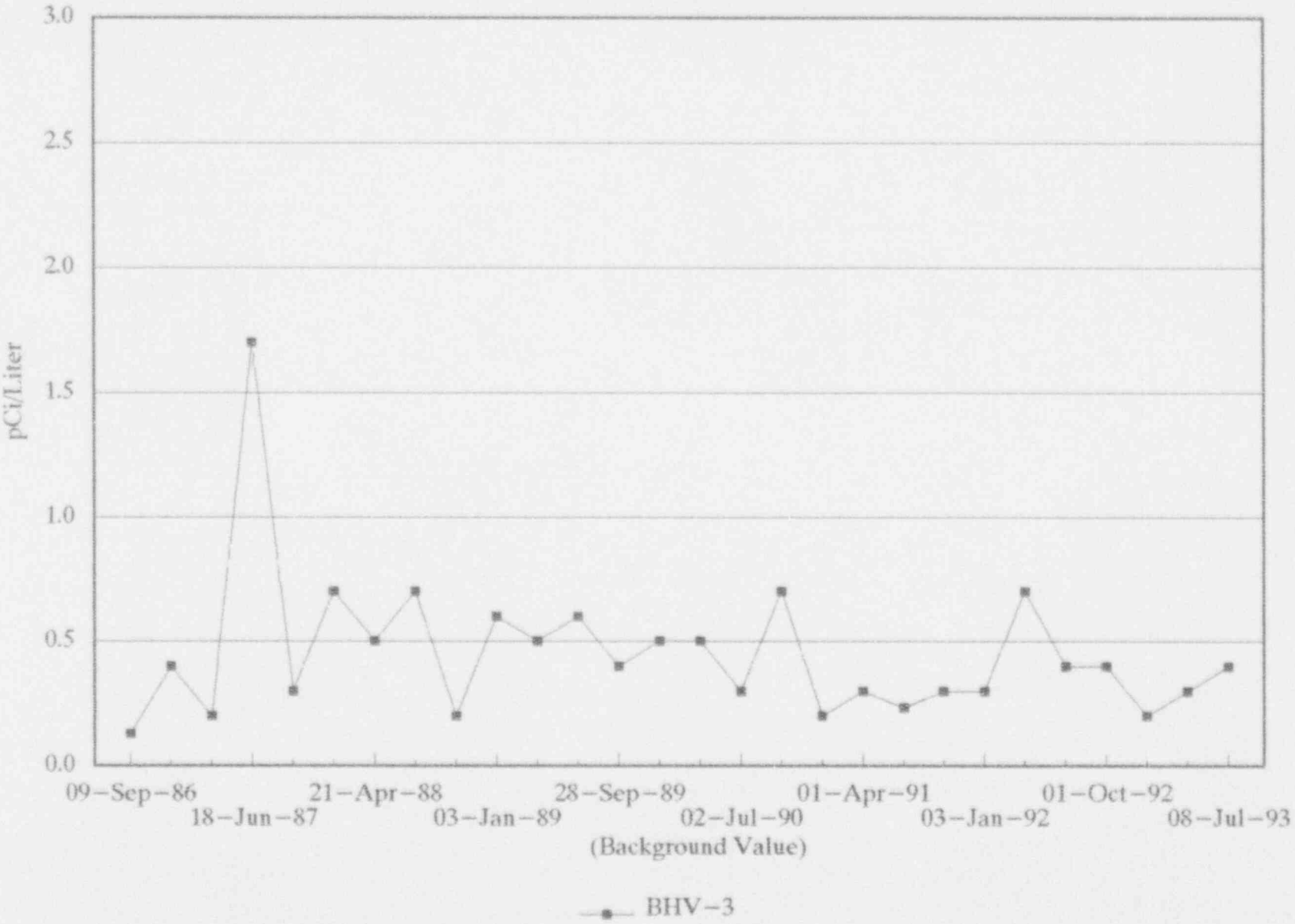
Radon-222 Concentrations



Graph 2

UMETCO MINERALS CORPORATION

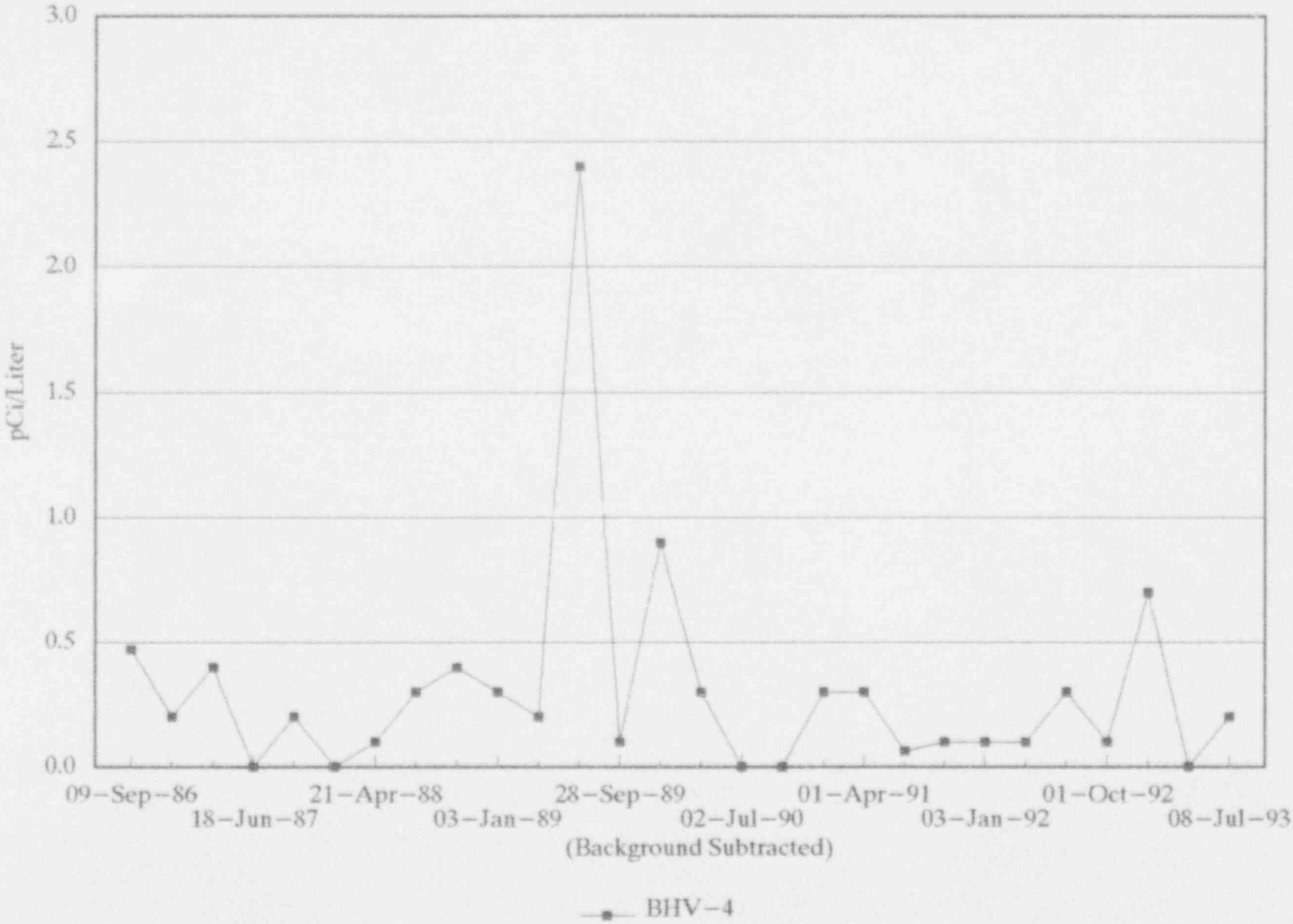
Radon–222 Concentrations



Graph 3

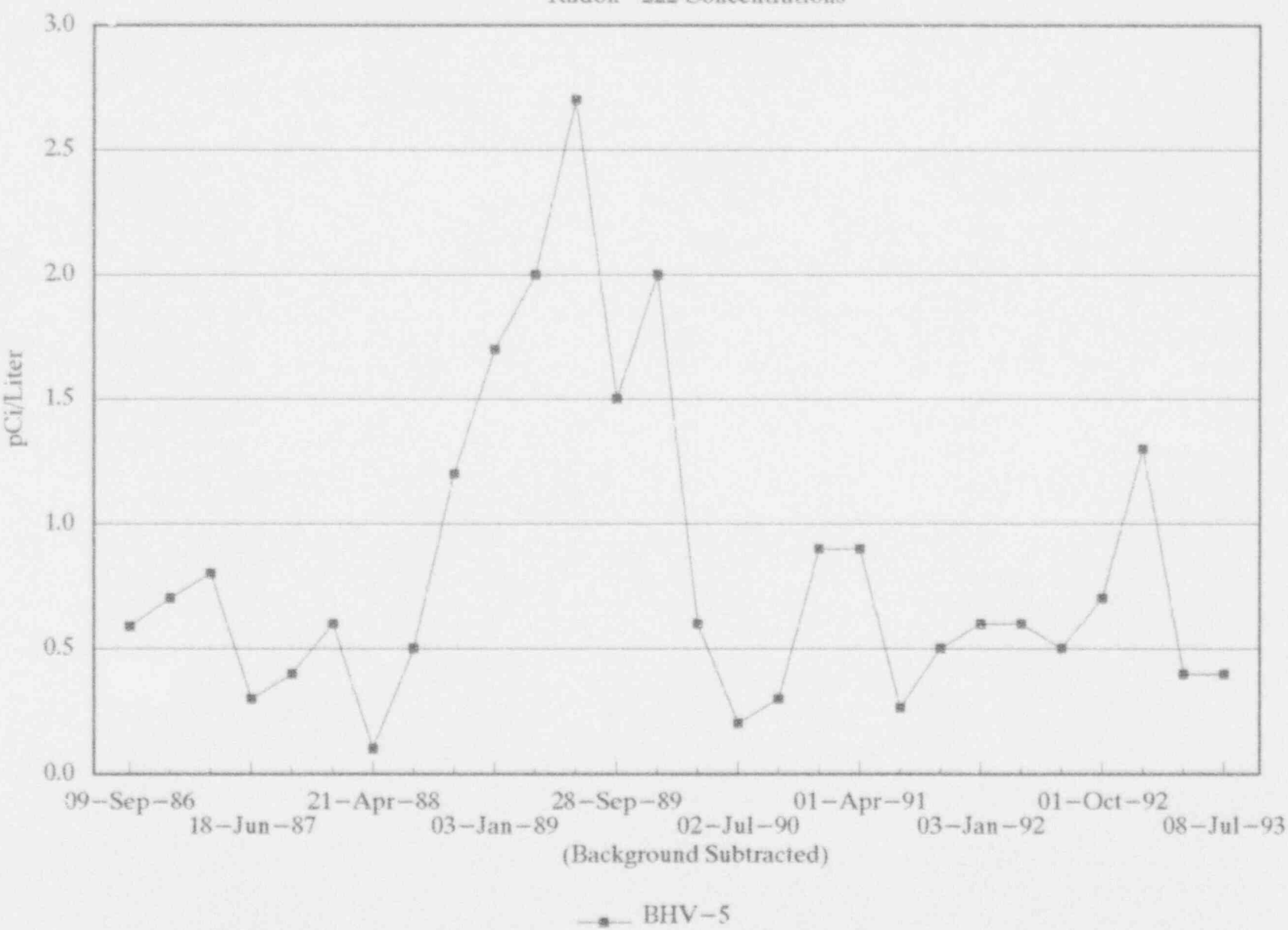
UMETCO MINERALS CORPORATION

Radon-222 Concentrations



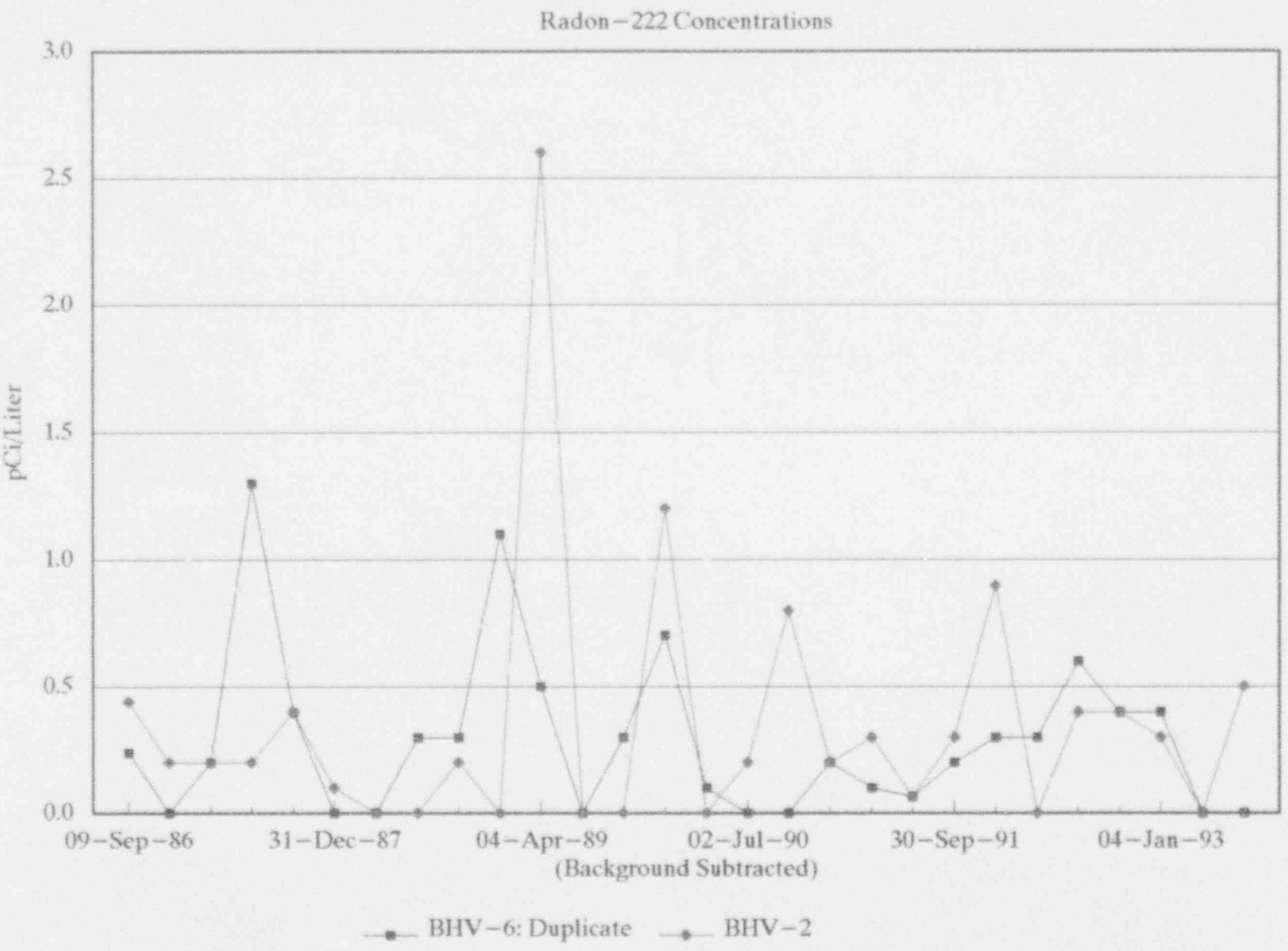
Graph 4

UMETCO MINERALS CORPORATION



Graph 5

UMETCO MINERALS CORPORATION



Graph 6

TABLE 3

UMETCO MINERALS CORPORATION
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-1, Meterological Station

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	23.66	0.00	3.90	0.00	1.82	
31-Dec-81	25.87	0.00	-2.21	0.00	1.99	
31-Mar-82	26.00	0.00	1.69	0.00	2.00	
30-Jun-82	24.05	0.00	-3.64	0.00	1.85	
01-Oct-82	25.35	0.00	3.12	0.00	1.95	
03-Jan-83	30.55	0.00	4.94	0.00	2.35	
04-Apr-83	22.49	0.00	-1.82	0.00	1.73	
05-Jul-83	32.11	0.00	7.54	0.00	2.47	
03-Oct-83	20.54	0.00	-1.43	0.00	1.58	
03-Jan-84	22.75	0.00	-0.91	0.00	1.75	
03-Apr-84	24.70	0.00	1.56	0.00	1.90	
02-Jul-84	22.49	0.00	1.69	0.00	1.73	
02-Oct-84	19.89	2.21	1.82	4.37	1.53	0.17
02-Jan-85	21.58	3.12	1.30	4.89	1.66	0.24
04-Apr-85	23.40	10.01	1.04	10.70	1.80	0.77
08-Jul-85	16.90	6.50	4.55	7.58	1.30	0.50
07-Oct-85	20.28	1.58	1.56	2.49	1.56	0.12
17-Jan-86	23.79	5.89	1.43	6.32	1.83	0.45
22-Apr-86	23.92	-0.70	0.91	0.92	1.84	-0.05
21-Jul-86	17.94	26.40	-6.37	30.31	1.3[illegible]	2.03
03-Nov-86	19.63	0.09	-2.99	4.59	1.5[illegible]	0.01
03-Feb-87	20.67	0.05	1.30	1.55	1.59	0.00
01-Apr-87	22.75	1.92	-8.19	2.09	1.75	0.15
01-Jul-87	Sample lost in the field					
09-Oct-87	17.94	0.03	1.95	1.07	1.38	0.00
14-Jan-88	20.80	1.58	-0.13	1.63	1.6	0.12
19-Apr-88	25.61	2.32	1.43	3.43	1.97	0.18
15-Jul-88	26.52	7.37	1.69	8.28	2.04	0.57
11-Oct-88	20.02	5.81	-0.39	5.81	1.54	0.45
19-Jan-89	23.14	2.61	-1.17	5.30	1.78	0.20
08-May-89	30.42	5.61	0.26	7.14	2.34	0.43
21-Jul-89	27.43	6.73	1.17	6.95	2.11	0.52
30-Oct-89	25.09	12.58	2.34	15.12	1.93	0.97
18-Jan-90	23.27	9.23	0.78	10.97	1.79	0.71
19-Apr-90	26.26	4.12	2.86	5.11	2.02	0.32
16-Jul-90	22.75	2.05	-1.56	3.12	1.75	0.16
01-Oct-90	22.10	1.95	-1.50	1.95	1.70	0.15
02-Jan-91	25.61	2.24	-6.76	9.60	1.97	0.17
01-Apr-91	22.49	2.35	-1.30	4.94	1.73	0.18
01-Jul-91	23.92	5.62	-7.67	5.83	1.84	0.43
30-Sep-91	23.27	0.97	-0.39	0.98	1.79	0.07
13-Jan-92	34.97	0.97	11.31	0.98	2.69	0.07
10-Apr-92	22.10	1.62	-15.34	6.60	1.70	0.12
15-Jul-92	23.14	1.26	-3.90	6.44	1.78	0.10
01-Oct-92	21.97	5.50	-3.64	5.91	1.69	0.42
04-Jan-93	27.04	1.53	4.55	4.56	2.08	0.12
08-Apr-93	21.45	3.13	-8.19	3.55	1.65	0.24
13-Jul-93	24.05	7.29	1.17	7.61	1.85	0.56
Mean	23.18	3.22	-0.25	4.44	1.82	0.33
Std. Dev.	4.84	4.61	4.39	5.22	0.27	0.37

TABLE 4

UMETCO MINERALS CORPORATION
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-2, Nearset Residence

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	19.11	0.00	-0.65	0.00	1.47	
31-Dec-81	24.57	0.00	-3.51	0.00	1.89	
31-Mar-82	27.04	0.00	2.73	0.00	2.08	
30-Jun-82	23.66	0.00	-4.03	0.00	1.82	
01-Oct-82	22.88	0.00	0.65	0.00	1.76	
03-Jan-83	25.61	0.00	0.00	0.00	1.97	
04-Apr-83	22.88	0.00	-1.43	0.00	1.76	
05-Jul-83	23.66	0.00	-0.91	0.00	1.82	
03-Oct-83	22.75	0.00	0.78	0.00	1.75	
03-Jan-84	29.38	0.00	5.72	0.00	2.26	
03-Apr-84	23.92	0.00	0.78	0.00	1.84	
02-Jul-84	20.02	0.00	-0.78	0.00	1.54	
02-Oct-84	18.72	3.12	0.65	4.89	1.44	0.24
02-Jan-85	22.23	3.38	1.95	5.06	1.71	0.26
04-Apr-85	9.10	3.77	-13.26	5.33	0.70	0.29
07-Jul-85	15.47	5.72	3.12	6.92	1.19	0.44
07-Oct-85	21.32	-0.12	2.60	1.93	1.64	-0.01
17-Jan-86	21.97	8.89	-0.39	9.18	1.69	0.68
22-Apr-86	29.51	9.90	6.50	9.92	2.27	0.76
21-Jul-86	25.35	7.30	1.04	16.59	1.95	0.56
03-Nov-86	22.88	0.09	0.26	4.59	1.76	0.01
03-Feb-87	29.25	-0.75	9.88	1.72	2.25	-0.06
01-Apr-87	22.88	0.82	-8.06	1.16	1.76	0.06
01-Jul-87	30.29	4.61	5.20	8.65	2.33	0.35
09-Oct-87	17.81	3.73	1.82	3.88	1.37	0.29
14-Jan-88	21.19	4.08	0.26	4.10	1.63	0.31
19-Apr-88	27.82	4.72	3.64	5.35	2.14	0.36
15-Jul-88	25.48	6.67	0.65	7.66	1.96	0.51
11-Oct-88	25.35	8.51	4.94	8.51	1.95	0.65
19-Jan-89	24.44	5.21	0.13	6.96	1.88	0.40
08-May-89	32.37	2.61	2.21	5.12	2.49	0.20
21-Jul-89	27.95	2.33	1.69	2.90	2.15	0.18
30-Oct-89	22.88	2.58	0.13	8.77	1.76	0.20
18-Jan-90	24.05	2.43	1.56	6.41	1.85	0.19
19-Apr-90	24.83	0.42	1.43	3.05	1.91	0.03
16-Jul-90	23.14	0.65	-1.17	2.44	1.78	0.05
01-Oct-90	23.14	7.55	-0.46	7.55	1.78	0.58
02-Jan-91	30.42	5.34	-1.95	10.76	2.34	0.41
01-Apr-91	25.61	9.95	1.82	10.86	1.97	0.77
01-Jul-91	24.70	4.12	-6.89	4.41	1.9	0.32
30-Sep-91	25.74	6.77	2.08	6.77	1.98	0.52
13-Jan-92	38.61	8.70	14.95	8.70	2.97	0.67
10-Apr-92	23.66	1.22	-13.78	6.52	1.82	0.09
15-Jul-92	26.13	4.56	-0.91	7.79	2.01	0.35
01-Oct-92	23.01	6.40	-2.60	6.75	1.77	0.49
04-Jan-93	26.65	-0.67	4.16	4.35	2.05	-0.05
08-Apr-93	22.88	4.53	-6.76	4.83	1.76	0.35
13-Jul-93	17.42	3.79	-5.46	4.38	1.34	0.29
Mean	24.16	3.19	0.22	4.68	1.86	0.33
Std. Dev.	4.55	3.15	4.85	3.78	0.35	0.23

TABLE 5

UMETCO MINERALS CORPORATION
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-3, Black Mesa (Background)

Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	19.76	0.00	0.00	0.00	1.52	
31-Dec-81	28.08	0.00	0.00	0.00	2.16	
31-Mar-82	24.31	0.00	0.00	0.00	1.87	
30-Jun-82	27.69	0.00	0.00	0.00	2.13	
01-Oct-82	22.23	0.00	0.00	0.00	1.71	
03-Jan-83	25.61	0.00	0.00	0.00	1.97	
04-Apr-83	24.31	0.00	0.00	0.00	1.87	
05-Jul-83	24.57	0.00	0.00	0.00	1.89	
03-Oct-83	21.97	0.00	0.00	0.00	1.69	
03-Jan-84	23.66	0.00	0.00	0.00	1.82	
03-Apr-84	23.14	0.00	0.00	0.00	1.78	
02-Jul-84	20.80	0.00	0.00	0.00	1.60	
02-Oct-84	18.07	3.77	0.00	5.33	1.39	0.29
02-Jan-85	20.28	3.77	0.00	5.33	1.56	0.29
04-Apr-85	22.36	3.77	0.00	5.33	1.72	0.29
07-Jul-85	12.35	3.90	0.00	5.52	0.95	0.30
07-Oct-85	18.72	1.93	0.00	2.73	1.44	0.15
17-Jan-86	22.36	2.29	0.00	3.24	1.72	0.18
22-Apr-86	23.01	0.60	0.00	0.85	1.77	0.05
21-Jul-86	24.31	14.90	0.00	21.07	1.87	1.15
03-Nov-86	22.62	4.59	0.00	6.49	1.74	0.35
03-Feb-87	19.37	1.55	0.00	2.19	1.49	0.12
01-Apr-87	30.94	0.82	0.00	1.16	2.38	0.06
01-Jul-87	25.09	7.32	0.00	10.35	1.93	0.56
09-Oct-87	15.99	-1.07	0.00	1.51	1.23	-0.08
14-Jan-88	20.93	-0.42	0.00	0.59	1.61	-0.03
19-Apr-88	24.18	2.52	0.00	3.56	1.86	0.19
15-Jul-88	24.83	3.77	0.00	5.33	1.91	0.29
11-Oct-88	20.41	0.21	0.00	0.30	1.57	0.02
19-Jan-89	24.31	4.61	0.00	6.52	1.87	0.35
08-May-89	30.16	4.41	0.00	6.24	2.32	0.34
21-Jul-89	26.26	1.73	0.00	2.45	2.02	0.13
30-Oct-89	22.75	8.38	0.00	11.85	1.75	0.64
18-Jan-90	22.49	5.93	0.00	8.39	1.73	0.46
19-Apr-90	23.40	3.02	0.00	4.27	1.8	0.23
16-Jul-90	24.31	2.35	0.00	3.32	1.87	0.18
01-Oct-90	23.60	0.00	0.00	0.00	1.815	0.00
02-Jan-91	32.37	9.34	0.00	13.21	2.49	0.72
01-Apr-91	23.79	4.35	0.00	6.15	1.83	0.33
01-Jul-91	31.59	-1.56	0.00	2.21	2.43	-0.12
30-Sep-91	23.66	0.17	0.00	0.24	1.82	0.01
13-Jan-92	37.44	6.40	0.00	9.05	2.88	0.49
10-Apr-92	27.04	6.32	0.00	8.94	2.08	0.49
15-Jul-92	25.61	2.16	0.00	3.05	1.97	0.17
01-Oct-92	22.49	4.30	0.00	6.08	1.73	0.33
04-Jan-93	29.64	-1.67	0.00	2.36	2.28	-0.13
08-Apr-93	23.66	-0.17	0.00	0.24	1.82	-0.01
13-Jul-93	22.88	2.19	0.00	3.10	1.76	0.17
Mean	23.95	2.43	0.00	3.72	1.84	0.25
Std. Dev.	4.21	3.20	0.00	4.29	0.32	0.26

TABLE 6

UMETCO MINERALS CORPORATION
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-4, South Tailings Area

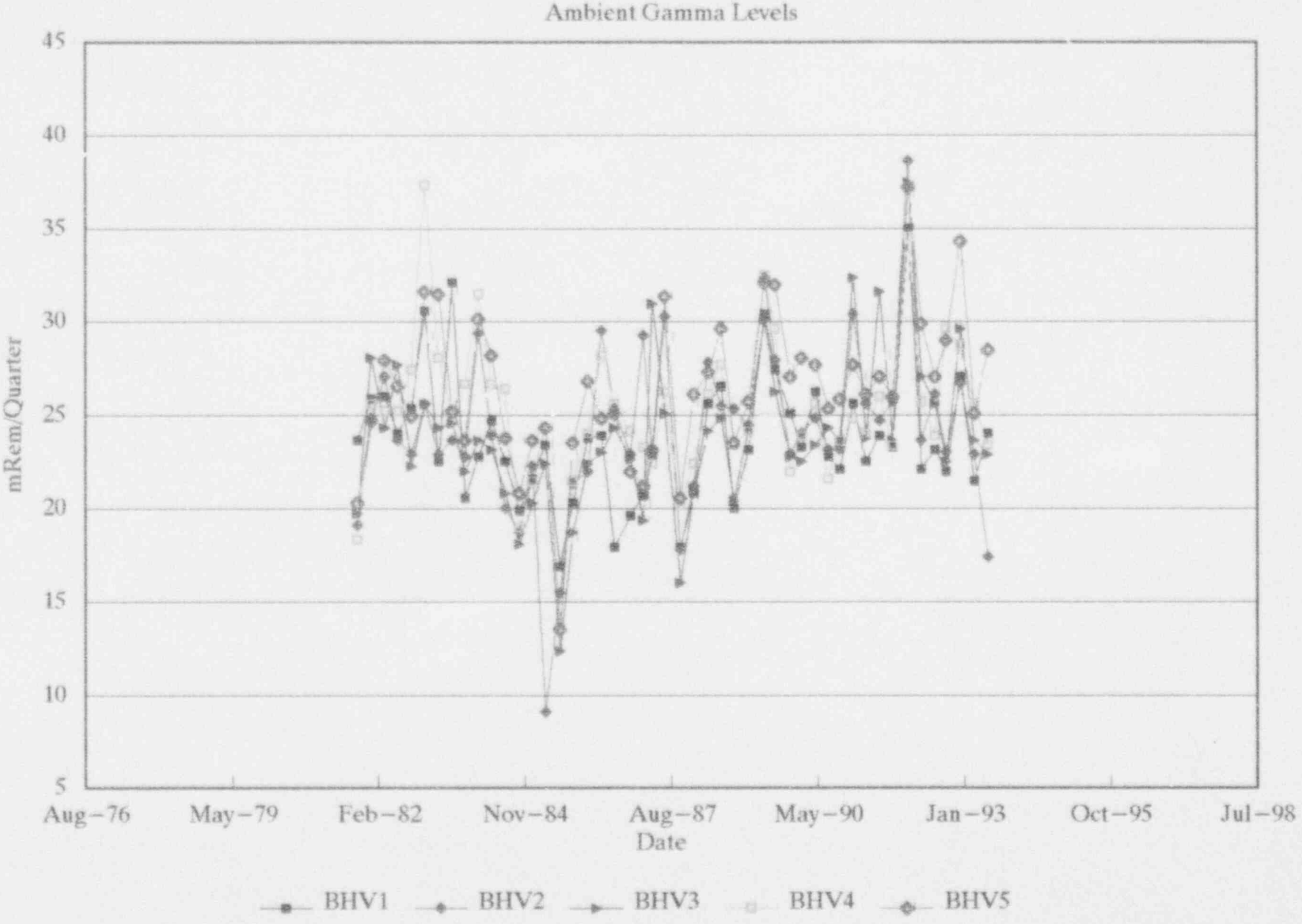
Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	18.33	0.00	-1.43	0.00	1.41	
31-Dec-81	25.61	0.00	-2.47	0.00	1.97	
31-Mar-82		0.00	-24.31	0.00	0.00	
30-Jun-82		0.00	-27.69	0.00	0.00	
01-Oct-82	27.43	0.00	5.20	0.00	2.11	
03-Jan-83	37.31	0.00	11.70	0.00	2.87	
04-Apr-83	28.08	0.00	3.77	0.00	2.16	
05-Jul-83	25.09	0.00	0.52	0.00	1.93	
03-Oct-83	26.65	0.00	4.68	0.00	2.05	
03-Jan-84	31.46	0.00	7.80	0.00	2.42	
03-Apr-84	26.65	0.00	3.51	0.00	2.05	
02-Jul-84	26.39	0.00	5.59	0.00	2.03	
02-Oct-84	18.98	4.94	0.91	6.21	1.46	0.38
02-Jan-85	21.45	1.56	1.17	4.08	1.65	0.12
04-Apr-85	24.31	1.69	1.95	4.13	87	0.13
07-Jul-85	13.52	4.42	1.17	5.89	1.04	0.34
07-Oct-85	21.45	0.68	2.73	2.04	1.65	0.05
17-Jan-86	24.05	6.69	1.69	7.07	1.85	0.51
22-Apr-86	28.21	23.40	5.20	23.41	2.17	1.80
21-Jul-86	25.61	3.60	1.30	15.33	1.97	0.28
03-Nov-86	24.18	2.69	1.56	5.32	1.86	0.21
03-Feb-87	23.27	2.55	3.90	2.98	1.79	0.20
01-Apr-87	22.36	2.12	-8.58	2.27	1.72	0.16
01-Jul-87	26.26	14.71	1.17	16.43	2.02	1.13
09-Oct-87	20.15	-0.87	4.16	1.38	1.55	-0.07
14-Jan-88	22.36	2.68	1.43	2.71	1.72	0.21
19-Apr-88	26.13	-1.68	1.95	3.03	2.01	-0.13
15-Jul-88	27.69	1.77	2.86	4.16	2.13	0.14
11-Oct-88	23.40	2.81	2.99	2.82	1.80	0.22
19-Jan-89	24.18	3.91	-0.13	6.04	1.86	0.30
08-May-89	32.50	0.61	2.34	4.45	2.5	0.05
21-Jul-89	29.64	-0.57	3.38	1.82	2.28	-0.04
30-Oct-89	21.97	-1.32	-0.78	8.48	1.69	-0.10
18-Jan-90	23.92	9.23	1.43	10.97	1.84	0.71
19-Apr-90	25.61	2.62	2.21	4.00	1.97	0.20
16-Jul-90	21.58	2.75	-2.73	3.62	1.66	0.21
01-Oct-90	23.66	0.25	0.06	0.25	1.82	0.02
02-Jan-91	24.83	1.74	-7.54	9.50	1.91	0.13
01-Apr-91	24.05	0.45	0.26	4.37	1.85	0.03
01-Jul-91	26.00	5.62	-5.59	5.83	2	0.43
30-Sep-91	23.40	2.37	-0.26	2.38	1.8	0.18
13-Jan-92	34.58	10.80	-2.86	12.55	2.66	0.83
10-Apr-92	25.74	1.02	-1.30	6.40	1.98	0.08
15-Jul-92	23.92	-0.64	-1.69	2.25	1.84	-0.05
01-Oct-92	29.64	6.90	7.15	8.13	2.28	0.53
04-Jan-93	28.73	8.73	-0.91	8.89	2.21	0.67
08-Apr-93	25.61	3.83	1.95	3.83	1.97	0.29
13-Jul-93	23.40	4.49	0.52	5.00	1.8	0.35
Mean	25.20	2.84	0.21	4.54	1.86	0.29
Std. Dev.	4.06	4.47	6.51	4.85	0.49	0.37

TABLE 7

UMETCO MINERALS CORPORATION
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-5, East Tailings Area

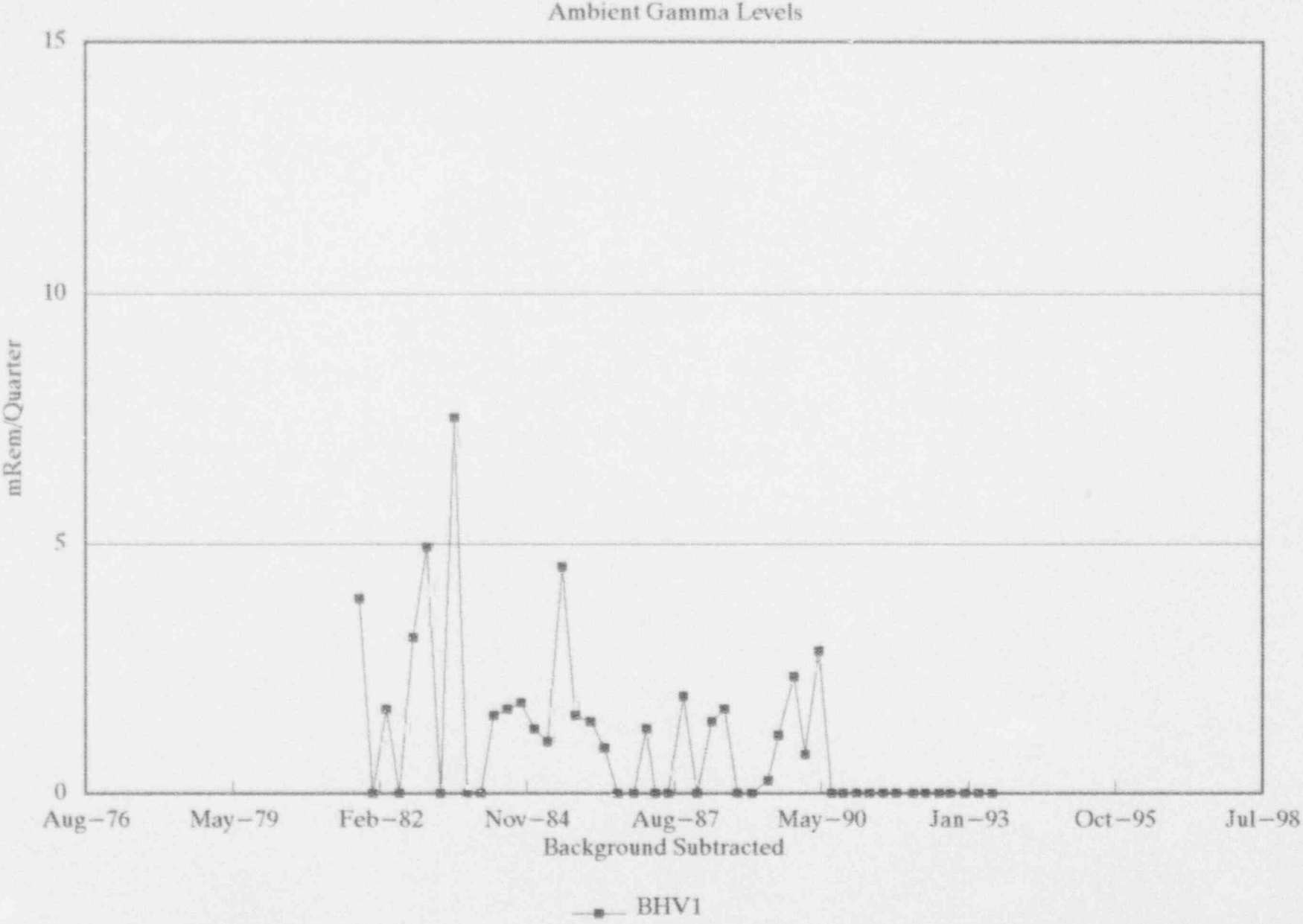
Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate	Net Error	Total Rate Mr/week	Counting Error Mr/week
30-Sep-81	20.28	0.00	0.52	0.00	1.56	
31-Dec-81		0.00	-28.08	0.00	0.00	
31-Mar-82	27.95	0.00	3.64	0.00	2.15	
30-Jun-82	26.52	0.00	-1.17	0.00	2.04	
01-Oct-82	24.96	0.00	2.73	0.00	1.92	
03-Jan-83	31.59	0.00	5.98	0.00	2.43	
04-Apr-83	31.46	0.00	7.15	0.00	2.42	
05-Jul-83	25.22	0.00	0.65	0.00	1.94	
03-Oct-83	23.66	0.00	1.69	0.00	1.82	
03-Jan-84	30.16	0.00	6.50	0.00	2.32	
03-Apr-84	26.21	0.00	5.07	0.00	2.17	
02-Jul-84	23.79	0.00	2.99	0.00	1.83	
02-Oct-84	20.80	1.56	2.73	4.08	1.60	0.12
02-Jan-85	23.66	4.03	3.38	5.52	1.82	0.31
04-Apr-85	24.31	6.50	1.95	7.51	1.87	0.50
07-Jul-85	13.52	2.99	1.17	4.91	1.04	0.23
07-Oct-85	23.53	-0.92	4.81	2.14	1.81	-0.07
17-Jan-86	26.78	9.09	4.42	9.37	2.06	0.70
22-Apr-86	24.83	8.40	1.82	8.42	1.91	0.65
21-Jul-86	25.09	1.80	0.78	15.01	1.93	0.14
03-Nov-86	21.97	0.29	-0.65	4.60	1.69	0.02
03-Feb-87	21.19	1.65	1.82	2.26	1.63	0.13
01-Apr-87	23.14	9.52	-7.80	9.56	1.78	0.73
01-Jul-87	31.33	13.11	6.24	15.02	2.41	1.01
09-Oct-87	20.54	2.23	4.55	2.47	1.58	0.17
14-Jan-88	26.13	-1.22	5.20	1.29	2.01	-0.09
19-Apr-88	27.30	3.82	3.12	4.58	2.10	0.29
15-Jul-88	29.64	2.07	4.81	4.30	2.28	0.16
11-Oct-88	23.53	1.51	3.12	1.52	1.81	0.12
19-Jan-89	25.74	6.21	1.43	7.73	1.98	0.48
08-May-89	32.11	4.91	1.95	6.60	2.47	0.38
21-Jul-89	31.98	0.93	5.72	1.96	2.46	0.07
30-Oct-89	27.04	6.88	4.29	10.84	2.08	0.53
18-Jan-90	28.08	4.03	5.59	7.17	2.16	0.31
19-Apr-90	27.69	2.62	4.29	4.00	2.13	0.20
16-Jul-90	25.35	2.35	1.04	3.32	1.95	0.18
01-Oct-90	25.87	1.85	2.27	1.85	1.99	0.14
02-Jan-91	27.69	9.94	-4.68	13.64	2.13	0.76
01-Apr-91	26.13	1.15	2.34	4.50	2.01	0.09
01-Jul-91	27.04	0.42	-4.55	1.62	2.08	0.03
30-Sep-91	26.00	2.97	2.34	2.97	2.00	0.23
13-Jan-92	37.18	9.20	-0.26	11.21	2.86	0.71
10-Apr-92	29.90	10.52	2.86	12.27	2.30	0.81
15-Jul-92	27.04	3.56	1.43	4.16	2.08	0.27
01-Oct-92	28.99	3.60	6.50	5.61	2.23	0.28
04-Jan-93	34.32	8.93	4.68	9.08	2.64	0.69
08-Apr-93	25.09	2.23	1.43	2.24	1.93	0.17
13-Jul-93	28.47	5.29	5.59	5.73	2.19	0.41
Mean	26.44	3.21	1.95	4.56	1.99	0.33
Std. Dev.	4.03	3.57	5.27	4.28	0.42	0.27

UMETCO MINERALS CORPORATION



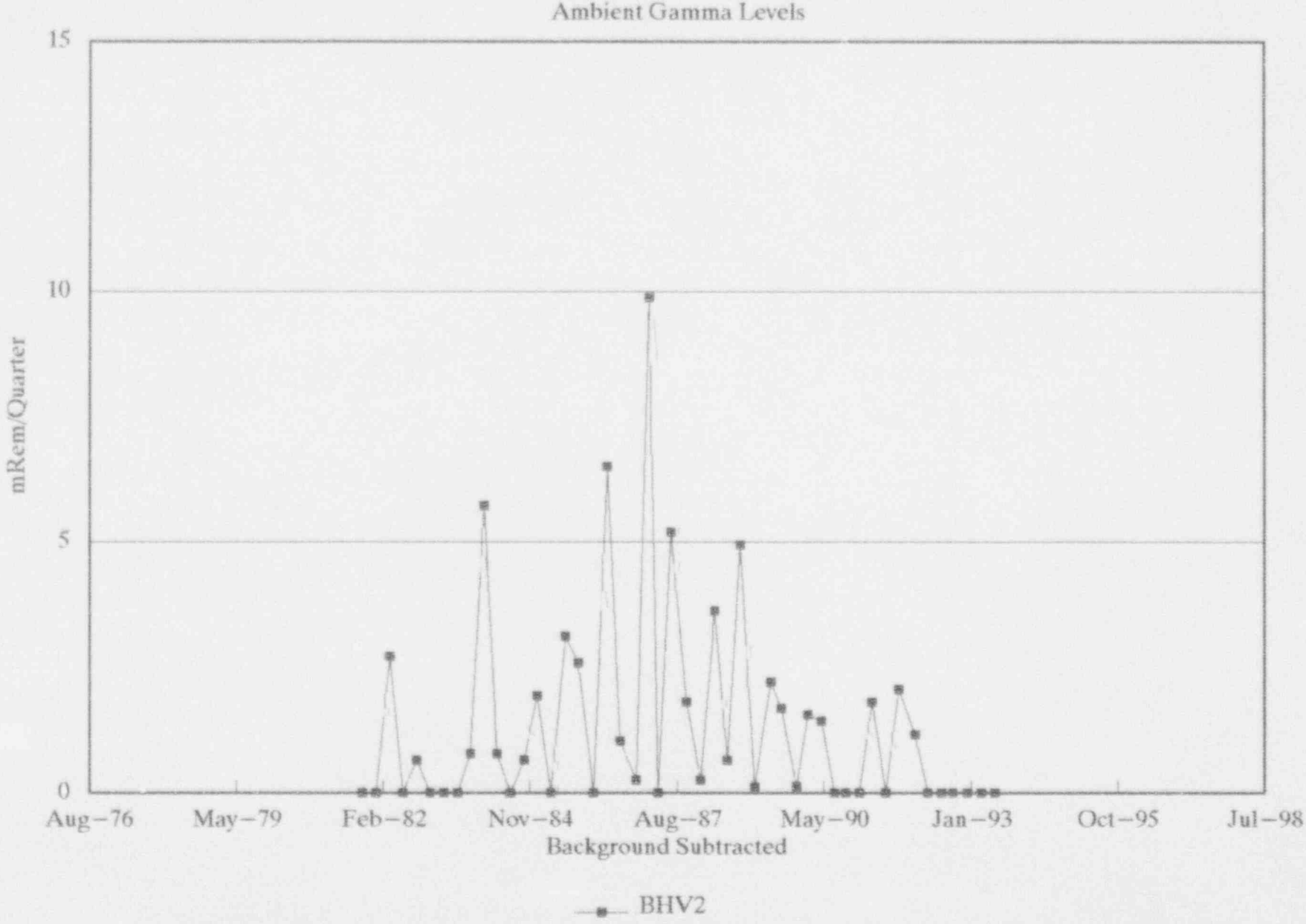
Graph 7

UMETCO MINERALS CORPORATION



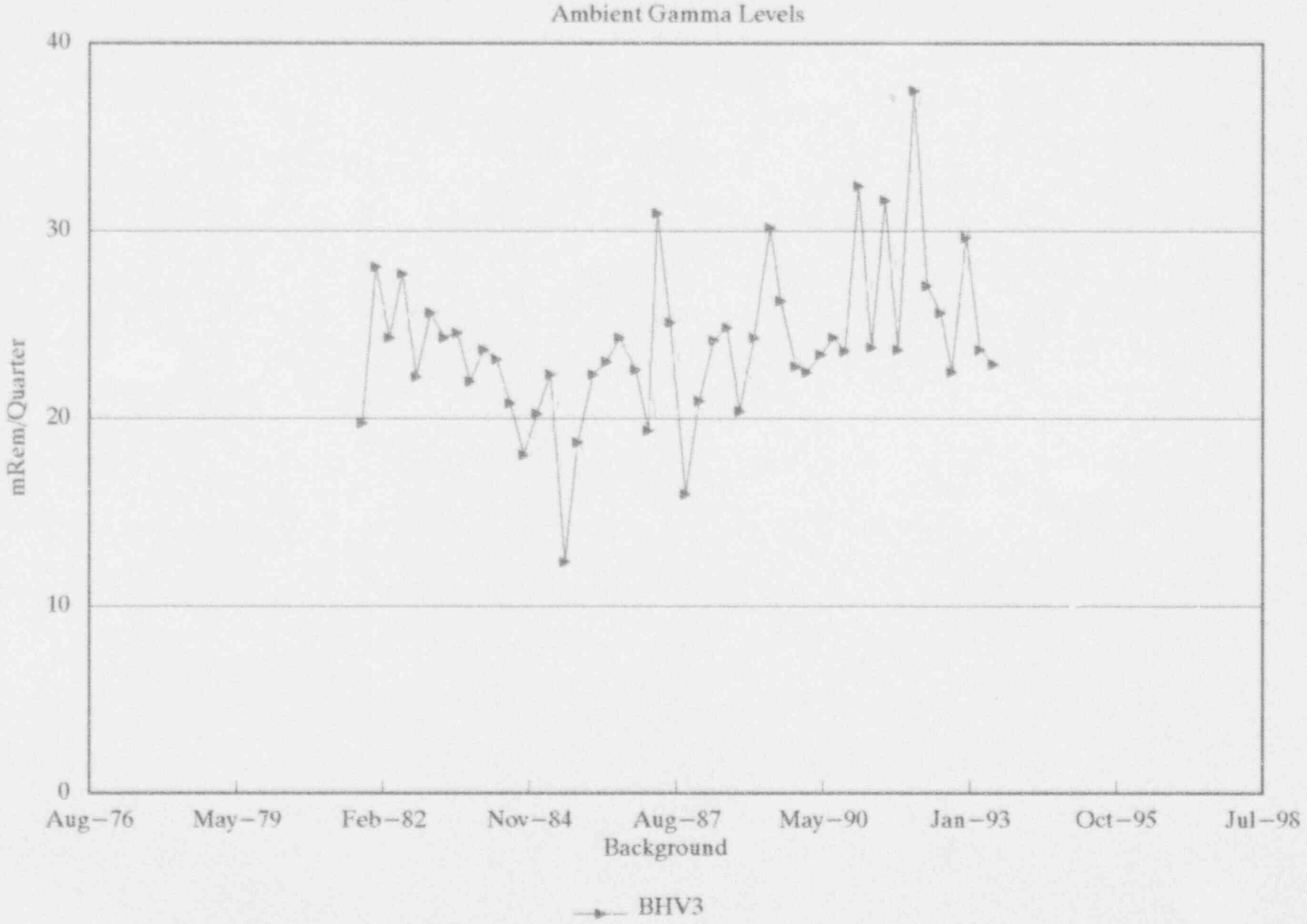
Graph 8

UMETCO MINERALS CORPORATION



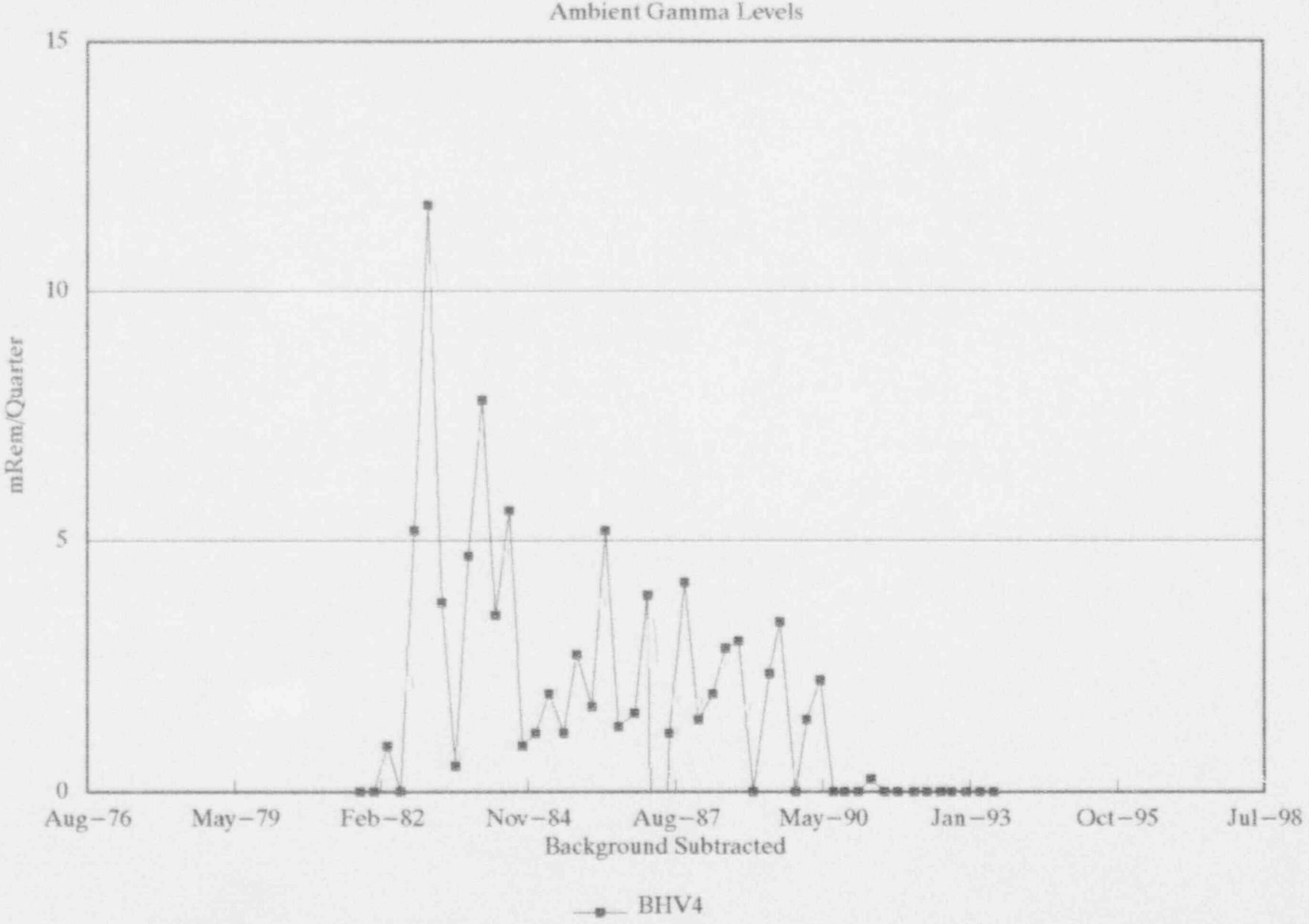
Graph 9

UMETCO MINERALS CORPORATION



Graph 10

UMETCO MINERALS CORPORATION



Graph 11

TABLE 8

UMETCO MINERALS CORPORATION
WHITE MESA MILL
DIRECT RADIATION
MR/QTR
Location: BHV-2 VERSUS BHV-6, DUPLICATION

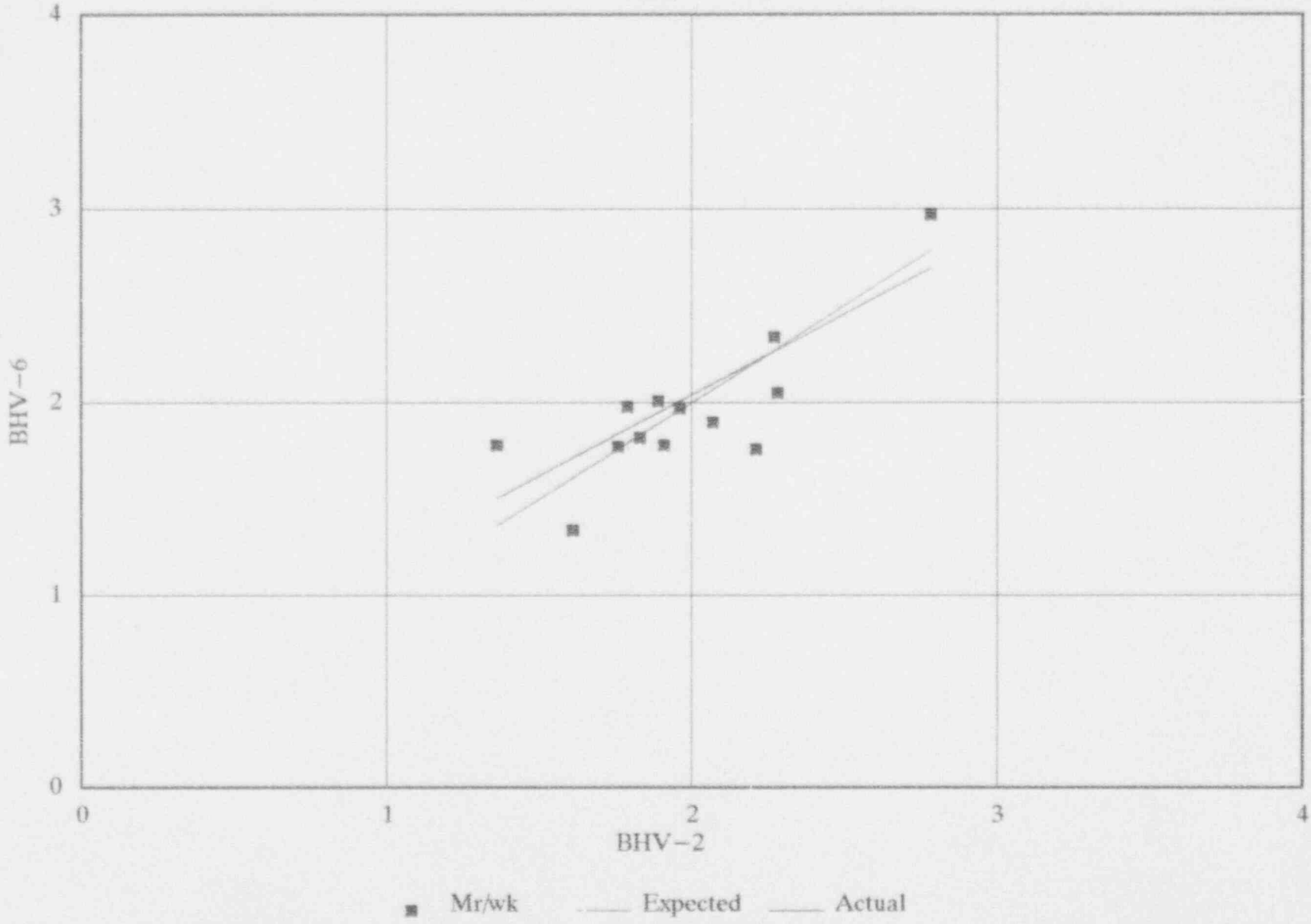
Period Ending	Total Exposure Rate	Counting Error	Net Exposure Rate	Net Error	Total Rate Mr/week	Counting Error Mr/week
16-Jul-90	24.83	0.55	0.52	0.55	1.91	0.04
01-Oct-90	17.68	23.75	-5.92	23.75	1.36	1.83
02-Jan-91	29.51	1.74	5.91	1.74	2.27	0.13
01-Apr-91	25.48	6.75	-6.89	6.75	1.96	0.52
01-Jul-91	26.91	4.92	3.12	4.92	2.07	0.38
30-Sep-91	23.27	2.97	0.39	2.97	1.79	0.23
13-Jan-92	36.14	7.50	13.26	7.50	2.78	0.58
10-Apr-92	23.79	4.82	0.91	4.82	1.83	0.37
15-Jul-92	24.57	3.86	1.69	3.86	1.89	0.30
01-Oct-92	22.88	7.50	0.00	7.50	1.76	0.58
04-Jan-93	29.64	8.33	6.76	8.33	2.28	0.64
08-Apr-93	28.73	3.03	5.85	3.03	2.21	0.23
13-Jul-93	20.93	1.39	20.93	1.39	1.61	0.11

Regression Output:

Constant		0.261
Std Err of Y Est		0.235
R Squared		0.65
No. of Observations		13
Degrees of Freedom		11
X Coefficient(s)	0.858	
Std Err of Coef.	0.191	

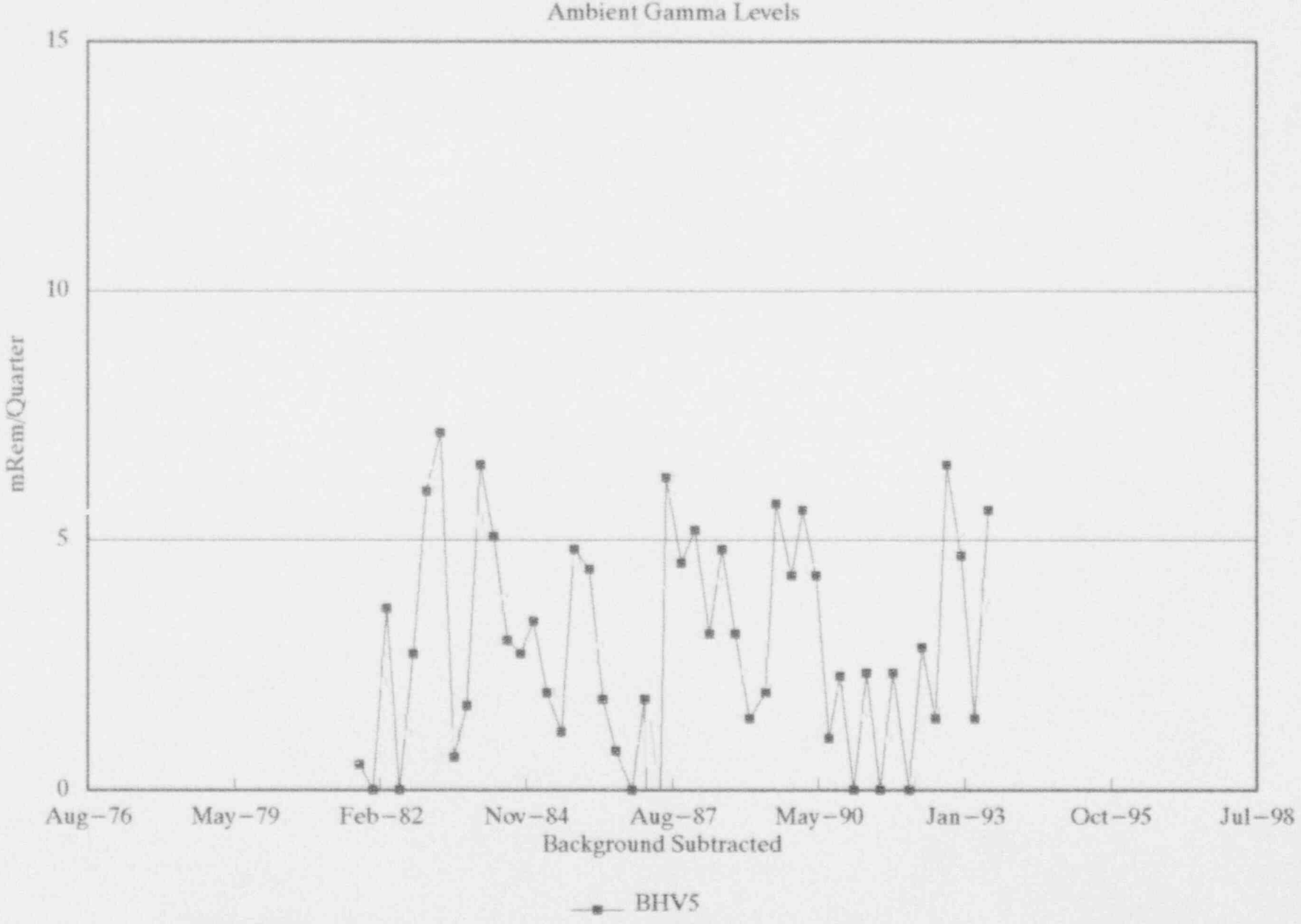
UMETCO MINERALS CORPORATION

Comparison of Duplicate Gamma Values



Graph 13

UMETCO MINERALS CORPORATION



Graph 12

TABLE 9

UMETCO MINERALS CORPORATION
WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
NORTH EAST OF MILL

SAMPLED DATE	Ra-226 VALUE uCi/Kg	Ra-226 ERROR uCi/Kg	LLD uCi/Kg 5.00E-08	Pb-210 VALUE uCi/Kg	Pb-210 ERROR uCi/Kg	LLD uCi/Kg 1.00E-06
27-Aug-81	3.90E-04	1.0E-05	5.0E-08	1.10E-03	1.0E-04	1.0E-06
20-Oct-81	1.40E-04	1.0E-05	5.0E-08	6.80E-04	8.0E-05	1.0E-06
15-Apr-82	1.31E-04	1.3E-05	1.0E-06	4.90E-04	7.0E-05	8.0E-05
01-Jul-82	1.60E-04	1.0E-05	5.0E-08	8.00E-04	1.7E-04	1.0E-07
30-Nov-82	2.67E-06	1.1E-06	1.0E-06	1.08E-04	9.0E-06	1.0E-05
13-Apr-83	9.36E-05	6.2E-06	8.0E-09	4.97E-04	9.3E-05	1.0E-04
01-Jul-83	1.12E-04	1.2E-05	6.0E-06	1.84E-04	1.2E-05	1.0E-06
30-Jan-84	1.09E-04	8.0E-06	4.0E-06	7.80E-04	6.2E-05	6.0E-05
28-Jun-84	3.47E-04	1.2E-05	2.0E-09	3.75E-03	1.6E-04	4.0E-08
14-Nov-84	5.61E-04	2.0E-04	2.0E-07	7.82E-03	3.3E-04	7.0E-08
27-Mar-85	1.05E-03	3.0E-05	2.0E-06	3.22E-03	1.4E-04	2.0E-05
15-Jul-85	8.20E-05	7.0E-06	3.0E-06	7.70E-04	1.3E-04	2.0E-04
09-Oct-85	1.15E-04	1.0E-05	3.0E-06	5.10E-04	3.0E-05	2.0E-05
24-Mar-86	5.72E-04	2.1E-05	4.0E-06	2.49E-03	1.0E-04	1.0E-05
10-Jul-86	5.01E-04	1.3E-05	3.0E-06	1.57E-03	1.7E-03	2.0E-04
18-Dec-86	8.70E-04	5.0E-05	3.0E-06	6.80E-04	3.0E-05	3.0E-06
20-Apr-87	5.90E-04	7.0E-05	5.0E-08	1.50E-03	1.0E-04	1.0E-06
05-Jun-87	1.60E-04	3.0E-05	5.0E-08	9.50E-04	4.0E-05	1.0E-06
22-Dec-87	2.10E-04	4.0E-05	5.0E-08	1.70E-03	1.0E-04	1.0E-06
19-Apr-88	4.50E-04	7.0E-05	5.0E-08	1.40E-03	1.0E-04	1.0E-06
28-Jul-88	3.20E-05	2.2E-05	5.0E-08	1.50E-04	4.4E-04	1.0E-06
07-Apr-89	5.60E-04	4.0E-05	***	1.10E-03	1.0E-01	***
06-Jun-89	1.50E-04	2.0E-05	***	2.30E-04	2.0E-05	***
07-Nov-89	6.00E-04	5.0E-05	7.0E-06	2.04E-03	7.0E-05	1.4E-05
17-Apr-90	2.60E-04	3.0E-05	4.0E-06	3.30E-04	2.0E-05	2.2E-05
20-Jun-90	1.80E-04	2.0E-05	5.0E-08	3.20E-04	2.0E-05	1.0E-06
17-Oct-90	1.60E-04	2.0E-05	5.0E-08	3.30E-04	2.0E-05	1.0E-06
10-Apr-91	1.20E-04	2.0E-05	5.0E-06	3.00E-04	2.0E-05	1.0E-06
11-Jun-91	9.10E-05	1.6E-05	2.0E-07	1.90E-04	2.0E-05	2.0E-07
20-Nov-91	4.50E-04	4.0E-05	5.0E-08	1.09E-03	5.0E-05	1.0E-06
22-Apr-92	3.60E-05	1.0E-05	2.0E-06	1.50E-04	2.0E-05	1.0E-05
10-Jun-92	1.00E-05	7.0E-06	2.0E-07	7.50E-05	2.0E-05	1.0E-06
10-Jun-92	7.90E-05	3.5E-05	3.0E-06	7.10E-04	7.0E-05	2.0E-05
13-Apr-93	3.70E-05	2.2E-05	3.0E-06	2.80E-04	3.0E-05	2.0E-05
26-Jun-93	3.00E-05	1.5E-05	3.0E-06	4.30E-05	3.5E-05	2.0E-05
# OBSERVED	35	35	35	35	35	35
MINIMUM	2.67E-06	1.1E-06	2.00E-09	4.30E-05	9.0E-06	4.00E-08
MAXIMUM	1.05E-03	2.0E-04	7.00E-06	7.82E-03	1.0E-01	2.00E-04
MEAN	2.70E-04	2.8E-05	1.66E-06	1.10E-03	3.0E-03	2.35E-05
STD. DEV.	2.55E-04	3.4E-05	1.96E-06	1.44E-03	1.7E-02	4.89E-05

TABLE 10

UMETCO MINERALS CORPORATION
WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
NORTH WEST OF MILL

SAMPLED DATE	Ra-226 VALUE uCi/Kg	Ra-226 ERROR uCi/Kg	LLD uCi/Kg 5.00E-08	Pb-210 VALUE uCi/Kg	Pb-210 ERROR uCi/Kg	LLD uCi/Kg 1.00E-06
27-Aug-81	2.73E-03	5.0E-05	5.0E-08	7.10E-03	3.0E-04	1.0E-06
20-Oct-81	2.00E-04	1.0E-05	5.0E-08	8.30E-04	5.0E-05	1.0E-06
15-Apr-82	1.04E-04	9.0E-06	7.0E-06	6.40E-04	5.0E-05	4.0E-05
01-Jul-82	2.00E-05	1.0E-05	5.0E-08	2.20E-04	9.0E-05	1.0E-07
30-Nov-82	2.36E-06	9.5E-07	1.0E-06	8.00E-05	1.0E-05	1.0E-05
13-Apr-83	8.58E-05	1.4E-05	2.0E-08	3.53E-04	1.9E-05	1.0E-05
01-Jul-83	1.19E-04	1.1E-05	5.0E-06	1.58E-04	1.3E-05	1.0E-05
30-Jan-84	9.78E-05	7.0E-06	2.0E-06	2.16E-03	3.4E-04	3.0E-04
28-Jun-84	2.08E-04	1.0E-05	3.0E-09	1.60E-03	7.0E-05	3.0E-08
14-Nov-84	6.05E-04	1.6E-04	2.0E-07	2.58E-03	1.1E-04	3.0E-08
27-Mar-85	1.10E-04	8.0E-06	3.0E-06	8.63E-04	4.2E-05	3.0E-05
15-Jul-85	6.10E-05	6.0E-06	2.0E-06	5.40E-04	5.0E-05	5.0E-05
09-Oct-85	1.07E-04	6.0E-06	2.0E-06	3.80E-04	3.0E-05	2.0E-05
24-Mar-86	8.86E-04	1.8E-05	2.0E-06	4.40E-03	1.9E-04	3.0E-05
10-Jul-86	6.66E-04	1.8E-05	3.0E-06	4.78E-03	2.1E-04	6.0E-05
18-Dec-86	5.20E-04	1.0E-04	3.0E-06	1.70E-03	1.0E-04	6.0E-05
20-Apr-87	4.10E-04	1.0E-04	5.0E-08	1.60E-03	1.0E-04	1.0E-06
05-Jun-87	1.60E-04	3.0E-05	5.0E-08	5.50E-04	4.0E-05	1.0E-06
22-Dec-87	3.60E-04	5.0E-05	5.0E-08	1.80E-03	1.0E-04	1.0E-06
19-Apr-88	2.60E-04	5.0E-05	5.0E-08	1.90E-03	1.0E-04	1.0E-06
28-Jul-88	3.10E-05	1.9E-05	5.0E-08	1.60E-04	4.0E-05	1.0E-06
07-Apr-89	6.20E-04	5.0E-05	***	1.70E-03	1.0E-04	***
06-Jun-89	3.40E-04	3.0E-05	***	7.40E-04	3.0E-05	***
07-Nov-89	5.10E-04	6.0E-05	7.0E-06	1.00E-03	7.0E-05	1.4E-05
18-Apr-90	3.60E-04	3.0E-05	4.0E-06	4.80E-04	2.0E-05	2.2E-05
26-Jun-90	1.70E-04	2.0E-05	5.0E-08	3.20E-04	2.0E-05	1.0E-06
22-Oct-90	8.80E-05	1.6E-05	5.0E-08	2.90E-04	2.0E-05	1.0E-06
10-Apr-91	3.00E-04	3.0E-05	5.0E-06	4.10E-04	2.0E-05	1.0E-06
11-Jun-91	3.10E-04	3.0E-05	2.0E-07	4.70E-04	2.0E-05	2.0E-07
20-Nov-91	5.00E-04	4.0E-05	5.0E-08	1.50E-03	1.0E-04	1.0E-06
22-Apr-92	2.00E-05	8.0E-06	2.0E-06	9.60E-05	1.4E-05	1.0E-05
10-Jun-92	6.50E-06	6.0E-06	2.0E-06	1.20E-04	2.0E-05	1.0E-06
08-Dec-92	1.20E-04	4.0E-05	3.0E-06	1.21E-03	8.0E-05	2.0E-05
13-Apr-93	1.80E-05	1.7E-05	3.0E-06	2.10E-04	3.0E-05	2.0E-05
26-Jun-93	5.20E-05	1.9E-05	3.0E-06	1.70E-05	3.6E-05	2.0E-05

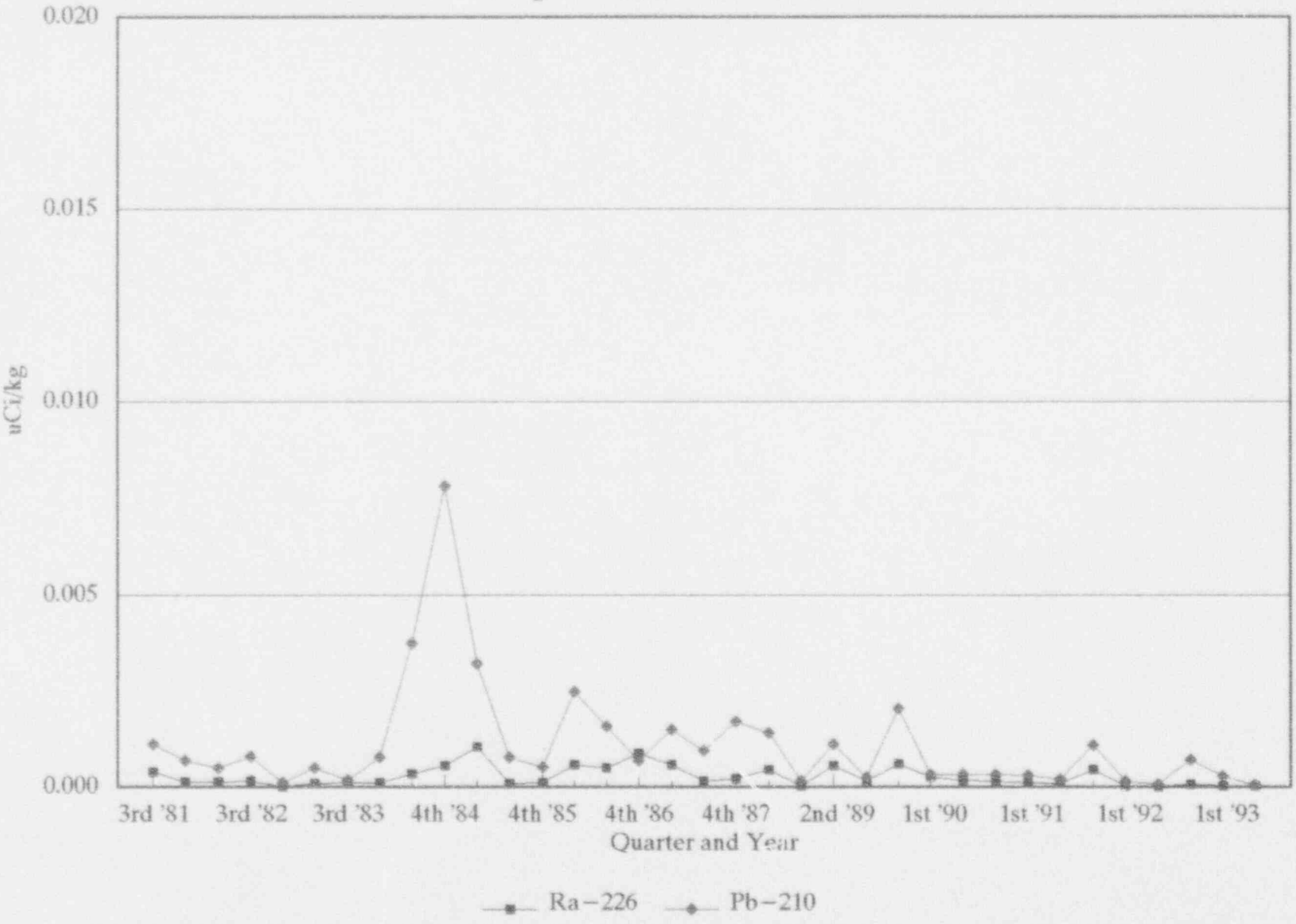
# OBSERVED	35	35	35	35	35	35
MINIMUM	2.36E-06	9.5E-07	3.00E-09	1.70E-05	1.0E-05	3.00E-08
MAXIMUM	2.73E-03	1.6E-04	7.00E-06	7.10E-03	3.4E-04	3.00E-04
MEAN	3.19E-04	3.1E-05	1.71E-06	1.23E-03	7.5E-05	2.11E-05
STD. DEV.	4.69E-04	3.3E-05	2.00E-06	1.49E-03	7.6E-05	5.08E-05

TABLE 11

UMETCO MINERALS CORPORATION
WHITE MESA MILL
FORAGE RADIONUCLIDE DATA
SOUTH WEST OF MILL

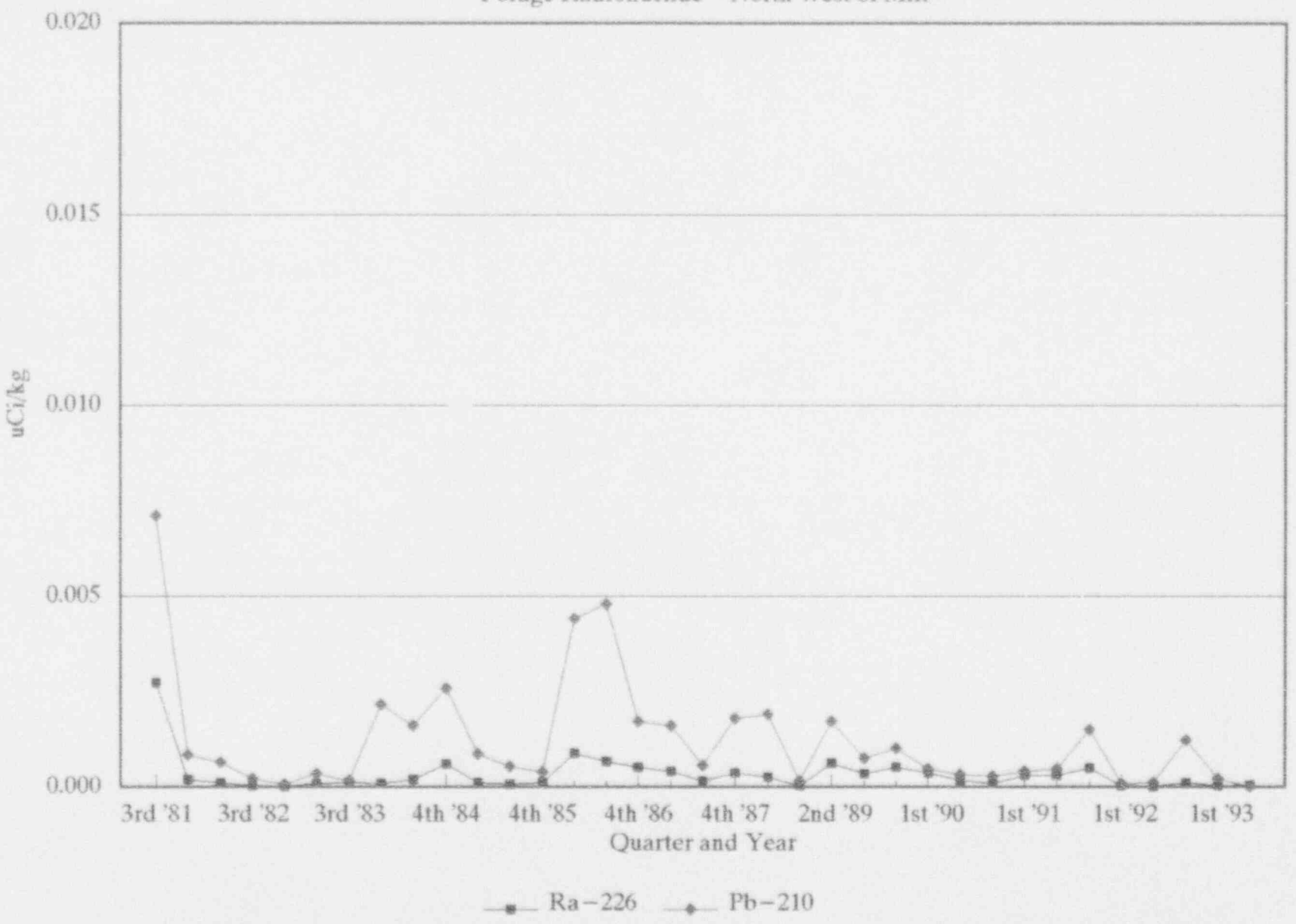
SAMPLED DATE	Ra-226 VALUE uCi/Kg	Ra-226 ERROR uCi/Kg	LLD uCi/Kg 5.00E-08	Pb-210 VALUE uCi/Kg	Pb-210 ERROR uCi/Kg	LLD uCi/Kg 1.00E-06
27-Aug-81	9.50E-04	2.0E-05	5.0E-08	1.50E-04	1.0E-05	1.0E-06
21-Oct-81	3.00E-05	3.0E-06	5.0E-08	1.50E-04	2.0E-05	1.0E-06
15-Apr-82	1.37E-05	3.0E-06	3.0E-06	3.80E-04	4.0E-05	4.0E-05
01-Jul-82	3.40E-04	2.0E-05	5.0E-08	3.68E-03	2.7E-04	1.0E-07
30-Nov-82	1.75E-05	3.0E-06	2.0E-06	7.92E-04	4.0E-06	2.0E-05
14-Apr-83	7.13E-04	7.3E-05	9.0E-08	2.51E-03	3.0E-04	3.0E-04
01-Jul-83	5.39E-05	4.5E-06	2.0E-06	6.88E-04	4.3E-05	4.0E-05
30-Jan-84	6.40E-05	7.0E-06	4.0E-06	1.20E-03	1.0E-04	4.0E-05
28-Jun-84	8.27E-05	6.3E-06	3.0E-09	1.80E-03	1.0E-04	9.0E-08
14-Nov-84	2.72E-04	1.5E-04	2.0E-07	4.70E-03	7.2E-04	3.0E-07
27-Mar-85	4.73E-04	1.6E-07	3.0E-06	7.07E-04	3.6E-05	3.0E-05
15-Jul-85	6.60E-05	7.0E-06	4.0E-06	4.90E-04	3.0E-05	3.0E-05
09-Oct-85	2.83E-04	2.0E-05	7.0E-06	1.50E-03	1.0E-04	7.0E-05
24-Mar-86	1.57E-04	1.0E-05	4.0E-06	4.14E-03	1.8E-04	3.0E-05
10-Jul-86	3.78E-04	1.0E-05	2.0E-06	1.65E-02	7.0E-04	1.0E-04
18-Dec-86	2.60E-04	2.0E-05	2.0E-06	1.70E-03	1.0E-04	1.0E-04
20-Apr-87	4.10E-04	7.0E-05	5.0E-08	2.20E-03	1.0E-04	1.0E-06
05-Jun-87	2.90E-04	4.0E-05	5.0E-08	7.50E-04	5.0E-05	1.0E-06
22-Dec-87	1.80E-04	3.0E-05	5.0E-08	2.40E-03	1.0E-04	1.0E-06
19-Apr-88	2.30E-04	5.0E-05	5.0E-08	2.90E-03	1.0E-04	1.0E-06
28-Jul-88	1.50E-04	3.0E-05	5.0E-08	4.30E-03	2.0E-04	1.0E-06
07-Apr-89	3.10E-04	4.0E-05	***	4.20E-03	1.0E-04	***
06-Jun-89	1.30E-04	2.0E-05	***	1.50E-03	1.0E-04	***
07-Nov-89	4.30E-04	5.0E-05	1.4E-05	3.50E-03	1.4E-04	2.7E-05
28-Mar-90	2.50E-04	3.0E-05	5.0E-06	2.39E-03	5.0E-05	2.5E-05
13-Jun-90	1.10E-04	2.0E-05	5.0E-08	6.60E-04	3.0E-05	1.0E-06
23-Oct-90	6.10E-05	1.4E-05	5.0E-08	6.10E-04	3.0E-05	1.0E-06
10-Apr-91	3.40E-05	1.1E-05	5.0E-06	2.20E-04	1.0E-05	1.0E-06
11-Jun-91	8.00E-05	6.0E-06	2.0E-07	1.20E-04	1.0E-05	2.0E-07
20-Nov-91	6.50E-05	1.4E-05	5.0E-08	9.10E-04	5.0E-05	1.0E-06
22-Apr-92	1.60E-05	7.0E-06	2.0E-06	3.20E-04	2.0E-05	1.0E-05
10-Jun-92	1.90E-05	1.0E-05	2.0E-07	2.20E-04	2.0E-05	1.0E-06
08-Dec-92	1.60E-05	1.8E-05	3.0E-06	7.60E-04	6.0E-05	2.0E-05
13-Apr-93	2.60E-05	2.0E-05	3.0E-06	3.40E-04	3.0E-05	2.0E-05
26-Jun-93	3.00E-05	1.4E-05	3.0E-06	0.00E+00	3.0E-05	2.0E-05
# OBSERVED	35	35	35	35	35	35
MINIMUM	1.37E-05	1.6E-07	0.00E+00	0.00E+00	4.0E-06	0.00E+00
MAXIMUM	9.50E-04	1.5E-04	1.40E-05	1.65E-02	7.2E-04	3.00E-04
MEAN	2.00E-04	2.4E-05	1.98E-06	1.98E-03	1.1E-04	2.67E-05
STD. DEV.	2.08E-04	2.8E-05	2.78E-06	2.85E-03	1.6E-04	5.36E-05

UMETCO MINERALS CORPORATION



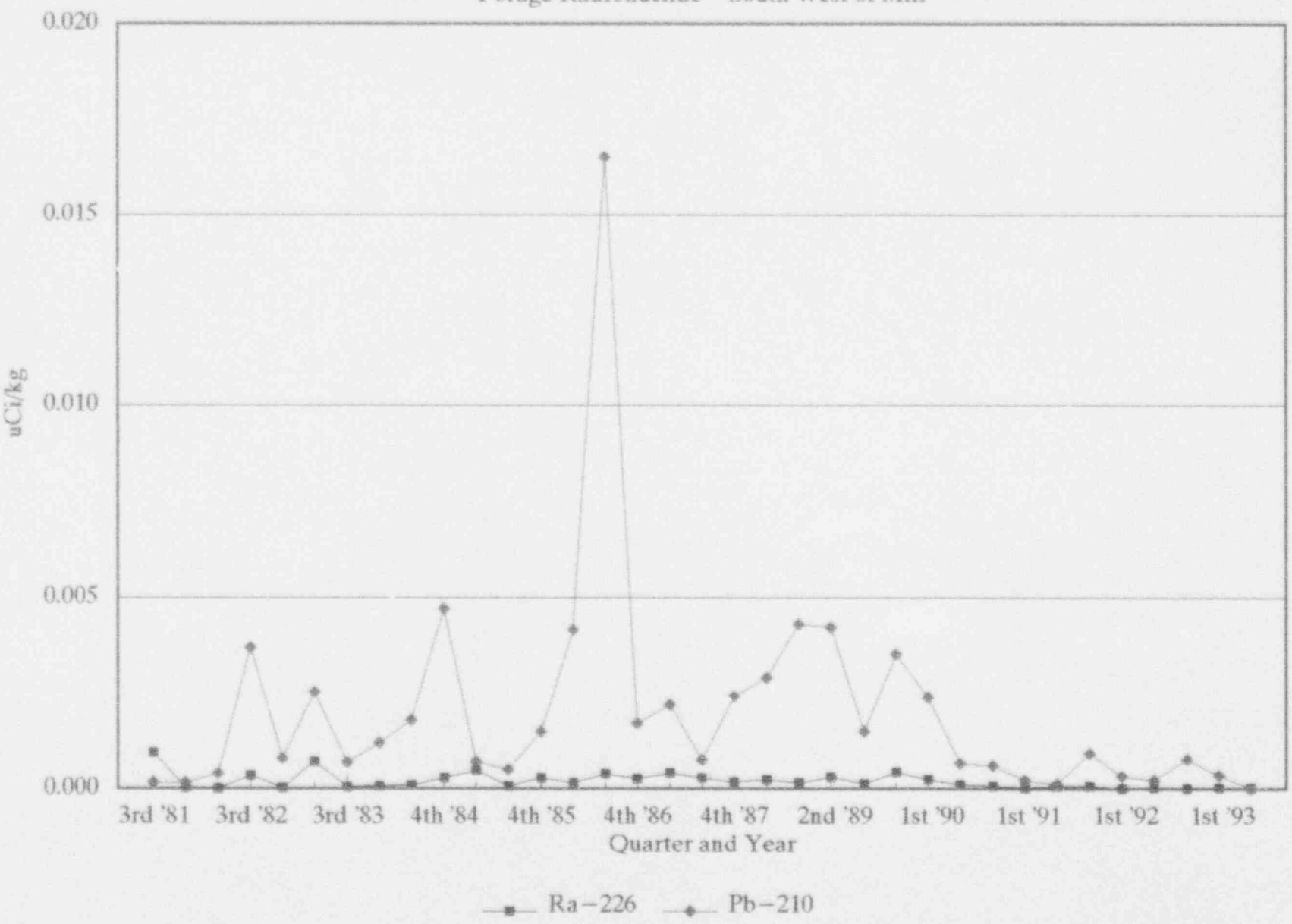
Graph 14

UMETCO MINERALS CORPORATION



Graph 15

UMETCO MINERALS CORPORATION



Graph 16

TABLE 12

UMETCO MINERALS CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-1

Current Quarter	1st	2nd	3rd	4th
% time operated	92.0%	88.7%		
Air Volume, SCF x 1e6	3.97	3.82		

	URANIUM NAT.			THORIUM-230				RADIUM-226				LEAD-210			
PERIOD ENDING	GROSS CONC.	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (2E-15)	% MPC
28-Sep-81	2.35E-15	5E-17	4.70E-02	7.82E-16	2.75E-16	1E-16	2.61E-01	1.06E-15	1.24E-16	1E-16	5.30E-02	2.57E-14	1.52E-15	2E-15	3.21E-01
14-Dec-81	1.56E-15	5E-17	3.12E-02	1.49E-15	2.10E-16	1E-16	4.97E-01	1.93E-15	3.34E-16	1E-16	9.65E-02	2.64E-14	2.28E-15	2E-15	3.30E-01
29-Mar-82	2.16E-15	9E-16	4.32E-02	2.93E-15	1.15E-15	3E-15	9.77E-01	1.16E-15	5.76E-16	4E-15	5.80E-02	2.09E-14	2.76E-15	2E-14	2.61E-01
30-Jun-82	4.89E-15	1E-16	9.38E-02	3.46E-15	3.28E-16	1E-16	1.15E+00	2.38E-15	4.77E-16	5E-16	1.19E-01	2.14E-14	3.70E-15	5E-15	2.68E-01
27-Sep-82	4.45E-15	1E-16	8.90E-02	3.29E-15	4.76E-16	1E-16	1.10E+00	3.23E-15	4.02E-16	1E-16	1.62E-01	1.99E-14	3.80E-15	2E-15	2.49E-01
03-Jan-83	4.39E-15	5E-17	8.78E-02	5.91E-16	1.34E-16	7E-17	1.97E-01	9.14E-16	1.03E-16	6E-17	4.57E-02	4.87E-14	2.70E-15	2E-15	6.09E-01
04-Apr-83	7.51E-16	5E-17	1.50E-02	2.13E-16	3.05E-17	2E-17	7.10E-02	3.20E-16	7.63E-17	5E-17	1.60E-02	1.88E-14	1.00E-15	9E-16	2.35E-01
30-Jun-83	2.68E-16	5E-17	5.36E-03	6.92E-16	1.32E-16	9E-17	2.31E-01	7.92E-16	1.32E-16	1E-16	3.96E-02	2.00E-14	2.00E-15	1E-15	2.50E-01
03-Oct-83	Sample Lost														
03-Jan-84	2.67E-15	1E-16	5.74E-02	1.14E-16	4.98E-17	8E-17	3.80E-02	1.79E-16	7.69E-17	1E-16	8.95E-03	1.00E-14	1.99E-15	2E-15	1.33E-01
02-Apr-84	1.59E-15	5E-17	3.18E-02	3.40E-16	1.01E-16	3E-17	1.13E-01	3.71E-16	7.80E-17	7E-17	1.66E-02	3.34E-14	1.69E-15	1E-15	4.18E-01
02-Jul-84	3.10E-15	6E-17	6.20E-02	1.00E-15	3.59E-16	3E-16	3.33E-01	2.09E-15	2.29E-16	1E-16	1.05E-01	1.88E-14	1.10E-15	9E-16	2.35E-01
01-Oct-84	6.42E-16	5E-17	1.28E-02	1.39E-16	1.17E-16	7E-17	4.63E-02	1.94E-16	1.11E-16	9E-17	9.70E-03	1.85E-14	1.39E-15	1E-15	2.31E-01
02-Jan-85	5.06E-16	5E-16	1.01E-02	4.56E-16	2.26E-16	2E-16	1.52E-01	3.49E-16	1.32E-16	1E-16	1.75E-02	3.03E-14	1.17E-15	7E-16	3.79E-01
01-Apr-85	0.00E+00	5E-17	0.00E+00	1.23E-15	2.52E-16	4E-17	4.10E-01	4.88E-16	1.09E-16	9E-17	2.44E-02	8.06E-15	8.99E-16	8E-16	1.01E-01
01-Jul-85	7.17E-16	5E-17	1.43E-02	0.00E+00	4.76E-14	1E-16	0.00E+00	1.05E-15	1.50E-16	7E-17	5.25E-02	2.15E-14	1.32E-15	8E-16	2.69E-01
30-Sep-85	6.13E-16	5E-16	1.23E-02	1.18E-16	1.18E-16	1E-16	3.95E-02	3.71E-16	8.56E-17	7E-17	1.85E-02	3.64E-15	6.81E-16	9E-16	4.55E-02
02-Jan-86	3.42E-15	9E-16	6.84E-02	4.74E-16	1.32E-16	2E-16	1.58E-01	1.22E-16	2.15E-15	2E-16	6.11E-03	5.00E-16	3.22E-16	2E-15	6.25E-03
01-Apr-86	3.98E-15	2E-16	7.96E-02	9.74E-16	2.05E-16	5E-16	3.25E-01	1.50E-15	2.07E-16	4E-16	7.51E-02	1.41E-14	4.06E-16	1E-16	1.76E-01
30-Jun-86	1.93E-15	1E-17	3.87E-02	3.52E-16	3.13E-17	2E-16	1.17E-01	1.37E-15	3.01E-17	4E-16	6.87E-02	1.23E-14	8.01E-16	5E-16	1.54E-01
27-Oct-86	1.99E-15	2E-16	3.98E-02	3.06E-16	8.00E-17	3E-16	1.02E-01	1.25E-15	1.00E-16	2E-16	6.25E-02	1.08E-14	2.00E-16	4E-16	1.35E-01
15-Dec-86	1.67E-15	3E-16	3.34E-02	1.16E-16	4.00E-17	2E-17	3.87E-02	5.98E-16	1.00E-16	4E-17	2.99E-02	1.37E-14	2.00E-16	3E-17	1.71E-01
18-Mar-87	2.33E-15	3E-16	4.66E-02	4.30E-16	9.00E-17	8E-16	1.43E-01	1.82E-16	5.00E-17	5E-16	9.80E-03	5.59E-14	1.00E-15	8E-16	6.99E-01
11-May-87	2.36E-15	5E-16	4.72E-02	7.69E-16	1.80E-16	5E-16	2.56E-01	8.78E-16	1.00E-16	5E-16	4.38E-02	1.45E-14	3.00E-16	3E-17	1.81E-01
09-Sep-87	2.27E-15	1E-19	4.54E-02	2.44E-15	2.00E-16	8E-16	8.13E-01	6.51E-16	1.40E-16	4E-16	4.26E-02	3.14E-14	5.00E-16	8E-16	3.93E-01
02-Nov-87	2.75E-15	1E-17	5.50E-02	2.48E-15	3.00E-16	1E-17	8.20E-01	1.34E-15	2.00E-16	1E-17	6.70E-02	2.79E-14	1.00E-15	5E-17	3.49E-01
18-Feb-88	1.07E-15	5E-18	2.14E-02	1.47E-16	5.00E-17	2E-17	4.90E-02	4.44E-16	5.00E-17	3E-17	2.22E-02	4.01E-14	2.00E-16	5E-17	5.01E-01
18-May-88	1.98E-15	3E-18	3.96E-02	1.25E-15	1.00E-16	2E-17	4.17E-01	6.40E-16	7.00E-17	1E-17	3.20E-02	1.07E-14	1.00E-16	3E-17	1.34E-01
15-Aug-88	2.06E-15	3E-18	4.12E-02	3.41E-15	2.00E-16	1E-17	1.14E+00	5.08E-16	6.00E-17	2E-17	2.54E-02	1.62E-14	3.00E-16	2E-17	2.03E-01
14-Nov-88	3.94E-15	3E-18	7.88E-02	2.12E-15	1.00E-16	1E-17	7.07E-01	1.01E-15	5.00E-17	1E-17	5.05E-02	2.47E-14	1.00E-16	3E-17	3.09E-01
13-Feb-89	1.99E-15	4E-17	3.98E-02	5.73E-16	7.88E-17	1E-16	1.91E-01	5.99E-16	3.49E-17	2E-16	3.00E-02	3.23E-14	2.36E-16	5E-16	4.04E-01
15-May-89	1.70E-15	7E-18	3.40E-02	6.32E-16	7.00E-17	7E-18	2.11E-01	5.88E-16	5.00E-17	7E-18	2.93E-02	6.18E-15	1.00E-16	3E-17	7.70E-02
14-Aug-89	2.31E-15	2E-18	4.62E-02	2.31E-16	3.00E-17	8E-18	7.70E-02	1.77E-16	5.00E-17	8E-18	8.85E-03	7.65E-15	1.00E-16	4E-17	9.56E-02
13-Nov-89	4.72E-15	2E-17	9.44E-02	1.71E-15	2.00E-16	3E-18	5.70E-01	1.52E-15	2.00E-16	8E-16	7.61E-02	1.89E-14	3.00E-16	2E-17	2.37E-01
12-Feb-90	3.44E-16	3E-18	6.88E-03	8.39E-16	1.00E-16	6E-18	2.80E-01	8.31E-16	8.00E-17	2E-17	4.16E-02	2.57E-14	3.00E-16	5E-17	3.21E-01
14-May-90	3.03E-15	1E-16	6.06E-02	1.47E-15	2.00E-16	1E-16	4.90E-01	1.04E-15	1.00E-15	1E-16	5.20E-02	1.79E-14	3.00E-16	2E-16	2.24E-01
13-Aug-90	1.64E-15	1E-16	3.28E-02	1.49E-15	7.00E-17	1E-16	4.97E-01	3.34E-16	5.00E-17	1E-16	1.67E-02	8.27E-15	2.00E-16	2E-16	1.03E-01
12-Nov-90	1.48E-15	1E-16	2.96E-02	7.50E-16	1.10E-16	1E-16	2.50E-01	5.80E-16	7.00E-17	1E-16	2.90E-02	2.16E-14	4.00E-16	2E-16	2.70E-01
11-Feb-91	1.90E-16	1E-16	3.80E-03	3.48E-17	2.10E-17	1E-16	1.16E-02	7.91E-17	2.30E-17	1E-16	3.96E-03	3.79E-14	1.00E-15	2E-16	4.74E-01
13-May-91	3.42E-16	1E-16	6.84E-03	1.34E-15	1.00E-16	1E-16	4.47E-01	7.39E-16	9.00E-17	1E-16	3.70E-02	1.46E-14	1.00E-15	2E-15	1.83E-01
12-Aug-91	2.77E-16	1E-16	5.54E-03	4.17E-17	8.00E-18	1E-16	1.39E-02	1.45E-16	7.00E-17	1E-16	7.25E-03	1.80E-14	3.00E-16	2E-15	2.25E-01
11-Nov-91	6.65E-17	1E-16	1.33E-03	9.13E-17	3.00E-17	2E-17	3.04E-02	2.77E-17	2.00E-17	2E-17	1.39E-03	1.08E-14	2.00E-16	1E-16	1.33E-01
10-Feb-92	1.94E-16	1E-16	3.88E-03	4.24E-16	3.00E-17	2E-17	1.41E-03	4.08E-17	2.20E-17	2E-17	2.04E-03	3.51E-14	6.00E-17	1E-16	4.39E-01
11-May-92	2.54E-16	1E-16	5.08E-03	6.49E-16	5.00E-17	2E-19	2.16E-01	6.88E-17	4.00E-17	2E-19	3.43E-03	1.38E-14	2.00E-16	1E-16	1.73E-01
10-Aug-92	1.73E-16	2E-16	3.46E-03	1.55E-16	4.00E-17	4E-16	5.17E-02	1.20E-16	6.00E-17	2E-16	6.00E-03	1.53E-14	2.00E-16	2E-17	1.91E-01
9-Nov-92	1.56E-16	3E-16	3.12E-03	3.19E-17	2.10E-17	4E-16	1.06E-02	4.90E-18	2.20E-17	3E-16	2.45E-04	1.66E-14	2.00E-16	2E-17	2.33E-01
9-Feb-93	2.10E-16	1E-22	4.20E-03	0	4.80E-17	4E-16	0.00E+00	3.89E-17	7.30E-17	3E-16	1.95E-03	2.52E-14	4.00E-16	2E-17	3.15E-01
10-May-93	0	3E-22	0.00E+00	4.11E-17	3.60E-17	4E-16	1.37E-02	6.43E-17	4.00E-17	3E-16	3.22E-03	1.26E-14	2.00E-16	2E-17	1.58E-01

TABLE 13

UMETCO MINERALS CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-2

Current Quarter	1st	2nd	3rd	4th
% time operated	93.1%	88.7%		
Air Volume, SCF x 1e6	4.10	3.62		

	URANIUM NAT.			THORIUM-230				RADIUM-226				LEAD-210			
PERIOD ENDING	GROSS CONC.	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (2E-15)	% MPC
28-Sep-81	1.39E-15	1E-16	2.78E-02	3.89E-16	2.00E-16	1E-16	1.23E-01	5.92E-16	1.35E-16	1E-16	2.96E-02	1.67E-14	1.21E-15	2E-15	2.09E-01
14-Dec-81	4.62E-16	1E-16	9.24E-03	8.03E-16	3.02E-16	1E-16	2.66E-01	3.82E-16	1.72E-16	1E-16	1.81E-02	1.33E-14	2.26E-15	2E-15	1.66E-01
29-Mar-82	7.07E-16	9E-16	1.41E-02	1.10E-15	6.49E-16	3E-15	3.67E-01	7.27E-16	3.96E-16	4E-15	3.64E-02	1.52E-14	3.63E-15	2E-14	1.90E-01
30-Jun-82	8.84E-16	7E-17	1.77E-02	7.73E-16	2.39E-16	8E-17	2.58E-01	4.78E-16	1.69E-16	3E-16	2.39E-02	1.96E-14	1.79E-15	2E-15	2.48E-01
27-Sep-82	1.23E-15	1E-16	2.46E-02	3.60E-16	1.35E-16	1E-16	1.20E-01	8.73E-16	2.71E-16	1E-16	4.37E-02	2.35E-14	5.43E-15	2E-15	2.94E-01
03-Jan-83	2.64E-15	5E-17	5.28E-02	2.55E-16	1.03E-16	5E-17	8.50E-02	1.98E-16	5.68E-17	5E-17	9.90E-03	2.85E-14	2.50E-15	2E-15	3.56E-01
04-Apr-83	2.14E-16	5E-17	4.28E-03	1.02E-16	3.96E-17	5E-17	3.40E-02	1.57E-16	7.83E-17	5E-17	7.85E-03	2.48E-14	1.19E-15	8E-16	3.10E-01
30-Jun-83	2.85E-16	5E-17	5.70E-03	2.06E-16	5.05E-17	8E-17	6.87E-02	2.24E-16	8.68E-17	1E-16	1.12E-02	1.79E-14	9.94E-16	8E-16	2.24E-01
03-Oct-83	2.70E-16	5E-17	5.40E-03	3.36E-16	6.49E-17	4E-17	1.12E-01	4.37E-16	9.81E-17	5E-17	2.19E-02	1.78E-14	1.09E-15	4E-16	2.23E-01
03-Jan-84	2.78E-15	1E-16	5.56E-02	1.20E-16	1.11E-16	1E-16	4.00E-02	6.64E-17	4.52E-18	8E-17	3.32E-03	9.14E-15	1.48E-15	2E-15	1.14E-01
02-Apr-84	4.28E-16	5E-17	8.56E-03	1.75E-16	5.18E-17	5E-17	5.83E-02	4.57E-17	5.03E-17	8E-17	2.29E-03	3.55E-14	1.79E-15	2E-15	4.44E-01
02-Jul-84	2.78E-15	5E-17	5.56E-02	8.12E-16	3.35E-16	0E+00	2.71E-01	1.98E-16	1.00E-16	1E-16	9.90E-03	1.68E-14	1.20E-01	1E-15	2.10E-01
01-Oct-84	2.69E-16	5E-17	5.38E-03	2.66E-17	8.02E-17	1E-16	9.87E-03	0.00E+00	1.17E-16	1E-16	0.00E+00	1.77E-14	1.22E-15	9E-16	2.21E-01
02-Jan-85	2.15E-16	5E-16	4.30E-03	7.55E-16	2.03E-16	9E-17	2.52E-01	2.87E-16	1.14E-16	1E-16	1.44E-02	3.19E-14	1.55E+00	1E-15	3.99E-01
01-Apr-85	0.00E+00	5E-17	0.00E+00	1.87E-16	1.75E-16	3E-17	5.57E-02	6.75E-17	7.69E-17	8E-17	3.38E-03	7.56E-15	6.83E-16	8E-16	9.45E-02
01-Jul-85	3.70E-17	5E-17	7.40E-04	9.00E-16	4.76E-14	3E-16	3.00E-01	4.90E-17	1.05E-16	9E-17	2.45E-03	1.31E-14	1.32E-15	1E-15	1.64E-01
30-Sep-85	9.32E-17	5E-16	1.86E-03	2.18E-16	4.83E-17	3E-16	7.26E-02	3.71E-16	4.64E-17	7E-17	1.86E-02	3.64E-15	2.85E-16	2E-15	4.55E-02
02-Jan-86	1.58E-15	1E-15	3.12E-02	2.16E-16	1.12E-15	7E-16	7.20E-02	2.15E-17	2.31E-16	2E-16	1.08E-03	3.04E-16	1.71E-15	2E-15	3.80E-03
01-Apr-86	1.31E-15	2E-16	2.61E-02	1.50E-16	7.18E-17	5E-16	5.00E-02	3.71E-16	8.45E-17	4E-16	1.85E-02	2.90E-15	2.10E-16	9E-17	3.63E-02
30-Jun-86	2.23E-16	1E-17	4.47E-03	1.32E-16	4.32E-17	2E-17	4.39E-02	7.09E-17	8.61E-18	4E-16	3.55E-03	2.53E-14	2.90E-15	3E-15	3.16E-01
27-Oct-86	8.41E-16	1E-16	1.28E-02	1.74E-16	4.00E-17	2E-16	5.80E-02	3.67E-16	1.00E-16	1E-16	1.84E-02	1.04E-14	2.00E-16	3E-16	1.30E-01
15-Dec-86	3.56E-16	3E-16	7.12E-03	0.00E+00	2.00E-17	2E-17	0.00E+00	1.05E-16	5.00E-17	3E-17	5.25E-03	7.81E-15	1.00E-16	3E-17	9.76E-02
16-Mar-87	5.31E-16	3E-16	1.06E-02	1.30E-16	4.00E-17	5E-16	4.33E-02	7.74E-17	3.00E-17	4E-16	3.87E-03	3.80E-14	1.00E-15	6E-16	4.75E-01
11-May-87	4.08E-16	4E-16	8.12E-03	6.83E-17	7.00E-17	4E-16	2.21E-02	1.34E-16	4.00E-17	4E-16	6.70E-03	1.10E-14	3.00E-16	2E-17	1.38E-01
09-Sep-87	2.74E-16	8E-16	5.48E-03	1.38E-16	5.00E-17	8E-17	7.93E-02	1.38E-16	6.00E-17	2E-17	6.90E-03	1.04E-14	3.00E-16	1E-16	1.30E-01
02-Nov-87	3.73E-16	1E-17	7.46E-03	5.31E-16	8.00E-17	6E-16	1.04E-01	1.83E-16	7.00E-17	6E-17	9.15E-03	1.17E-14	3.00E-16	3E-17	1.46E-01
16-Feb-88	2.78E-15	5E-16	5.56E-02	2.31E-17	5.00E-17	2E-17	7.70E-03	1.20E-16	3.00E-17	3E-17	6.00E-03	3.55E-14	2.00E-16	5E-17	4.44E-01
18-May-88	4.63E-16	3E-16	9.26E-03	1.49E-16	5.00E-17	2E-17	4.97E-02	2.30E-16	6.00E-17	2E-17	1.15E-02	1.16E-14	2.00E-16	4E-17	1.46E-01
15-Aug-88	8.06E-16	3E-16	1.61E-02	8.69E-16	1.50E-16	1E-17	2.90E-01	1.80E-16	4.00E-17	2E-17	9.00E-03	1.42E-14	2.00E-16	2E-17	1.78E-01
14-Nov-88	4.34E-16	3E-16	8.68E-03	6.76E-16	6.00E-17	1E-17	2.25E-01	1.57E-16	3.00E-17	1E-17	7.85E-03	2.25E-14	2.00E-16	3E-17	2.81E-01
13-Feb-89	5.80E-16	4E-17	1.16E-02	2.85E-16	3.09E-17	4E-17	9.50E-02	1.55E-16	2.32E-17	2E-16	7.75E-03	2.80E-14	2.32E-16	5E-16	3.50E-01
15-May-89	5.06E-16	7E-18	1.01E-02	2.28E-16	7.00E-17	7E-16	7.60E-02	1.63E-16	3.00E-17	7E-18	8.15E-03	6.05E-15	1.00E-16	4E-17	7.56E-02
14-Aug-89	4.71E-16	2E-16	9.42E-03	9.60E-16	8.00E-17	8E-16	3.20E-01	1.26E-15	1.00E-16	8E-18	6.30E-02	6.85E-15	1.00E-16	4E-17	8.31E-02
13-Nov-89	1.14E-15	2E-17	2.27E-02	4.08E-16	8.00E-17	3E-16	1.36E-01	4.18E-16	6.00E-17	7E-16	2.09E-02	1.59E-14	3.00E-16	2E-17	1.99E-01
12-Feb-90	1.09E-15	4E-16	2.18E-02	3.25E-16	7.00E-17	7E-16	1.08E-01	3.74E-16	9.00E-17	3E-17	1.87E-02	1.98E-14	3.00E-16	5E-17	2.48E-01
14-May-90	9.32E-16	1E-16	1.86E-02	5.27E-16	1.00E-16	1E-16	1.76E-01	3.97E-16	1.00E-16	1E-16	1.99E-02	1.69E-14	3.00E-16	2E-16	2.11E-01
13-Aug-90	1.66E-16	1E-16	3.32E-03	5.49E-16	3.00E-17	1E-16	1.83E-01	4.75E-17	2.00E-17	1E-16	2.38E-03	1.27E-15	2.00E-16	2E-16	1.59E-02
12-Nov-90	6.05E-16	1E-16	1.21E-02	2.64E-16	8.00E-17	1E-16	8.80E-02	1.93E-16	4.00E-17	1E-16	9.65E-03	2.25E-14	3.00E-16	2E-16	2.81E-01
11-Feb-91	8.72E-17	1E-16	1.74E-03	7.00E-18	1.60E-17	1E-16	2.33E-03	3.33E-17	1.80E-17	1E-16	1.67E-03	3.40E-14	1.00E-15	2E-16	4.38E-01
13-May-91	1.16E-16	1E-16	2.32E-03	3.86E-16	9.00E-17	1E-16	1.29E-01	2.80E-16	7.00E-17	1E-16	1.40E-02	1.50E-14	1.00E-15	2E-15	1.88E-01
12-Aug-91	9.02E-17	1E-16	1.80E-03	8.82E-17	5.00E-17	1E-16	2.94E-02	7.65E-17	6.00E-17	1E-16	3.83E-03	1.58E-14	3.00E-16	2E-15	1.96E-01
11-Nov-91	4.81E-17	1E-16	9.62E-04	3.82E-17	2.00E-17	2E-17	1.27E-02	2.54E-17	2.00E-17	2E-17	1.27E-03	1.45E-14	4.00E-16	1E-16	1.81E-01
10-Feb-92	1.54E-16	1E-16	3.08E-03	6.82E-17	4.00E-17	2E-17	2.27E-02	1.40E-17	2.40E-17	2E-17	7.00E-04	3.41E-14	6.00E-17	1E-16	4.26E-01
11-May-92	2.38E-16	1E-16	4.76E-03	7.83E-17	4.00E-17	2E-19	2.54E-02	3.07E-17	3.00E-17	2E-19	1.54E-03	1.27E-14	2.00E-16	1E-18	1.59E-01
10-Aug-92	1.01E-16	2E-18	2.02E-03	7.07E-17	2.80E-17	4E-18	2.36E-02	2.80E-17	4.20E-17	2E-18	1.40E-03	1.41E-14	2.00E-16	2E-17	1.76E-01
9-Nov-92	5.20E-17	3E-21	1.04E-03	3.85E-17	2.40E-17	4E-18	1.22E-02	1.78E-17	2.80E-17	3E-18	8.90E-04	1.71E-14	2.00E-16	2E-17	2.14E-01
9-Feb-93	2.39E-16	1E-22	4.78E-03	2.97E-17	6.30E-17	4E-18	9.90E-03	6.31E-17	5.00E-17	3E-18	3.16E-03	3.41E-14	5.00E-16	2E-17	4.26E-01
10-May-93	0.00E+00	3E-22	0.00E+00	7.11E-17	5.00E-17	4E-18	2.37E-02	3.19E-17	3.20E-17	3E-18	1.60E-03	1.34E-14	2.00E-16	2E-17	1.66E-01

TABLE 14

UMETCO MINERALS CORPORATION
WWHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-3

Current Quarter	1st	2nd	3rd	4th
% time operated	88.8%	80.2%		
Air Volume, SCF x 1e6	3.75	3.43		

	URANIUM NAT.			THORIUM-230				RADIUM-226				LEAD-210			
PERIOD ENDING	GROSS CONC.	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (2E-15)	% MPC
28-Sep-81	1.74E-15	1E-16	3.48E-02	9.02E-16	4.46E-16	1E-16	3.01E-01	2.87E-16	2.23E-16	1E-16	1.44E-02	1.54E-14	2.53E-15	2E-15	1.93E-01
14-Dec-81	1.59E-15	1E-16	3.18E-02	5.03E-16	3.09E-16	1E-16	1.68E-01	1.30E-16	1.38E-16	1E-16	6.50E-03	2.25E-14	2.13E-15	2E-15	2.81E-01
29-Mar-82	3.76E-16	9E-16	7.52E-03	5.25E-16	6.38E-16	3E-15	1.75E-01	4.08E-16	3.72E-16	4E-15	2.04E-02	1.99E-14	3.48E-15	2E-14	2.45E-01
30-Jun-82	3.83E-16	9E-17	7.66E-03	2.16E-16	2.24E-15	8E-17	7.20E-02	1.41E-15	1.03E-15	2E-16	7.05E-02	2.40E-14	2.10E-15	2E-15	3.00E-01
27-Sep-82	5.95E-16	1E-16	1.19E-02	1.44E-15	2.74E-16	1E-16	4.80E-01	5.36E-16	2.35E-16	1E-16	2.68E-02	1.43E-14	3.00E-15	2E-15	1.79E-01
03-Jan-83	2.05E-16	5E-17	4.10E-03	1.23E-16	3.11E-17	2E-17	4.10E-02	1.10E-16	5.52E-17	7E-17	5.50E-03	3.01E-14	2.10E-15	2E-15	3.76E-01
04-Apr-83	Lost in Lab			6.94E-17	2.31E-17	5E-17	2.31E-02	6.11E-17	5.95E-17	8E-17	3.06E-03	1.39E-14	1.00E-15	1E-15	1.74E-01
30-Jun-83	3.08E-16	1E-16	6.12E-03	9.59E-17	1.52E-16	2E-16	3.20E-02	2.08E-16	1.62E-16	2E-16	1.04E-02	1.70E-14	2.00E-15	2E-15	2.13E-01
03-Oct-83	1.91E-16	1E-16	3.82E-03	3.05E-16	4.98E-17	6E-18	1.02E-01	2.79E-16	5.73E-17	1E-17	1.40E-02	1.76E-14	4.83E-16	1E-16	2.20E-01
03-Jan-84	3.01E-16	1E-16	6.02E-03	9.51E-17	6.19E-17	1E-17	3.17E-02	0.00E+00	5.73E-17	1E-16	0.00E+00	9.17E-15	5.10E-16	5E-16	1.15E-01
02-Apr-84	8.22E-16	5E-17	1.64E-02	7.52E-16	1.72E-16	5E-17	2.51E-01	5.20E-17	4.89E-17	7E-17	2.60E-03	3.47E-14	1.70E-15	1E-15	4.34E-01
02-Jul-84	5.29E-16	5E-17	1.06E-02	6.16E-16	7.89E-16	8E-16	2.06E-01	1.40E-16	9.15E-17	1E-16	7.00E-03	1.32E-14	9.99E-16	1E-14	1.65E-01
01-Oct-84	1.74E-16	5E-17	3.48E-03	7.10E-17	6.16E-17	4E-17	2.37E-02	0.00E+00	9.15E-17	1E-16	0.00E+00	1.08E-14	1.22E-15	1E-15	1.35E-01
02-Jan-85	1.00E-17	5E-16	2.00E-04	7.10E-17	1.27E-16	7E-17	2.37E-02	7.80E-17	9.35E-17	7E-17	3.90E-03	2.73E-14	1.26E-15	8E-16	3.41E-01
01-Apr-85	0.00E+00	5E-17	0.00E+00	2.76E-16	2.02E-16	7E-17	9.20E-02	4.10E-17	6.82E-17	6E-17	2.05E-03	1.12E-14	9.33E-16	8E-16	1.40E-01
01-Jul-85	1.04E-16	5E-17	2.08E-03	0.00E+00	4.78E-14	4E-16	0.00E+00	0.00E+00	9.36E-17	6E-17	0.00E+00	1.64E-14	1.24E-15	8E-16	2.05E-01
30-Sep-85	0.00E+00	5E-16	0.00E+00	1.00E-15	1.31E-16	7E-17	3.34E-01	0.00E+00	4.68E-17	7E-17	0.00E+00	1.73E-14	1.01E-15	8E-16	2.16E-01
02-Jan-86	1.03E-15	1E-15	2.06E-02	3.17E-16	3.71E-15	4E-15	1.06E-01	1.25E-16	4.49E-16	3E-16	6.25E-03	1.21E-17	3.51E-15	4E-15	1.51E-04
01-Apr-86	8.04E-16	2E-16	1.61E-02	1.93E-17	8.94E-17	6E-18	6.42E-03	1.54E-16	8.33E-17	4E-16	7.71E-03	1.89E-14	4.07E-16	1E-16	2.12E-01
30-Jun-86	4.29E-16	2E-17	8.58E-03	1.77E-16	2.18E-17	1E-17	5.89E-02	2.83E-16	1.72E-17	5E-16	1.42E-02	1.97E-14	1.50E-15	2E-15	2.46E-01
27-Oct-86	6.45E-16	1E-16	1.29E-02	9.89E-17	4.00E-17	2E-18	3.30E-02	4.18E-15	1.00E-16	2E-16	2.08E-01	1.64E-14	2.00E-16	4E-16	2.05E-01
15-Dec-86	1.31E-16	3E-16	2.62E-03	0.00E+00	2.00E-17	2E-17	0.00E+00	4.16E-17	4.00E-17	3E-17	2.08E-03	4.60E-15	1.00E-16	3E-17	5.75E-02
18-Mar-87	2.01E-16	3E-16	4.02E-03	1.20E-16	4.00E-17	5E-18	4.00E-02	5.73E-17	3.00E-17	4E-18	2.87E-03	1.60E-14	1.00E-15	6E-16	2.00E-01
11-May-87	2.16E-16	4E-16	4.32E-03	1.96E-16	9.00E-17	4E-16	6.53E-02	7.38E-17	3.00E-17	4E-16	3.69E-03	1.52E-14	2.00E-16	2E-17	1.99E-01
09-Sep-87	2.41E-16	2E-17	4.82E-03	2.18E-16	1.50E-16	2E-16	7.27E-02	3.52E-17	1.10E-16	7E-17	1.76E-03	1.46E-14	1.00E-15	1E-16	1.83E-01
02-Nov-87	2.44E-16	4E-17	4.88E-03	2.32E-16	6.00E-17	4E-16	7.73E-02	2.37E-17	3.00E-17	4E-17	1.19E-03	2.48E-14	5.00E-16	2E-17	3.10E-01
16-Feb-88	8.08E-16	6E-16	1.62E-02	2.55E-16	6.00E-17	2E-17	8.50E-02	3.42E-16	5.00E-17	3E-17	1.71E-02	5.61E-14	3.00E-16	6E-17	7.01E-01
18-May-88	1.14E-16	3E-16	2.28E-03	4.14E-17	1.00E-16	1E-17	1.38E-02	0.00E+00	4.00E-17	1E-17	0.00E+00	1.20E-14	1.00E-16	4E-17	1.50E-01
15-Aug-88	2.08E-16	3E-16	4.16E-03	3.08E-16	8.00E-17	1E-17	1.02E-01	3.85E-17	3.10E-17	2E-17	1.83E-03	1.36E-14	2.00E-16	2E-17	1.70E-01
14-Nov-88	4.21E-16	3.00E-16	8.42E-03	2.93E-16	3.00E-17	1E-17	9.77E-02	1.09E-16	2.00E-17	1E-17	5.45E-03	2.48E-14	1.00E-16	3E-17	3.10E-01
13-Feb-89	4.45E-16	4.08E-17	8.90E-03	4.78E-17	1.65E-17	1E-16	1.59E-02	2.47E-17	1.65E-17	2E-17	1.24E-03	3.34E-14	3.29E-16	5E-16	4.18E-01
15-May-89	1.05E-16	1.00E-16	2.10E-03	0.00E+00	1.60E-17	7E-18	0.00E+00	2.45E-17	1.40E-17	7E-18	1.23E-03	6.56E-15	1.00E-16	3E-17	6.20E-02
14-Aug-89	1.31E-16	2.00E-16	2.62E-03	5.85E-17	2.10E-17	9E-18	1.95E-02	3.97E-17	3.60E-17	9E-18	1.99E-03	6.75E-15	1.00E-16	5E-17	8.44E-02
13-Nov-89	1.67E-16	2.00E-17	3.35E-03	3.87E-17	4.00E-17	3E-18	1.29E-02	8.03E-17	3.00E-17	8E-18	4.02E-03	1.69E-14	3.00E-16	2E-17	2.11E-01
12-Feb-90	4.43E-16	3.00E-18	8.86E-03	0.00E+00	4.00E-17	7E-18	0.00E+00	3.50E-17	4.00E-17	2E-17	1.75E-03	2.37E-14	3.00E-16	4E-17	2.96E-01
14-May-90	3.84E-16	1.00E-16	7.68E-03	2.54E-16	1.00E-16	1E-16	8.47E-02	1.02E-16	6.00E-17	1E-16	5.10E-03	1.68E-14	3.00E-16	2E-16	2.10E-01
13-Aug-90	7.27E-17	1.00E-16	1.45E-03	2.87E-16	2.00E-17	1E-16	9.57E-02	1.21E-17	2.00E-17	1E-16	6.05E-04	7.86E-15	2.00E-16	2E-16	9.83E-02
12-Nov-90	1.84E-16	1.00E-16	3.68E-03	1.34E-16	6.00E-17	1E-16	4.47E-02	8.53E-17	4.00E-17	1E-16	4.27E-03	2.01E-14	4.00E-16	2E-16	2.51E-01
11-Feb-91	4.66E-17	1.00E-16	9.32E-04	8.46E-16	8.00E-17	1E-16	2.83E-01	1.94E-17	1.80E-17	1E-16	9.70E-04	3.86E-14	1.00E-15	2E-16	4.81E-01
13-May-91	5.05E-17	1.00E-16	1.01E-03	7.40E-17	6.00E-17	1E-16	2.47E-02	7.00E-18	4.00E-17	1E-16	3.50E-04	1.50E-14	1.00E-15	2E-15	1.88E-01
12-Aug-91	7.14E-17	1.00E-16	1.43E-03	6.22E-17	8.00E-17	1E-16	2.07E-02	7.95E-17	8.00E-17	1E-16	3.98E-03	1.77E-14	5.00E-16	2E-15	2.21E-01
11-Nov-91	1.41E-17	1.00E-16	2.82E-04	2.19E-18	3.00E-16	2E-17	7.30E-04	2.75E-17	2.00E-17	2E-17	1.38E-03	1.16E-14	2.00E-16	1E-16	1.48E-01
10-Feb-92	8.12E-17	1.00E-16	1.62E-03	2.35E-17	3.80E-17	2E-17	7.83E-03	2.76E-18	1.30E-17	2E-17	1.38E-04	3.57E-14	6.00E-17	1E-16	4.46E-01
11-May-92	9.18E-17	1.00E-16	1.84E-03	5.80E-17	2.00E-16	2E-19	1.93E-02	3.36E-17	3.00E-17	2E-19	1.68E-03	1.26E-14	2.00E-16	1E-18	1.80E-01
10-Aug-92	2.00E-18	2.00E-18	4.00E-05	4.19E-17	2.30E-17	4E-18	1.40E-02	2.00E-18	4.30E-17	2E-18	1.00E-04	1.59E-14	2.00E-16	2E-17	1.99E-01
9-Nov-92	4.00E-17	3.00E-21	8.00E-04	2.68E-17	1.80E-17	4E-18	8.93E-03	1.07E-17	2.10E-17	3E-18	5.35E-04	1.81E-14	2.00E-16	2E-17	2.26E-01
9-Feb-93	7.94E-17	1.00E-22	1.59E-03	0.00E+00	5.30E-17	4E-18	0.00E+00	1.09E-16	9.00E-17	3E-18	5.45E-03	2.59E-14	4.00E-16	2E-17	3.38E-01
10-May-93	1.60E-17	3.00E-22	3.20E-04	5.07E-17	4.40E-17	4E-18	1.69E-02	7.64E-17	4.00E-17	3E-18	3.82E-03	1.26E-14	2.00E-16	2E-17	1.58E-01

TABLE 15

UMETCO MINERALS CORPORATION
WWHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-4

Current Quarter	1st	2nd	3rd	4th
% time operated	95.4%	100.0%		
Air Volume, SCF x 1e6	4.14	4.31		

	URANIUM NAT.			THORIUM-230				RADIUM-226				LEAD-210			
PERIOD ENDING	GROSS CONC.	LLD (1E-16)	% MPC	GROSS CONC	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC	COUNTING ERROR	LLD (2E-15)	% MPC
28-Sep-81	5.20E-15	1E-16	1.04E-01	3.21E-15	5.70E-16	1E-16	1.07E+00	2.74E-15	6.15E-16	1E-16	1.37E-01	1.84E-14	2.72E-15	2E-15	2.30E-01
14-Dec-81	4.53E-15	1E-16	9.06E-02	2.93E-15	5.09E-16	1E-16	9.77E-01	2.29E-15	3.34E-16	1E-16	1.15E-01	2.54E-14	2.13E-15	2E-15	3.18E-01
29-Mar-82	1.06E-15	9E-16	2.12E-02	1.78E-15	1.12E-15	3E-15	5.93E-01	1.07E-15	4.71E-16	4E-15	5.35E-02	2.31E-14	4.16E-15	2E-14	2.89E-01
30-Jun-82	6.03E-15	6E-17	1.21E-01	1.42E-14	1.19E-15	6E-17	4.73E+00	2.62E-15	3.09E-16	3E-16	1.31E-01	2.25E-14	3.00E-15	2E-15	2.81E-01
27-Sep-82	1.26E-14	1E-16	2.52E-01	1.57E-14	7.17E-15	1E-16	5.23E+00	5.35E-15	5.47E-16	1E-16	2.68E-01	2.68E-14	3.89E-15	2E-15	3.35E-01
03-Jan-83	4.33E-15	5E-17	8.66E-02	7.58E-16	1.16E-16	5E-17	2.53E-01	6.04E-16	9.15E-17	6E-17	3.02E-02	2.57E-14	1.90E-15	2E-15	3.21E-01
04-Apr-83	1.25E-15	5E-17	2.50E-02	6.52E-16	5.55E-17	5E-17	2.17E-01	8.76E-16	1.36E-16	1E-16	3.38E-02	2.00E-14	1.09E-15	9E-16	2.50E-01
30-Jun-83	3.73E-16	1E-16	7.46E-03	7.17E-16	2.14E-16	2E-16	2.39E-01	4.13E-16	1.88E-16	2E-16	2.07E-02	1.20E-14	2.00E-15	2E-15	1.50E-01
03-Oct-83	2.54E-16	4E-17	5.08E-03	9.43E-16	1.13E-16	2E-17	3.14E-01	2.65E-16	5.73E-17	3E-17	1.33E-02	2.50E-14	1.14E-15	4E-16	3.13E-01
03-Jan-84	2.76E-15	1E-16	5.52E-02	1.51E-16	3.92E-17	4E-17	5.03E-02	1.05E-16	6.79E-17	9E-17	5.25E-03	1.59E-16	8.00E-16	6E-16	1.99E-03
02-Apr-84	4.27E-16	5E-17	8.54E-03	1.80E-16	9.05E-17	1E-16	5.33E-02	6.28E-16	9.83E-17	8E-17	3.14E-02	3.67E-14	1.79E-05	1E-15	4.59E-01
02-Jul-84	2.57E-15	5E-17	5.14E-02	2.33E-16	1.03E-16	8E-17	7.77E-02	1.11E-16	7.93E-17	1E-16	5.55E-03	1.58E-14	1.09E-15	1E-15	1.98E-01
01-Oct-84	4.18E-16	5E-17	8.36E-03	1.38E-16	6.57E-17	4E-17	4.53E-02	1.10E-17	9.55E-17	8E-17	5.50E-04	9.83E-15	1.43E-15	2E-15	1.23E-01
02-Jan-85	5.30E-17	5E-16	1.06E-03	3.54E-16	1.60E-16	5E-17	1.18E-01	7.00E-18	8.98E-17	7E-17	3.50E-04	2.57E-14	1.48E-15	1E-15	3.21E-01
01-Apr-85	0.00E+00	5E-17	0.00E+00	3.55E-17	1.97E-16	1E-16	1.18E-02	4.35E-17	6.66E-17	5E-17	2.18E-03	5.02E-15	8.76E+00	9E-16	6.28E-02
01-Jul-85	9.36E-16	5E-17	1.87E-02	8.00E-16	4.78E-14	6E-16	2.00E-01	2.36E-16	1.14E-16	7E-17	1.18E-02	7.48E-15	1.08E-15	9E-16	9.35E-02
30-Sep-85	1.46E-15	6E-16	2.91E-02	2.33E-16	8.01E-17	7E-17	7.78E-02	5.38E-16	1.09E-16	9E-17	2.69E-02	7.86E-15	7.50E-16	8E-16	9.83E-02
02-Jan-86	8.40E-15	2E-15	1.68E-01	7.89E-16	1.80E-15	1E-15	2.56E-01	2.99E-16	8.13E-16	3E-16	1.50E-02	2.12E-14	2.60E-14	5E-15	2.65E-01
01-Apr-86	5.79E-15	2E-16	1.16E-01	7.60E-16	9.96E-17	5E-16	2.53E-01	1.34E-15	5.50E-17	4E-16	6.71E-02	1.33E-14	3.08E-16	1E-16	1.66E-01
30-Jun-86	5.19E-15	1E-17	1.04E-01	5.80E-16	3.73E-17	4E-16	1.93E-01	2.20E-15	4.00E-17	5E-16	1.10E-01	7.14E-16	7.89E-16	1E-15	8.93E-03
27-Oct-86	4.60E-15	1E-16	9.20E-02	7.83E-16	1.10E-16	2E-16	2.61E-01	2.37E-15	1.00E-16	1E-16	1.19E-01	1.13E-14	2.00E-16	3E-16	1.41E-01
15-Dec-86	2.75E-15	3E-16	5.50E-02	4.67E-16	9.00E-17	2E-17	1.56E-01	9.39E-16	1.00E-16	4E-17	4.70E-02	1.20E-14	2.00E-16	4E-17	1.50E-01
16-Mar-87	4.64E-15	3E-16	9.28E-02	5.90E-16	1.20E-16	8E-16	1.97E-01	4.97E-16	1.00E-16	8E-16	2.49E-02	5.89E-14	1.00E-15	1E-17	7.36E-01
11-May-87	4.35E-15	6E-16	8.70E-02	1.18E-15	2.00E-16	6E-16	3.93E-01	1.13E-15	1.00E-16	6E-17	5.65E-02	2.21E-14	6.00E-16	3E-17	2.76E-01
09-Sep-87	6.39E-15	8E-16	1.28E-01	1.23E-14	1.00E-15	1E-16	4.10E+00	2.26E-15	2.00E-16	4E-17	1.13E-01	1.57E-14	1.00E-15	1E-16	1.96E-01
02-Nov-87	8.72E-15	6E-16	1.34E-01	1.50E-14	1.00E-15	4E-16	5.00E+00	2.20E-15	2.00E-16	8E-16	1.10E-01	2.55E-14	1.00E-15	3E-17	3.19E-01
16-Feb-88	1.91E-15	5E-16	3.82E-02	4.53E-16	7.00E-17	2E-17	1.51E-01	4.42E-16	8.00E-17	2E-17	2.21E-02	4.44E-14	2.00E-16	5E-17	5.55E-01
18-May-88	1.78E-14	3E-16	3.56E-01	1.35E-14	3.00E-16	2E-17	4.50E+00	4.92E-16	8.00E-17	2E-17	2.46E-02	1.38E-14	2.00E-16	4E-17	1.73E-01
15-Aug-88	7.56E-15	4E-16	1.51E-01	4.39E-14	1.00E-15	1E-17	1.46E+01	1.51E-15	1.00E-16	2E-17	7.55E-02	1.97E-14	2.00E-16	2E-17	2.46E-01
14-Nov-88	1.47E-14	4E-16	2.94E-01	3.31E-14	3.00E-16	1E-17	1.10E+01	2.57E-15	1.00E-16	1E-17	1.29E-01	2.12E-14	2.00E-16	3E-17	2.65E-01
13-Feb-89	2.47E-15	4.08E-17	4.94E-02	1.56E-15	1.02E-16	1.02E-16	5.20E-01	6.84E-16	5.10E-17	2.04E-16	3.47E-02	2.12E-14	3.06E-16	5.10E-16	2.65E-01
15-May-89	2.50E-16	1E-16	5.00E-03	3.14E-15	1.00E-16	7E-18	1.05E+00	9.03E-16	7.00E-17	7E-18	4.52E-02	8.05E-15	1.00E-16	4E-17	1.01E-01
14-Aug-89	6.50E-15	5E-17	1.30E-01	7.68E-15	2.00E-16	9E-18	2.56E+00	2.35E-15	2.00E-16	9E-18	1.18E-01	9.95E-15	1.00E-16	5E-17	1.24E-01
13-Nov-89	9.63E-15	2E-17	1.93E-01	4.72E-15	2.00E-16	3E-18	1.57E+00	4.03E-15	2.00E-16	8E-18	2.01E-01	1.99E-14	3.00E-16	2E-17	2.49E-01
12-Feb-90	8.92E-15	3E-18	1.78E-01	4.05E-15	2.00E-16	6E-18	1.35E+00	2.89E-15	2.00E-16	2E-17	1.45E-01	2.89E-14	2.00E-16	4E-17	3.36E-01
14-May-90	8.90E-15	1E-16	1.78E-01	3.56E-15	3.00E-16	1E-16	1.19E+00	2.33E-15	2.00E-16	1E-16	1.17E-01	2.09E-14	4.00E-16	2E-16	2.61E-01
13-Aug-90	1.92E-15	1E-16	3.84E-02	3.58E-15	6.00E-17	1E-16	1.19E+00	5.06E-16	6.00E-17	1E-16	2.53E-02	8.86E-15	2.00E-16	2E-16	1.11E-01
12-Nov-90	2.91E-15	1E-16	5.82E-02	1.87E-15	2.00E-16	1E-16	6.23E-01	1.08E-15	1.00E-16	1E-16	5.40E-02	2.19E-14	4.00E-16	2E-16	2.74E-01
11-Feb-91	1.67E-16	1E-16	3.34E-03	2.25E-17	2.10E-17	1E-16	7.50E-03	8.38E-17	2.50E-17	1E-16	3.19E-03	4.19E-14	1.00E-15	2E-16	5.24E-01
13-May-91	1.87E-16	1E-16	3.74E-03	7.89E-16	1.00E-16	1E-16	2.63E-01	3.54E-16	9.00E-17	1E-16	1.77E-02	1.40E-14	1.00E-15	2E-15	1.75E-01
12-Aug-91	4.85E-16	1E-16	9.70E-03	2.61E-15	2.00E-16	1E-16	8.70E-01	1.27E-16	8.00E-17	1E-16	6.35E-03	2.20E-14	5.00E-16	2E-15	2.75E-01
11-Nov-91	1.77E-16	1E-16	3.54E-03	4.38E-16	7.00E-17	2E-17	1.46E-01	3.76E-17	3.00E-17	2E-17	1.88E-03	1.15E-14	2.00E-16	1E-16	1.44E-01
10-Feb-92	1.83E-16	1E-16	3.66E-03	1.46E-16	6.00E-17	2E-17	4.87E-02	1.33E-16	4.00E-17	2E-17	8.65E-03	3.53E-14	6.00E-17	1E-16	4.19E-01
11-May-92	4.40E-16	1E-16	8.80E-03	1.95E-15	1.00E-16	2E-19	6.50E-01	4.04E-16	8.00E-17	2E-19	2.02E-02	1.41E-14	2.00E-16	1E-16	1.76E-01
10-Aug-92	9.09E-17	2E-16	1.82E-03	2.56E-16	4.00E-17	4E-16	8.53E-02	4.50E-17	4.80E-17	2E-16	2.25E-03	1.57E-14	2.00E-16	2E-17	1.96E-01
9-Nov-92	2.07E-16	3E-21	4.14E-03	1.15E-16	3.00E-17	4E-18	3.83E-02	1.62E-17	2.80E-17	3E-18	1.81E-03	2.24E-14	3.00E-16	2E-17	2.80E-01
9-Feb-93	1.73E-16	1E-22	3.46E-03	0.00E+00	8.00E-17	4E-18	0.00E+00	2.89E-17	4.30E-17	3E-18	1.45E-03	3.09E-14	5.00E-16	2E-17	3.85E-01
10-May-93	2.70E-17	3E-22	5.40E-04	2.76E-17	3.20E-17	4E-18	9.20E-03	8.74E-17	5.00E-17	3E-18	4.37E-03	1.25E-14	2.00E-16	2E-17	1.56E-01

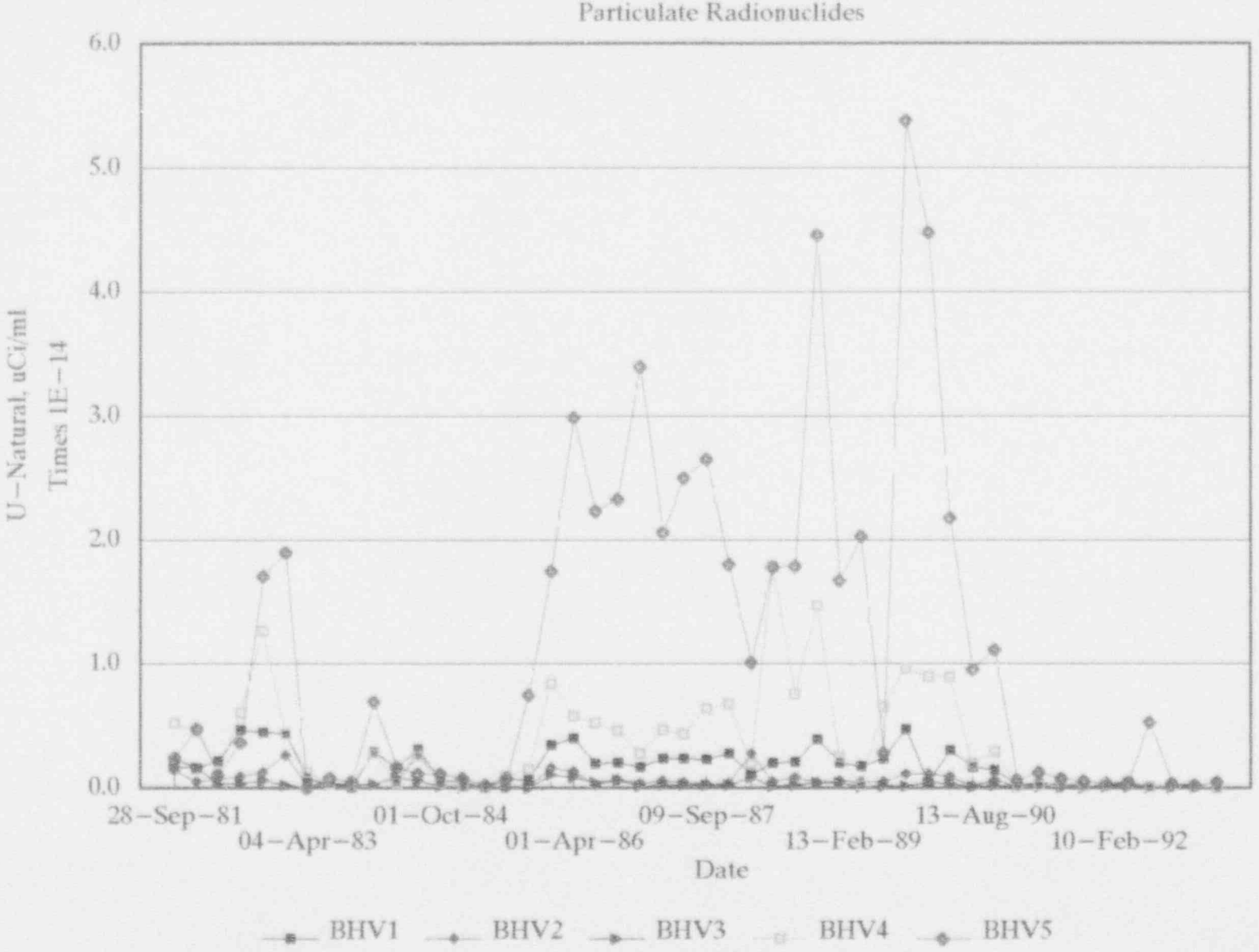
TABLE 16

UMETCO MINERALS CORPORATION
WHITE MESA MILL
AMBIENT AIR RADIONUCLIDE PARTICULATES
µCi/ml
LOCATION: BHV-5

Current Quarter	1st	2nd	3rd	4th
% time operated	94.2%	99.2%		
Air Volume, SCF x 1e6	4.07	4.23		

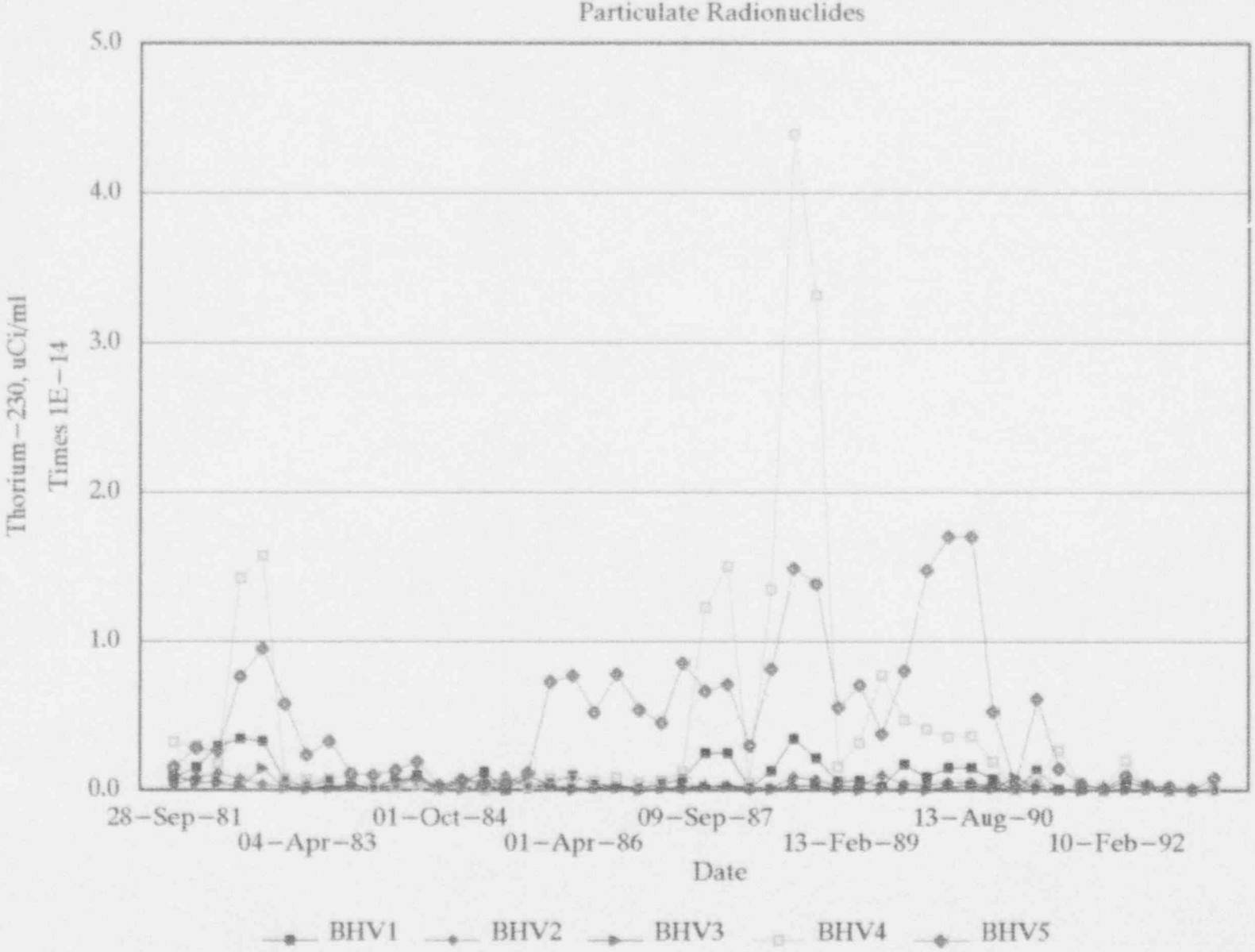
	URANIUM NAT.			THORIUM-230				RADIUM-226				LEAD-210			
PERIOD ENDING	GROSS CONC.	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (1E-16)	% MPC	GROSS CONC.	COUNTING ERROR	LLD (2E-15)	% MPC
28-Sep-81	2.44E-15	1E-16	4.88E-02	1.53E-15	4.11E-16	1E-16	5.10E-01	7.54E-16	4.31E-16	1E-16	3.77E-02	1.69E-14	2.57E-15	2E-15	2.11E-01
14-Dec-81	4.84E-15	1E-16	9.68E-02	2.78E-15	3.56E-16	1E-16	9.27E-01	1.84E-15	2.84E-16	1E-16	9.20E-02	1.53E-14	2.28E-15	2E-15	1.91E-01
29-Mar-82	1.04E-15	9E-16	2.08E-02	2.62E-15	9.49E-16	3E-15	8.73E-01	1.11E-15	4.82E-16	4E-15	5.55E-02	2.98E-14	8.16E-15	2E-14	3.73E-01
30-Jun-82	3.61E-15	5E-17	7.22E-02	7.61E-15	9.40E-16	7E-17	2.54E+00	1.39E-15	2.19E-16	2E-16	6.95E-02	1.80E-15	1.89E-15	2E-15	2.25E-02
27-Sep-82	1.71E-14	1E-16	3.42E-01	9.46E-15	6.02E-16	1E-16	3.15E+00	3.80E-15	4.68E-16	1E-16	1.90E-01	2.35E-14	4.65E-15	2E-15	2.94E-01
03-Jan-83	1.90E-14	5E-17	3.80E-01	5.77E-15	1.99E-16	3E-17	1.92E+00	9.34E-17	3.10E-16	6E-17	4.67E-03	4.32E-14	2.80E-15	2E-15	5.40E-01
04-Apr-83	Lost in Lab			2.33E-15	1.00E-16	2E-17	7.77E-01	5.93E-16	1.08E-16	9E-17	2.97E-02	3.01E-14	1.40E-15	9E-16	3.76E-01
30-Jun-83	7.62E-16	5E-17	1.52E-02	3.25E-15	1.70E-16	6E-17	1.08E+00	6.28E-15	3.59E-16	1E-16	3.14E-01	2.69E-14	1.00E-15	1E-15	3.36E-01
03-Oct-83	4.86E-16	1E-16	9.72E-03	1.10E-15	3.09E-16	1E-16	3.67E-01	3.63E-16	1.08E-16	1E-16	1.82E-02	2.08E-14	1.13E-15	9E-16	2.60E-01
03-Jan-84	6.96E-15	1E-16	1.39E-01	9.69E-16	9.66E-17	5E-17	3.23E-01	9.60E-16	6.53E-17	1E-16	4.80E-02	1.83E-14	2.92E-15	2E-15	2.29E-01
02-Apr-84	1.84E-15	5E-17	3.28E-02	1.34E-15	1.20E-16	7E-17	4.47E-01	3.88E-15	2.29E-16	5E-17	1.94E-01	4.67E-14	2.10E-01	1E-15	5.84E-01
02-Jul-84	1.12E-15	5E-17	2.24E-02	1.92E-15	1.69E-16	7E-17	6.40E-01	3.31E-15	2.70E-16	1E-16	1.66E-01	2.21E-14	1.20E-15	1E-16	2.76E-01
01-Oct-84	1.11E-15	5E-17	2.22E-02	3.13E-16	1.28E-16	5E-17	1.04E-01	4.21E-16	1.34E-16	1E-16	2.11E-02	1.57E-14	1.39E-15	1E-15	1.96E-01
02-Jan-85	7.32E-16	6E-16	1.46E-02	6.71E-16	1.68E-16	5E-17	2.24E-01	4.94E-16	1.35E-16	1E-16	2.47E-02	2.42E-14	1.26E-15	9E-16	3.03E-01
01-Apr-85	2.36E-16	5E-17	4.72E-03	5.43E-16	2.18E-16	1E-16	1.81E-01	2.71E-16	9.00E-17	7E-17	1.36E-02	1.25E-14	1.02E-15	8E-16	1.56E-01
01-Jul-85	7.58E-16	5E-17	1.52E-02	4.00E-16	9.43E-16	5E-16	1.33E-01	6.90E-16	1.50E-16	9E-17	3.45E-02	2.15E-14	1.42E-15	9E-16	2.69E-01
30-Sep-85	7.47E-15	7E-16	1.49E-01	1.16E-15	1.42E-16	8E-17	3.87E-01	2.19E-15	2.21E-15	1E-16	1.10E-01	9.20E-15	1.11E-15	1E-15	1.15E-01
02-Jan-86	1.75E-14	6E-16	3.50E-01	7.24E-15	2.20E-15	1E-15	2.41E+00	3.83E-15	3.83E-15	1E-16	1.92E-01	1.13E-16	1.00E-15	1E-15	1.41E-03
01-Apr-86	2.99E-14	2E-16	5.98E-01	7.64E-15	6.30E-17	4E-16	2.55E+00	1.51E-14	5.02E-16	4E-16	7.57E-01	2.22E-14	5.04E-16	9E-17	1.78E-01
30-Jun-86	2.23E-14	1E-17	4.47E-01	5.19E-15	3.30E-16	2E-17	1.73E+00	1.05E-14	1.00E-16	4E-16	5.24E-01	2.16E-14	2.00E-15	2E-15	1.70E-01
27-Oct-86	2.33E-14	1E-16	4.66E-01	7.78E-15	3.00E-16	2E-16	2.59E+00	1.60E-14	1.00E-15	1E-16	8.00E-01	2.02E-14	2.00E-16	3E-16	2.53E-01
15-Dec-86	3.40E-14	3E-17	6.80E-01	5.35E-15	2.00E-16	2E-17	1.78E+00	1.47E-14	5.00E-16	4E-17	7.35E-01	2.82E-14	2.00E-16	3E-17	3.53E-01
16-Mar-87	2.06E-14	3E-18	4.12E-01	4.50E-15	3.00E-16	5E-18	1.50E+00	6.74E-15	2.00E-16	4E-18	3.37E-01	7.29E-14	1.00E-15	7E-18	9.11E-01
11-May-87	2.50E-14	5E-18	5.00E-01	8.54E-15	2.00E-16	5E-18	2.85E+00	8.15E-15	3.00E-16	5E-18	4.08E-01	3.28E-14	2.00E-16	2E-17	4.10E-01
09-Jul-87	2.65E-14	5E-18	5.30E-01	6.62E-15	3.00E-16	7E-17	2.21E+00	9.34E-15	3.00E-16	2E-17	4.67E-01	2.77E-14	4.00E-16	1E-16	3.46E-01
02-Nov-87	1.80E-14	4E-18	3.60E-01	7.09E-15	3.00E-16	4E-18	2.36E+00	7.20E-15	3.00E-16	4E-18	3.60E-01	1.77E-14	5.00E-16	2E-17	2.21E-01
16-Feb-88	1.01E-14	5E-18	2.02E-01	2.98E-15	1.00E-16	2E-17	9.93E-01	3.93E-15	1.00E-16	2E-17	1.97E-01	3.36E-14	2.00E-16	5E-17	4.20E-01
18-May-88	1.78E-14	3E-18	3.56E-01	8.14E-15	3.00E-16	2E-17	2.71E+00	7.43E-15	3.00E-16	2E-17	3.72E-01	2.12E-14	2.00E-16	4E-17	2.65E-01
15-Aug-88	1.79E-14	3E-18	3.58E-01	1.49E-14	1.00E-15	1E-17	4.97E+00	5.34E-15	2.00E-16	2E-17	2.67E-01	2.45E-14	3.00E-16	2E-17	3.06E-01
14-Nov-88	4.46E-14	3E-18	8.92E-01	1.39E-14	2.00E-16	1E-17	4.63E+00	1.17E-14	2.00E-16	1E-17	5.85E-01	3.43E-14	2.00E-16	3E-17	4.29E-01
13-Feb-89	1.67E-14	4E-17	3.34E-01	5.54E-15	1.02E-16	1E-16	1.85E+00	7.20E-15	1.40E-16	2E-16	3.60E-01	5.02E-14	2.10E-16	5E-16	6.28E-01
15-May-89	2.03E-14	1E-18	4.06E-01	7.05E-15	2.00E-16	6E-17	2.35E+00	9.56E-16	2.00E-16	6E-18	4.78E-02	1.43E-14	1.00E-16	3E-17	1.79E-01
14-Aug-89	2.81E-15	2E-18	5.62E-02	3.78E-15	2.00E-16	8E-18	1.26E+00	9.26E-15	3.00E-16	8E-18	4.63E-01	1.50E-14	1.00E-16	4E-17	1.88E-01
13-Nov-89	5.38E-14	2E-17	1.08E+00	8.01E-15	3.00E-16	3E-18	2.67E+00	1.81E-14	3.00E-16	7E-18	9.06E-01	4.09E-14	5.00E-16	2E-17	5.12E-01
12-Feb-90	4.48E-14	3E-18	8.96E-01	1.48E-14	1.00E-15	6E-18	4.93E+00	1.28E-14	2.00E-17	2E-17	6.40E-01	3.88E-14	3.00E-16	5E-17	4.85E-01
14-May-90	2.18E-14	1E-16	4.36E-01	1.70E-14	1.00E-15	1E-16	5.67E+00	1.59E-14	1.00E-15	1E-16	7.95E-01	3.49E-14	1.00E-15	2E-16	4.36E-01
13-Aug-90	9.53E-15	1E-16	1.91E-01	1.70E-14	1.00E-15	1E-16	5.67E+00	3.27E-15	1.10E-16	1E-16	1.64E-01	1.27E-14	2.00E-16	2E-16	1.59E-01
12-Nov-90	1.11E-14	1E-16	2.22E-01	5.27E-15	3.00E-14	1E-16	1.78E+00	5.38E-15	3.00E-16	1E-16	2.69E-01	1.56E-14	4.00E-16	2E-16	1.95E-01
11-Feb-91	8.35E-16	1E-16	1.27E-02	3.13E-16	6.00E-17	1E-16	1.04E-01	2.31E-16	4.00E-17	1E-16	1.16E-02	3.89E-14	1.00E-15	2E-16	4.86E-01
13-May-91	1.22E-15	1E-16	2.44E-02	6.14E-15	3.00E-16	1E-16	2.05E+00	4.41E-15	2.00E-16	1E-16	2.21E-01	2.50E-14	1.00E-15	2E-15	3.13E-01
12-Aug-91	7.84E-16	1E-16	1.57E-02	1.43E-15	2.00E-16	1E-16	4.77E-01	4.47E-16	1.10E-16	1E-16	2.24E-02	1.84E-14	4.00E-16	2E-15	2.30E-01
11-Nov-91	5.37E-16	1E-16	1.07E-02	4.20E-16	7.00E-17	2E-17	1.40E-01	1.37E-16	3.00E-17	2E-17	6.85E-03	1.27E-14	3.00E-16	1E-16	1.59E-01
10-Feb-92	3.54E-16	1E-16	7.08E-03	1.18E-16	6.00E-17	2E-17	3.93E-02	4.08E-17	3.00E-17	2E-17	2.04E-03	3.69E-14	6.00E-17	1E-16	4.61E-01
11-May-92	4.71E-16	1E-16	9.42E-03	9.58E-16	1.00E-16	2E-19	3.19E-01	8.31E-17	4.00E-18	2E-19	4.16E-03	1.43E-14	2.00E-16	1E-16	1.79E-01
10-Aug-92	5.32E-15	2E-18	1.06E-01	3.36E-16	6.00E-17	4E-18	1.12E-01	1.65E-16	7.00E-17	2E-18	8.25E-03	1.59E-14	2.00E-16	2E-17	1.99E-01
9-Nov-92	3.66E-16	3E-21	7.32E-03	2.25E-16	4.00E-17	4E-18	7.50E-02	1.08E-16	3.00E-17	3E-18	5.40E-03	2.24E-14	2.00E-16	2E-17	2.80E-01
9-Feb-93	2.05E-16	1E-22	4.10E-03	9.14E-17	8.00E-17	4E-18	3.05E-02	6.31E-17	5.00E-17	3E-18	3.16E-03	3.41E-14	5.00E-16	2E-17	4.26E-01
10-May-93	4.80E-16	3E-22	9.60E-03	8.25E-16	1.20E-16	4E-18	2.75E-01	1.26E-15	1.00E-16	3E-18	6.30E-02	1.83E-14	4.00E-16	2E-17	2.29E-01

UMETCO MINERALS CORPORATION



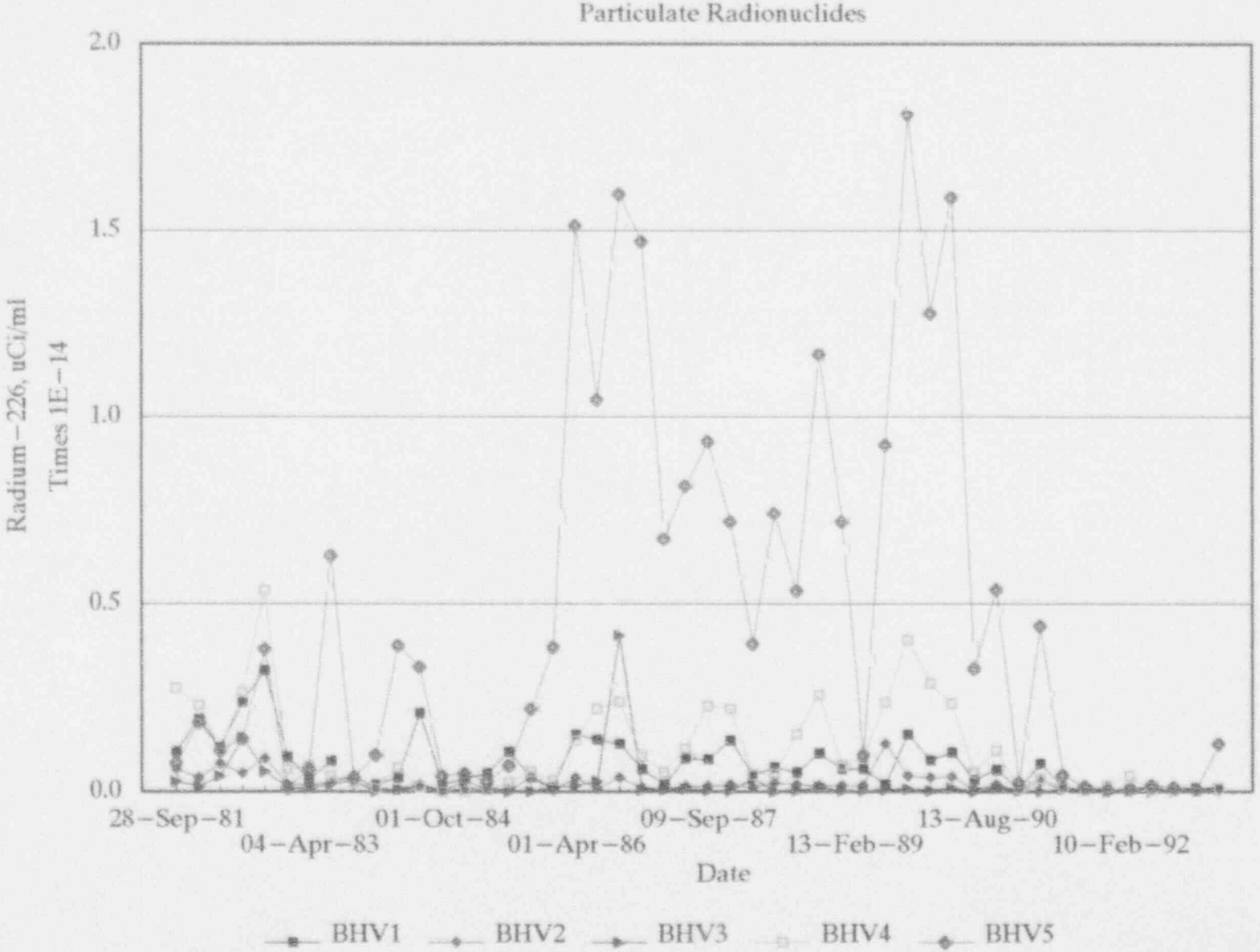
Graph 17

UMETCO MINERALS CORPORATION



Graph 18

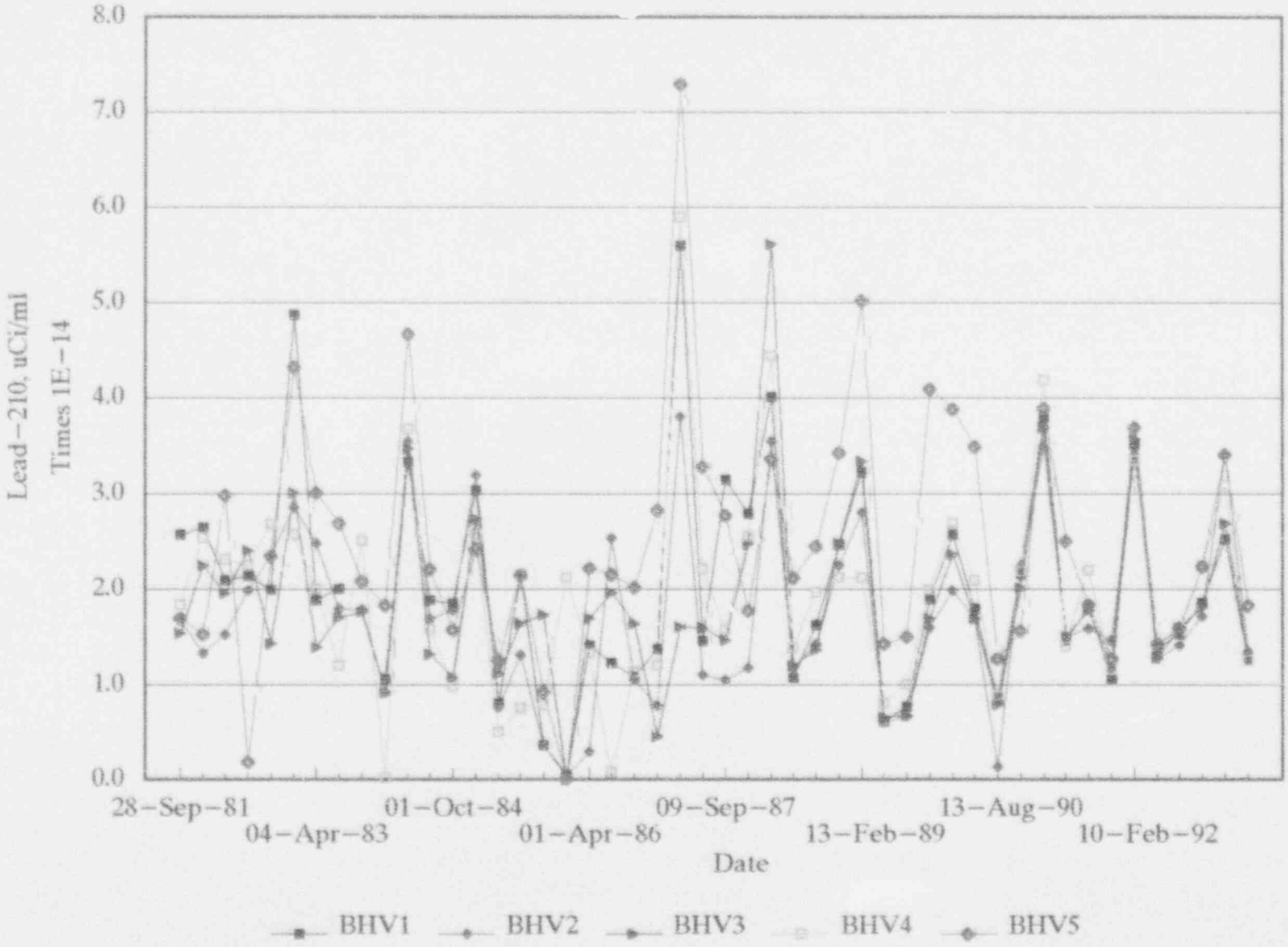
UMETCO MINERALS CORPORATION



Graph 19

UMETCO MINERALS CORPORATION

Particulate Radionuclides



Graph 20

TABLE 17

UMETCO MINERALS CORPORATION
WHITE MESA URANIUM MILL
SEMIANNUAL EFFLUENT AND MONITORING REPORT
Source Material License No. SUA-1358 Docket No. 40-8681

AIR PARTICULATES

Sampling Period and Location	Radionuclide	Net Release From Site (Background Subtracted) µCi/ml	Sampling Period and Location	Radionuclide	Net Release From Site (Background Subtracted) µCi/ml
11/9/92-2/9/93 Met. Station BHV-1	U-Nat.	1.31E-16	2/9/93-5/10/93 Met. Station BHV-1	U-Nat.	0.00E+00
	Th-230	0.00E+00		Th-230	0.00E+00
	Ra-226	0.00E+00		Ra-226	0.00E+00
	Pb-210	0.00E+00		Pb-210	0.00E+00
11/9/92-2/9/93 Nearest Resisdence BHV-2	U-Nat.	1.60E-16	2/9/93-5/10/93 Nearest Resisdence BHV-2	U-Nat.	0.00E+00
	Th-230	2.97E-17		Th-230	2.04E-17
	Ra-226	0.00E+00		Ra-226	0.00E+00
	Pb-210	0.00E+00		Pb-210	8.00E-16
11/9/92-2/9/93 South Tailing Area BHV-4	U-Nat.	9.36E-17	2/9/93-5/10/93 South Tailing Area BHV-4	U-Nat.	1.10E-17
	Th-230	0.00E+00		Th-230	0.00E+00
	Ra-226	0.00E+00		Ra-226	1.10E-17
	Pb-210	3.90E-15		Pb-210	0.00E+00
11/9/92-2/9/93 S.E. Tailing Area BHV-5	U-Nat.	1.26E-16	2/9/93-5/10/93 S.E. Tailing Area BHV-5	U-Nat.	4.64E-16
	Th-230	9.14E-17		Th-230	7.74E-16
	Ra-226	0.00E+00		Ra-226	1.18E-15
	Pb-210	7.20E-15		Pb-210	5.70E-15

TABLE 17 A

UMETCO MINERALS CORPORATION
WHITE MESA URANIUM MILL
SEMIANNUAL EFFLUENT AND MONITORING REPORT
Source Material License No. SUA–1358 Docket No. 40–8681

RADIOLOGICAL 50 YEAR DOSE COMMITMENT
TO THE NEAREST RESIDENT FROM THE
INHALATION OF AIRBORNE PARTICULATES
FIRST QUARTER

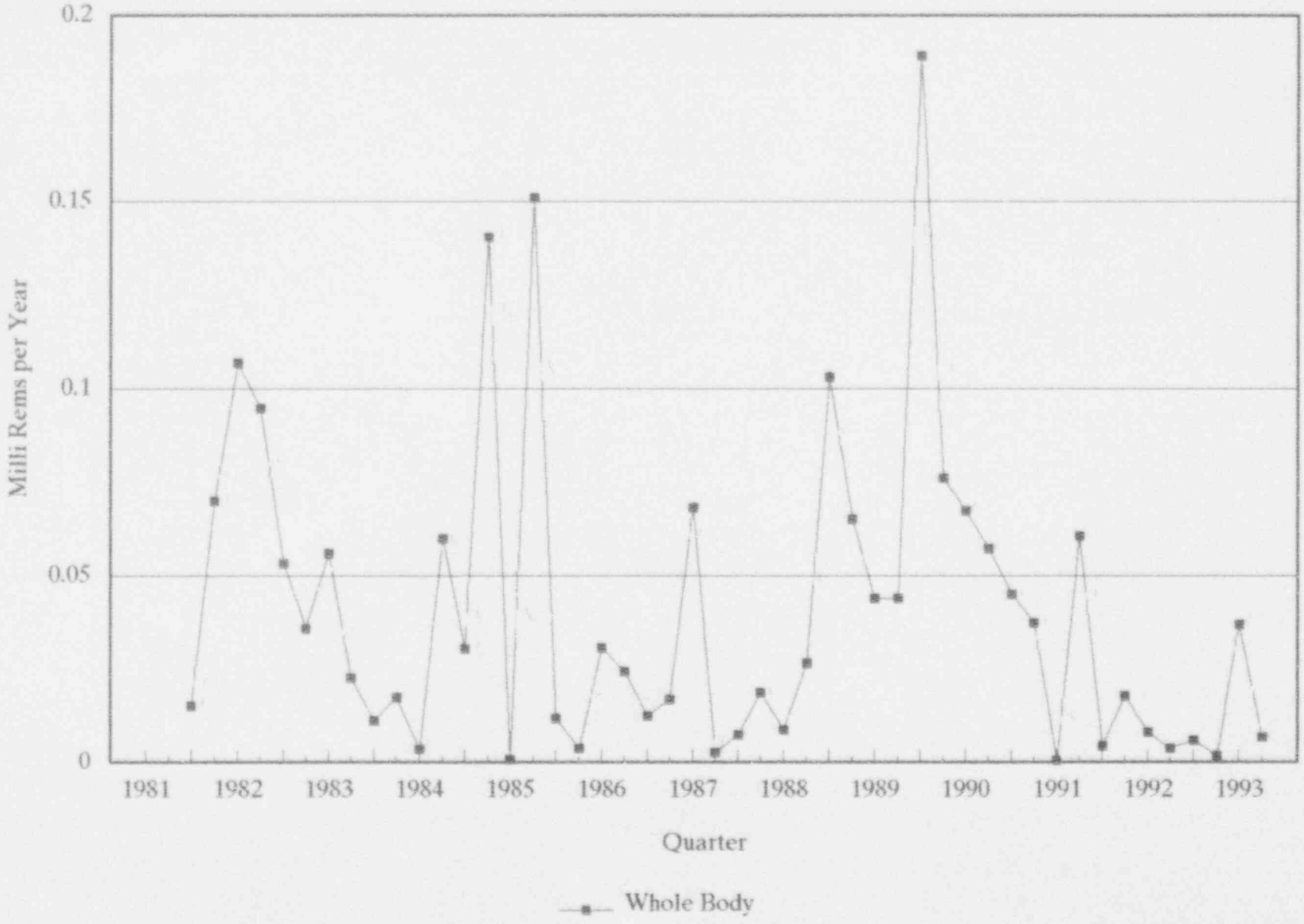
Radionuclide	Net Concentration (Background Subtracted) μCi/ml	Dose mrem/Year WHOLE BODY	BONE	MASS AVERAGE LUNG
U–238	7.84E–17	0.0003	0.0062	0.0124
U–234	7.84E–17	0.0004	0.0062	0.0141
Th–230	2.97E–17	0.0049	0.1767	0.0956
Ra–226	0.00E+00	0.0000	0.0000	0.0000
Pb–210	7.20E–15	0.0314	0.9720	5.5584
TOTAL		0.0370	1.1612	5.6805

SECOND QUARTER

Radionuclide	Net Concentration (Background Subtracted) μCi/ml	Dose mrem/Year WHOLE BODY	BONE	MASS AVERAGE LUNG
U–238	0.00E+00	0.0000	0.0000	0.0000
U–234	0.00E+00	0.0000	0.0000	0.0000
Th–230	2.04E–17	0.0034	0.1214	0.0657
Ra–226	0.00E+00	0.0000	0.0000	0.0000
Pb–210	8.00E–16	0.0035	0.1080	0.6176
TOTAL		0.0069	0.2294	0.6833

WHITE MESA MILL

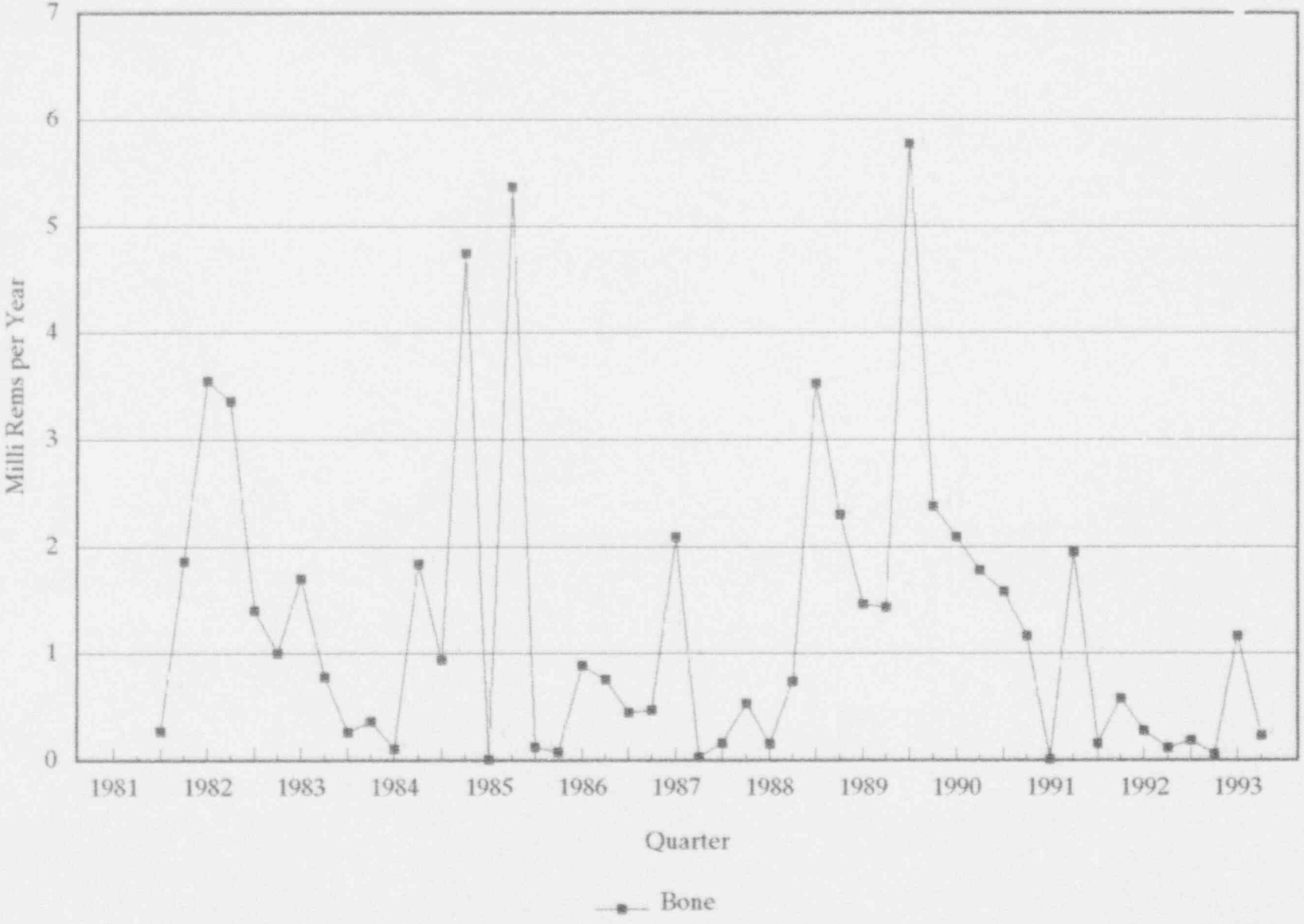
50 Year Doses



Graph 21

WHITE MESA MILL

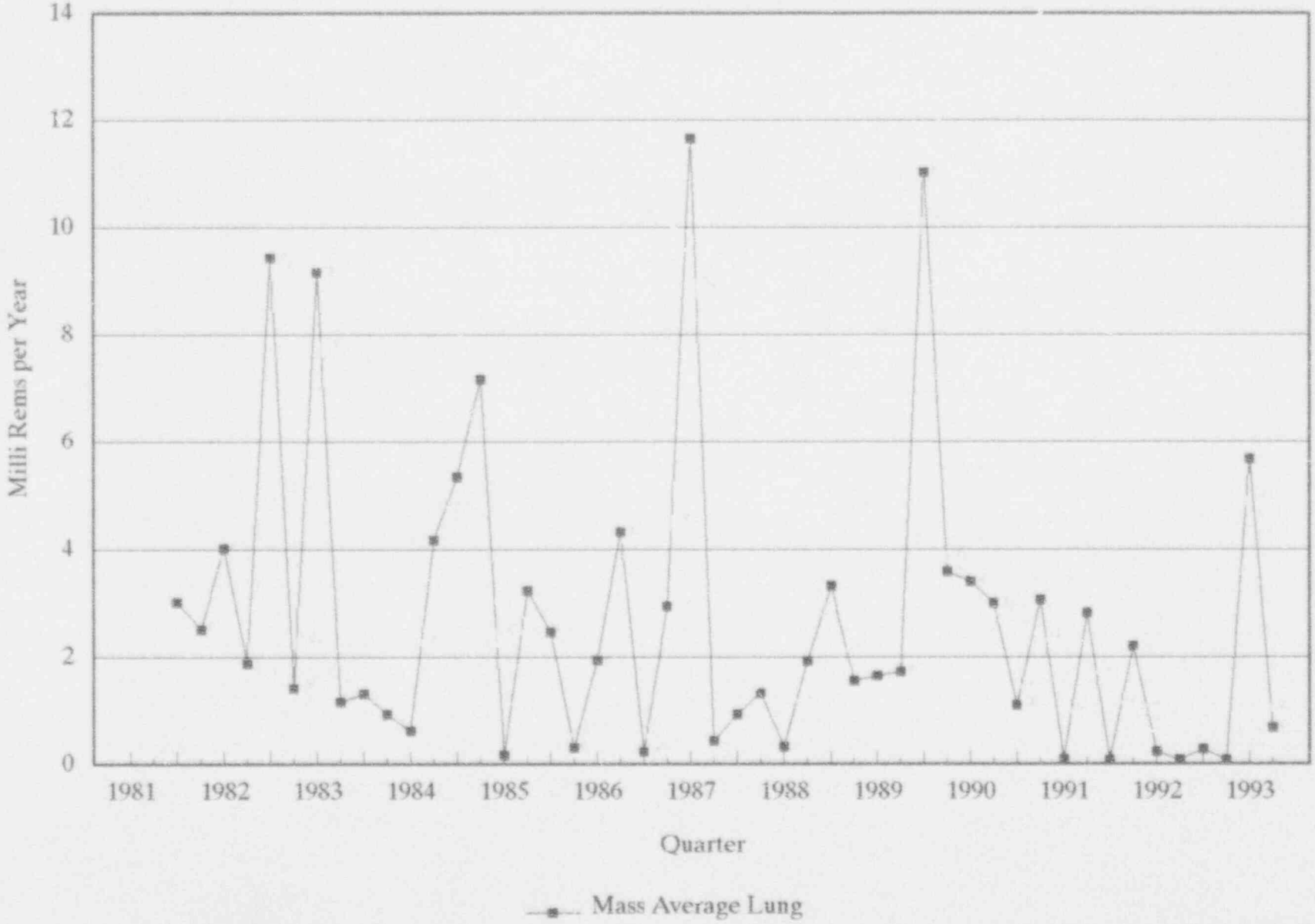
50 Year Doses



Graph 22

WHITE MESA MILL

50 Year Doses



Graph 23

TABLE 18

UMETCO MINERALS CORPORATION
WHITE MESA URANIUM MILL
SEMI-ANNUAL EFFLUENT AND MONITORING REPORT
Source Material License No. SUA-1358 Docket No. 40-8681

MONITOR WELLS
WATER QUALITY ANALYSIS
FIRST QUARTER
GROUNDWATER

PARAMETER	MW#1	MW#2	MW#3	MW#4	MW#5	MW#11	MW#12	MW#14	MW#15	MW#17	MW#18	MW#19	CULINARY
DATE OF SAMPLE	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93
CASING ELEVATION, feet	5648.22	5613.49	5555.32	5622.57	5609.33	5611.08	5609.45	5596.39	5598.62				N/A
PHREATIC ELEVATION, feet	5572.72	5503.49	5471.55	5530.49	5501.05	5509.21	5499.85	5490.95	3491.01	-87.38	-92	-85.49	N/A
pH FIELD	7.59	7.19	6.60	7.08	7.42	7.28	7.00	6.85	7.08	7	6.82	7.39	7.07
FIELD SP. COND. (umhos@T	1683	3570	5450	3620	2630	2900	3990	3780	4210	4490	2800	3210	440
TDS, (mg/l)	1295	3122	5385	3515	1947	2090	3920	3630	3835	4607	2655	2625	287
CHLORIDE (mg/l)	14.0	8.0	64.0	47.0	50.0	35.0	60.0	19.0	40.0	28	34	81	0.9
SULFATES (mg/l)	614	1733	2200	1920	1007	1162	2096	1872	2314	2004	1371	1500	20
U-NAT. (uCi/ml)	2.0E-10	1.2E-09	1.4E-08	1.4E-09	1.4E-09	2.0E-09	1.0E-08	2.1E-08	2.4E-08	2.0E-08	1.2E-08	1.0E-08	1.4E-09
U-NAT. LLD. (uCi/ml)	2.0E-10	2.0E-09	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10
Ra-226 (pCi/l)	0.0	1.8	0.2	1.2	1.1	0.0	0.2	0.5	0.3	0.9	0.7	0.4	0.5
Ra-226 LLD (pCi/l)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Ra-228 (pCi/l)	1.0	1.8	0.0	1.4	0.0	0.0	0.0	0.0	0.3	0	0.9	0	0.0
Ra-228 LLD (pCi/l)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Th-230 (pCi/l)	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0	0.2	0	0.5
Th-230 LLD (pCi/l)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Pb-210 (pCi/l)	1.3	1.3	0.6	2.2	1.3	1.4	0.7	0.1	2.2	0.7	1	0.6	0.2
Pb-210 LLD (pCi/l)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
GROSS ALPHA (pCi/l)	0.0	21.0	0.0	0.0	0.0	0.0	15.0	43.0	47.0	10	12	7	0.0
GROSS ALPHA LLD (pCi/l)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2	2	2	2.0
GROSS BETA (pCi/l)	0.3	9.0	51.0	0.0	7.0	5.0	36.0	47.0	12.0	40	13	21	3.6
GROSS BETA LLD (pCi/l)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Arsenic (mg/l)	0.001	0.001	0.009	0.001	0.001	0.001	0.003	0.001	0.002	0.009	0.0009	0.0009	0.013
Beryllium (mg/l)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0009	0.0009	0.0009	0.001
Cadmium(mg/l)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.0009	0.0009	0.0009	0.0009
Calcium(mg/l)	149	355	466	439	136	117	514	498	0.001	406	415	245	50
Magnesium(mg/l)	54	99	239	176	38	36	215	150		200	92	88	20
Molybdeneum(mg/l)	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.003	0.003	0.0009	0.0009	0.007	0.0009
Nickel (mg/l)	1	0.001	0.014	0.001	0.001	0.001	0.001	0.001	0.01	0.0009	0.005	0.000[illegible]	0.0009
Potassium (mg/l)	6.2	11.9	25.7	10.8	8.7	9.2	14.7	13.2		17.8	7.1	[illegible]	1.9
Selenium (mg/l)	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.00019	0.00019	0.0005	0.00019
Sodium (mg/l)	167	504	729	312	460	551	305	352	0.002	615	185	432	7.5
Alk/CaCO3 (mg/l)	260	349	324	348	318	312	344	392		384	324	194	188

TABLE 19

Umetco MINERALS CORPORATION
WHITE MESA URANIUM MILL
SEMI-ANNUAL EFFLUENT AND MONITORING REPORT
Source Material License No. SUA-1358 Docket No. 40-8681

MONITOR WELLS
WATER QUALITY ANALYSIS
SECOND QUARTER
GROUNDWATER

PARAMETER	MW#1	MW#2	MW#3	MW#4	MW#5	MW#11	MW#12	MW#14	MW#15	MW#17	MW#18	MW#19	CULINARY
DATE OF SAMPLE	06/08/93	06/08/93	06/08/93	06/08/93	06/08/93	06/08/93	06/08/93	06/08/93	06/08/93	06/08/93	06/08/93	06/08/93	06/08/93
CASING ELEVATION, feet	5648.22	5613.49	5555.32	5622.57	5609.33	5611.08	5609.45	5596.39	5598.62				N/A
PHREATIC ELEVATION, feet	5572.81	5503.30	5471.45	5530.44	5501.03	5509.13	5499.78	5491.01	5490.99	-87.59	-92.12	87.08	N/A
pH FIELD	7.53	7.26	6.68	7.08	7.70	7.49	6.90	6.83	7.03	7.04	6.63	7.48	7.75
FIELD SP. COND. (umhos@T	1364	3580	5530	3630	2680	3060	3850	3770	4180	4880	2860	3490	408
TDS, (mg/l)	1300	3288	5616	3760	2048	2396	4156	3728	4084	4636	2720	3144	260
CHLORIDE (mg/l)	12.0	6.0	61.0	46.0	48.0	39.0	54.0	17.0	38.0	27	34	92	4.0
SULFATES (mg/l)	676	1499	1890	1974	1064	1309	2154	2051	2203	2079	1431	1736	27
SODIUM(mg/l)	170	491	649	312	445	517	302	349	488	641	192	438	6
CALCIUM(mg/l)	150	355	466	442	136	150	512	500	451	388	445	316	50
POTASSIUM(mg/l)	7.3	12.8	28.2	11.8	9	12.2	15.1	13.6	11.7	17.7	7.6	11.8	3.5
MAGNESIUM(mg/l)	55	98	238	176	39	48	214	155	165	188	96	111	19
ALK AS CaCO3	270	345	410	350	312	308	362	384	358	385	325	205	185
U-NAT. (uCi/ml)	2.0E-09	8.8E-09	1.4E-08	2.7E-09	2.0E-09	2.7E-09	8.8E-09	2.9E-08	2.3E-08	1.3E-08	9.5E-09	9.5E-09	3.4E-09
U-NAT. LLD. (uCi/ml)	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10	2.0E-10

TABLE 20

UMETCO MINERALS CORPORATION
WHITE MESA MILL

QUALITY CONTROL DUPLICATE SAMPLES
FIRST QUARTER 1993

	Monitor Well 18	Blind Duplicate	Per Cent Difference	Monitor Well 17	Blind Duplicate	Per Cent Difference	Monitor** Well 13A
Arsenic	0.0009	0.0009	0.00%	0.009	0.007	22.22%	<0.001
Beryllium	0.0009	0.0009	0.00%	0.0009	0.0009	0.00%	<0.001
Cadmium	0.0009	0.0009	0.00%	0.0009	0.0009	0.00%	0.001
Calcium	415	415	0.00%	406	402	0.99%	0.91
Chloride	34	34	0.00%	28	29	3.45%	<1
Magnesium	92	93	1.08%	200	197	1.50%	0.08
Molybdneum	0.0009	0.0009	0.00%	0.0009	0.0009	0.00%	<0.001
Sodium	185	185	0.00%	615	600	2.44%	0.27
Nickel	0.005	0.005	0.00%	0.0009	0.0009	0.00%	<0.001
Potassium	7.1	7	1.41%	17.8	18.2	2.20%	<0.01
Selenium	0.00019	0.002	0.00%	0.00019	0.00019	0.00%	<0.002
Sulfate	1371	1371	0.00%	2004	1902	5.09%	5
TDS	2655	2620	1.32%	4607	4615	0.17%	107
U	1.2E-08	1.22E-08	0.00%	2.0E-08	1.9E-08	6.90%	6.1E-09
Alk/CaCO3	324	327	0.92%	384	385	0.26%	260
Ra-226	0.7	0.4	42.86%	0.9	0.3	66.67%	0
Ra-228	0.9	0.3	66.67%	0	0.7	100.00%	0
Th-230	0.2	0	100.00%	0	0	0.00%	0.7
Pb-210	1	1.4	28.57%	0.7	1.4	50.00%	0.5
Gross Alpha	12	9	25.00%	10	21	52.38%	0
Gross Beta	13	22	40.91%	40	51	21.57%	0

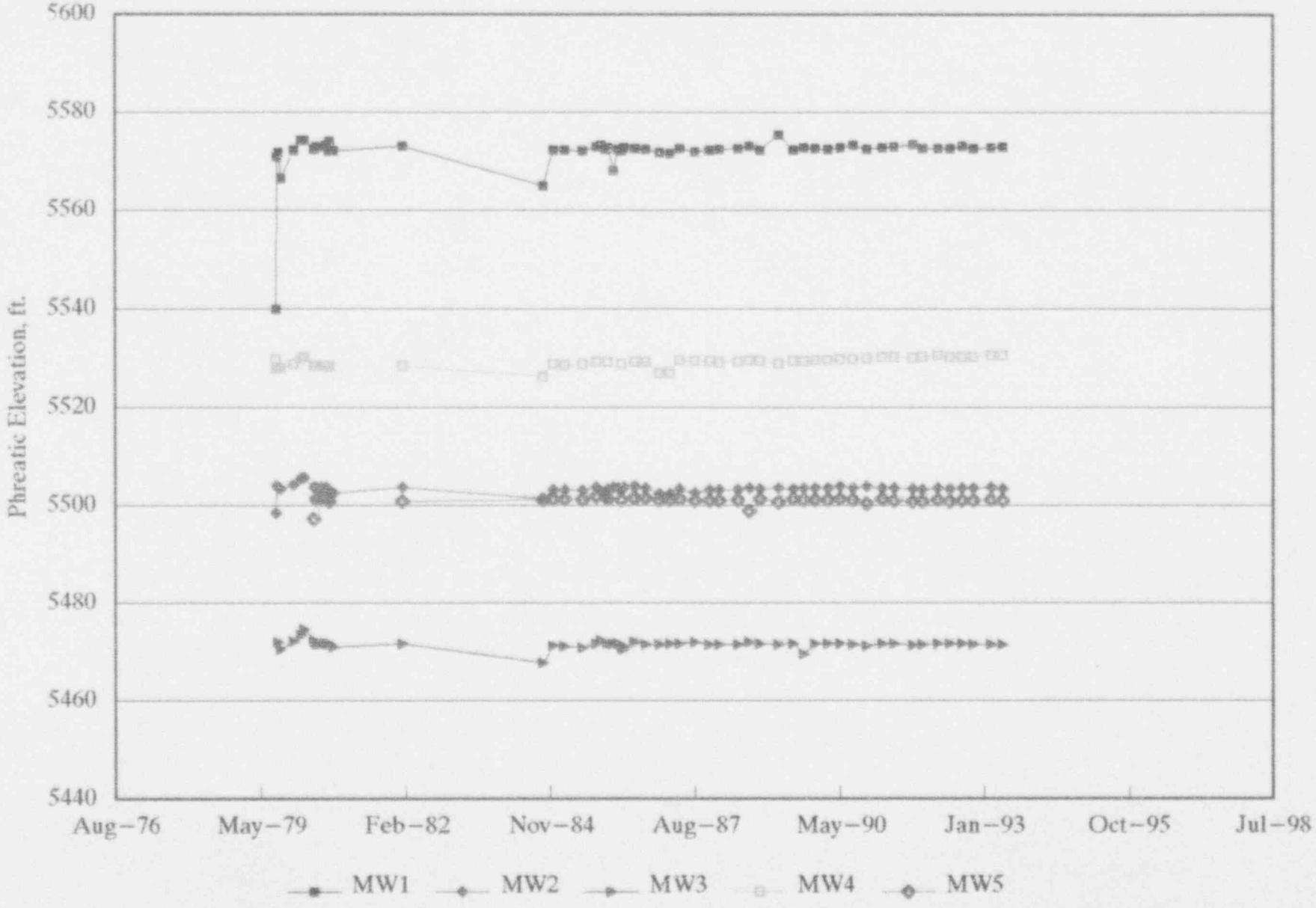
SECOND QUARTER 1993

	Monitor Well 2	Blind Duplicate	Per Cent Difference	Monitor Well 4	Blind Duplicate	Per Cent Difference	Monitor** Well 13A
Sodium	491	463	5.70%	312	315	0.95%	0.15
TDS	3288	3300	0.36%	3760	3600	4.26%	40
Sulfate	1499	1768	15.21%	1974	1878	4.86%	5
Chloride	6	6	0.00%	46	44	4.35%	<4
Calcium	355	343	3.38%	442	453	2.43%	0.98
Potassium	12.8	13.8	7.25%	11.8	11.7	0.85%	0.05
Magnesium	98	95	3.06%	176	182	3.30%	0.09
ALk//CaCO3	345	351	1.71%	350	347	0.86%	4
U-Natural	8.8E-09	9.48E-09	7.17%	2.7E-09	2.7E-09	0.00%	2.0E-09

** Actual flushing of hose reel with a blank of de-ionized water, recirculated for 30 minutes

UMETCO MINERALS CORPORATION

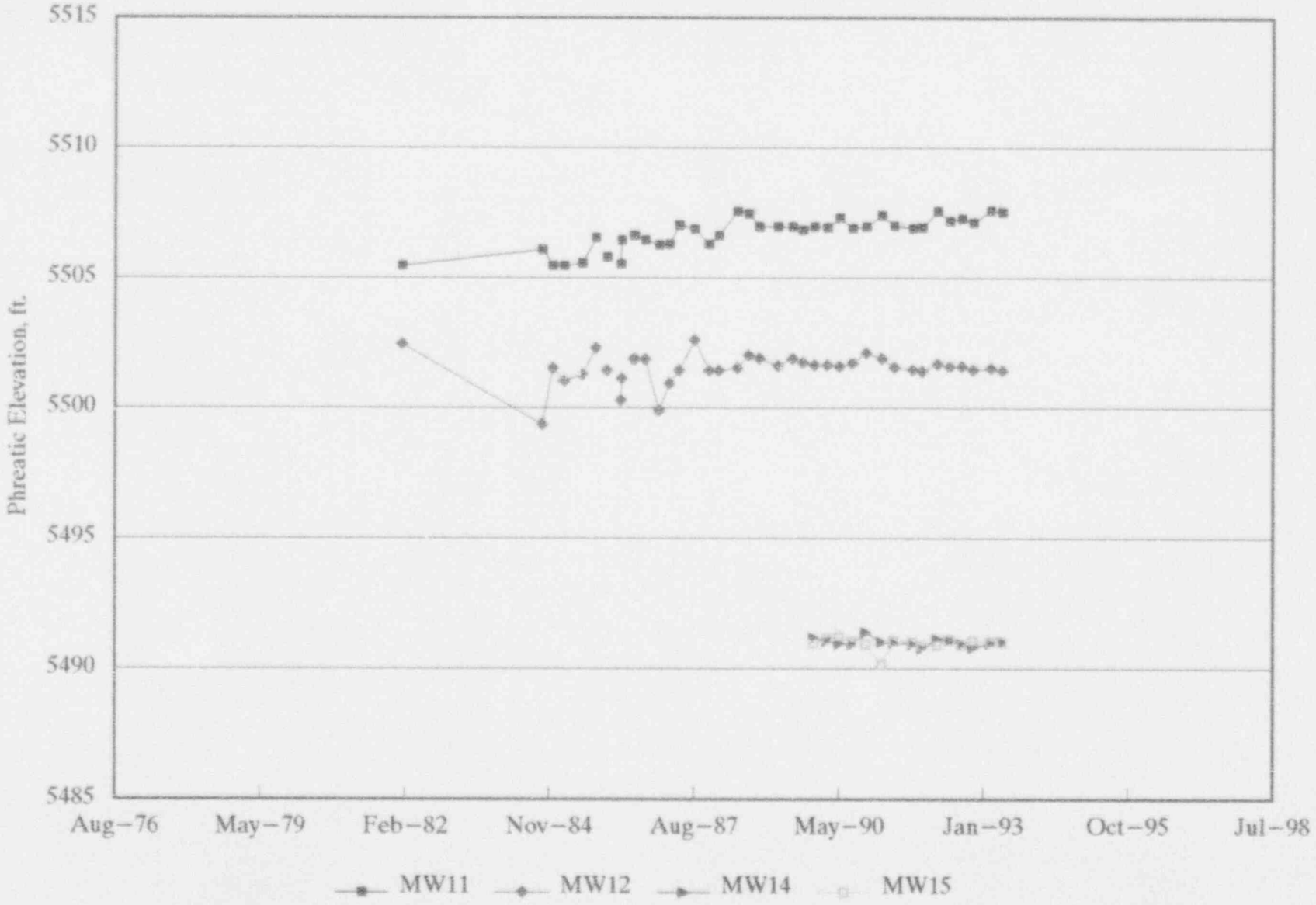
WHITE MESA MILL



Graph 24

UMETCO MINERALS CORPORATION

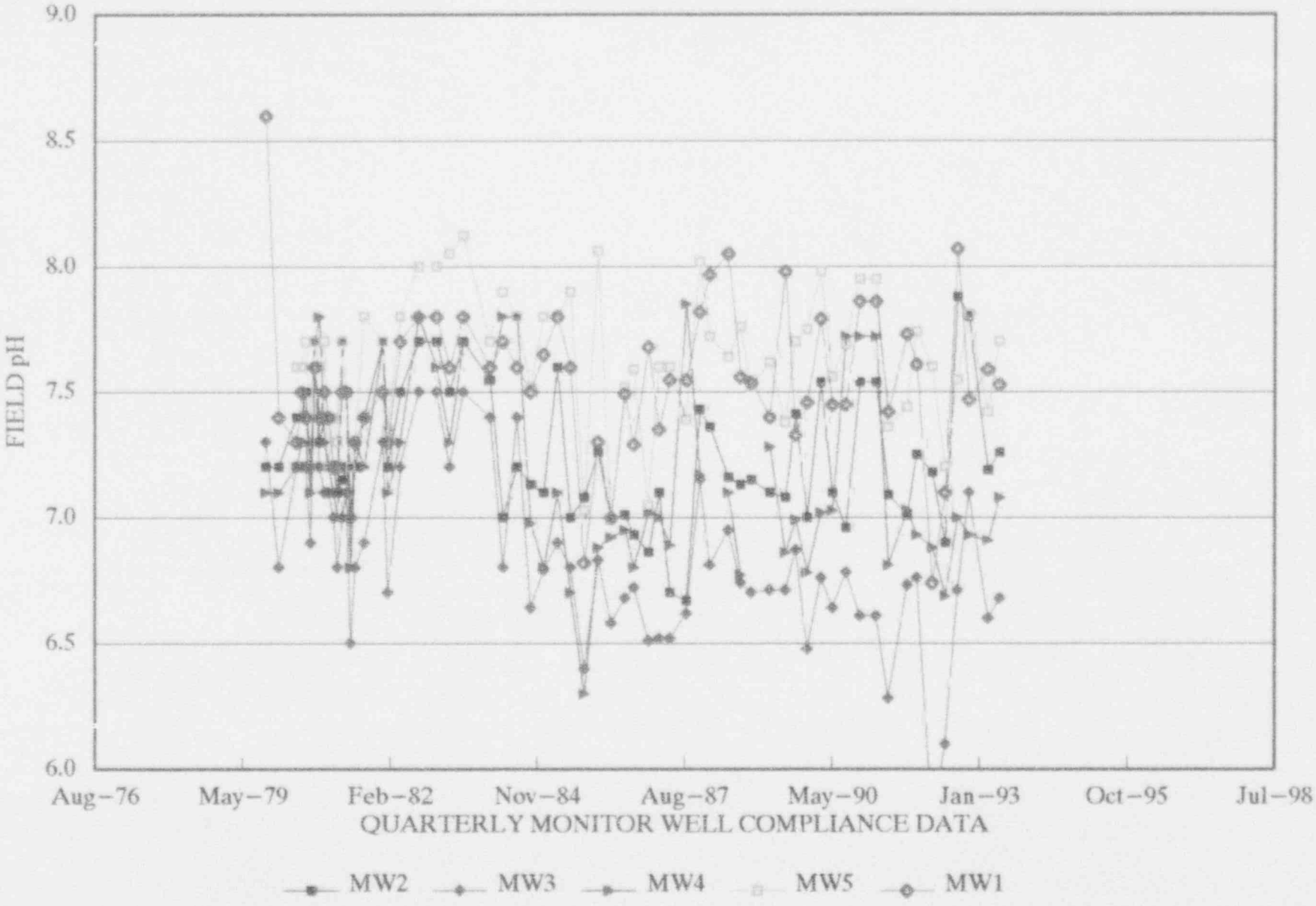
WHITE MESA MILL



Graph 25

UMETCO MINERALS CORPORATION

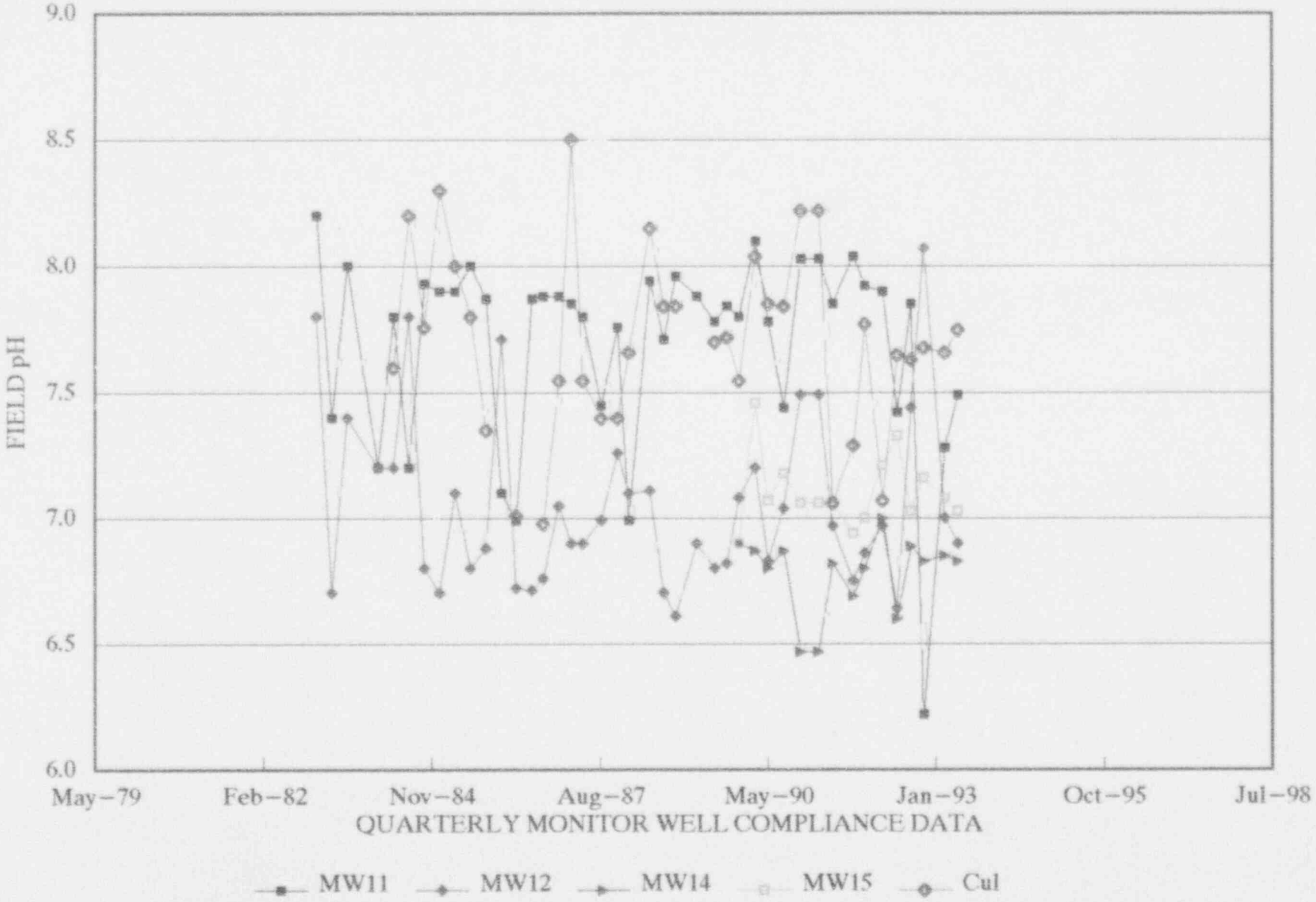
WHITE MESA MILL



Graph 26

UMETCO MINERALS CORPORATION

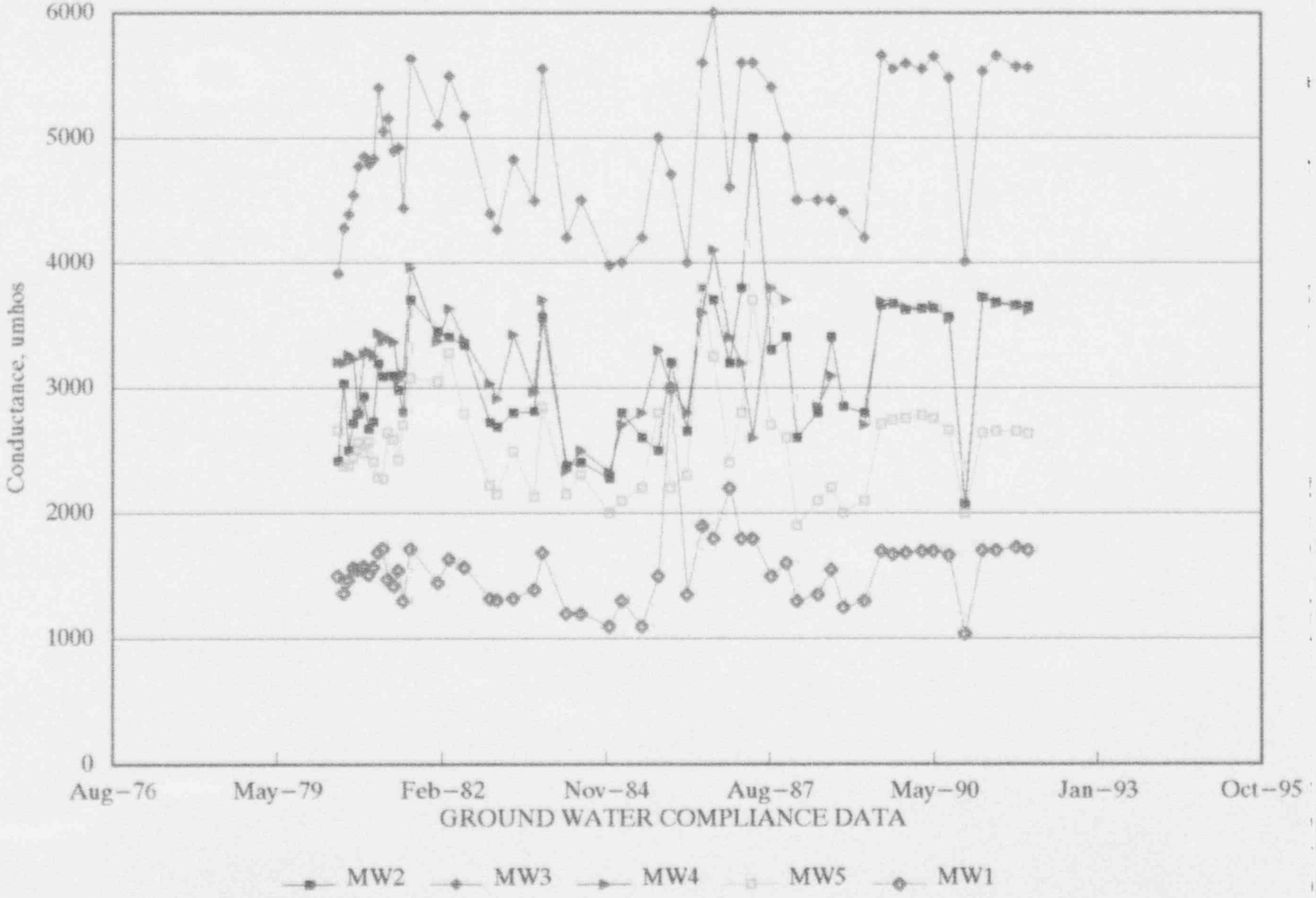
WHITE MESA MILL



Graph 27

UMETCO MINERALS CORPORATION

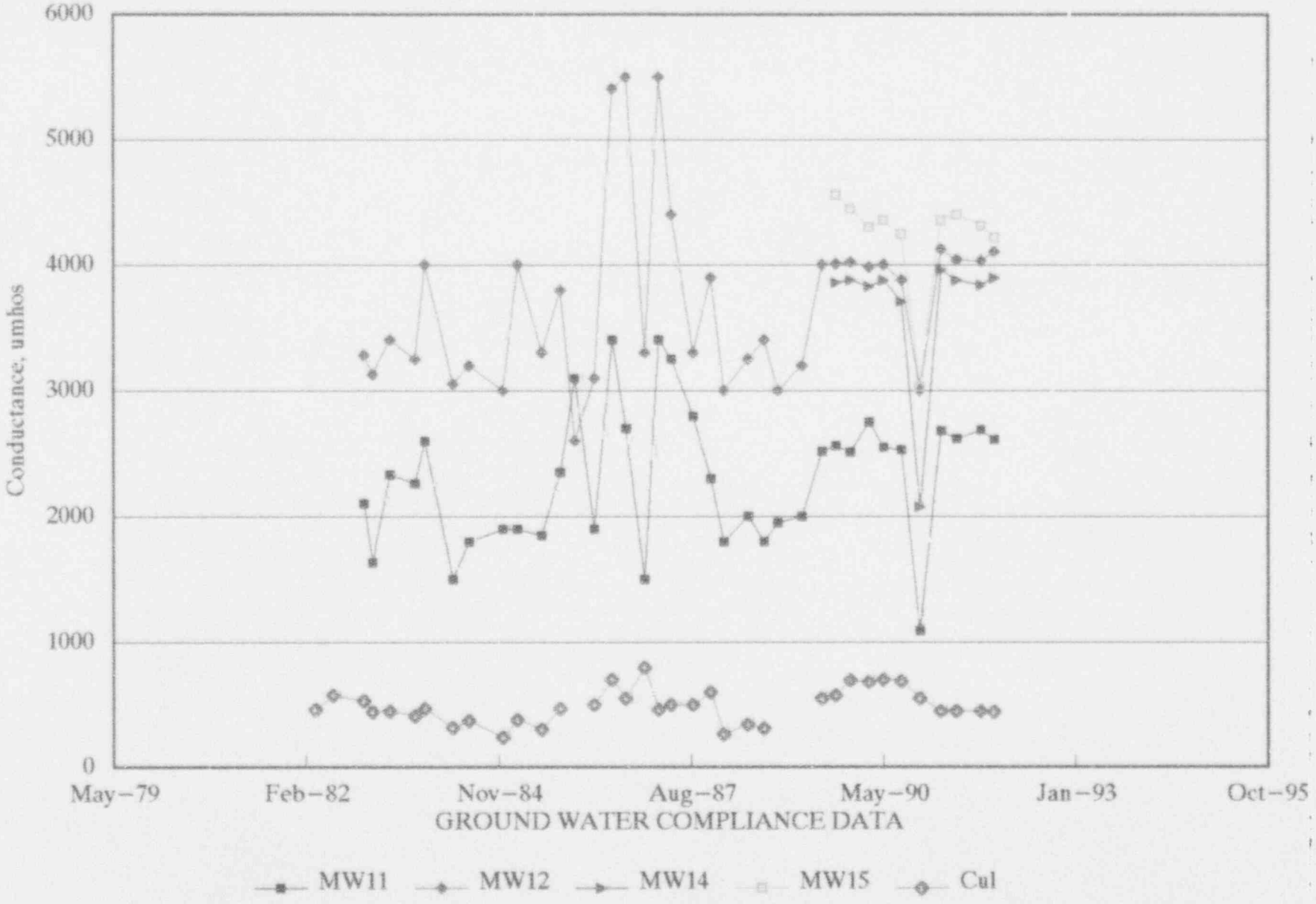
WHITE MESA MILL



Graph 28

UMETCO MINERALS CORPORATION

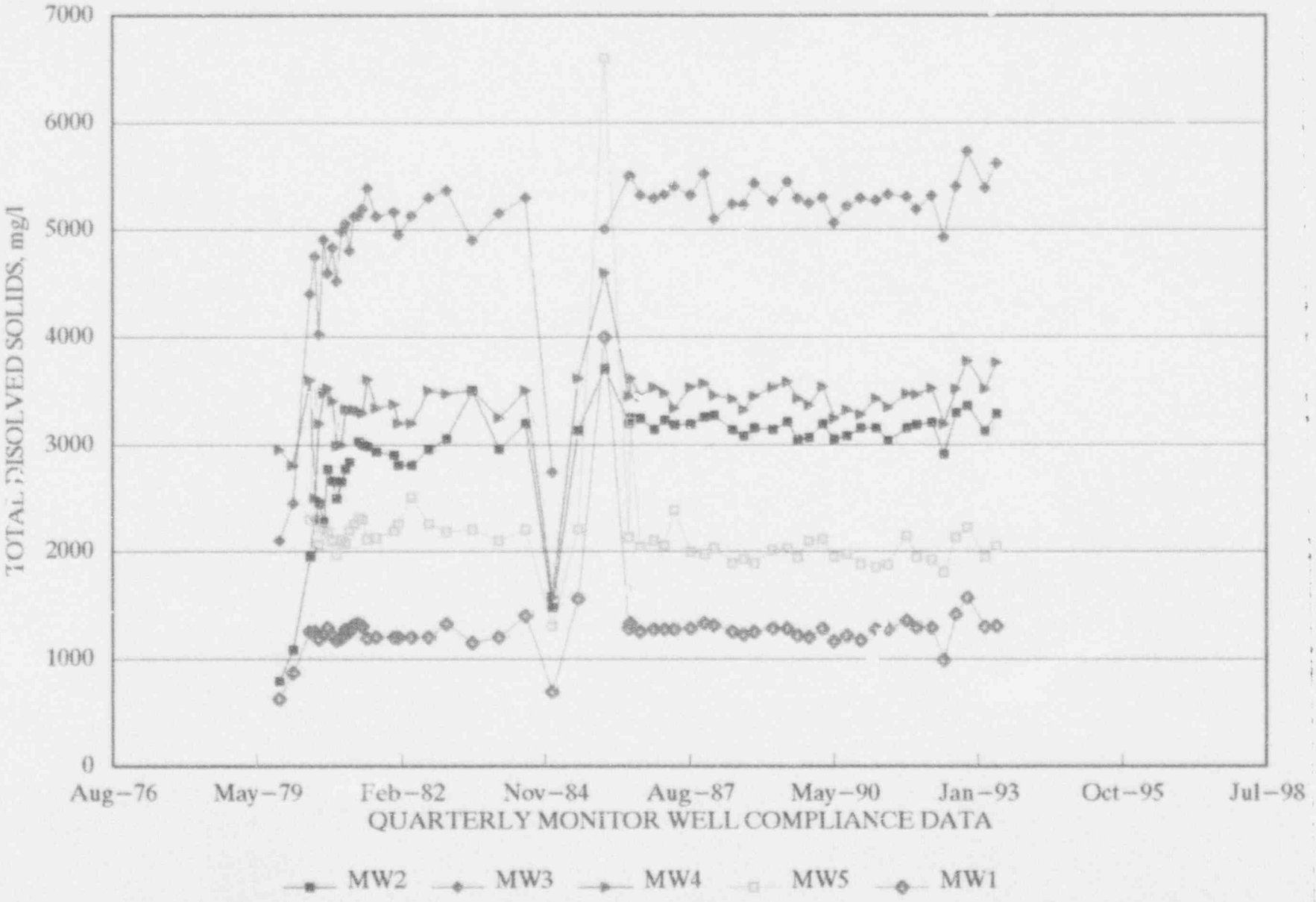
WHITE MESA MILL



Graph 29

UMETCO MINERALS CORPORATION

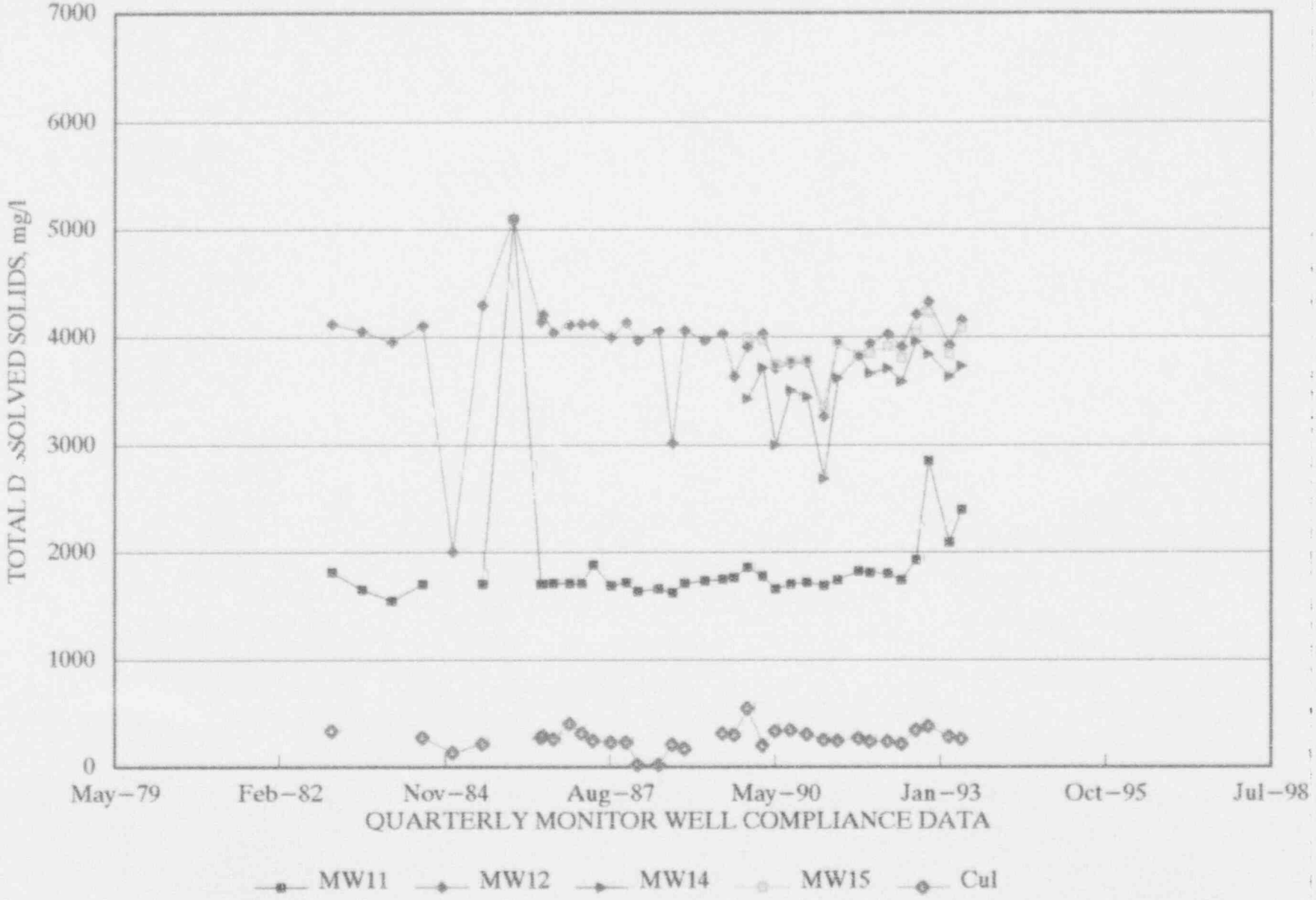
WHITE MESA MILL



Graph 30

UMETCO MINERALS CORPORATION

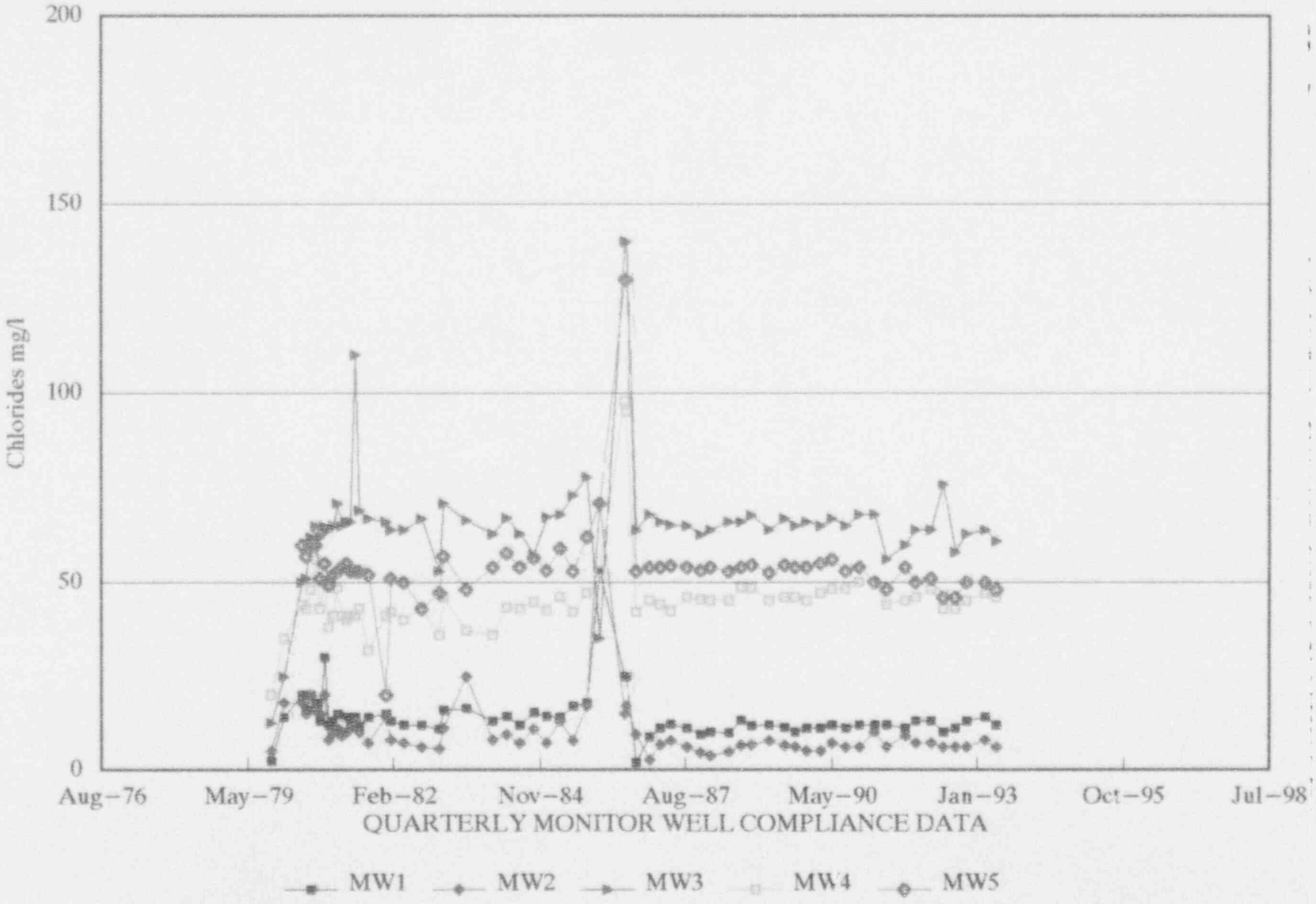
WHITE MESA MILL



Graph 31

UMETCO MINERALS CORPORATION

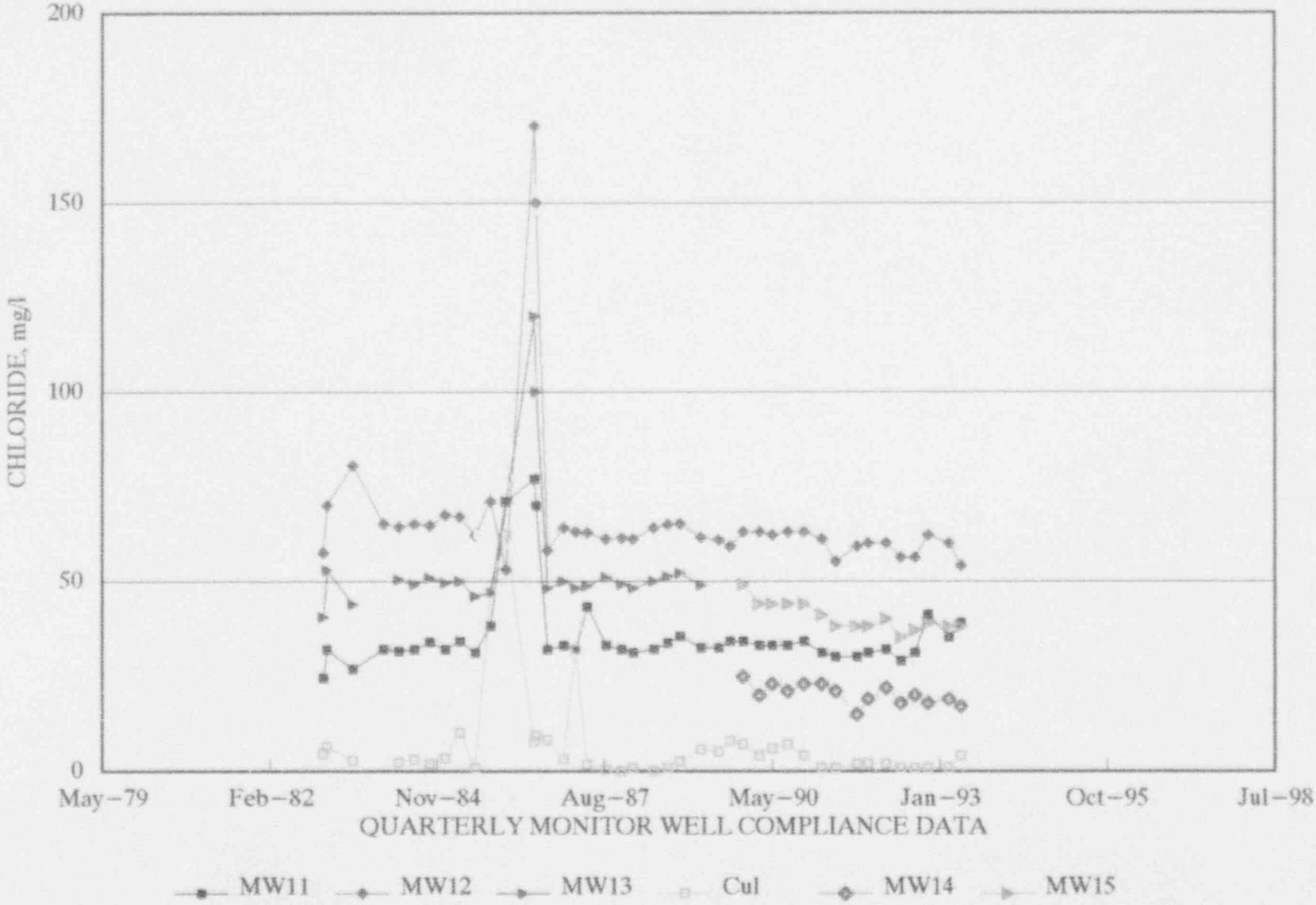
WHITE MESA MILL



Graph 32

UMETCO MINERALS CORPORATION

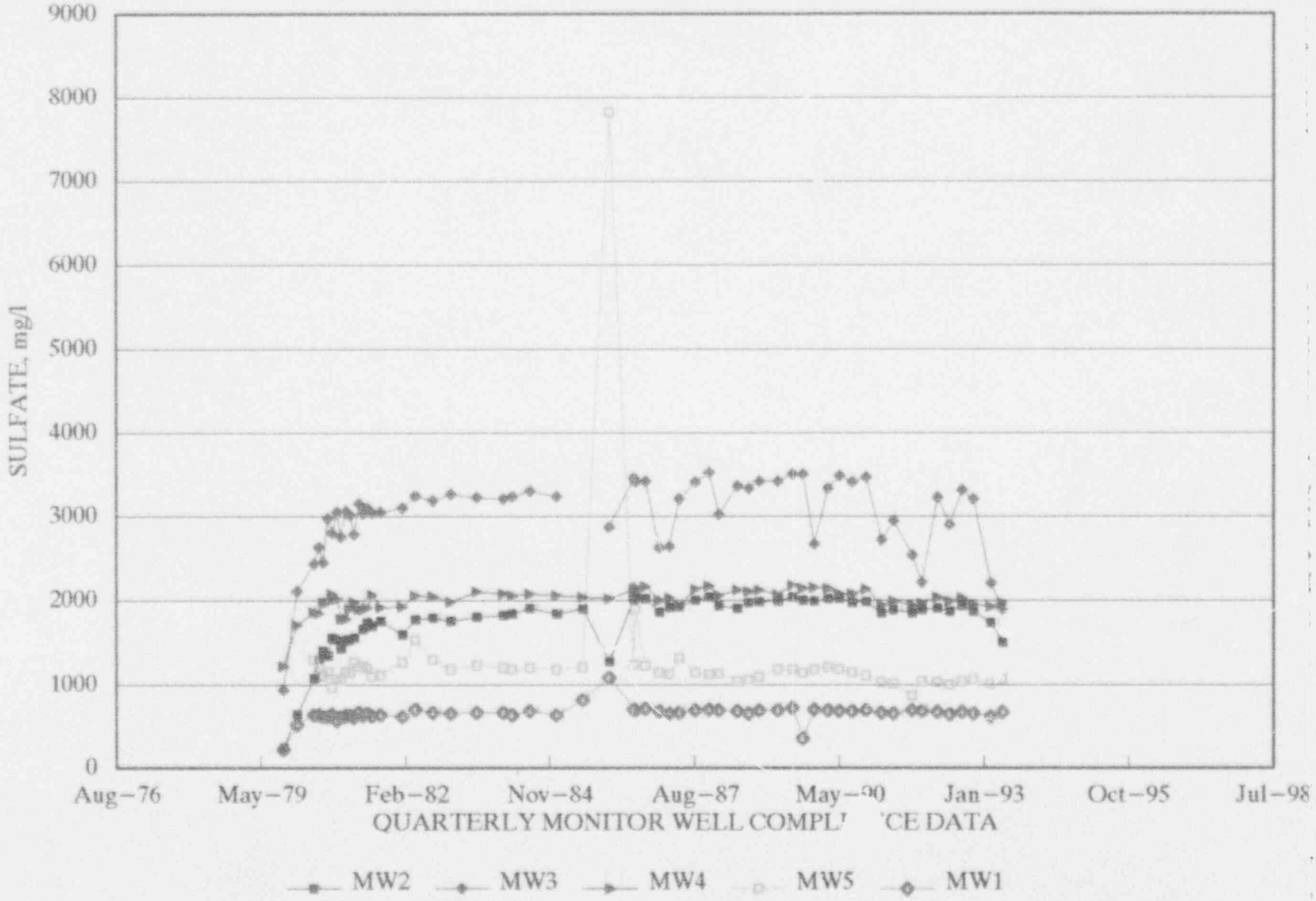
WHITE MESA MILL



Graph 33

UMETCO MINERALS CORPORATION

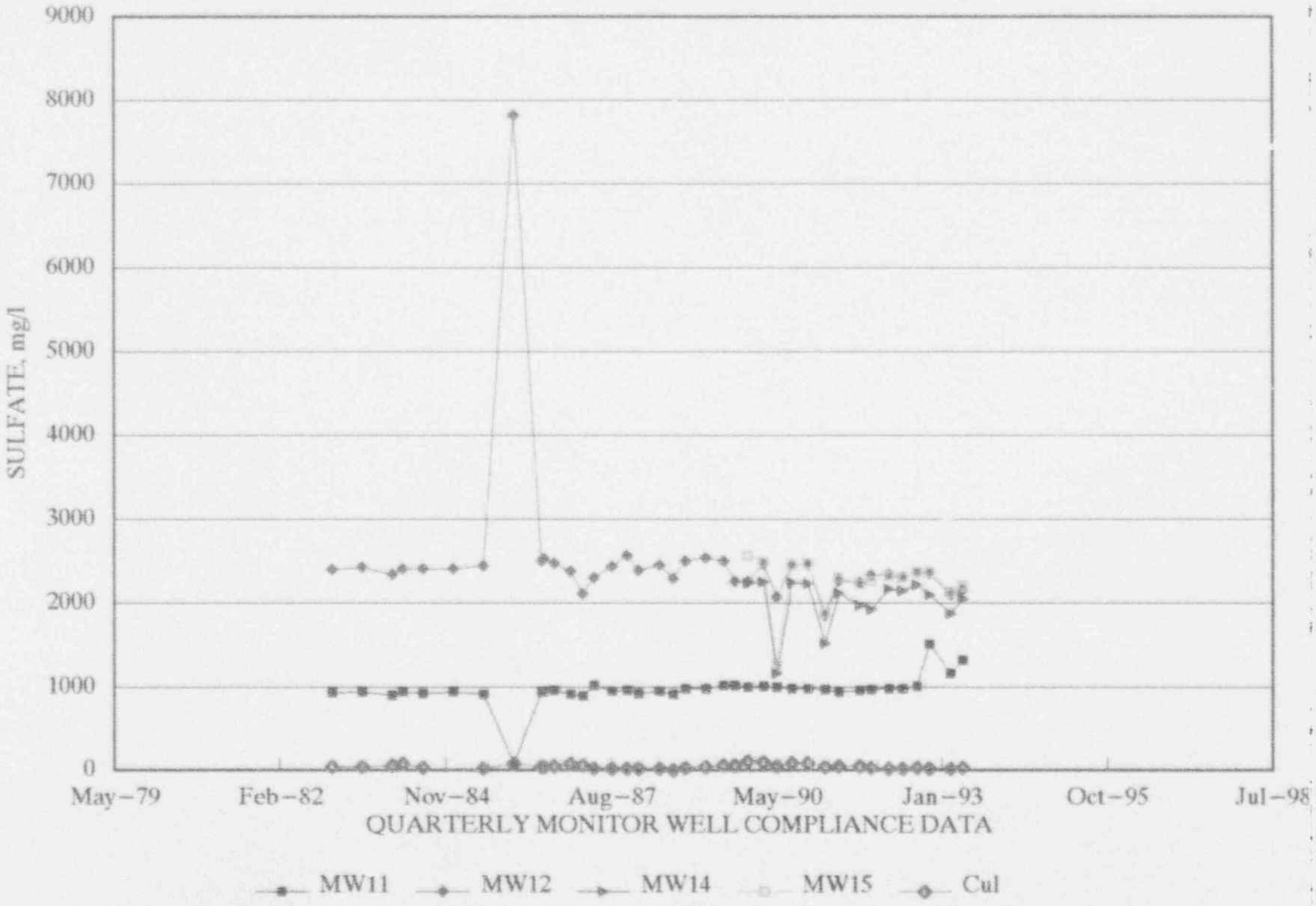
WHITE MESA MILL



Graph 34

UMETCO MINERALS CORPORATION

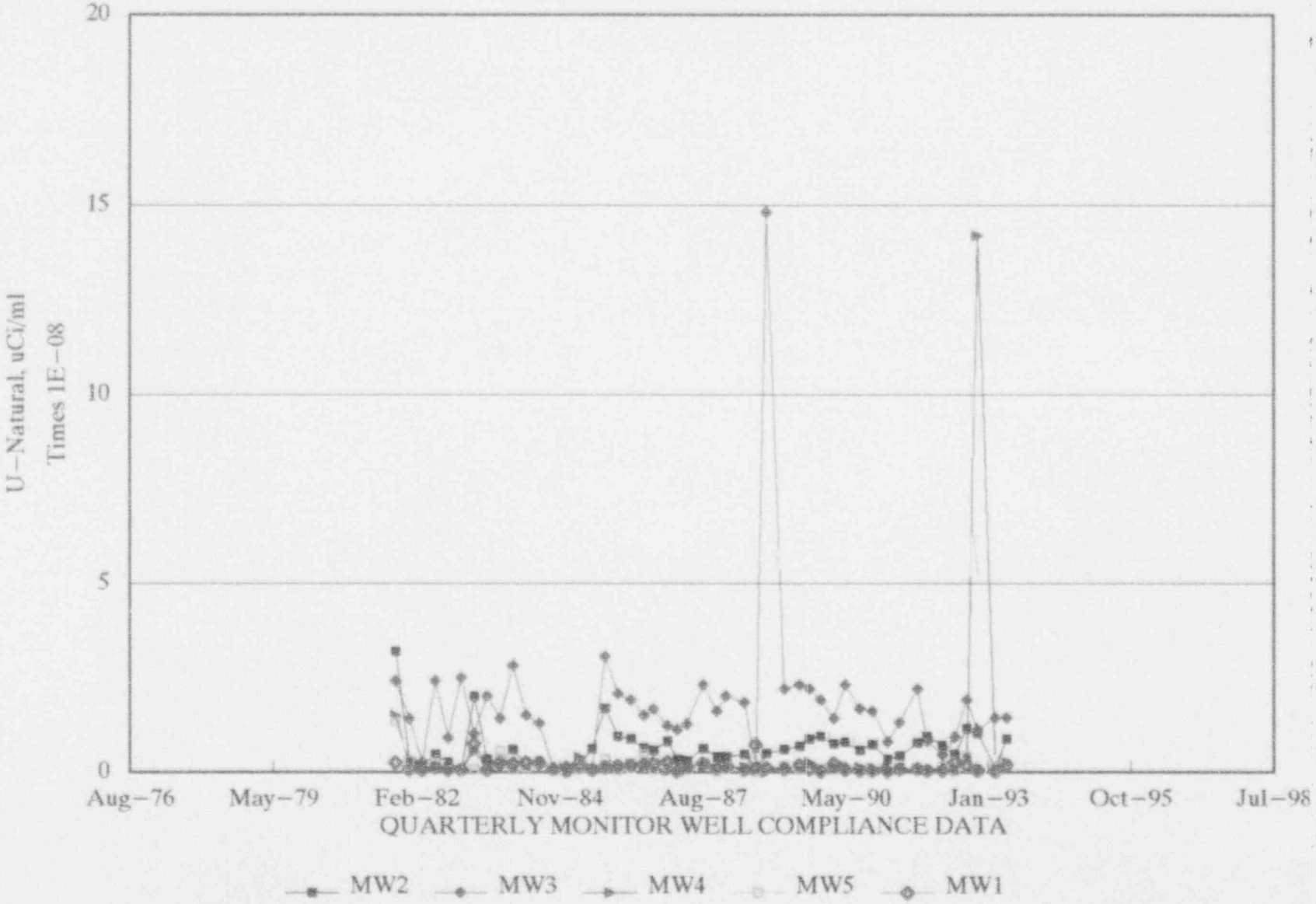
WHITE MESA MILL



Graph 35

UMETCO MINERALS CORPORATION

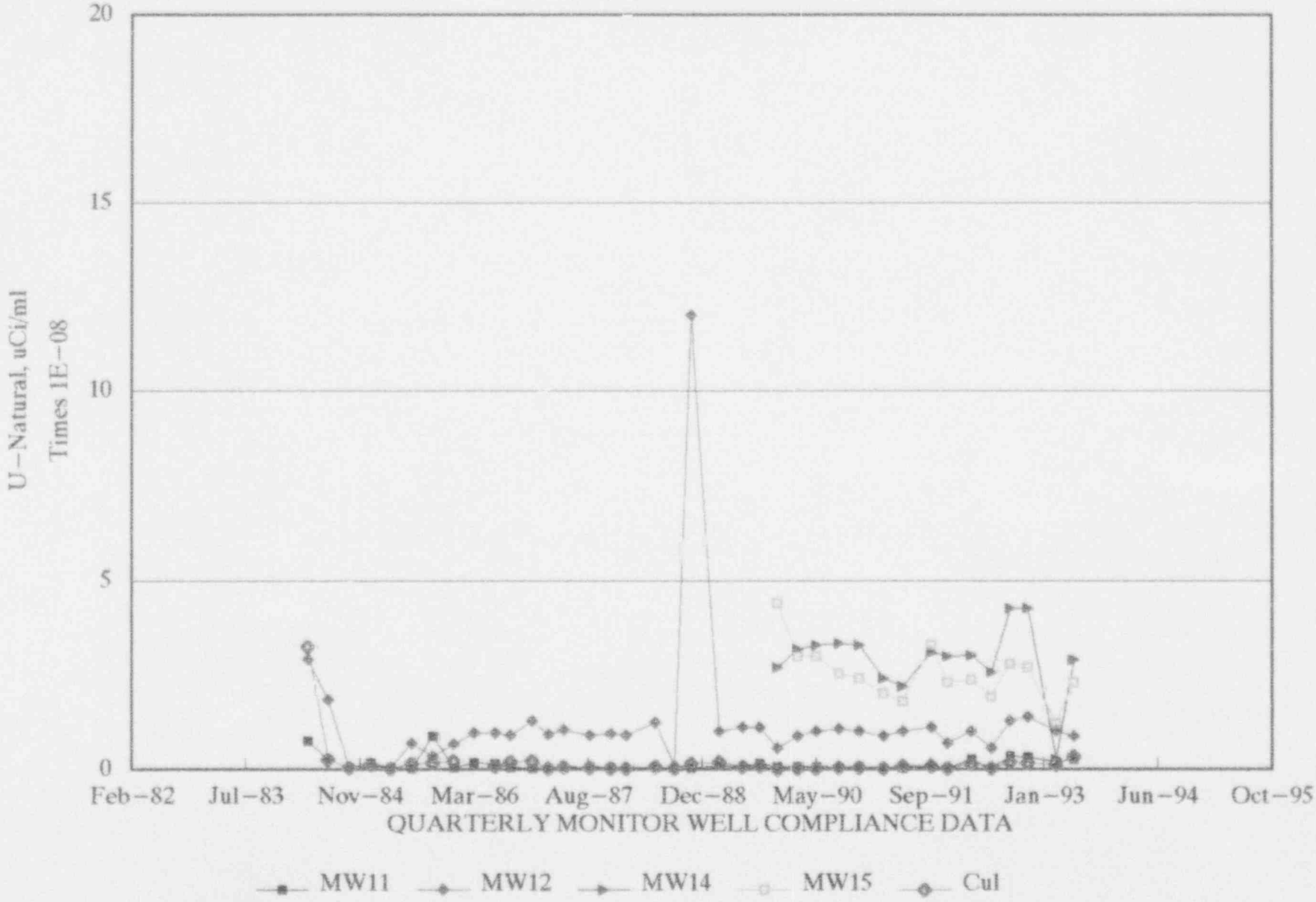
WHITE MESA MILL



Graph 36

UMETCO MINERALS CORPORATION

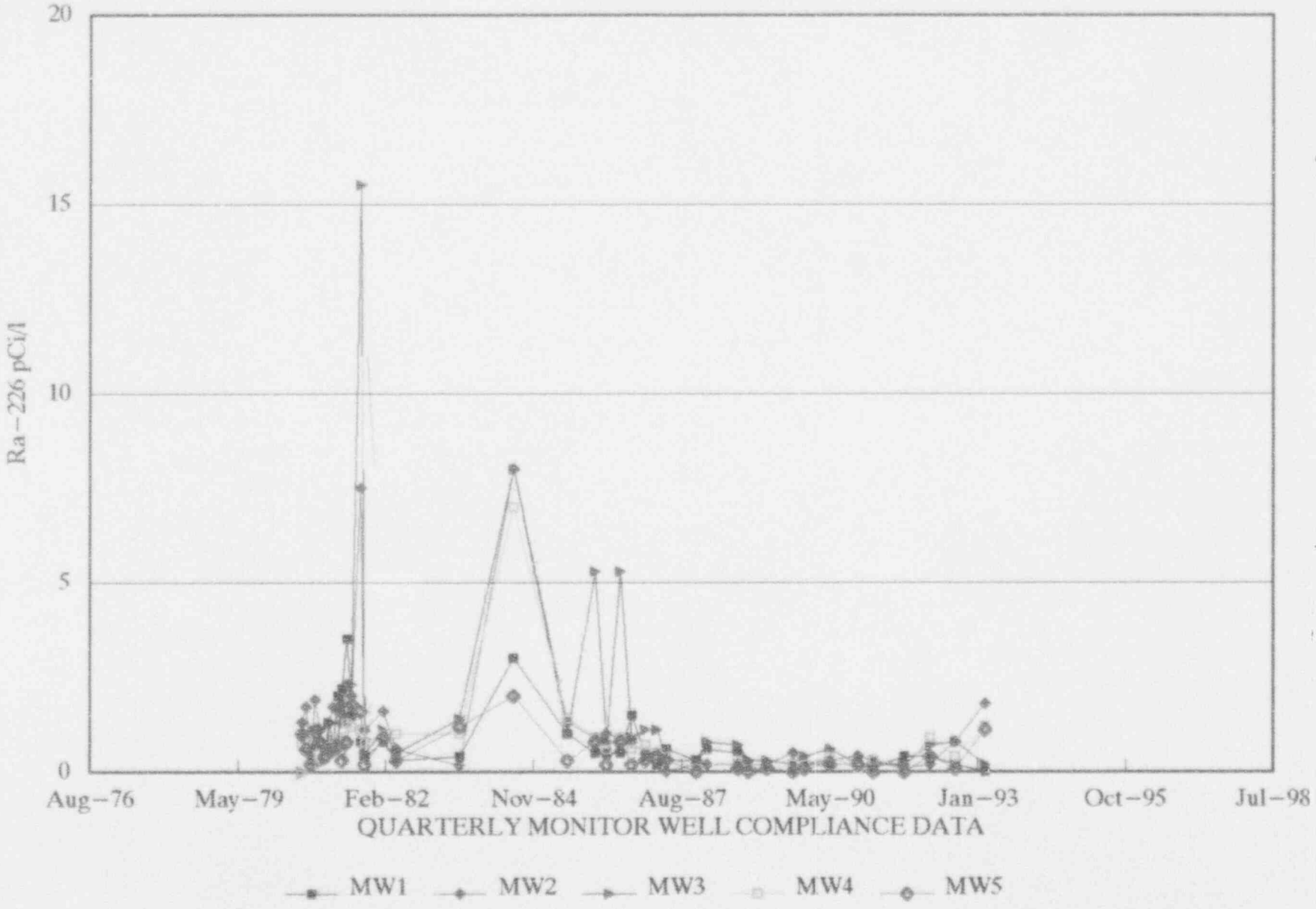
WHITE MESA MILL



Graph 37

UMETCO MINERALS CORPORATION

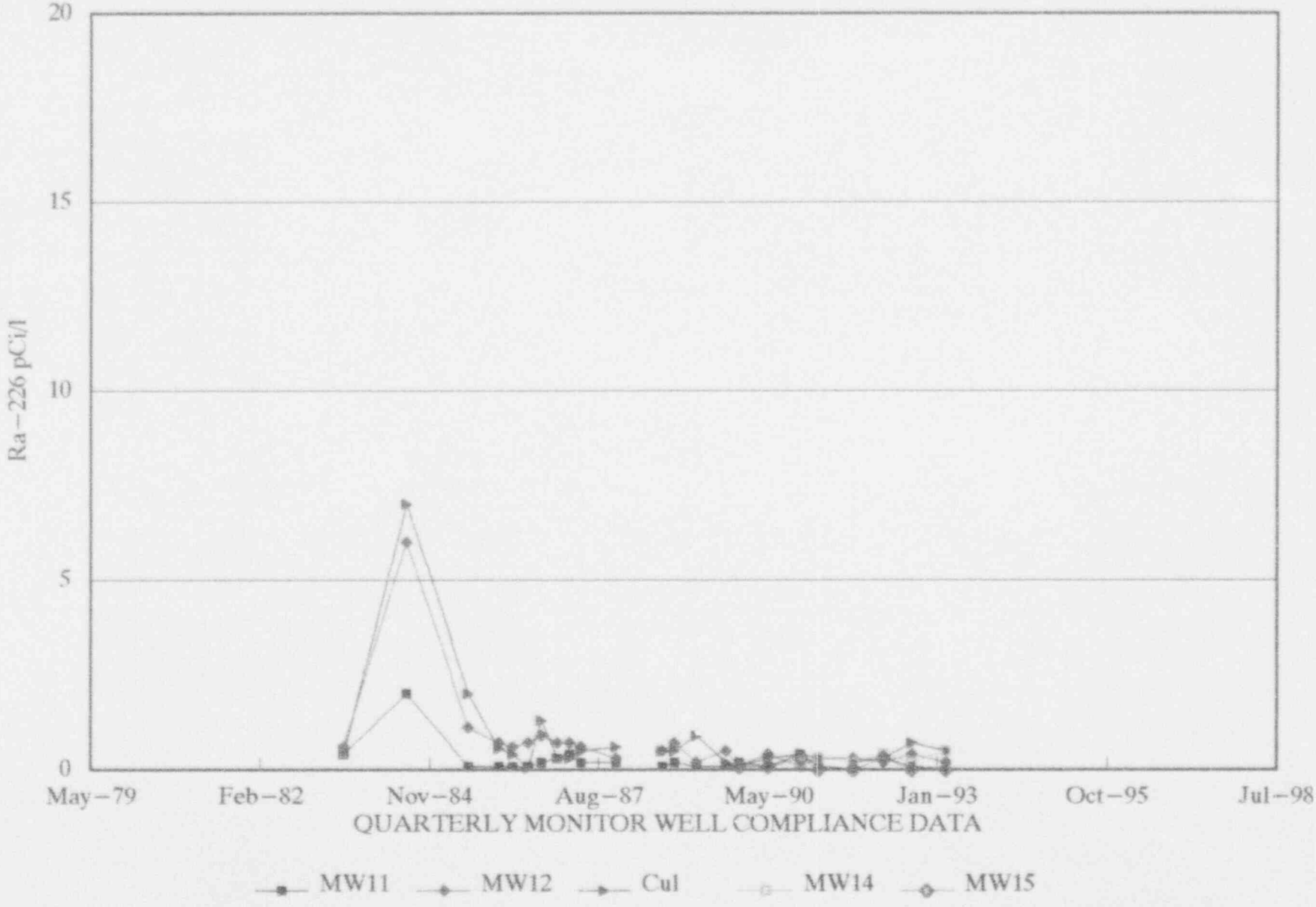
WHITE MESA MILL



Graph 38

UMETCO MINERALS CORPORATION

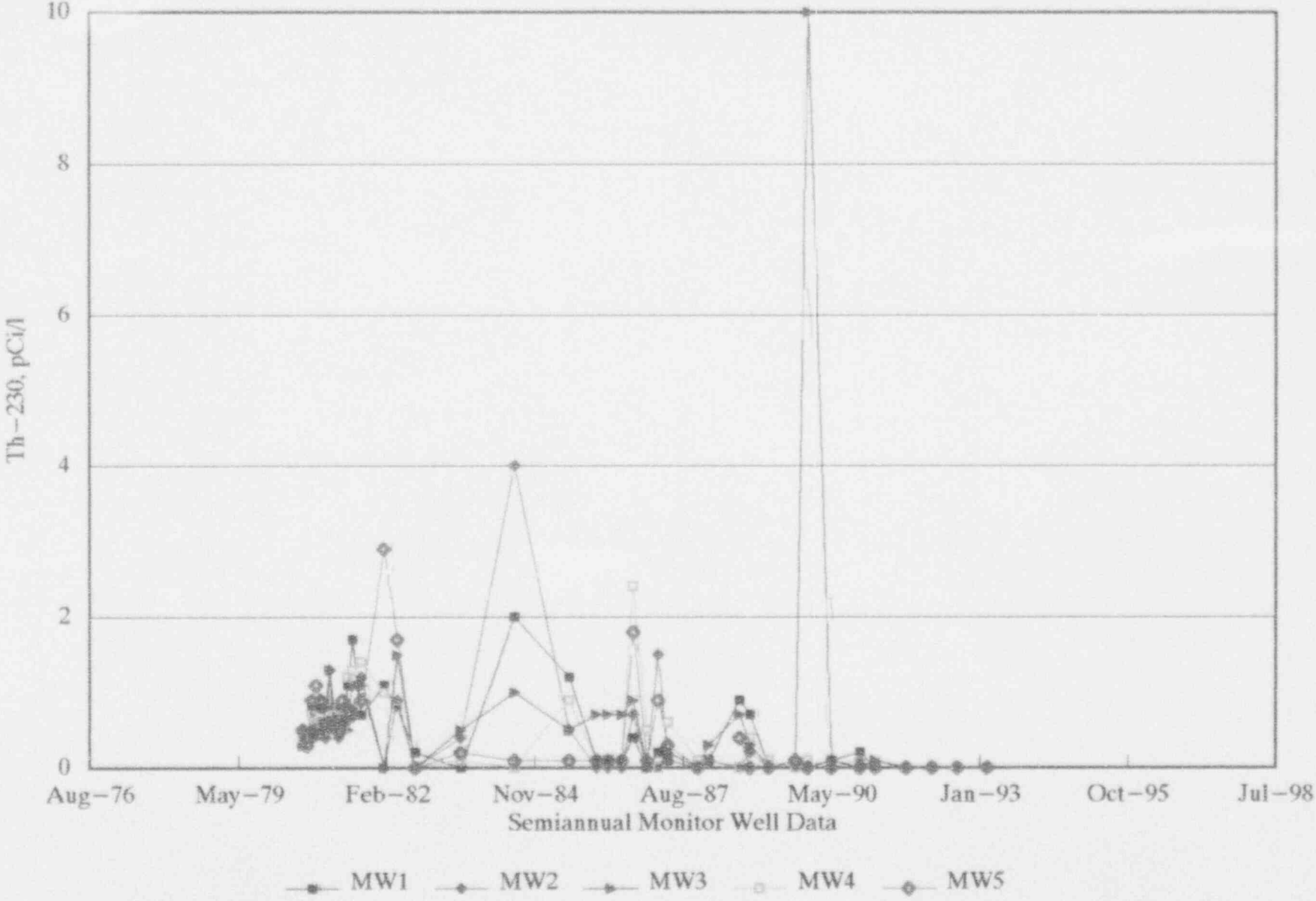
WHITE MESA MILL



Graph 39

UMETCO MINERALS CORPORATION

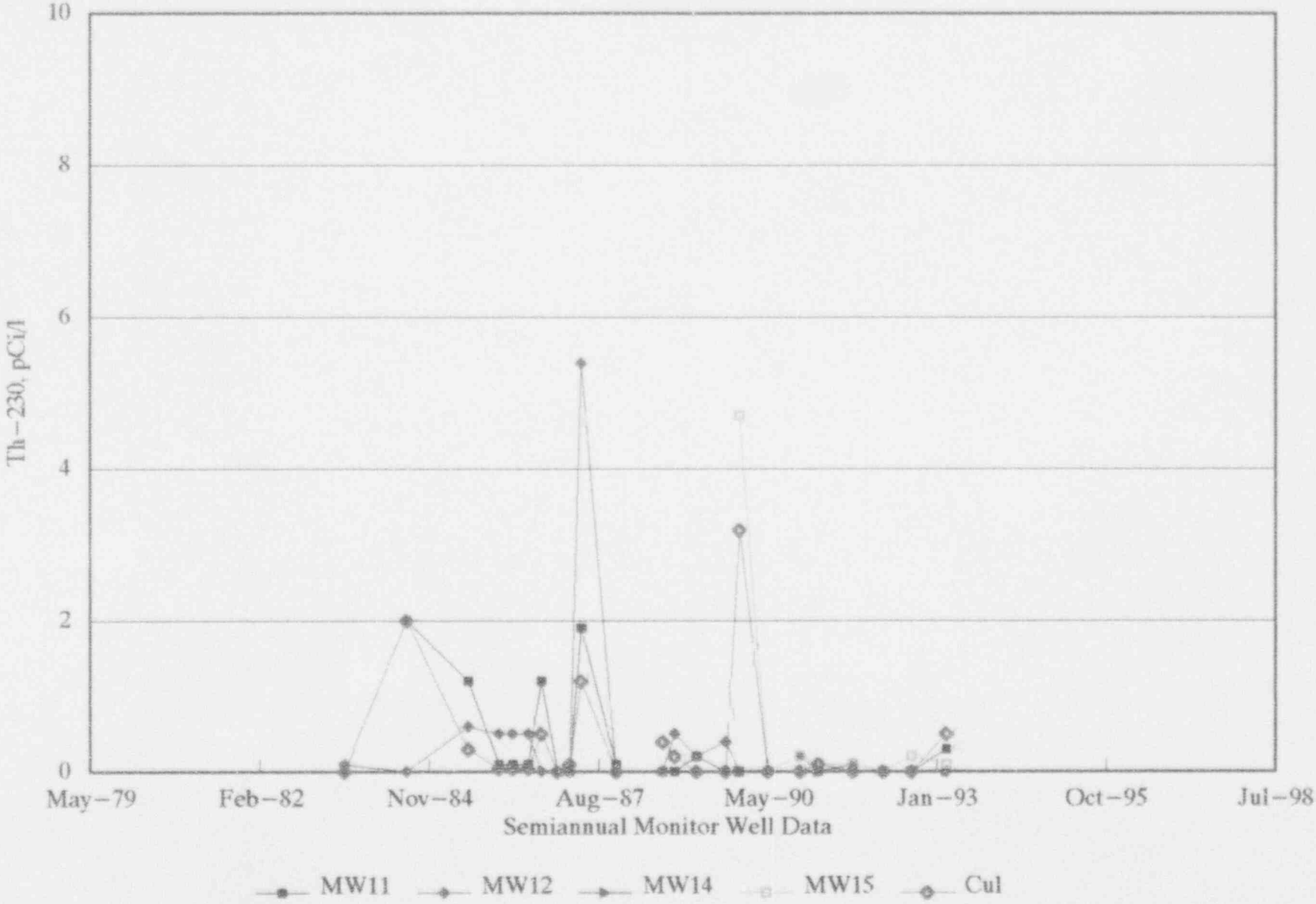
WHITE MESA MILL



Graph 40

UMETCO MINERALS CORPORATION

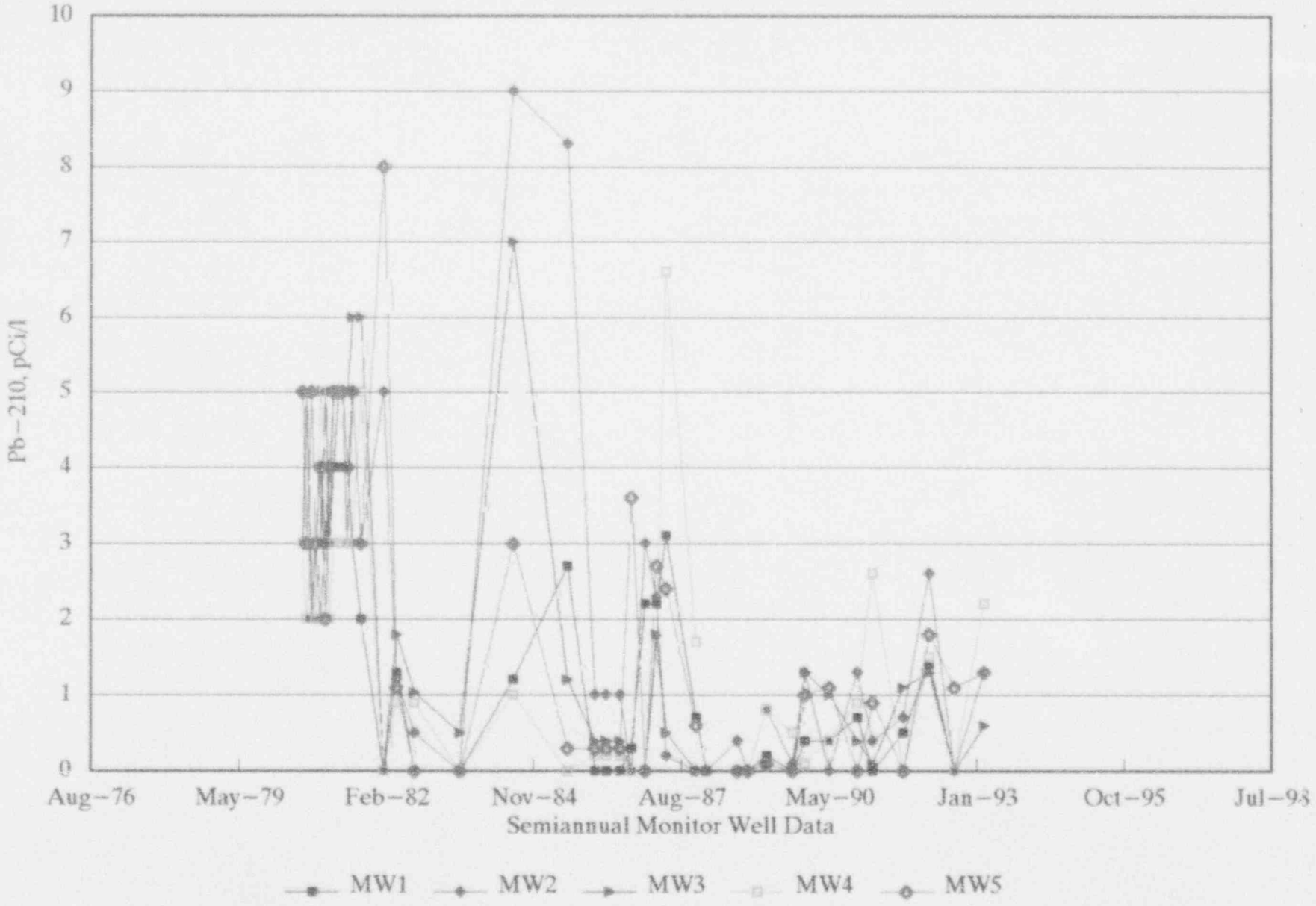
WHITE MESA MILL



Graph 41

UMETCO MINERALS CORPORATION

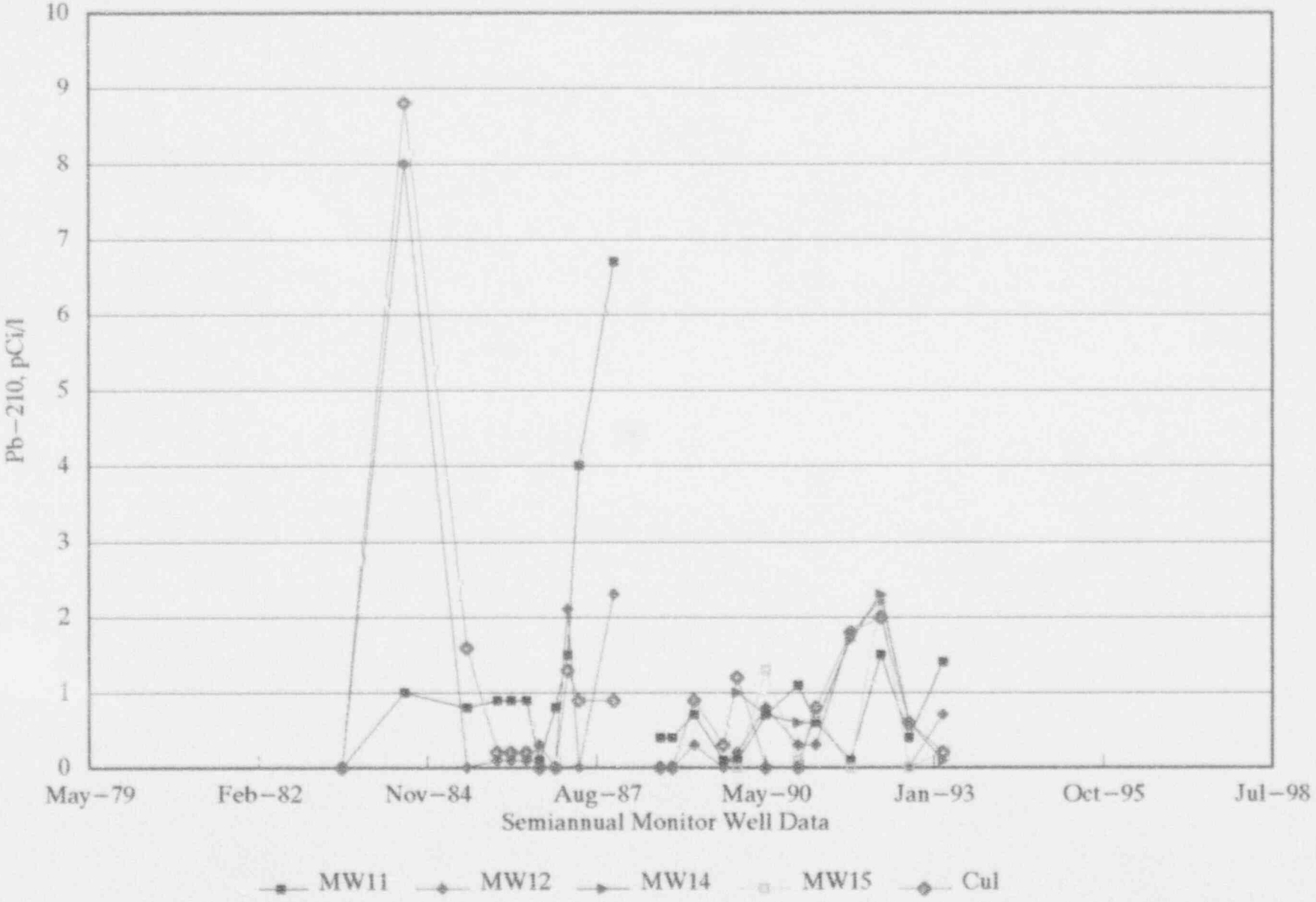
WHITE MESA MILL



Graph 42

UMETCO MINERALS CORPORATION

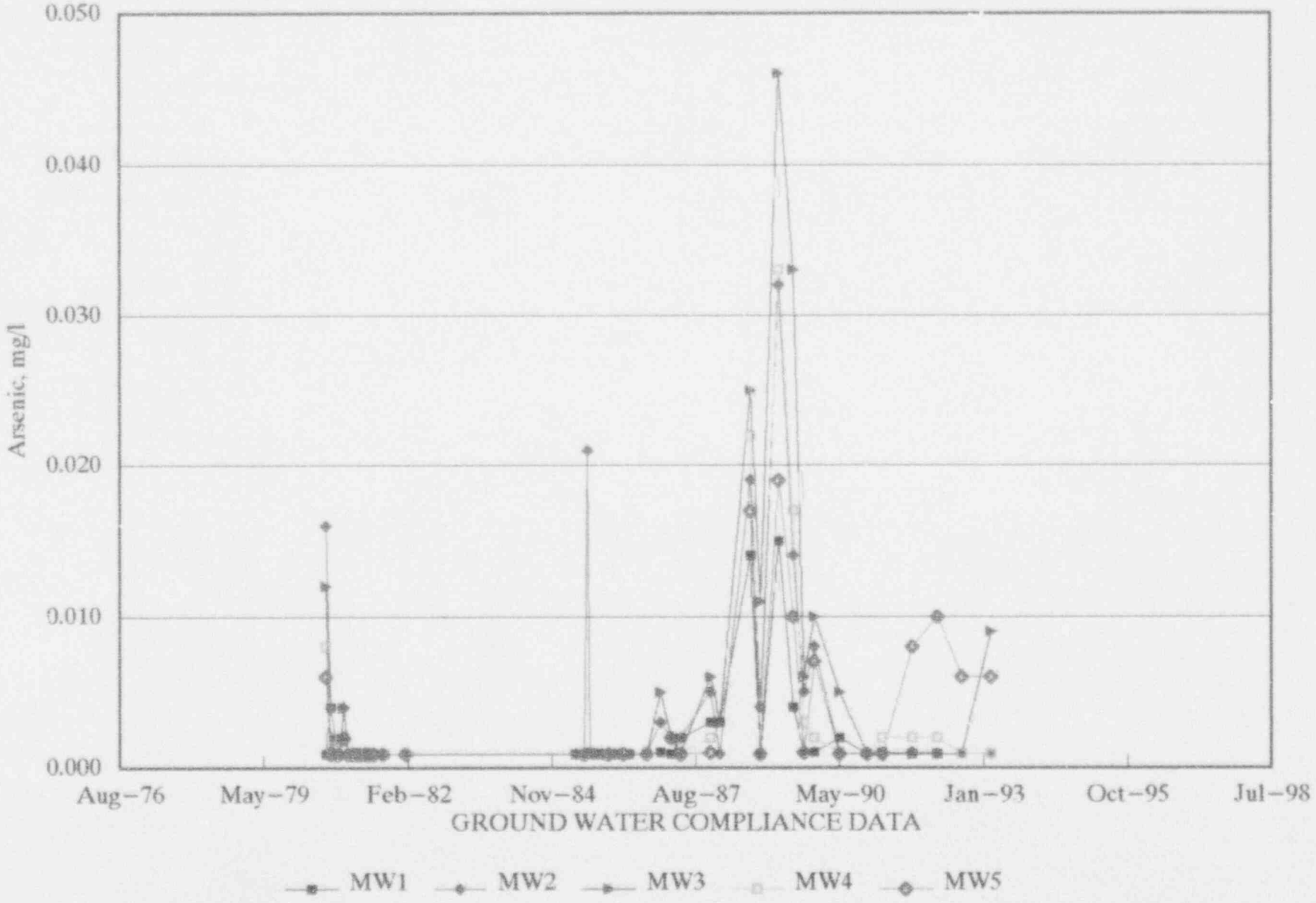
WHITE MESA MILL



Graph 43

Umetco MINERALS CORPORATION

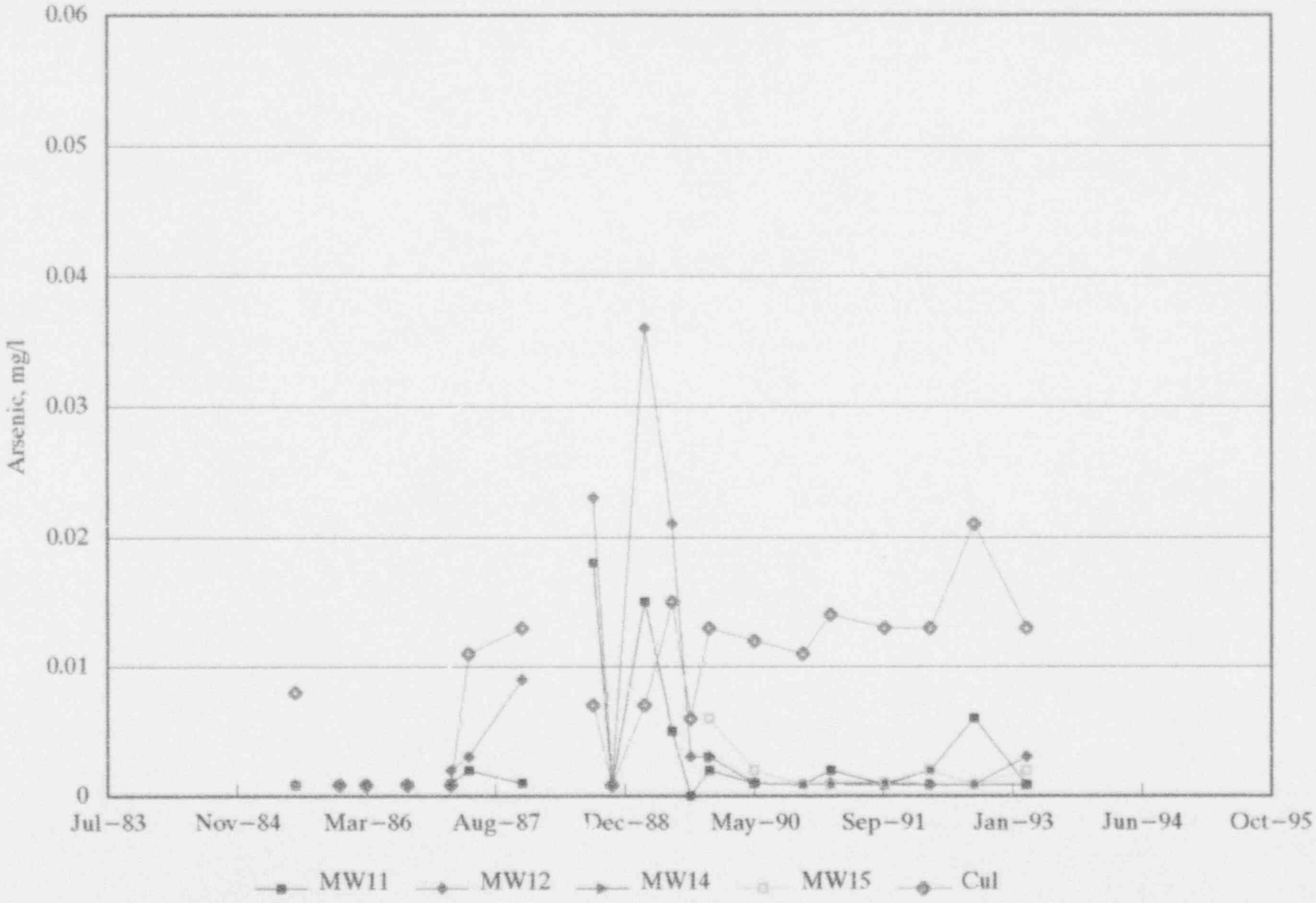
WHITE MESA MILL



Graph 44

UMETCO MINERALS CORPORATION

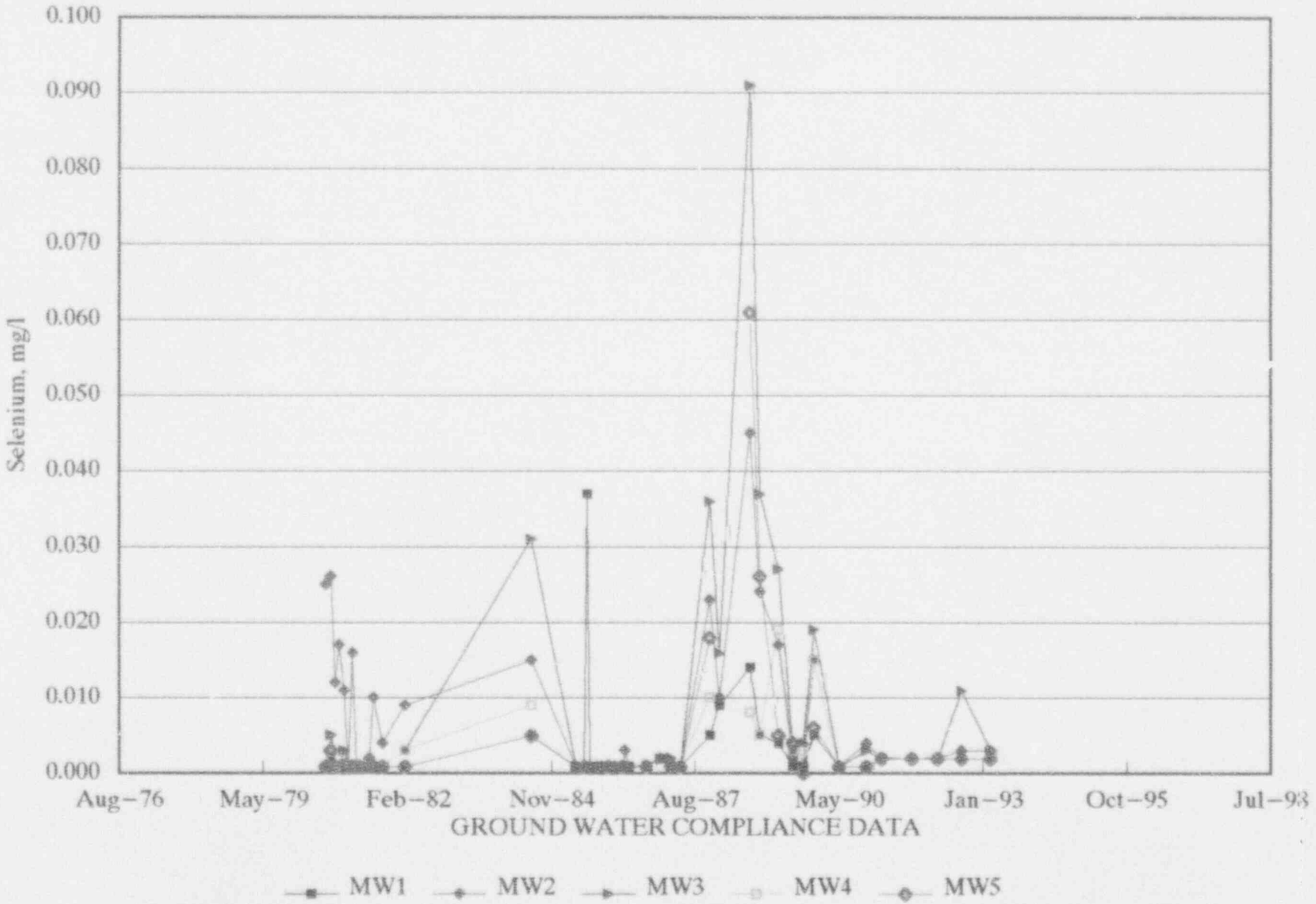
White Mesa Mill



Graph 45

Umetco MINERALS CORPORATION

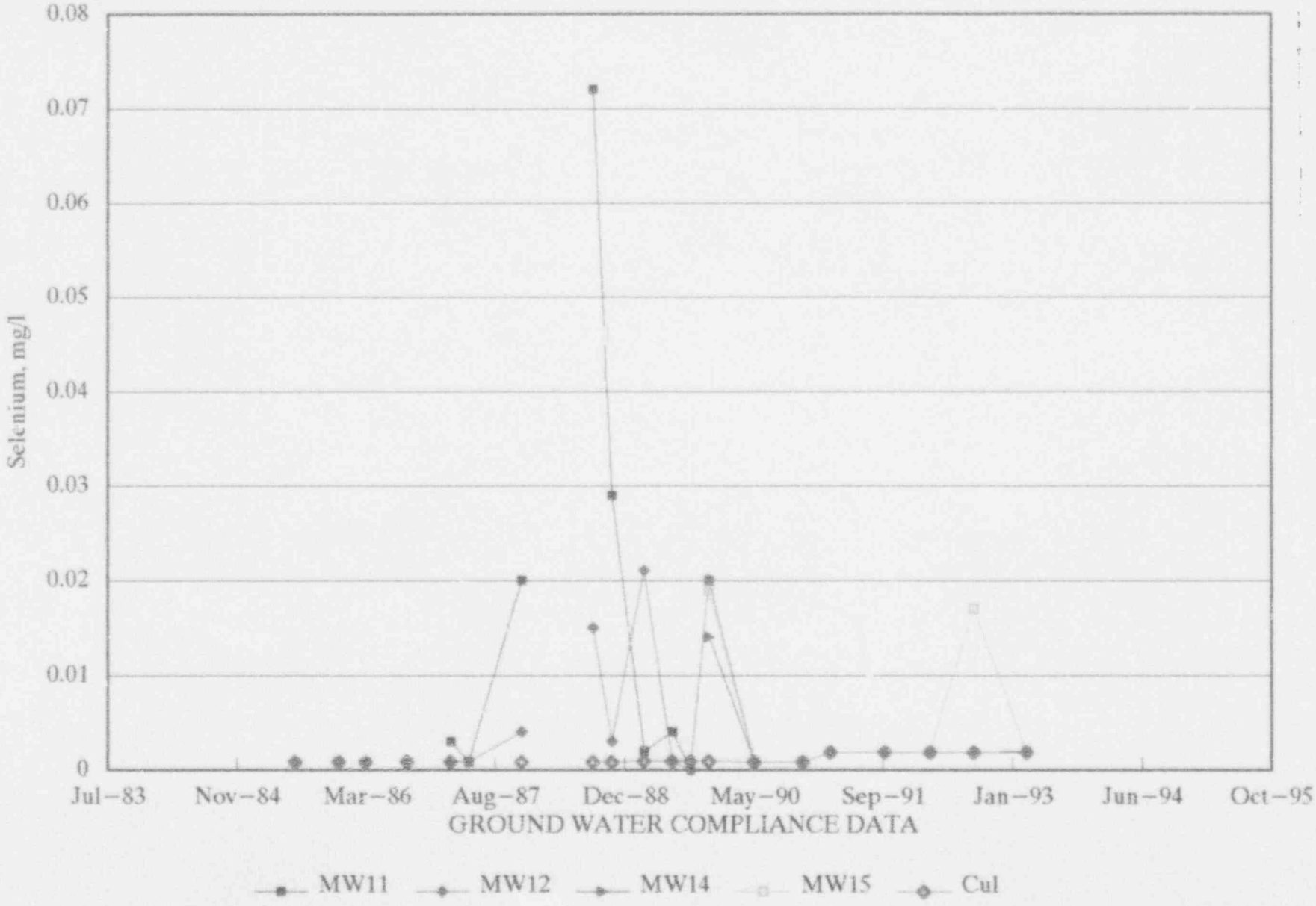
WHITE MESA MILL



Graph 46

Umetco MINERALS CORPORATION

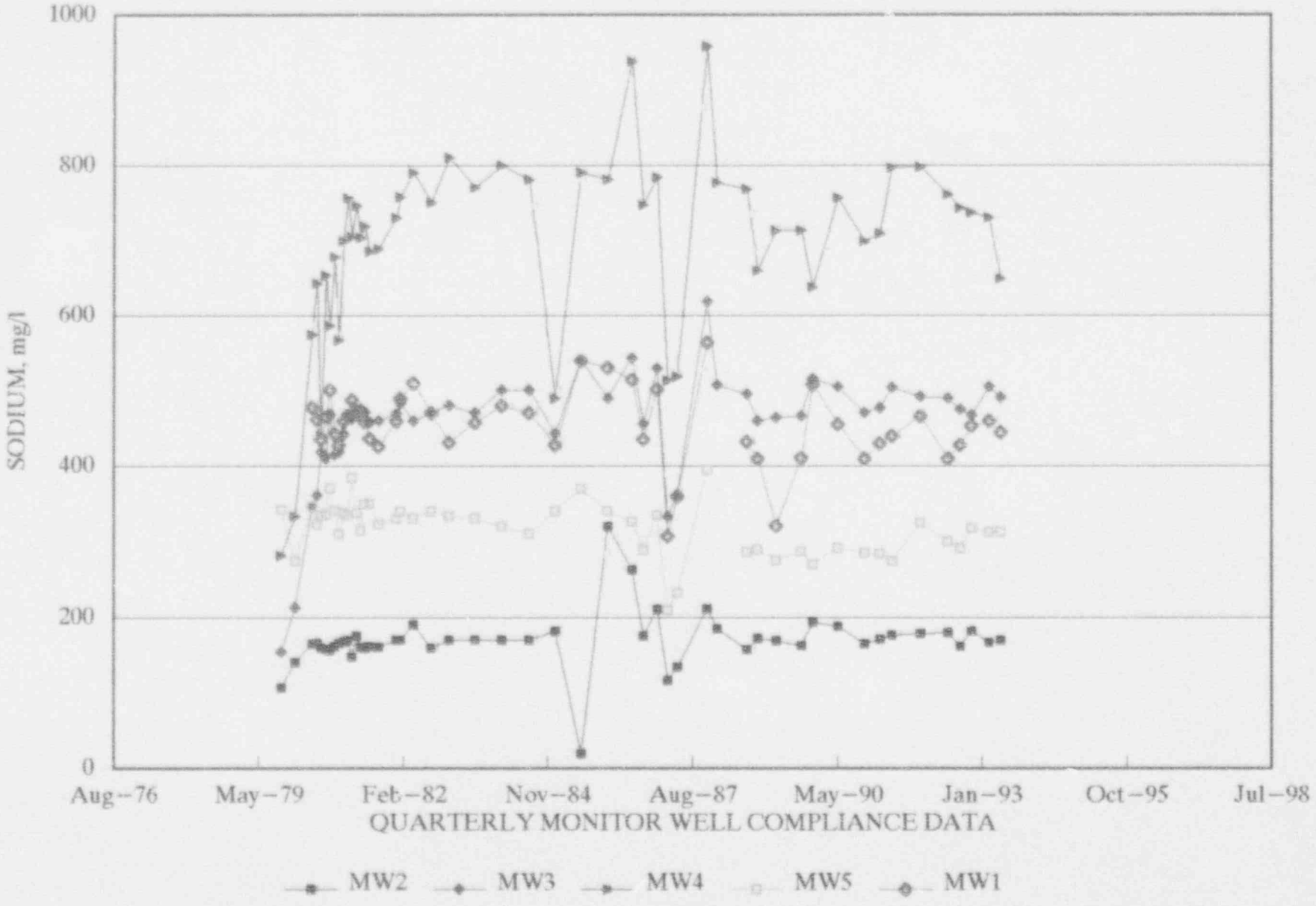
WHITE MESA MILL



Graph 47

UMETCO MINERALS CORPORATION

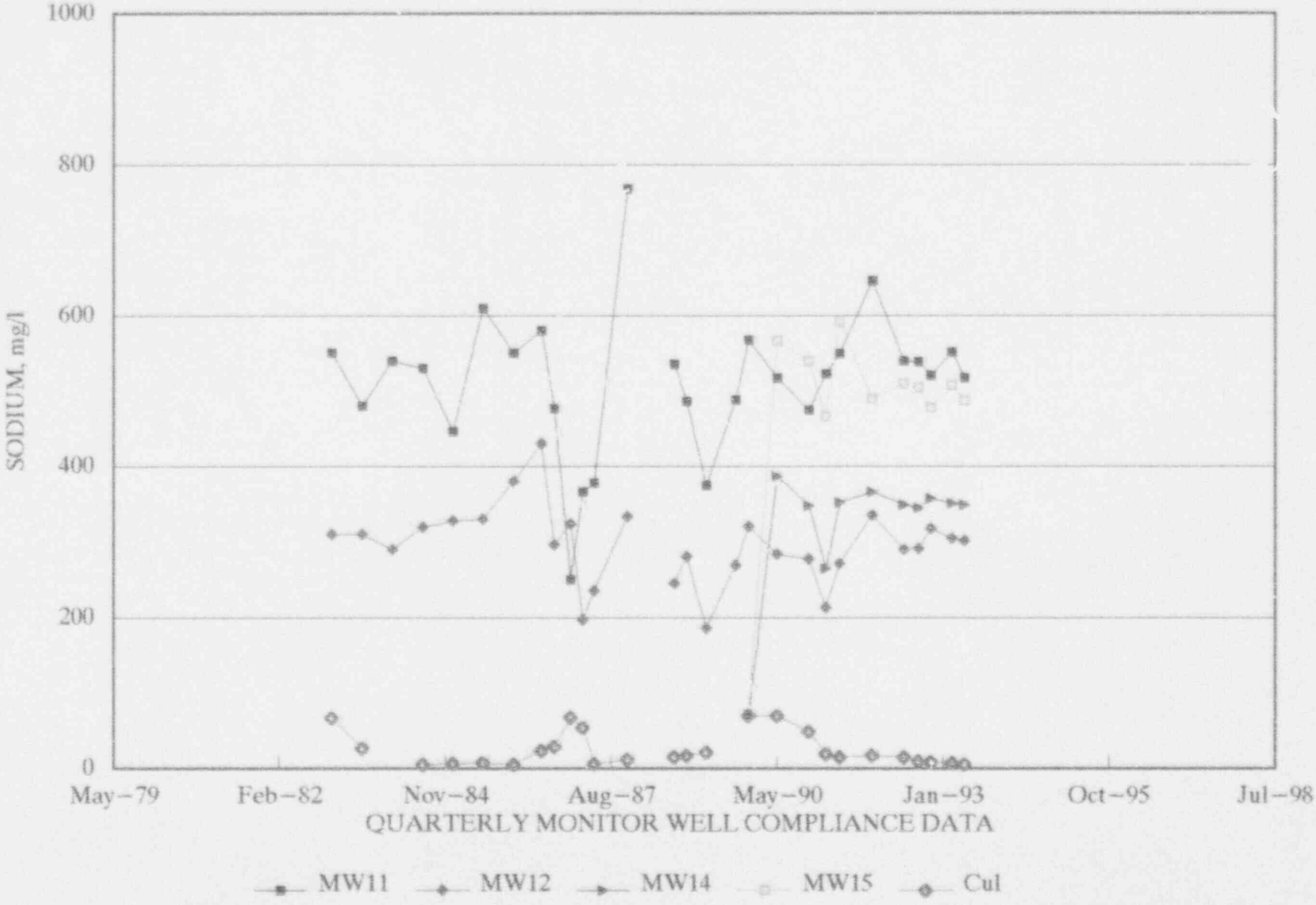
WHITE MESA MILL



Graph 48

UMETCO MINERALS CORPORATION

WHITE MESA MILL



Graph 49

TABLE 22

UMETCO MINERALS CORPORATION
WHITE MESA MILL
SURFACE WATER ANALYSIS
SEMI-ANNUAL EFFULENT REPORT

	Cottonwood 1st 93	2nd 93	3rd 93	4th 93	Westwater** 1st 93	2nd 93	3rd 93	4th 93
Date of Sample	02/02/93	06/04/93			02/02/93			
Field Temperature, C	0.9	20.1			3.1			
Field pH	8.67	8.88			8.56			
Field Sp.Cond.(μmhos)	704	505			1364			
TDS (mg/l)	400	187			93			
TSS (mg/l)	477	12			970			
Gross Alpha (þCi/l)	6.8	4.2			11			
LLD (þCi/l)	2.0	2.0			2			
Gross Beta (þCi/l)	7.7	2.2			8			
LLD (þCi/l)	4.0	4.0			4			
Ra-226 suspended (þCi/l)	2.3				1.1			
Ra-226 dissolved (þCi/l)	0.4				0.1			
LLD (þCi/l)	0.2				0.3			
Th-230 suspended (þCi/l)	0				0.3			
Th-230 dissolved (þCi/l)	0.2				0			
LLD (þCi/l)	0.2				0.4			
U-nat. suspended (μCi/ml)	2.00E-10				2E-10			
U-nat. dissolved (μCi/ml)	1.02E-08				6.77E-07			
LLD (μg/l)	2.00E-10				2E-10			

** Westwater is now on an annual sample basis. Westwater is checked weekly and after significant precipitation events.

APPENDIX A

SEMI-ANNUAL METEOROLOGY MONITORING REPORT WHITE MESA MILL - BLANDING JANUARY THROUGH JUNE 1993

Prepared for:

UMETCO MINERALS CORPORATION
P.O. Box 669
Blanding, Utah 84511

Prepared by:

ENECOTECH INC.
1580 Lincoln Street, Suite 1000
Denver, Colorado 80203

July 1993

PROJECT NUMBER: 109-009

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1.0 INTRODUCTION

In 1977, meteorological, air quality, and radiological monitoring was initiated at the Umetco Minerals Corporation White Mesa Mill. The original purpose of these monitoring programs was to document the regional atmospheric baseline and to provide adequate data to assess the potential air quality impacts resulting from the mill. The monitoring programs were modified to address compliance of mill operations after construction of the mill. This report summarizes the meteorological data collected from this monitoring program for the period January through June 1993.

2.0 MONITORING PROGRAM DESCRIPTION

The meteorological parameters collected include wind speed, wind direction, standard deviation of horizontal wind direction (σ_θ), and atmospheric stability. The data was collected and processed under general site operations protocol and quality assurance activities.

2.1 Site Description

The region encompassing the Umetco White Mesa Mill (Blanding Station) is shown in Figure 2.1. The mill is located on White Mesa approximately five miles south of the town of Blanding, Utah, just west of State Highway 47. The surrounding terrain slopes up towards the north and down to the south through southwest. The meteorological monitoring station, located on the northern property boundary of the mill, is situated in the southwest corner of Section 22, T37S, R22E at an elevation of 5660 feet above mean sea level (AMSL). The location was chosen for the purpose of compliance monitoring for operations at the mill.

2.2 Monitoring Instrumentation

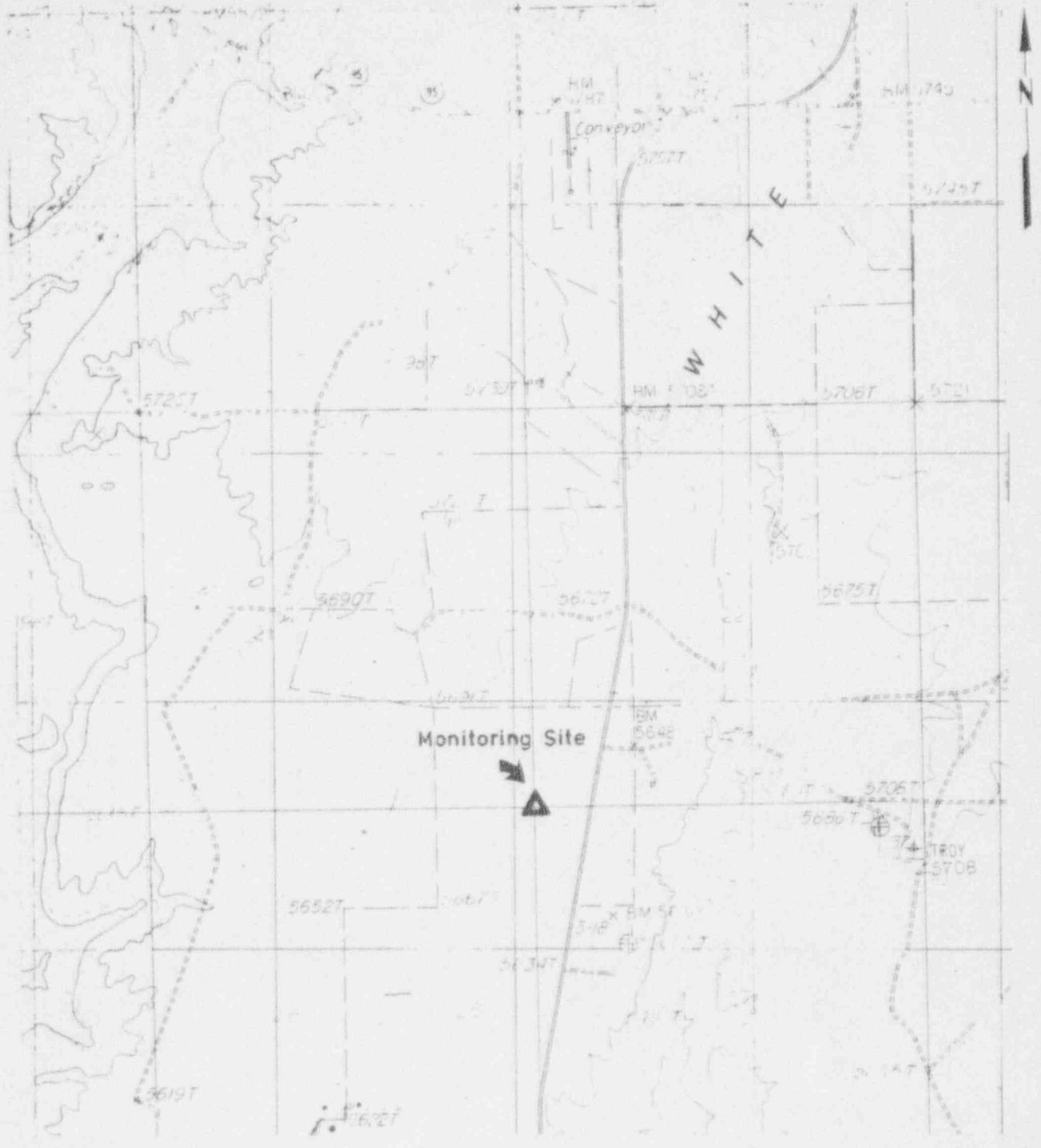
The sensors, their accuracies and the sampling heights used in the monitoring program are shown in Table 2.1. The Weathertronics wind cup anemometer and wind vane are connected to a Campbell Scientific CR-10 Data Logger, which continuously records wind speed and wind direction at the standard ten-meter height. Hourly averages of these parameters and hourly σ_θ are calculated and retained in the data logger storage module. Data stored in the module is transferred to cassette tape on a weekly basis.

2.3 Data Collection and Processing

The cassette data tapes from the CR-10 are sent to EnecoTech's Denver office, where they are subsequently downloaded onto a computer. The data is then processed for subsequent analysis.

2.4 Quality Assurance

After the meteorological data is downloaded and processed, it is checked for any apparent anomalies. If any are discovered, the project manager is notified and the reasons for the erroneous data along with possible solutions to the problem are discussed. The site technician is then contacted and given instructions for any necessary repairs. If required, an EnecoTech scientist is dispatched to the site. Any anomalous data is corrected, if possible. If the erroneous data can not be corrected it is coded as invalid in the data files.



Scale 1 : 24000

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Umetco Minerals

Project: White Mesa Mill

Air Monitoring Location

File No.: 109-009 Date: July 1993 Figure No.: 2.1

TABLE 2.1

INSTRUMENT SPECIFICATIONS FOR THE UMETCO MINERALS CORPORATION WHITE MESA MILL

Parameter	Instrument Reading Accuracy	Height	Manufacturer and Model Number
Wind Speed	0.34 m/sec	10 m	Weathertronics 2030
Wind direction	± 2.0°	10 m	Weathertronics 2030
σ_θ	-	10 m	Mathmatical
Data logger	-	-	Campbell Scientific CR-10

3.0 MONITORING RESULTS

Meteorological data was collected at the White Mesa Mill site and processed according to the procedures described in Section 2.0. The data was also subjected to a calm processing routine in which any hour's average wind speed less than or equal to 1.0 m/s was set equal to 1.0 m/s and the wind direction was set equal to the last non-calm hour's wind direction. The stability class was determined for each hour (see Section 3.3) and the data set was then analyzed by time of day and stability classification.

3.1 Hourly Data Presentation

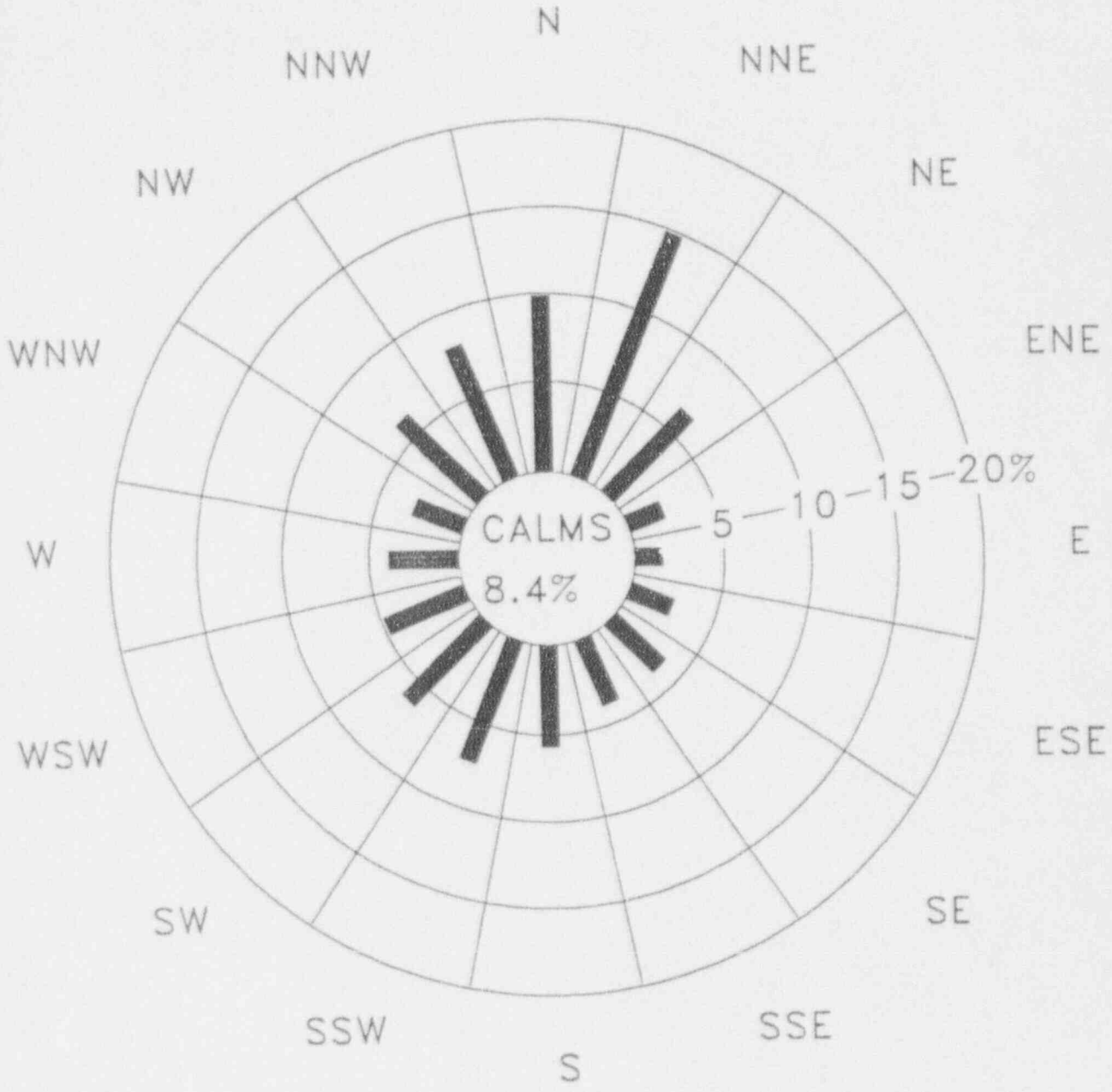
Hourly averaged values of wind speed, wind direction, and σ_θ are presented in Appendix A in the Storage and Retrieval of Aerometric Data (SAROAD) format. This format is a method of presenting air quality and meteorological data. The SAROAD format also includes, when applicable, average monthly values for each hour, daily averages and monthly averages.

3.2 Wind Analysis by Hour of the Day

The standard wind frequency distribution for the reporting period is presented graphically in Figure 3.1. To show the diurnal wind patterns, additional wind frequency distributions were developed graphically in 4-hour segments throughout the day (midnight to 4:00 a.m., 4:00 a.m. to 8:00 a.m., etc.) and are presented in Figure 3.2. A joint frequency distribution of wind direction by wind speed was produced from the data collected at the site over the reporting period and is presented in Table 3.1. The joint frequency distributions for Figure 3.2 are presented in Appendix B, Tables B-1 through B-7. For reference, one meter per second (m/s) equals 2.24 miles per hour (mph).

Figure 3.1 shows the dominant flow for the period was a drainage wind out of the north-northeast occurring 14.9 percent of the time. This flow is a result of the surrounding terrain's influence on the site.

Figure 3.2 confirms the downslope wind pattern seen in Figure 3.1 and displays the diurnal pattern of this flow as well as other less prominent flows. During the nighttime hours from 20-08 Mountain Standard Time (MST) the north-northeasterly winds were most prominent. These drainage winds occurred over 20 percent of the time during the evening hours, with speeds averaging 2.6 m/s (5.8 mph). For the daylight hours from 08-16 MST, the prominent winds were from the south through south-southwest. These were return or upslope flows and occurred over 25 percent of the time during the daytime hours with a mean speed of 3.8 m/s (8.6 mph).



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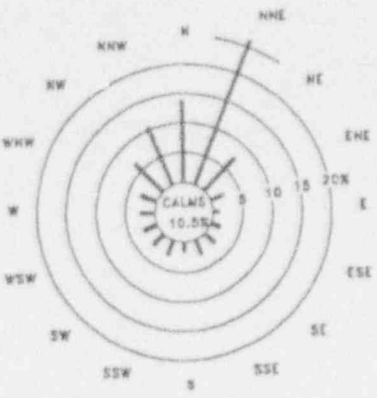
Umetco Minerals Corporation

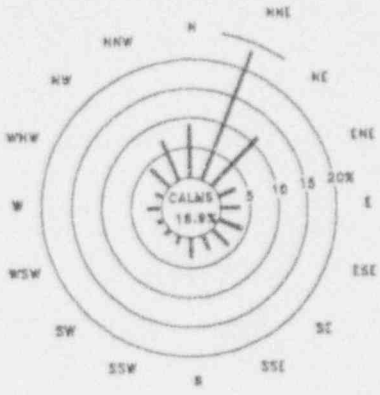
Project: White Mesa Mill

Wind Frequency Distribution
For All Hours
January through June 1993

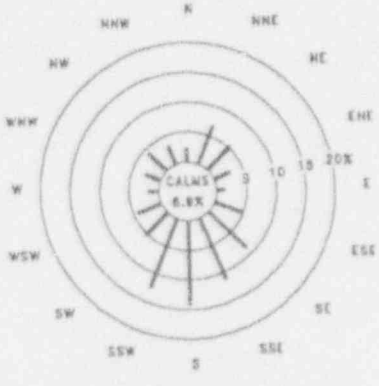
File No.: 109-009 Date: July 1993 Figure No.: 3.1



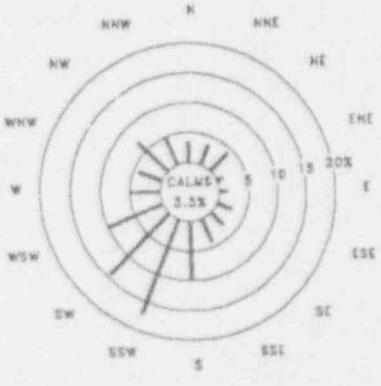
00-04 MST



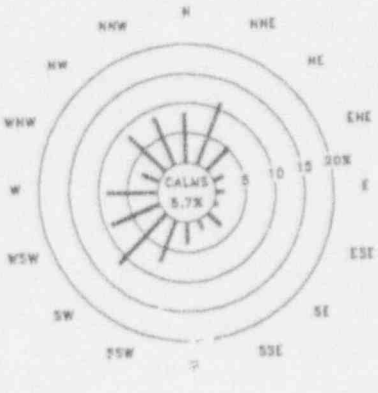
04-08 MST



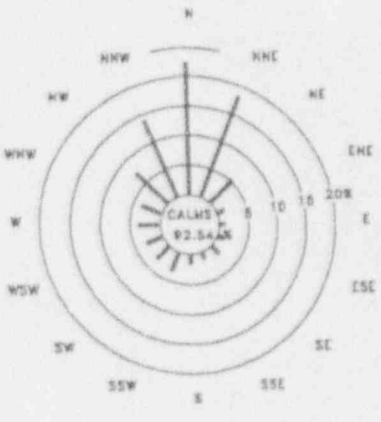
08-12 MST



12-16 MST



16-20 MST



20-24 MST

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Umetco Minerals Corporation

Project: White Mesa Mill

Wind Frequency Distribution
by Hour of the Day
January through June 1993

File No.: 109-009 Date: July 1993 Figure No.: 3.2

TABLE 3.1

FREQUENCY OF WINDS BY DIRECTION AND SPEED
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL
TIME (MST): 0000-2400

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.81	4.90	3.73	0.48	0.05	0.00	9.97	2.8
NNE	1.59	8.59	4.33	0.44	0.00	0.00	14.94	2.6
NE	1.04	3.98	1.17	0.39	0.00	0.00	6.58	2.5
ENE	0.62	1.17	0.30	0.05	0.00	0.00	2.14	2.1
E	0.51	0.94	0.14	0.02	0.00	0.00	1.61	1.9
ESE	0.51	1.57	0.37	0.12	0.02	0.00	2.58	2.4
SE	0.44	1.68	1.24	0.41	0.05	0.00	3.82	3.1
SSE	0.25	2.16	1.31	0.21	0.02	0.00	3.96	2.8
S	0.32	2.12	2.26	0.85	0.23	0.00	5.78	3.7
SSW	0.41	2.26	2.69	1.70	0.37	0.00	7.44	4.0
SW	0.32	1.61	2.21	1.61	0.60	0.00	6.35	4.3
WSW	0.30	1.24	1.57	1.34	0.46	0.02	4.93	4.5
W	0.28	1.22	1.36	0.92	0.21	0.00	3.98	4.0
WNW	0.35	1.04	1.29	0.28	0.05	0.00	2.99	3.2
NW	0.32	1.98	2.21	1.43	0.39	0.02	6.35	4.1
NNW	0.53	2.39	2.69	1.66	0.78	0.07	8.13	4.3
All	8.59	38.86	28.87	11.90	3.22	0.12	91.55	3.4

Calm (less than 1.0 m/s) = 8.4%
Period mean wind speed = 3.2 m/s

R:\DOC5\JABNZ\UMETCO\109009\FH93T31.TBL

The overall mean wind speed from January through July 1993 was 3.2 m/s (7.2 mph). The highest average directional wind speed, 4.5 m/s (10.2 mph), was out of the west-southwest while the lowest average directional wind speed, 1.9 m/s (4.2 mph), was out of the east. Calm conditions (mean wind speed less than or equal to 1.0 m/s or 2.2 mph) occurred 8.4 percent of the time.

The average wind speed of 3.2 m/s (7.2 mph) for the first half of 1993 compared well with the average wind speeds reported in previous semiannual reports for the same time period. The first half of years 1986 through 1992 had mean speeds ranging from 2.4 m/s (5.4 mph) to 3.4 m/s (7.6 mph). The dominant wind direction for these same time periods was north-northeasterly. The differences in wind speed between years can be attributed to year-to-year variability.

3.3 Atmospheric Stability

Atmospheric dispersion stability classifications in the standard Pasquill scheme have been calculated for the Blanding site using the Mitchell-Timbre σ_θ technique. In this technique, Pasquill stability classes are derived from the hourly σ_θ, average wind speed, and the solar angle algorithm to differentiate daytime from nighttime conditions. The Pasquill stability classification scheme involves delineating stability into six classes, A through F. Classes A through C reflect unstable conditions which occur during the day, with Class A being most unstable. Stable conditions are represented by Classes E and F which occur at night, with Class F being more stable than Class E. Neutral conditions are denoted by a D classification and can occur anytime.

Typically, unstable conditions occur when there is good solar heating (clear days) and low wind speeds. Neutral conditions occur with cloudy skies and/or high wind speeds. Stable conditions typically occur when there is radiational cooling (clear nights) and low wind speeds. Usually stable conditions result in the worst dispersion of atmospheric released pollutants.

Table 3.2 presents the total frequency of occurrence of each stability class observed at the White Mesa Mill site throughout the reporting period, not including calm winds. Neutral (D) conditions had the highest frequency of occurrence at 33.0 percent, with slightly stable (E) conditions following at 17.1 percent. Slightly unstable (C) had the next highest frequency at 13.6 percent. Moderately stable (F) had a frequency of 11.1 percent and moderately unstable (B) had a frequency of occurrence of 9.8 percent. Extremely unstable (A) had the least frequency of occurrence at 7.0 percent. This type of distribution is generally consistent with what has been observed in previous reports for this six-month calendar period. Table 3.3 presents the frequency distribution of wind direction by stability class <u>including</u> calm winds. The highest frequency of occurrence of direction by stability class was observed for north-northeast winds under E (slightly stable) conditions at 6.2 percent.

Figure 3.3 presents graphically the wind distribution for each stability class. As anticipated, this figure demonstrates that the atmospheric stability conditions tracked well with the local drainage/return flow pattern of the area observed in Figure 3.2. Unstable conditions (Classes A through C) were associated with winds from the

TABLE 3.2

STABILITY CLASSIFICATION AND FREQUENCY OF OCCURRENCE
OF PASQUILL STABILITY CLASSES
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL

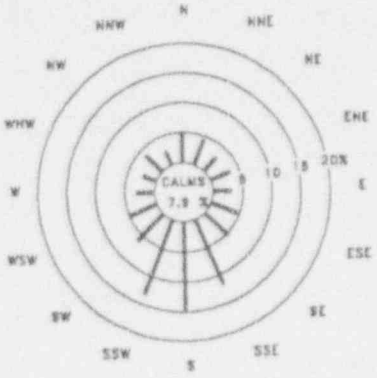
Stability Classification	Pasquill Categories	Percent Occurrence
Extremely Unstable	A	7.0
Moderately Unstable	B	9.8
Sightly Unstable	C	13.6
Neutral	D	33.0
Slightly Stable	E	17.1
Moderately Stable	F	11.1

TABLE 3.3

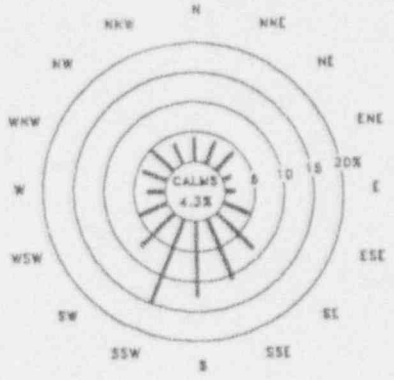
FREQUENCY OF WINDS BY STABILITY CLASS
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL

Direction	Stability Category A	B	C	D	E	F	All
N	0.37	0.41	0.44	2.99	2.69	3.06	9.97
NNE	0.35	0.41	1.01	5.09	6.15	1.93	14.94
NE	0.23	0.44	0.94	2.37	1.45	1.15	6.58
ENE	0.28	0.16	0.39	0.48	0.32	0.51	2.14
E	0.23	0.18	0.44	0.25	0.25	0.25	1.61
ESE	0.37	0.53	0.64	0.48	0.25	0.30	2.58
SE	0.41	0.87	0.81	1.34	0.18	0.21	3.82
SSE	0.90	1.10	0.64	0.92	0.28	0.12	[illegible]
S	1.13	1.29	1.24	1.91	0.12	0.09	5.78
SSW	1.01	1.54	1.96	2.23	0.44	0.25	7.44
SW	0.48	0.81	1.73	2.44	0.64	0.25	6.35
WSW	0.37	0.48	0.85	2.76	0.21	0.25	4.93
W	0.23	0.30	0.51	2.12	0.53	0.30	3.98
WNW	0.18	0.44	0.55	0.87	0.53	0.41	2.99
NW	0.30	0.48	0.71	2.92	1.04	0.90	6.35
NNW	0.18	0.37	0.69	3.78	2.00	1.10	8.13
All	7.02	9.83	13.56	32.97	17.08	11.10	91.55

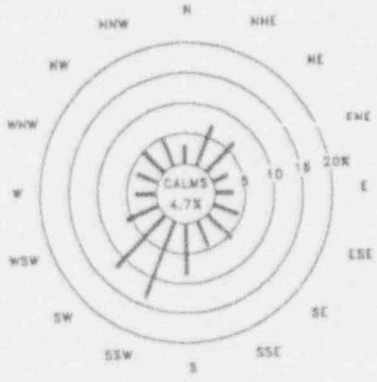
Total calms (less than one m/s) = 8.4%



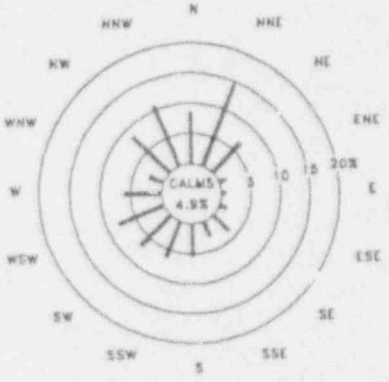
A Stability



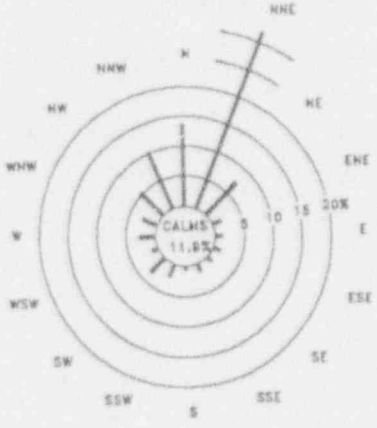
B Stability



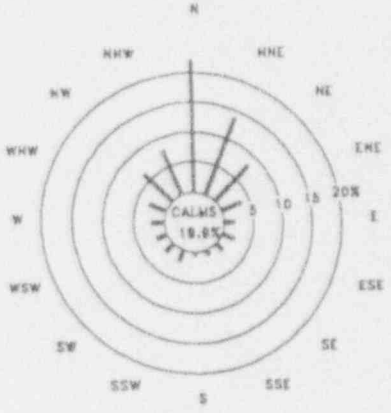
C Stability



D Stability



E Stability



F Stability

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Umetco Minerals Corporation

Project: White Mesa Mill

Wind Frequency Distribution
by Stability Class
January through June 1993

File No.: 109-009 Date: July 1993 Figure No.: 3.3

southwest through south (upslope flow) since these winds typically occurred during the daylight hours. Also seen in Figure 3.3, stable conditions (Classes E and F) primarily occurred with the nocturnal drainage (north and north-northeast) winds. Neutral (D) conditions had prominent north-northeast flow. The joint frequency distributions of wind direction by wind speed for each stability class are presented in Appendix C, Tables C-1 through C-7.

3.4 Data Recovery

Table 3.4 summarizes the data recovery for this semiannual reporting period. Data recoveries for wind speed, wind direction, σ_θ stability were all at 99.8 percent.

TABLE 3.4

PERCENT DATA RECOVERY
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL

Parameter	Percentage
Wind Speed	99.8
Wind Direction	99.8
Standard Deviation of Horizontal Wind Direction σ_θ	99.8
Stability	99.8

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4.0 SUMMARY

Meteorological data was collected from January through June, 1993 at the White Mesa Mill site with an overall recovery rate of 99.8 percent. The results of the meteorological data collected during this reporting period are representative of the monitoring location. The dominant feature of the winds observed at the site was a local nocturnal drainage flow from the higher elevations to the north and northeast and a daytime upslope (return) flow from the south-southwest through south. Neutral conditions were the most prominent of the stability classes and the period mean wind speed was 3.2 m/s (7.2 mph).

APPENDIX A

HOURLY DATA - SAROADS

HOURLY AVERAGED WIND SPEED
DATA RECORDED IN JANUARY 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A METER PER SECOND

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	12	12	10	19	18	17	17	11	10	21	25	21	23	15	11	14	14	18	16	18	21	12	15	21	16
2	13	17	17	18	14	21	26	20	11	18	29	23	38	40	42	34	31	39	51	83	68	56	55	62	34
3	61	44	61	38	47	40	44	51	52	62	64	60	43	38	64	50	40	45	39	21	28	14	12	20	43
4	17	23	23	26	27	24	27	20	32	16	15	17	20	26	24	16	16	27	38	42	31	26	31	20	24
5	15	27	10	10	20	15	10	13	19	26	28	11	18	18	12	10	19	30	35	36	34	28	25	26	21
6	25	20	19	27	27	19	23	20	16	10	18	25	25	23	19	11	10	18	18	20	19	12	12	15	19
7	15	13	10	10	10	10	10	10	10	10	17	18	24	17	22	17	24	19	13	12	10	10	11	11	14
8	11	13	10	14	24	11	20	24	32	20	27	16	26	22	30	43	40	45	43	46	38	26	42	26	27
9	26	17	19	16	19	19	10	13	20	22	19	17	27	29	35	33	37	39	29	38	47	41	57	38	28
10	39	35	40	40	43	45	48	55	58	50	40	55	56	52	48	43	43	43	45	45	47	43	45	47	46
11	28	10	10	19	15	27	64	20	36	66	76	82	84	96	87	76	68	45	40	42	16	19	23	25	45
12	32	47	44	29	26	32	36	40	45	30	29	25	22	15	15	15	30	39	48	46	46	39	38	30	33
13	28	17	13	22	30	33	18	19	18	10	10	11	15	11	12	22	22	23	22	22	18	21	10	11	18
14	10	10	10	10	16	12	12	10	11	18	11	16	21	28	25	25	28	29	28	23	19	18	18	21	18
15	15	10	10	15	13	10	10	10	10	10	10	15	11	12	10	14	15	22	27	28	21	19	21	13	15
16	10	21	17	16	19	12	22	21	10	13	27	19	20	18	13	18	21	15	16	16	17	20	15	24	18
17	21	21	21	17	10	10	10	10	10	10	10	17	21	18	11	17	26	21	25	25	20	22	21	12	17
18	19	21	33	33	23	19	22	35	12	17	34	33	40	10	27	57	19	19	14	21	13	10	10	10	23
19	21	13	28	34	43	51	51	43	34	29	46	50	52	43	45	32	29	12	31	21	24	28	32	33	34
20	38	31	27	14	22	20	22	23	14	26	18	10	10	10	10	10	10	11	21	29	28	18	21	22	19
21	25	20	23	25	24	25	23	28	35	23	11	17	10	10	10	10	15	10	18	26	29	35	36	35	22
22	30	23	10	15	10	12	15	14	19	21	26	17	10	11	24	23	47	40	26	26	28	31	32	27	22
23	84	78	47	68	69	31	40	46	36	36	32	19	16	14	15	13	21	13	29	33	35	31	17	22	35
24	23	17	10	15	14	11	20	24	24	21	17	15	10	10	10	10	19	26	46	18	10	25	29	23	19
25	10	12	25	21	24	26	17	33	38	47	20	12	28	27	26	17	23	22	22	24	20	10	21	15	23
26	21	10	10	10	10	10	17	27	16	13	12	13	13	20	25	10	10	10	12	25	29	21	18	23	16
27	31	18	10	16	18	10	10	10	10	10	13	12	10	16	15	16	18	16	20	31	26	24	20	14	16
28	12	10	28	27	15	10	10	23	16	10	15	18	15	13	17	22	13	13	10	18	30	35	36	32	19
29	18	22	29	23	25	10	14	13	11	13	34	26	28	35	34	33	18	27	36	40	42	33	36	25	26
30	33	39	50	45	35	29	29	36	21	28	28	25	26	36	39	40	40	35	42	37	30	32	26	33	34
31	25	17	19	16	15	19	26	27	22	27	20	34	45	38	25	32	36	51	44	36	47	47	45	21	31
AVERAGE	25	22	22	23	23	21	23	24	23	24	25	24	26	25	26	25	26	27	29	31	29	26	27	24	25

EnecoTech

HOURLY AVERAGED WIND DIRECTION
DATA RECORDED IN JANUARY 1993
WHITE MESA MILL
UNITS ARE DEGREES AZIMUTH

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	303	10	10	320	328	186	146	100	98	90	118	119	118	99	17	36	29	7	25	72	51	91	66	55
2	85	88	47	52	58	56	32	50	101	152	185	201	165	171	193	208	206	210	207	209	211	186	227	260
3	270	252	251	234	241	264	329	312	306	310	311	304	303	312	332	330	329	330	333	355	9	14	6	1
4	2	346	323	326	311	341	12	32	13	25	12	351	85	114	121	117	46	17	7	17	3	352	353	7
5	10	10	29	29	8	5	5	324	281	284	288	237	142	133	122	339	26	28	16	20	10	8	3	11
6	24	48	59	39	28	39	20	12	19	128	104	23	19	10	44	20	20	40	26	14	357	338	338	341
7	337	342	342	342	342	342	342	342	342	342	24	32	46	67	48	36	31	40	48	216	216	53	79	63
8	64	131	131	113	157	150	80	53	56	54	288	42	186	199	234	223	206	228	234	232	251	209	229	200
9	206	280	22	30	30	30	30	30	30	162	189	190	184	175	183	189	145	153	162	139	136	144	149	147
10	142	146	144	137	142	146	147	144	141	141	142	139	140	138	140	138	137	143	140	137	134	134	137	144
11	148	148	148	148	119	157	181	246	175	221	246	249	245	245	248	253	261	266	239	239	32	281	29	352
12	297	320	345	31	347	31	16	23	18	23	28	18	9	10	8	18	20	8	15	9	15	8	10	19
13	11	12	205	150	38	42	26	346	320	336	336	305	356	93	2	27	23	29	16	23	343	353	56	21
14	21	21	21	120	112	110	108	108	44	55	76	29	35	34	42	36	29	31	19	34	312	351	26	31
15	339	36	36	36	69	116	116	38	38	38	38	196	170	187	187	128	139	34	35	23	22	32	41	22
16	22	34	46	54	50	54	43	48	69	89	127	106	104	95	102	72	38	43	46	11	14	11	27	13
17	41	27	44	62	62	62	62	62	62	62	62	197	188	205	202	38	27	41	43	35	33	38	54	38
18	160	123	138	139	127	116	129	129	121	104	116	128	153	167	141	155	148	7	86	112	172	73	73	73
19	36	43	154	161	177	183	194	201	189	199	207	214	226	240	253	253	244	229	273	267	269	279	273	271
20	301	1	354	350	337	16	15	12	12	25	30	21	21	210	210	210	210	18	14	11	9	352	11	16
21	25	40	25	19	9	21	29	32	22	34	357	233	233	233	233	233	3	3	355	346	1	27	29	15
22	14	20	20	334	334	78	317	140	200	156	115	252	252	62	31	209	224	215	204	200	226	14	6	339
23	327	332	348	336	336	342	7	339	333	310	301	256	274	168	180	179	172	124	39	19	8	7	1	338
24	356	11	11	60	13	358	41	27	14	17	16	324	262	262	262	262	211	251	360	337	349	358	11	13
25	220	348	19	2	13	355	343	316	317	278	325	353	243	214	217	231	267	277	347	349	22	36	19	15
26	1	1	1	1	1	1	359	13	46	52	153	291	288	239	233	199	199	199	17	13	11	21	14	15
27	359	351	323	319	24	47	47	47	47	47	283	295	295	218	197	218	219	231	323	358	14	12	5	299
28	253	6	13	16	24	24	24	324	22	22	206	216	210	208	208	205	204	202	202	10	15	18	13	11
29	6	32	25	15	324	324	5	35	358	130	132	126	129	133	140	147	157	129	11	18	42	75	136	72
30	58	46	42	57	64	72	95	104	92	68	54	64	54	47	18	21	29	43	25	43	84	99	122	103
31	43	358	14	37	39	47	64	44	88	103	70	158	118	137	111	20	16	79	36	5	11	61	233	63

HOURLY HORIZONTAL WIND DIRECTION STANDARD DEVIATION
DATA RECORDED IN JANUARY 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A DEGREE

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	526	725	224	196	324	670	195	252	425	298	288	284	178	340	308	215	119	243	216	119	121	372	556	207	308
2	191	148	98	138	229	278	108	173	248	148	152	186	100	98	66	68	125	84	91	74	98	88	150	115	136
3	111	125	132	135	147	210	133	71	59	76	96	90	194	187	101	106	116	86	70	344	129	200	306	290	146
4	264	103	111	110	154	216	357	199	68	163	359	230	577	227	223	240	332	52	209	430	261	147	116	249	225
5	221	175	181	361	210	232	368	226	121	84	59	753	184	211	278	504	108	34	281	434	306	38	136	111	234
6	51	134	106	107	80	153	155	217	121	350	398	104	85	158	251	184	227	96	112	128	225	118	75	52	154
7	71	94	277	231	117	182	136	224	213	85	218	228	69	93	79	132	135	115	165	457	724	257	376	210	204
8	272	160	312	331	216	308	128	162	110	609	166	339	147	219	120	78	83	143	75	68	156	219	93	291	200
9	304	513	128	3	3	2	3	2	3	393	112	188	170	146	121	137	158	108	160	98	81	101	80	83	129
10	80	74	82	84	88	97	107	87	84	98	96	81	79	85	81	79	78	78	81	83	77	79	80	82	84
11	78	101	111	103	159	158	145	132	195	421	98	93	81	75	84	92	71	82	90	372	416	476	135	269	168
12	66	103	253	122	365	72	95	51	29	49	29	66	227	346	265	385	23	90	388	301	385	148	66	74	167
13	194	251	384	519	143	78	270	255	274	355	628	508	380	447	281	95	[illegible]	73	208	175	226	259	235	166	274
14	343	138	153	193	85	145	102	348	154	160	219	145	76	67	64	56	[illegible]	46	89	141	441	243	208	75	157
15	517	289	342	124	408	258	360	136	204	279	394	165	202	249	371	574	303	122	89	92	44	49	112	344	251
16	170	70	106	83	89	160	93	127	236	282	191	154	99	141	128	154	99	162	189	200	229	248	117	131	152
17	103	74	40	211	159	109	154	333	568	529	494	140	106	118	500	81	110	163	108	149	100	84	103	201	197
18	598	107	106	110	91	122	108	82	185	143	106	96	129	523	101	85	331	595	595	134	734	141	115	72	225
19	75	180	151	73	98	86	120	69	52	71	54	71	76	88	78	79	85	228	150	311	172	251	73	110	117
20	314	288	250	463	511	217	159	213	272	102	126	639	582	280	470	543	363	139	54	73	257	248	213	54	285
21	57	122	65	135	147	156	99	84	58	127	301	227	453	293	115	247	316	260	388	33	156	80	72	68	169
22	54	81	345	370	304	400	384	664	203	311	531	436	398	339	446	460	86	71	98	86	260	141	264	260	291
23	73	69	209	69	100	174	243	223	273	227	113	302	400	236	222	290	152	190	129	91	332	353	261	248	207
24	285	245	444	285	370	442	196	113	79	168	127	340	489	483	771	474	451	257	298	599	592	289	125	174	337
25	672	419	161	292	165	275	323	315	397	99	286	540	105	124	78	172	115	82	332	245	168	209	73	62	238
26	220	358	302	195	198	663	286	208	142	140	531	200	122	109	64	333	244	177	163	40	30	63	47	77	205
27	219	500	537	415	74	107	195	259	316	223	230	279	533	121	85	111	67	63	281	185	90	200	207	127	227
28	165	415	24	29	136	320	522	291	210	475	156	179	133	234	124	64	116	73	720	204	184	22	45	119	207
29	233	142	107	183	273	742	413	287	432	492	156	165	223	173	105	131	189	373	170	144	62	310	246	388	256
30	84	144	103	81	141	95	214	350	208	78	111	137	107	234	74	152	84	123	42	75	108	106	240	104	133
31	543	445	248	287	363	255	247	106	479	205	370	127	235	150	392	213	124	219	158	451	266	541	260	248	289
AVERAGE	231	219	197	195	192	238	207	202	207	234	233	242	224	213	208	211	163	149	200	204	240	196	167	163	206

HOURLY AVERAGED WIND SPEED
DATA RECORDED IN FEBRUARY 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A METER PER SECOND

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	17	27	30	22	10	10	10	10	10	22	30	38	39	36	32	26	32	31	41	33	25	17	10	16	24
2	10	10	10	19	29	30	30	27	23	28	30	15	19	20	23	14	14	12	13	29	34	29	24	27	22
3	33	22	21	23	25	21	13	14	13	10	10	16	25	11	12	14	22	21	42	31	34	24	18	17	21
4	22	13	25	16	14	11	20	39	32	31	46	50	33	10	10	10	10	10	26	19	29	32	28	19	23
5	18	29	36	37	39	52	33	24	19	21	14	19	19	17	18	15	15	16	31	32	32	34	33	38	27
6	39	36	30	22	20	28	26	23	19	10	10	15	19	25	19	15	13	22	40	37	32	25	28	26	24
7	22	10	18	17	22	19	17	11	14	11	10	10	19	11	16	21	21	22	21	34	37	34	25	27	20
8	28	20	15	40	34	19	27	18	26	25	27	24	12	13	31	45	52	54	59	48	40	36	18	31	31
9	20	28	29	36	22	23	39	34	30	35	43	39	41	47	35	31	18	11	19	23	25	11	12	10	28
10	10	10	10	10	10	10	10	10	10	10	12	12	12	19	12	11	22	33	42	33	35	27	24	19	17
11	28	26	34	26	37	29	21	39	30	16	14	24	24	18	10	11	19	31	30	24	14	30	32	30	25
12	16	17	17	34	35	20	19	22	21	25	19	26	31	28	28	21	28	20	26	26	17	30	31	20	24
13	35	37	22	26	12	13	20	21	14	10	10	15	17	21	15	25	23	26	29	32	29	25	21	27	22
14	16	30	39	44	44	35	34	30	23	20	15	10	22	20	26	30	19	15	10	11	15	16	13	21	23
15	26	20	19	11	10	10	14	12	10	13	25	46	73	75	89	72	64	38	31	12	20	35	15	25	32
16	26	13	16	15	10	11	13	12	24	31	39	49	50	61	50	48	38	29	23	17	14	21	20	20	27
17	20	12	16	10	14	12	19	16	18	34	35	33	40	50	46	42	32	32	10	27	28	36	38	39	27
18	28	33	32	18	10	19	17	20	17	20	16	16	15	28	26	22	22	24	29	18	10	34	42	19	22
19	17	15	17	13	10	10	10	13	10	22	42	61	55	47	41	18	26	23	13	39	35	52	54	49	29
20	51	67	53	28	24	26	27	63	59	69	46	68	89	81	105	85	68	86	111	99	72	65	67	49	65
21	43	35	37	43	26	32	41	27	23	53	59	77	81	76	57	55	42	41	27	20	15	22	14	16	40
22	11	10	18	17	11	14	10	20	25	41	50	43	36	44	39	49	42	39	31	21	19	22	17	11	27
23	22	27	30	24	30	26	21	16	31	39	33	32	33	35	34	30	28	20	10	27	18	10	19	25	26
24	41	38	46	35	30	21	27	31	33	24	34	54	54	55	37	35	48	42	67	28	46	34	20	17	37
25	16	29	21	11	16	14	16	16	22	10	10	19	25	39	45	46	33	35	32	25	21	15	11	14	23
26	13	15	25	27	27	23	21	16	15	19	33	34	31	30	23	27	26	29	17	34	42	40	43	41	27
27	45	55	42	39	23	35	33	18	20	25	20	25	23	33	30	21	24	30	42	37	23	23	24	17	29
28	36	32	29	35	28	26	22	20	14	13	32	32	33	67	66	66	66	48	69	55	27	18	15	10	36
AVERAGE	23	23	24	23	20	19	20	20	20	22	25	29	31	33	31	29	28	27	30	28	25	26	23	22	25

HOURLY AVERAGED WIND DIRECTION
DATA RECORDED IN FEBRUARY 1993
WHITE MESA MILL
UNITS ARE DEGREES AZIMUTH

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	77	125	159	149	149	149	149	149	149	137	139	162	179	181	179	188	208	208	222	229	259	275	275	111
2	111	111	111	110	59	10	8	10	14	16	24	41	237	199	231	190	214	170	31	11	19	359	336	5
3	9	343	11	21	25	28	27	354	337	337	337	232	254	249	251	355	28	320	317	320	293	7	331	349
4	2	25	22	294	217	119	30	12	15	62	76	59	47	47	47	47	47	249	316	3	4	360	311	342
5	57	40	31	26	25	14	37	18	342	37	59	238	238	348	359	327	334	351	359	10	7	9	14	10
6	17	10	13	20	6	15	15	7	338	338	338	58	338	5	353	345	339	8	352	358	22	24	3	10
7	3	3	48	40	41	51	44	49	39	25	25	252	239	311	3	16	15	17	21	9	12	8	15	19
8	14	20	73	334	6	143	40	48	35	22	18	16	48	109	121	119	126	128	130	134	136	148	163	150
9	130	144	151	127	121	165	164	169	183	191	189	206	210	207	265	211	261	3	32	47	219	131	17	17
10	17	17	17	17	17	17	17	17	17	17	20	11	16	27	20	17	19	289	312	279	295	325	309	268
11	320	334	353	324	5	346	261	278	301	36	76	166	187	190	190	203	229	227	239	277	6	8	10	2
12	17	6	22	17	20	32	27	32	33	128	148	193	214	213	214	217	257	277	30	27	8	15	20	342
13	349	355	19	19	13	351	350	17	15	15	15	171	207	230	37	41	37	60	30	20	26	29	27	23
14	18	15	12	15	17	24	30	22	42	16	12	349	166	140	8	9	20	28	17	354	2	346	335	286
15	298	299	253	41	41	41	39	38	50	141	177	223	247	239	234	246	260	253	283	25	237	230	252	198
16	250	215	79	104	104	46	193	44	217	184	198	249	251	250	261	252	257	246	263	34	9	25	18	23
17	30	88	154	154	27	64	132	71	153	204	199	209	220	227	249	248	265	260	260	4	29	15	21	13
18	14	16	12	17	31	7	18	18	37	283	319	339	304	151	19	99	214	14	6	53	53	191	224	289
19	20	28	26	74	74	74	74	123	123	203	202	185	200	192	204	303	35	62	127	175	169	184	196	184
20	181	192	202	167	50	114	131	178	188	227	232	243	260	242	232	232	243	252	252	252	257	261	251	261
21	269	274	266	270	276	270	241	219	205	232	250	259	274	278	271	275	283	278	256	277	283	261	296	288
22	289	289	5	246	108	101	10	268	189	219	226	202	210	207	207	224	246	232	230	276	313	360	287	38
23	29	27	20	32	27	27	24	65	138	141	155	164	168	192	192	175	175	167	31	19	29	29	141	207
24	214	239	243	218	197	215	174	174	172	189	188	195	195	228	255	239	240	236	250	264	261	237	215	213
25	167	200	159	127	79	62	31	51	50	50	50	230	232	232	227	237	253	223	217	325	353	53	56	44
26	73	113	28	27	14	20	20	56	116	157	164	159	168	174	154	149	148	145	48	8	26	24	24	37
27	44	38	37	26	27	18	26	36	37	60	46	7	12	113	152	205	5	21	17	349	4	30	23	26
28	31	39	48	39	44	38	24	20	38	24	49	54	47	44	36	33	30	31	41	17	194	117	295	295

HOURLY HORIZONTAL WIND DIRECTION STANDARD DEVIATION
DATA RECORDED IN FEBRUARY 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A DEGREE

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	289	222	101	121	92	4	224	245	81	129	137	104	88	86	117	113	129	99	66	140	121	548	194	0	144
2	0	0	0	0	457	179	232	37	359	185	84	397	407	161	132	210	156	104	390	174	140	313	430	170	197
3	341	224	254	128	120	213	331	436	405	472	673	444	225	555	625	318	693	333	180	222	122	303	240	262	338
4	239	310	116	414	440	258	286	87	244	220	124	80	106	486	753	226	350	277	264	208	240	342	223	372	278
5	673	272	63	97	160	137	265	112	336	224	432	334	183	280	246	157	128	130	240	84	62	48	46	117	201
6	38	63	88	227	220	46	42	85	375	502	730	548	293	243	299	249	226	312	19	328	469	133	310	282	255
7	286	298	122	112	64	45	93	133	111	218	190	567	145	386	215	246	243	45	78	256	266	225	210	64	192
8	64	51	646	201	423	586	67	168	69	61	93	90	346	268	109	99	84	86	87	92	90	197	330	194	188
9	171	163	141	88	106	152	89	93	71	91	103	79	73	95	194	121	275	315	173	236	555	715	497	338	206
10	678	184	124	0	225	372	3	2	29	370	174	261	193	155	265	219	418	217	67	82	126	2[illegible]8	342	239	209
11	397	322	247	326	257	281	282	107	251	508	406	188	179	166	614	304	389	92	132	523	412	172	362	184	296
12	180	564	93	46	32	132	177	111	195	307	238	190	156	122	129	241	159	160	332	109	176	110	183	314	186
13	123	157	226	132	256	328	238	208	297	275	527	364	364	184	464	105	195	100	200	260	25[illegible]	152	190	175	241
14	220	69	96	62	46	160	94	184	198	105	178	472	273	344	387	160	55	87	100	241	2[illegible]8	250	65	111	176
15	70	54	198	755	193	169	110	160	163	324	160	221	103	134	89	108	165	135	235	372	427	100	504	667	234
16	110	530	264	412	435	318	582	293	302	226	182	138	149	105	91	98	88	110	147	369	242	114	97	107	230
17	108	246	94	401	67	265	549	439	527	134	133	148	113	114	113	131	139	156	571	381	204	154	81	38	221
18	35	57	106	266	162	244	96	196	586	253	309	202	607	244	443	731	609	251	226	230	669	172	97	251	293
19	243	208	86	339	350	328	238	228	502	214	101	96	109	91	169	542	98	189	502	123	138	160	126	78	219
20	82	94	172	225	124	254	175	129	71	172	88	228	133	136	119	102	133	111	100	99	98	92	89	225	135
21	164	156	111	133	121	85	121	122	186	150	147	102	126	144	156	141	138	151	129	275	186	306	228	371	165
22	510	520	470	203	537	481	390	363	363	224	138	186	180	203	245	128	129	86	45	153	410	298	569	104	289
23	103	61	56	116	68	65	113	324	155	125	212	208	218	224	260	229	203	149	194	46	185	209	431	286	177
24	236	148	116	87	113	100	178	113	92	145	79	84	85	269	184	130	107	92	137	250	80	206	114	344	145
25	215	73	420	384	493	242	96	119	110	296	437	274	348	354	134	220	388	175	116	518	173	347	279	122	264
26	356	191	109	252	89	53	118	246	235	176	172	210	201	213	226	299	277	193	376	222	53	52	44	136	187
27	76	62	76	61	70	42	91	175	181	139	287	329	479	350	357	442	618	106	82	348	266	354	188	481	236
28	74	110	85	70	66	102	104	82	313	290	144	124	184	133	82	75	84	102	70	197	418	699	221	483	180
AVERAGE	196	174	151	183	187	182	174	161	220	211	215	215	196	201	233	198	215	141	170	211	221	227	216	210	196

HOURLY AVERAGED WIND SPEED
DATA RECORDED IN MARCH 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A METER PER SECOND

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	12	23	22	21	17	10	10	10	14	14	10	34	67	86	88	92	74	48	45	47	38	44	55	75	40
2	102	92	75	37	45	31	24	14	20	22	22	21	26	50	65	95	69	66	48	27	14	46	30	27	45
3	23	31	29	32	21	21	23	16	11	13	18	19	19	18	19	16	14	18	26	23	19	21	33	30	21
4	24	18	32	27	28	19	30	30	19	47	55	40	44	37	28	38	50	51	51	38	29	32	23	28	34
5	14	12	22	18	15	25	14	14	14	12	16	22	29	25	25	25	32	32	37	27	21	23	25	33	22
6	26	23	23	22	20	23	20	22	18	26	57	47	44	27	32	38	47	58	57	56	49	58	43	37	36
7	22	11	23	12	14	18	22	18	10	14	22	33	24	19	19	19	23	35	30	35	27	20	24	20	21
8	20	19	19	15	17	26	19	10	14	15	17	23	27	28	34	42	34	39	26	25	27	28	32	21	24
9	15	13	17	10	14	14	13	10	11	11	19	26	22	25	24	32	32	29	27	30	16	19	34	28	21
10	26	32	24	18	19	13	10	11	11	22	23	25	24	22	21	10	26	29	26	20	32	34	26	21	22
11	13	21	46	26	37	37	35	24	10	14	27	55	89	88	77	92	72	42	45	33	42	30	44	27	43
12	18	18	17	12	16	28	38	49	70	76	71	59	33	46	46	36	38	37	32	23	20	33	32	30	37
13	30	26	21	20	23	19	23	10	13	10	15	19	19	24	23	24	31	21	10	10	29	27	20	27	21
14	26	31	33	29	33	31	19	13	10	13	22	27	26	23	35	34	23	10	10	10	16	28	40	38	24
15	20	25	21	12	10	12	16	19	33	53	49	26	38	44	56	31	25	27	31	31	23	30	19	15	28
16	12	13	24	31	43	36	17	29	41	36	27	30	28	27	28	28	28	33	25	17	22	26	27	29	27
17	27	20	23	24	22	22	25	16	30	32	24	32	27	43	41	29	16	11	17	24	22	22	20	15	24
18	21	28	29	34	49	15	13	10	27	11	10	16	17	27	25	29	25	51	28	29	39	36	39	34	27
19	16	29	47	31	46	44	36	44	37	12	20	30	30	22	17	17	31	39	30	41	38	21	25	25	30
20	25	27	21	20	14	11	14	10	21	28	29	20	16	27	24	24	23	10	10	10	26	29	16	13	20
21	21	24	21	16	12	23	29	14	10	24	33	69	82	78	86	74	81	57	40	27	32	18	29	13	38
22	22	24	17	22	26	30	26	27	13	15	17	24	19	20	25	26	32	27	20	23	26	30	33	40	24
23	32	22	21	24	15	20	15	10	11	24	24	31	29	26	29	23	29	13	16	26	44	31	33	33	24
24	30	29	19	12	31	25	12	10	18	23	17	26	34	42	48	69	52	40	22	37	45	37	22	17	30
25	14	17	25	26	28	35	31	17	20	24	32	31	31	*	*	*	10	10	10	10	10	10	10	10	20
26	10	10	10	10	10	10	10	10	10	10	10	10	10	19	10	10	10	10	11	10	10	10	10	10	10
27	10	10	10	18	37	52	10	10	10	14	24	42	33	24	33	27	16	10	10	10	13	32	11	10	20
28	10	11	10	10	10	10	10	10	10	10	10	10	10	10	30	13	10	10	10	10	10	10	10	10	11
29	10	10	10	10	10	10	10	10	10	10	10	10	10	10	24	10	10	10	10	10	10	37	10	10	12
30	19	33	55	21	10	10	10	10	10	10	10	16	60	81	85	69	61	70	12	10	10	19	31	10	31
31	10	21	20	10	10	19	10	10	10	10	28	40	47	61	68	64	57	51	46	26	14	10	10	10	28
AVERAGE	22	23	25	20	23	23	19	17	18	21	25	29	33	36	39	37	35	32	26	24	25	27	26	24	26

* Indicates calibration of sensors

HOURLY AVERAGED WIND DIRECTION
DATA RECORDED IN MARCH 1993
WHITE MESA MILL
UNITS ARE DEGREES AZIMUTH

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	195	204	211	216	247	119	119	119	66	45	45	312	318	326	321	328	328	324	328	329	317	314	324	326
2	334	333	320	301	306	6	33	314	258	262	217	201	272	324	325	337	358	356	333	10	264	328	320	340
3	327	335	332	322	347	5	4	4	62	190	226	305	262	227	278	295	181	59	9	0	24	320	332	8
4	2	332	337	333	317	18	352	297	319	30	16	0	320	319	302	297	309	317	327	355	318	321	330	329
5	58	27	14	305	46	55	49	341	354	249	226	14	48	81	273	339	59	345	325	337	327	3	329	312
6	346	46	282	56	87	334	339	285	305	265	30	20	39	289	297	324	312	320	330	337	325	331	325	307
7	330	352	19	70	27	314	8	13	13	168	277	61	170	120	174	184	24	40	21	356	355	314	311	333
8	6	12	25	40	22	8	331	339	123	117	149	168	218	209	196	238	223	230	247	267	8	15	12	38
9	17	33	21	21	18	19	21	21	84	147	176	164	190	119	327	312	307	319	321	9	4	14	353	359
10	343	352	7	357	4	44	44	167	308	203	189	168	177	236	15	192	219	237	29	49	16	13	336	336
11	6	314	280	333	326	333	323	330	330	102	134	330	339	331	318	334	337	330	311	306	343	327	331	21
12	108	222	221	357	330	42	43	46	47	52	52	44	37	326	322	317	320	51	40	22	46	34	17	17
13	14	16	18	2	275	313	4	66	131	131	204	210	215	203	216	199	184	160	160	160	0	23	353	11
14	18	14	13	16	13	9	323	5	248	157	158	209	219	212	220	181	126	126	126	132	46	301	297	298
15	354	329	6	229	276	10	18	31	322	314	305	281	278	297	283	292	259	244	220	239	287	21	2	1
16	38	14	353	330	335	349	296	308	310	303	298	285	309	305	313	311	325	287	308	325	350	21	34	27
17	14	13	29	23	47	49	47	102	126	140	147	154	163	185	185	136	174	140	105	33	39	46	63	114
18	21	49	33	3	342	64	218	218	184	108	25	179	156	165	179	191	219	352	319	360	331	348	6	336
19	347	306	342	330	318	330	311	311	319	29	119	160	240	168	83	318	317	331	6	359	334	334	352	357
20	342	321	332	27	8	39	356	356	108	133	144	134	179	187	183	185	220	226	226	13	18	2	337	317
21	14	354	342	353	15	29	20	23	23	160	53	338	321	326	333	324	324	328	333	8	321	342	312	26
22	1	14	1	11	349	6	18	16	276	246	174	202	32	285	182	232	281	252	224	35	17	345	354	338
23	9	40	30	2	312	358	12	12	159	208	211	218	196	191	195	185	203	95	80	7	11	21	11	11
24	358	350	2	327	332	12	312	312	125	134	165	181	183	192	217	158	136	157	149	249	318	319	326	246
25	270	27	9	10	32	18	17	33	220	201	170	166	148	*	*	*	13	13	13	13	13	13	13	13
26	13	13	13	13	13	13	13	13	13	13	13	13	13	151	151	151	333	333	26	26	26	26	26	26
27	26	26	26	197	191	196	196	196	196	190	190	195	191	204	222	229	221	221	221	221	237	241	234	234
28	232	232	232	232	232	232	232	232	232	232	232	232	232	193	202	202	202	202	202	202	202	202	202	202
29	202	202	202	202	202	202	202	202	555	555	555	555	555	555	273	304	304	304	304	304	304	335	335	335
30	317	319	314	327	327	327	327	327	327	327	327	307	343	359	355	336	331	333	337	337	337	328	25	25
31	25	317	319	319	319	338	338	338	338	338	290	310	310	313	319	309	313	335	343	348	336	336	336	336

* Indicates calibration of sensors

HOURLY HORIZONTAL WIND DIRECTION STANDARD DEVIATION
DATA RECORDED IN MARCH 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A DEGREE

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	400	115	90	129	576	315	527	475	264	251	725	230	117	86	105	87	94	143	93	86	86	81	60	80	217
2	70	74	130	184	254	275	332	271	248	273	476	416	576	207	169	102	258	257	140	568	496	364	271	291	279
3	217	143	373	153	304	238	263	300	592	351	443	687	609	545	534	487	479	403	410	299	248	184	172	317	365
4	334	425	158	361	301	307	234	179	215	122	225	261	408	210	406	185	109	70	86	344	187	321	333	355	256
5	360	456	226	344	444	159	408	334	255	454	486	549	329	501	357	336	199	505	233	294	359	211	169	114	337
6	436	420	271	456	654	321	401	285	301	217	263	477	221	568	364	241	134	97	57	42	66	65	119	107	274
7	322	587	214	374	237	386	200	202	333	350	658	281	620	456	545	399	347	74	149	208	276	224	147	140	322
8	229	179	69	156	148	360	100	310	232	294	369	314	284	314	280	198	189	77	57	78	257	207	354	221	220
9	267	121	266	286	234	192	91	153	445	374	366	193	271	551	635	168	169	150	77	173	279	267	294	229	260
10	259	160	242	241	376	296	470	487	548	200	316	378	461	643	665	498	362	262	383	208	116	111	317	161	340
11	217	593	371	235	146	202	249	499	602	597	258	428	165	149	141	157	201	295	79	112	375	250	228	507	294
12	678	711	665	627	524	231	224	118	96	99	124	162	310	256	180	285	187	203	85	257	120	82	121	216	273
13	52	267	166	368	124	311	169	229	184	456	396	311	394	335	368	258	239	157	316	323	230	173	240	209	261
14	44	79	196	68	43	123	360	290	541	455	277	347	203	225	158	267	146	288	191	352	220	317	125	222	231
15	437	573	308	373	528	662	354	218	343	295	172	378	277	205	198	342	374	174	109	98	326	101	276	296	309
16	661	637	360	101	67	233	337	87	135	323	350	503	449	372	490	471	296	147	96	287	485	267	100	114	307
17	199	166	104	75	123	60	129	357	141	179	182	114	257	128	138	151	247	231	171	259	207	302	360	226	188
18	474	136	166	368	387	422	338	588	194	187	508	568	685	200	302	158	226	270	116	300	229	168	266	166	309
19	498	187	125	357	80	67	174	143	113	574	350	413	357	532	484	508	379	157	248	246	99	285	241	282	287
20	217	260	280	111	215	344	482	301	192	144	188	267	468	349	249	333	145	361	69	407	222	300	300	235	268
21	138	234	226	384	341	115	78	124	474	239	788	202	120	159	122	164	96	104	68	202	234	445	285	219	232
22	326	233	331	226	296	341	206	300	473	538	570	513	795	668	385	436	265	171	445	154	255	247	192	188	356
23	289	223	169	284	206	276	207	350	422	196	278	225	270	395	312	313	207	510	205	300	163	74	97	226	258
24	272	98	426	429	338	233	623	737	195	199	397	283	241	208	193	220	135	115	368	410	111	65	269	301	286
25	446	201	214	360	158	34	49	389	223	311	255	330	348	*	*	*	281	268	123	191	58	68	66	212	237
26	147	212	60	60	74	264	185	165	258	124	190	258	250	199	244	573	149	472	74	59	66	151	122	261	192
27	428	221	276	75	92	111	90	109	105	72	81	81	80	88	94	109	84	86	111	174	92	89	67	84	121
28	87	74	105	79	94	101	70	76	88	112	108	87	112	102	109	141	151	99	234	204	221	360	228	224	136
29	226	77	191	83	86	104	115	325	345	616	605	395	272	359	427	438	140	162	361	283	67	136	112	126	252
30	72	86	65	178	298	301	419	403	322	517	601	225	214	254	265	142	160	186	198	258	382	128	159	123	248
31	183	67	161	178	251	151	216	684	517	513	317	233	190	168	109	145	123	93	46	257	91	113	297	578	237
AVERAGE	290	259	226	248	258	243	261	306	303	311	365	326	334	314	303	282	212	212	174	240	214	199	206	227	263

* Indicates calibration of sensors

HOURLY AVERAGED WIND SPEED
DATA RECORDED IN APRIL 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A METER PER SECOND

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	23	36	16	17	10	10	10	10	11	15	20	22	17	20	16	15	10	10	10	11	16	10	10	10	15
2	10	10	10	10	10	10	10	10	43	51	66	95	109	82	81	94	88	71	58	34	10	61	29	10	44
3	17	45	50	46	36	10	12	37	32	32	33	32	40	36	41	34	54	69	48	32	24	21	13	25	34
4	10	10	10	10	10	10	10	10	22	24	29	34	35	47	35	43	28	57	53	24	10	10	10	10	23
5	17	12	16	10	10	10	10	10	25	32	35	46	46	49	72	81	78	59	81	67	14	10	43	53	37
6	78	49	33	10	10	10	10	10	10	21	96	93	90	85	80	81	72	66	56	50	35	34	25	28	47
7	61	26	16	10	10	10	10	10	10	33	41	53	69	70	74	80	84	82	60	31	19	10	10	10	37
8	10	10	10	10	10	10	10	10	21	22	20	29	35	27	27	37	41	46	37	23	22	17	10	20	21
9	10	15	21	10	10	10	10	11	27	27	27	30	38	45	53	58	71	59	31	25	30	44	37	40	31
10	39	47	30	23	25	10	10	12	10	18	27	30	34	53	63	53	53	39	21	18	32	32	19	22	30
11	10	20	29	18	16	19	10	13	28	31	48	51	51	54	77	79	83	75	49	40	28	31	39	48	39
12	37	28	28	24	10	10	11	20	18	22	43	43	58	79	88	81	82	80	86	78	74	61	38	10	46
13	39	39	10	40	36	10	10	16	19	18	18	22	21	27	56	57	54	51	58	38	33	42	16	30	32
14	38	44	40	46	65	61	17	59	60	47	61	71	64	61	71	67	62	57	44	36	33	30	26	34	50
15	37	45	45	38	50	36	31	30	23	36	49	50	40	34	33	40	46	49	22	14	19	22	25	30	35
16	43	44	33	10	12	30	31	15	20	30	34	42	45	53	42	59	37	60	42	26	31	43	38	33	36
17	31	34	28	32	24	35	27	12	14	26	35	40	30	36	51	56	50	42	27	17	10	17	10	22	29
18	19	35	32	10	10	10	10	15	46	72	67	84	99	109	106	110	108	102	96	91	102	115	119	100	69
19	94	89	65	36	32	26	13	61	71	73	59	73	58	57	60	48	38	39	36	30	33	29	10	11	48
20	50	52	39	11	20	10	12	10	11	21	31	32	35	41	44	42	31	27	20	24	27	41	44	31	29
21	31	22	10	20	27	29	15	19	19	21	29	24	30	41	38	46	42	34	19	10	20	36	29	35	27
22	32	24	21	20	27	27	26	25	25	32	42	53	63	47	52	71	98	93	80	83	62	56	75	48	49
23	45	40	27	20	11	20	17	23	17	24	39	67	69	63	61	67	69	54	41	28	33	55	82	79	44
24	69	77	44	31	16	12	10	14	15	27	81	66	69	76	79	83	79	67	53	38	34	10	30	34	47
25	25	10	10	18	10	10	14	25	17	20	21	26	23	34	27	42	31	40	24	10	32	34	20	16	22
26	24	18	10	21	32	19	13	21	30	34	29	29	38	45	55	44	43	54	37	10	21	34	21	17	29
27	23	31	51	37	23	32	27	20	13	17	32	43	46	50	47	55	54	42	33	24	20	22	24	12	32
28	34	34	40	30	32	28	29	28	19	40	36	31	41	28	31	42	45	60	62	38	31	26	12	17	34
29	16	23	12	22	14	22	24	20	17	27	46	51	56	55	56	58	64	59	37	33	45	50	63	49	38
30	36	31	49	62	67	59	46	28	23	50	50	41	38	40	36	42	57	70	58	75	60	78	49	10	48
AVERAGE	33	32	27	23	22	20	16	19	23	30	40	45	48	50	53	57	57	55	44	34	31	35	31	29	36

HOURLY AVERAGED WIND DIRECTION
DATA RECORDED IN APRIL 1993
WHITE MESA MILL
UNITS ARE DEGREES AZIMUTH

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	18	22	24	24	24	24	24	24	148	142	129	163	160	180	166	157	157	157	157	19	16	16	16	16
2	16	16	16	16	16	16	16	16	242	241	248	327	332	324	331	342	344	347	341	337	337	357	1	1
3	325	348	341	345	316	316	275	280	250	248	266	288	285	311	300	320	317	316	325	317	343	311	324	2
4	2	2	2	2	2	2	2	266	242	214	185	184	181	189	194	183	169	228	279	339	339	339	339	339
5	22	28	22	22	22	22	22	22	113	140	166	176	188	190	213	215	236	239	221	255	248	248	190	200
6	210	236	231	231	231	231	231	231	231	327	338	336	328	328	324	320	323	327	319	319	325	319	310	330
7	234	340	246	318	318	318	318	318	318	348	330	325	325	327	327	335	331	333	337	354	10	10	10	10
8	10	10	10	10	10	10	10	10	224	213	298	216	206	178	212	210	207	200	239	237	228	12	12	15
9	15	26	14	14	14	14	14	108	123	129	166	161	179	201	221	233	251	236	240	231	234	240	231	240
10	283	275	258	307	22	22	22	356	356	180	189	196	184	239	271	272	300	322	356	38	26	14	8	10
11	10	31	29	28	26	24	24	77	150	160	181	208	208	234	252	244	258	259	274	276	270	259	278	265
12	272	269	239	201	201	201	54	83	144	147	189	279	250	249	240	256	270	280	317	313	317	320	319	319
13	316	334	334	325	322	322	322	352	0	348	10	347	248	341	26	28	251	333	340	346	343	347	341	
14	336	327	326	325	329	327	329	337	323	313	320	322	316	318	317	322	341	335	345	340	356	357	338	325
15	341	334	325	336	330	333	337	337	341	223	210	207	256	250	269	276	259	282	314	288	10	340	303	283
16	293	318	347	347	287	310	49	68	106	173	186	195	219	213	204	280	313	284	289	314	338	344	343	359
17	352	14	29	21	35	41	20	18	128	188	202	199	205	200	219	209	194	190	178	224	220	206	218	212
18	205	213	224	224	224	224	224	139	187	202	215	234	235	239	249	255	254	255	267	326	334	328	329	321
19	322	322	326	303	298	299	334	327	326	333	332	338	350	344	352	341	326	353	358	14	12	12	12	341
20	331	340	347	3	322	322	350	301	189	114	182	195	201	214	208	211	211	171	247	305	24	19	10	11
21	15	24	24	12	8	7	11	47	121	118	144	165	194	191	204	209	214	197	221	221	20	9	23	12
22	17	21	44	59	36	38	39	114	139	176	179	187	205	204	209	206	214	213	216	209	208	212	211	204
23	211	222	250	249	238	222	267	7	67	256	234	258	239	248	249	243	224	249	260	249	242	268	291	290
24	289	328	348	27	105	333	333	23	29	245	261	285	312	320	302	300	301	323	317	336	7	7	349	340
25	338	338	338	2	2	2	19	21	92	115	240	186	259	223	227	210	199	200	198	198	8	0	5	1
26	17	12	12	25	11	12	26	126	141	153	136	177	207	215	231	229	241	252	279	279	15	340	320	283
27	257	289	323	321	3	9	5	331	271	221	216	207	196	220	208	212	218	256	263	285	318	274	287	32
28	26	28	7	360	341	322	308	311	174	294	298	319	332	315	295	314	335	331	329	354	12	358	39	49
29	8	316	286	324	316	16	16	31	186	198	188	187	196	215	246	256	273	299	318	330	352	350	340	325
30	356	11	341	339	332	337	345	33	51	353	338	292	246	316	287	295	306	310	322	356	337	325	322	7

HOURLY HORIZONTAL WIND DIRECTION STANDARD DEVIATION
DATA RECORDED IN APRIL 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A DEGREE

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	127	51	56	82	75	476	261	221	159	194	221	189	293	484	410	412	362	233	83	98	34	327	163	188	217
2	229	148	95	156	200	309	381	717	119	183	183	120	133	150	168	231	163	220	86	99	211	258	237	719	230
3	332	195	137	185	155	234	284	167	269	255	308	382	299	379	285	306	181	90	78	62	273	232	281	253	234
4	187	171	447	203	56	237	372	141	243	232	243	190	220	189	241	196	192	573	136	490	168	236	127	118	234
5	57	228	114	182	182	121	184	277	151	261	223	217	149	154	138	281	126	130	114	92	102	532	135	91	177
6	110	122	117	201	285	88	395	327	338	196	107	78	106	131	131	149	135	188	110	105	69	74	102	156	159
7	75	195	445	220	233	432	381	335	719	458	192	213	139	189	147	153	94	108	93	200	93	688	345	186	264
8	202	288	112	310	304	278	293	536	216	221	579	365	300	402	395	253	207	125	131	96	157	168	93	44	253
9	205	59	73	78	173	399	180	263	160	254	243	239	175	182	184	192	149	102	99	120	135	126	149	131	170
10	123	116	348	299	85	271	320	510	372	407	264	491	277	354	227	180	166	243	184	213	83	74	219	173	250
11	230	73	77	108	53	72	96	236	177	242	201	209	258	212	153	135	125	104	101	65	65	86	79	74	135
12	51	150	78	145	681	186	105	305	246	197	257	415	289	207	171	120	174	97	100	81	104	99	83	117	186
13	119	86	566	53	109	213	156	240	410	521	456	480	736	719	183	166	177	229	89	50	190	53	79	74	256
14	73	86	56	54	62	75	289	93	117	203	175	191	179	183	175	171	213	187	256	166	188	202	98	66	148
15	63	131	44	96	37	50	46	159	305	544	238	179	465	403	403	384	216	199	199	220	165	340	103	70	211
16	80	209	169	502	638	223	304	132	489	254	254	184	261	189	267	414	339	157	173	84	288	78	139	199	251
17	204	243	112	74	93	141	119	316	507	307	240	233	384	273	220	198	183	103	95	451	475	293	474	218	248
18	243	65	86	459	277	477	229	210	168	114	167	171	130	122	144	130	103	121	133	199	80	83	86	101	171
19	81	71	89	121	115	75	250	101	113	140	230	164	248	294	268	278	378	269	258	238	226	366	304	91	199
20	64	78	151	290	131	280	327	300	672	444	305	307	296	268	208	195	373	177	562	246	202	133	279	217	271
21	193	88	305	181	161	116	338	213	290	273	223	321	310	245	226	202	142	116	360	327	164	248	231	46	222
22	407	72	185	175	76	89	89	303	175	217	170	143	183	230	194	171	77	96	89	64	61	66	66	91	145
23	70	65	122	156	220	130	465	417	413	505	374	162	170	189	166	171	169	176	126	79	195	163	111	139	206
24	235	90	198	186	557	588	520	697	602	359	159	292	170	151	171	160	185	110	120	61	180	243	258	142	268
25	148	533	292	288	283	234	286	244	362	721	572	476	701	324	438	234	329	232	178	368	276	362	270	299	352
26	124	54	427	75	33	57	173	239	226	200	316	294	236	221	221	202	163	184	80	439	273	185	164	327	205
27	204	348	95	228	286	299	280	332	701	557	254	249	227	222	215	243	150	229	147	88	170	524	288	610	289
28	66	106	289	290	297	211	101	191	571	397	274	377	394	567	475	316	302	124	74	279	235	336	321	348	289
29	376	404	552	282	176	235	126	216	302	237	143	162	218	224	236	210	143	185	156	220	88	132	91	50	215
30	221	200	177	51	60	39	205	417	418	248	265	285	283	325	423	330	174	111	119	278	217	159	258	328	233
AVERAGE	158	152	194	185	197	214	244	286	323	301	253	251	265	264	235	219	190	168	146	180	167	221	182	183	216

HOURLY AVERAGED WIND SPEED
DATA RECORDED IN MAY 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A METER PER SECOND

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	16	55	62	81	81	68	57	63	42	34	39	32	34	48	54	57	72	66	58	35	38	42	45	38	51
2	35	45	18	30	32	17	10	13	19	28	37	39	35	44	38	38	37	38	36	30	29	37	41	19	31
3	32	36	24	23	27	21	22	22	29	31	33	37	41	46	61	51	59	71	60	60	72	77	77	69	45
4	68	54	47	53	44	46	49	86	97	88	89	84	90	80	73	107	115	94	73	55	10	10	18	10	64
5	23	64	42	11	32	29	37	32	21	27	49	58	52	69	58	43	32	26	40	13	11	10	10	10	33
6	10	14	26	14	18	19	10	21	29	23	29	42	44	42	53	76	57	54	20	31	53	48	16	19	32
7	29	28	35	24	42	44	27	31	52	45	50	69	60	92	57	62	52	45	48	30	36	44	35	20	44
8	10	12	17	14	14	17	32	37	50	78	42	20	26	35	38	108	98	87	86	51	51	25	45	56	44
9	61	71	82	87	87	71	75	48	42	32	24	20	23	24	24	22	21	27	45	34	31	25	27	35	43
10	46	50	40	29	23	40	32	35	70	69	58	40	26	30	22	26	21	25	35	38	44	38	41	41	38
11	55	54	51	38	12	12	15	30	28	20	19	22	23	23	21	24	28	34	32	32	33	28	42	50	30
12	52	48	27	41	25	12	13	26	48	53	51	51	41	44	32	24	30	14	10	10	30	39	40	26	33
13	32	47	41	32	23	20	13	27	33	32	25	23	23	66	116	101	45	20	41	23	19	28	20	17	36
14	19	24	27	31	34	25	28	18	17	19	26	26	25	65	35	20	17	59	50	42	28	21	22	35	30
15	27	24	20	13	23	30	15	14	21	27	32	35	28	69	59	63	31	20	30	40	31	38	12	12	30
16	20	12	25	32	20	11	15	14	26	26	25	29	36	63	62	40	36	20	21	16	10	20	31	17	26
17	25	21	21	14	15	15	13	13	13	16	20	15	23	24	21	29	18	33	14	21	19	20	21	29	20
18	30	27	21	19	18	16	16	18	13	13	18	24	26	38	43	35	22	10	10	13	12	40	31	35	23
19	26	23	28	18	17	26	27	24	17	17	23	21	18	24	30	30	28	15	36	25	35	41	35	21	25
20	14	20	34	29	23	17	10	10	20	26	27	25	31	32	35	48	35	12	15	25	31	48	71	36	28
21	22	17	28	32	29	36	28	30	30	39	43	48	52	50	39	49	53	54	43	23	14	30	34	31	36
22	33	23	10	16	26	23	14	19	27	37	32	53	40	36	36	28	36	33	18	33	59	41	39	48	32
23	43	29	17	15	10	15	12	12	21	25	40	39	42	29	29	51	41	44	38	27	35	38	42	31	30
24	24	11	19	16	10	12	13	14	20	31	39	47	51	62	59	49	44	48	50	37	36	46	31	28	33
25	28	18	20	21	23	22	23	29	29	23	24	28	37	50	51	33	43	38	34	49	57	37	29	34	33
26	42	35	20	28	18	19	19	54	68	58	56	49	62	58	67	77	67	46	34	43	42	42	39	37	45
27	24	38	34	33	27	19	22	42	42	55	62	64	51	46	64	48	46	50	67	62	45	36	30	23	43
28	15	20	26	27	27	26	22	20	21	29	23	25	22	20	48	34	49	57	48	30	34	31	29	27	30
29	20	14	23	23	24	22	21	16	24	21	17	24	37	44	35	33	24	20	32	35	41	41	40	55	29
30	47	31	19	26	17	12	11	18	23	21	21	27	34	29	28	31	29	24	25	15	26	40	43	38	26
31	31	25	34	33	19	26	17	17	23	40	34	48	51	52	50	50	63	46	28	43	73	59	47	49	40
AVERAGE	31	32	30	29	27	25	23	28	33	35	36	38	38	46	46	48	44	40	38	33	35	36	35	32	35

HOURLY AVERAGED WIND DIRECTION
DATA RECORDED IN MAY 1993
WHITE MESA MILL
UNITS ARE DEGREES AZIMUTH

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	196	325	321	326	331	335	318	316	163	207	229	328	294	325	357	349	329	324	333	357	20	13	13	11
2	359	346	355	4	3	358	358	177	209	212	197	208	211	207	233	207	233	224	221	231	342	8	16	12
3	19	17	22	32	28	29	27	104	133	154	164	188	204	189	213	209	206	203	190	180	186	188	192	192
4	181	172	170	167	160	170	168	179	184	188	200	210	210	228	313	323	325	325	317	329	329	329	100	100
5	209	210	217	204	170	165	181	182	215	193	181	195	190	231	298	296	193	140	206	205	295	295	295	295
6	295	40	26	33	29	25	25	154	159	157	184	186	187	218	219	263	273	271	234	228	271	296	274	56
7	20	28	14	309	280	273	232	220	215	193	198	230	256	274	250	260	285	252	314	12	358	347	348	5
8	53	341	360	307	342	32	7	11	5	342	282	167	156	115	134	332	328	333	337	330	334	13	332	324
9	319	333	333	333	333	333	340	338	29	53	56	68	179	7	125	67	28	47	59	27	14	350	354	341
10	19	9	17	38	19	2	349	348	36	40	50	72	59	41	80	46	33	33	35	24	351	347	347	10
11	12	13	9	355	89	6	72	99	112	113	192	192	191	168	192	197	203	230	213	229	24	358	10	13
12	11	11	47	15	6	20	108	143	143	137	12:	123	132	157	151	100	108	136	136	136	2	10	9	24
13	10	29	47	56	30	27	63	128	136	147	118	174	231	339	333	328	320	31	148	184	12	350	322	359
14	41	30	28	20	18	19	33	85	130	163	196	180	248	305	310	357	243	36	33	21	358	352	22	14
15	15	327	332	12	25	17	31	92	142	155	150	183	177	2	33	24	4	318	320	228	245	336	47	39
16	10	27	29	14	8	298	25	64	100	107	157	169	190	206	218	150	52	80	152	112	112	269	21	62
17	21	13	20	20	22	62	119	64	35	38	65	50	62	78	62	110	297	8	25	294	29	3	5	11
18	10	2	5	26	24	300	244	205	136	68	78	320	288	270	283	295	304	304	304	240	47	353	7	15
19	333	355	1	1	41	25	44	79	136	169	156	212	4	186	226	273	241	286	275	299	24	35	23	4
20	80	18	15	16	15	6	6	88	161	187	199	196	214	313	318	356	351	29	203	13	353	257	187	16
21	69	100	26	15	13	22	39	119	139	163	190	226	214	202	206	216	228	228	252	263	317	338	331	313
22	322	318	318	43	26	35	47	219	249	258	201	220	289	338	20	45	95	90	86	9	15	333	345	334
23	10	11	352	312	60	24	32	201	209	204	210	205	227	263	283	261	257	306	268	260	14	16	10	7
24	347	170	12	16	16	31	33	139	183	179	193	218	237	243	233	227	227	246	260	280	338	352	354	329
25	345	48	20	16	36	49	52	138	146	137	142	180	208	213	198	177	206	209	226	246	257	328	83	123
26	129	134	100	106	115	173	132	136	143	150	153	17a	186	202	208	183	213	47	66	30	17	36	48	52
27	27	134	107	18	360	31	98	120	103	117	125	128	140	237	30	38	61	65	54	41	36	35	17	3
28	15	9	15	30	26	24	38	85	146	134	122	122	140	115	126	128	206	354	34	35	36	28	29	42
29	39	46	79	48	38	46	39	130	142	138	151	207	209	213	234	222	218	209	264	287	327	339	342	345
30	352	15	48	14	353	23	22	96	132	163	145	171	189	202	213	197	203	183	179	153	25	11	358	358
31	359	32	22	11	20	31	56	129	138	164	170	200	218	190	203	218	205	199	194	214	218	215	215	213

HOURLY HORIZONTAL WIND DIRECTION STANDARD DEVIATION
DATA RECORDED IN MAY 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A DEGREE

	HOUR OF THE DAY																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	513	99	83	96	87	211	131	283	552	381	500	470	453	467	268	290	171	139	124	198	33	159	329	268	263
2	265	58	220	284	358	289	284	262	242	195	206	261	229	363	243	241	274	166	128	192	483	217	51	256	238
3	76	29	36	78	61	118	89	315	206	223	257	187	233	267	196	207	180	165	122	74	78	80	69	77	143
4	79	92	63	67	74	84	96	87	101	120	136	153	132	156	228	94	87	89	78	133	365	145	361	165	133
5	142	85	74	158	88	113	124	129	215	336	220	136	200	328	213	175	499	151	138	218	221	532	212	118	201
6	256	91	68	105	99	165	492	204	231	408	282	224	198	195	159	129	161	135	375	340	119	111	652	231	226
7	70	110	294	201	230	446	418	159	130	176	158	283	298	655	328	504	101	101	93	98	111	265	174	184	89	283
8	560	627	248	252	409	196	354	299	234	156	464	298	655	328	504	101	101	93	98	111	265	174	184	89	283
9	73	84	69	64	67	72	86	114	251	95	99	150	281	452	388	463	315	403	250	72	42	168	215	141	134	223
10	117	214	180	178	221	248	250	265	95	99	150	281	452	388	463	315	403	250	72	42	168	215	141	134	223
11	84	65	184	381	475	506	525	134	175	246	440	530	336	591	379	336	352	128	80	511	270	239	293	65	305
12	33	39	336	112	246	328	657	209	163	163	214	197	315	274	346	313	373	184	182	635	309	338	251	711	289
13	244	105	95	90	84	89	379	182	227	238	424	477	484	336	91	86	180	525	131	317	589	139	346	210	253
14	206	109	55	91	38	51	82	345	317	342	283	386	507	102	157	328	650	168	218	222	252	232	150	134	226
15	322	220	202	286	81	122	120	241	266	258	259	239	472	270	104	112	283	290	221	560	477	218	637	471	280
16	322	261	153	46	258	378	100	386	173	282	368	375	270	198	182	484	196	271	169	280	258	539	221	143	263
17	147	161	245	253	114	108	270	482	270	220	241	444	321	282	343	671	498	260	362	217	191	216	180	191	279
18	274	245	315	288	180	373	209	267	311	540	329	636	287	100	93	148	233	579	353	87	337	223	263	336	292
19	198	200	234	297	148	170	129	251	322	372	397	365	517	495	278	447	307	533	284	449	129	89	174	263	294
20	662	82	345	404	180	247	410	356	235	322	249	255	370	503	208	260	264	574	226	281	344	256	330	364	322
21	448	567	101	116	210	43	197	223	278	212	298	250	218	265	309	296	244	131	105	131	211	58	34	212	215
22	70	88	342	406	94	128	141	264	245	193	286	211	759	582	260	191	225	199	176	306	161	114	179	94	238
23	329	191	337	477	382	128	169	543	253	266	211	223	301	579	624	210	245	172	185	170	310	130	248	257	289
24	229	632	196	131	267	397	189	403	235	190	263	224	259	239	237	211	204	205	92	126	103	47	177	106	223
25	294	528	84	95	207	181	387	136	276	289	295	312	247	232	242	409	303	247	594	565	387	277	281	111	291
26	110	104	179	80	322	177	309	119	113	157	214	200	147	200	195	141	406	186	213	154	249	120	58	89	177
27	230	147	211	255	225	246	205	127	174	158	155	183	220	632	334	408	536	205	100	96	77	117	93	260	225
28	262	339	102	66	46	72	189	309	147	210	269	313	385	603	187	354	440	384	84	97	79	84	59	124	217
29	247	308	120	309	124	158	136	280	221	331	515	342	300	267	374	298	462	538	322	126	82	83	89	27	252
30	273	633	303	214	411	119	299	173	204	278	416	406	206	375	348	241	335	283	92	314	240	327	269	246	292
31	222	134	145	118	163	77	186	257	216	187	247	171	162	214	183	193	168	106	145	161	75	94	69	84	157
AVERAGE	237	214	181	193	192	195	246	252	228	253	298	310	338	345	272	267	310	250	192	243	236	187	215	203	244

HOURLY AVERAGED WIND SPEED
DATA RECORDED IN JUNE 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A METER PER SECOND

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	43	34	20	26	31	31	22	18	29	35	35	44	57	49	64	56	54	48	45	28	33	31	19	14	36
2	14	11	20	15	28	27	17	27	55	71	81	75	90	72	79	72	71	86	98	93	83	84	73	64	59
3	51	29	31	24	10	33	42	52	59	65	66	75	76	77	79	76	66	60	52	37	40	39	32	27	50
4	10	10	11	19	27	28	17	15	15	28	41	50	46	63	18	21	14	20	24	27	21	15	18	14	24
5	16	18	34	32	26	39	29	42	62	73	78	80	88	98	91	85	79	74	81	71	44	24	21	30	55
6	34	39	33	26	47	90	73	68	84	106	104	86	65	83	103	89	37	39	64	45	53	10	32	10	59
7	10	10	22	13	10	10	10	32	42	58	67	61	56	54	55	58	52	45	34	42	43	100	55	35	41
8	47	40	33	12	10	10	10	10	32	41	36	23	62	77	50	38	57	46	39	32	43	38	59	58	38
9	23	15	10	10	10	10	13	20	24	16	24	27	36	39	32	28	20	24	32	17	28	34	36	28	23
10	31	24	16	26	16	17	11	24	22	20	23	31	28	30	25	23	22	27	19	16	12	29	33	34	23
11	34	35	30	28	27	29	16	28	24	25	25	31	33	54	55	55	67	56	52	35	17	28	28	20	35
12	11	19	23	31	29	31	21	18	34	32	41	48	54	52	70	64	64	60	51	33	44	53	43	39	40
13	25	13	12	19	33	32	14	23	18	14	20	20	29	28	37	46	30	18	26	29	33	37	40	44	27
14	37	26	23	42	39	23	12	18	14	19	26	24	36	33	36	43	45	39	35	28	24	39	30	20	30
15	24	24	31	35	40	32	21	14	23	33	30	36	54	64	71	73	59	45	36	29	67	86	80	75	45
16	61	50	38	19	17	11	16	34	42	47	60	66	92	101	94	101	95	100	100	82	57	52	42	33	59
17	30	24	36	43	31	21	25	26	46	52	58	50	70	80	88	59	67	33	24	36	32	25	19	21	42
18	32	31	21	19	26	25	21	23	23	20	25	33	22	22	23	19	28	53	51	46	36	37	36	43	30
19	41	38	41	40	34	30	38	59	74	66	53	44	34	35	26	24	21	22	27	31	27	18	30	35	37
20	38	43	43	41	19	25	25	26	33	26	30	28	34	30	41	38	21	24	16	14	34	52	84	85	35
21	77	56	43	38	19	14	18	34	44	46	51	60	72	74	76	78	68	65	48	35	26	24	22	27	46
22	30	24	30	31	30	28	18	20	27	34	39	48	57	42	45	51	55	52	51	30	27	34	44	36	37
23	26	23	35	33	27	23	14	14	19	29	42	62	71	79	80	66	69	63	58	92	103	85	81	74	53
24	69	21	17	39	31	13	14	24	28	21	17	18	25	37	40	42	36	26	46	41	50	46	37	31	32
25	35	34	29	17	20	20	14	22	14	14	17	20	24	26	29	33	28	24	21	25	33	30	17	23	24
26	26	30	16	18	28	23	10	23	29	21	22	30	32	31	25	32	29	24	13	11	28	41	30	26	25
27	30	26	27	31	32	32	25	19	24	31	39	48	64	80	83	65	66	67	61	44	30	35	40	36	43
28	16	30	21	27	28	29	22	26	31	29	51	60	56	62	89	84	84	62	39	42	30	36	46	32	43
29	36	37	39	27	18	29	29	26	44	51	63	62	51	74	80	81	81	64	57	36	31	37	24	25	46
30	18	12	24	20	19	26	16	12	17	28	31	31	42	44	49	62	54	60	59	31	27	37	35	25	32
AVERAGE	31	27	26	26	25	26	20	26	33	37	42	44	50	55	56	54	50	46	44	37	37	40	38	34	38

HOURLY AVERAGED WIND DIRECTION
DATA RECORDED IN JUNE 1993
WHITE MESA MILL
UNITS ARE DEGREES AZIMUTH

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	208	222	264	12	18	24	33	92	188	190	188	204	206	231	224	244	229	216	271	294	327	345	348	279
2	24	256	248	58	21	33	4d	165	191	189	197	203	214	199	195	205	197	216	224	221	212	216	230	257
3	261	306	304	277	277	262	256	257	243	239	243	237	239	270	264	276	278	278	313	9	16	11	7	4
4	4	4	262	359	8	12	20	23	122	154	172	181	194	227	272	296	26	61	172	99	93	58	39	43
5	178	146	167	162	174	177	185	176	174	169	171	175	182	171	173	186	189	193	202	210	200	178	166	158
6	167	172	173	159	165	179	189	192	184	193	200	202	267	261	261	256	259	218	224	312	265	300	245	245
7	245	245	229	226	226	226	104	170	201	204	209	215	223	221	244	228	230	263	258	283	308	326	8	353
8	334	333	333	7	7	7	7	7	351	345	355	29	343	2	11	224	281	276	293	323	27	34	335	343
9	317	37	37	37	37	37	338	147	174	212	101	149	245	247	298	86	110	78	80	62	29	17	3	357
10	358	354	359	359	15	20	91	131	147	167	165	176	201	188	214	205	184	169	176	148	89	26	19	11
11	9	8	18	16	29	32	53	121	130	164	194	199	207	205	188	194	219	226	227	215	206	357	15	348
12	342	24	26	21	29	25	35	110	189	170	175	207	193	209	226	214	236	255	272	309	343	347	348	316
13	19	24	65	357	8	34	332	198	203	15	7	245	193	196	223	224	237	172	274	291	11	16	13	10
14	10	26	17	14	22	359	119	108	118	171	150	143	192	203	199	237	225	206	237	274	351	9	5	324
15	29	41	26	24	21	25	26	86	160	171	174	196	204	214	246	260	236	222	208	224	127	136	155	174
16	179	180	172	147	136	127	92	147	166	181	186	211	222	217	211	220	220	214	213	209	209	203	200	237
17	288	360	15	31	28	66	114	140	145	165	218	236	217	223	233	290	339	228	19	15	13	326	282	262
18	281	300	24	20	17	21	42	102	188	188	162	207	215	229	247	105	355	333	332	331	358	5	1	11
19	12	4	10	11	23	2	26	36	32	38	33	26	39	47	51	140	133	192	205	218	43	358	342	357
20	13	15	20	12	49	43	21	96	136	125	148	182	171	211	238	239	208	226	241	30	29	111	120	131
21	126	109	107	111	64	86	124	138	152	161	174	203	196	207	224	229	235	245	233	229	255	350	337	300
22	299	25	21	25	20	17	48	164	160	181	197	213	211	200	223	231	219	221	248	271	314	360	343	339
23	339	339	18	20	21	29	42	176	192	176	197	230	234	235	245	261	273	267	275	342	331	329	325	334
24	343	60	299	293	287	155	173	205	159	152	228	145	211	209	179	163	174	261	337	335	337	332	329	3
25	326	348	338	336	18	343	268	277	210	142	357	43	49	50	116	237	243	217	190	61	17	355	347	353
26	20	15	245	6	26	37	37	124	149	169	159	175	185	205	214	194	241	188	198	275	17	8	352	7
27	17	13	20	22	22	20	33	81	121	156	163	186	216	254	242	232	242	252	258	265	287	334	325	326
28	54	29	1	7	23	24	27	112	141	176	168	167	190	209	220	230	212	199	191	≥15	238	219	219	271
29	255	264	262	293	36	37	29	150	185	182	195	213	199	220	231	221	243	248	251	267	298	333	339	1
30	338	48	35	46	39	39	36	91	161	162	187	187	197	208	240	234	240	245	260	270	335	7	2	4

HOURLY HORIZONTAL WIND DIRECTION STANDARD DEVIATION
DATA RECORDED IN JUNE 1993
WHITE MESA MILL
UNITS ARE TENTHS OF A DEGREE

	HOUR OF THE DAY																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
1	59	226	284	309	40	47	131	312	174	184	277	228	220	245	215	263	195	126	221	99	74	76	189	265	186
2	171	402	326	132	88	63	136	335	125	123	137	139	134	145	145	138	155	213	91	96	74	78	105	79	151
3	92	253	160	171	354	140	84	116	138	185	175	144	193	219	195	129	181	136	387	312	34	275	305	317	198
4	555	632	412	246	292	308	127	247	589	272	214	244	154	210	540	376	549	451	175	145	112	300	135	206	312
5	312	221	70	98	114	96	108	90	95	108	121	119	123	111	137	128	110	88	87	76	101	172	171	135	125
6	112	68	85	76	120	91	98	77	103	105	104	286	153	119	110	130	196	180	301	186	208	313	213	133	149
7	632	348	101	131	578	157	411	178	169	198	207	176	265	251	270	241	262	139	200	153	78	191	294	203	243
8	79	60	248	601	284	226	361	654	269	241	371	485	246	266	442	435	140	126	110	320	79	209	126	92	270
9	280	280	168	195	156	157	383	210	293	515	481	439	358	291	708	265	322	261	88	153	100	120	242	184	277
10	213	369	272	287	166	56	486	210	263	335	393	359	562	487	516	409	407	221	162	160	352	107	83	106	291
11	94	110	98	173	138	55	242	167	233	243	249	215	265	176	220	198	148	148	149	58	279	536	240	345	199
12	594	140	81	78	69	75	133	457	163	220	221	274	234	209	203	186	193	146	141	200	30	28	27	121	176
13	475	669	377	532	270	344	716	157	425	615	713	648	498	520	365	185	350	544	218	199	212	281	253	279	410
14	194	504	342	176	53	352	348	183	285	285	304	348	289	332	276	232	236	169	180	159	421	84	232	437	268
15	144	146	63	45	65	101	167	396	184	175	195	283	143	186	161	137	282	187	123	288	111	99	170	97	165
16	87	86	91	166	134	341	402	150	173	184	194	247	165	140	142	138	113	92	83	81	68	67	64	228	152
17	299	291	167	56	63	200	370	223	152	185	476	229	134	140	230	510	200	643	309	117	285	228	277	139	247
18	204	113	397	179	186	104	191	268	323	455	482	380	569	540	727	651	514	218	141	84	264	287	275	171	322
19	138	311	232	135	92	230	159	100	94	127	160	243	304	378	419	721	444	394	160	174	207	458	134	208	251
20	175	60	55	35	451	82	81	237	204	284	291	295	340	330	278	378	733	450	357	278	95	355	107	114	253
21	109	119	99	147	481	213	226	162	157	241	198	215	196	169	171	157	172	123	166	160	95	357	301	144	191
22	214	412	118	84	117	107	194	242	168	244	243	194	177	245	246	241	193	113	201	120	152	208	128	63	184
23	124	647	94	45	78	95	103	636	248	198	210	299	153	123	152	203	172	193	243	139	81	87	93	72	187
24	210	639	647	110	280	268	217	316	227	456	602	574	417	291	316	195	226	622	104	62	56	69	250	219	307
25	199	284	256	275	245	342	583	235	506	661	477	487	360	342	595	439	472	280	164	584	208	284	171	212	361
26	149	220	414	387	78	92	488	202	239	282	333	259	248	361	771	434	537	320	528	421	134	202	328	481	330
27	115	197	60	70	44	33	75	254	215	245	173	219	268	175	126	182	158	176	110	89	200	50	26	244	146
28	359	59	248	281	329	67	78	442	153	241	156	137	189	211	129	205	158	208	219	271	171	105	73	342	201
29	77	82	127	287	473	95	147	253	131	133	208	186	231	239	193	126	119	149	109	97	225	48	243	279	177
30	188	200	80	151	147	136	172	300	306	230	243	249	306	318	238	144	237	139	123	133	335	253	238	437	221
AVERAGE	215	263	199	183	193	151	239	252	219	257	278	277	255	251	298	264	264	234	182	175	158	191	177	205	224

APPENDIX B

FREQUENCY DISTRIBUTIONS OF WIND DIRECTION BY WIND SPEED BY HOUR OF THE DAY

LIST OF TABLES

TABLE B-1

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL
TIME (MST): 0000-0400

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	1.10	7.87	4.56	0.41	0.00	0.00	13.95	2.6
NNE	1.66	16.02	8.15	0.28	0.00	0.00	26.10	2.6
NE	1.10	5.11	0.97	0.28	0.00	0.00	7.46	2.3
ENE	0.83	1.38	0.28	0.00	0.00	0.00	2.49	1.8
E	0.41	0.69	0.00	0.00	0.00	0.00	1.10	1.7
ESE	0.28	0.83	0.41	0.14	0.00	0.00	1.66	2.6
SE	0.28	0.55	1.38	0.14	0.00	0.00	2.35	3.3
SSE	0.00	1.80	0.69	0.14	0.00	0.00	2.62	2.7
S	0.14	0.14	0.55	0.69	0.00	0.00	1.52	4.3
SSW	0.41	1.24	0.41	0.55	0.00	0.00	2.62	3.3
SW	0.69	0.55	1.24	0.00	0.00	0.00	2.49	2.7
WSW	0.28	1.38	0.69	0.14	0.00	0.00	2.49	2.7
W	0.28	0.55	1.38	0.28	0.00	0.00	2.49	3.5
WNW	0.41	0.83	1.52	0.14	0.00	0.00	2.90	2.9
NW	0.41	3.04	1.80	0.97	0.41	0.00	6.63	3.6
NNW	0.69	4.42	3.45	1.38	0.69	0.00	10.64	3.7
All	8.98	46.41	27.49	5.52	1.10	0.00	89.50	2.9

Calm (less than 1.0 m/s) = 10.5
Period mean wind speed = 2.7 m/s

TABLE B-2

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL
TIME (MST): 0400-0800

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	1.66	4.70	2.62	0.00	0.00	0.00	8.98	2.3
NNE	3.04	16.02	4.28	0.14	0.00	0.00	23.48	2.4
NE	2.07	8.01	1.10	0.14	0.00	0.00	11.33	2.2
ENE	1.52	1.52	0.14	0.00	0.00	0.00	3.18	1.7
E	1.24	1.93	0.14	0.00	0.00	0.00	3.31	1.8
ESE	1.66	2.21	0.41	0.00	0.00	0.00	4.28	1.9
SE	0.41	2.62	0.55	0.28	0.00	0.00	3.87	2.5
SSE	0.41	1.24	0.83	0.00	0.00	0.00	2.49	2.8
S	0.41	0.69	1.52	0.55	0.28	0.00	3.45	4.0
SSW	0.28	0.41	0.28	0.41	0.00	0.00	1.38	3.3
SW	0.28	0.69	0.14	0.00	0.00	0.00	1.10	2.1
WSW	0.14	0.41	0.41	0.14	0.00	0.00	1.10	3.1
W	0.55	0.83	0.97	0.00	0.00	0.00	2.35	2.6
WNW	0.41	0.55	0.41	0.00	0.00	0.00	1.38	2.1
NW	0.55	1.93	1.38	0.41	0.00	0.00	4.28	3.0
NNW	0.97	2.35	2.07	1.52	0.28	0.00	7.18	3.7
All	15.61	46.13	17.27	3.59	0.55	0.00	83.15	2.5

Calm (less than 1.0 m/s) = 16.9
Period mean wind speed = 2.3 m/s

TABLE B-3

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL
TIME (MST): 0800-1200

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.83	0.83	0.41	0.28	0.00	0.00	2.35	2.3
NNE	1.24	3.73	1.38	0.55	0.00	0.00	6.91	2.6
NE	0.97	2.76	0.69	1.10	0.00	0.00	5.52	3.0
ENE	0.97	1.24	0.55	0.14	0.00	0.00	2.90	2.3
E	0.55	0.83	0.00	0.00	0.00	0.00	1.38	1.8
ESE	0.69	3.59	0.28	0.41	0.00	0.00	4.97	2.4
SE	0.97	4.83	2.21	0.97	0.00	0.00	8.98	2.9
SSE	0.83	6.35	3.59	0.69	0.00	0.00	11.46	2.8
S	0.41	5.52	6.08	1.80	0.55	0.00	14.36	3.6
SSW	0.28	4.97	4.70	1.80	0.83	0.00	12.57	3.8
SW	0.00	2.07	1.38	1.80	0.14	0.00	5.39	4.0
WSW	0.55	1.52	0.69	1.38	0.14	0.00	4.28	3.9
W	0.28	0.69	0.41	0.14	0.14	0.00	1.66	3.5
WNW	0.41	0.97	1.24	0.14	0.00	0.00	2.76	3.0
NW	0.28	1.24	1.38	1.38	0.00	0.00	4.28	3.8
NNW	0.28	0.97	0.69	0.97	0.41	0.00	3.31	4.5
All	9.53	42.13	25.69	13.54	2.21	0.00	93.09	3.2

Calm (less than 1.0 m/s) = 6.9
Period mean wind speed = 3.1 m/s

R:\DOCS\JOBSNZ\UMETCO\109009\FH93MET.WIN

TABLE B-4

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL
TIME (MST): 1200-1600

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.28	1.80	0.28	0.97	0.28	0.00	3.59	3.7
NNE	0.83	1.38	0.55	0.83	0.00	0.00	3.59	3.1
NE	0.28	2.49	1.24	0.28	0.00	0.00	4.28	2.9
ENE	0.14	0.97	0.00	0.00	0.00	0.00	1.10	2.0
E	0.14	1.24	0.00	0.00	0.00	0.00	1.38	2.0
ESE	0.41	1.66	0.69	0.00	0.00	0.00	2.76	2.5
SE	0.14	1.10	1.24	0.41	0.00	0.00	2.90	3.4
SSE	0.28	1.93	1.80	0.28	0.00	0.00	4.28	3.0
S	0.55	4.01	4.14	0.83	0.55	0.00	10.08	3.5
SSW	0.97	3.87	7.46	4.70	0.28	0.00	17.27	4.0
SW	0.00	3.45	4.01	4.83	2.21	0.00	14.50	5.0
WSW	0.28	1.24	3.04	3.45	1.80	0.00	9.81	5.5
W	0.14	1.24	0.83	2.21	0.69	0.00	5.11	5.2
WNW	0.14	1.10	2.21	0.55	0.14	0.00	4.14	3.8
NW	0.28	0.97	2.35	2.49	0.97	0.00	7.04	5.3
NNW	0.14	0.97	0.41	1.24	1.93	0.14	4.83	6.4
All	4.97	29.42	30.25	23.07	8.84	0.14	96.69	4.3

Calm (less than 1.0 m/s) = 3.3
Period mean wind speed = 4.2 m/s

TABLE B-5

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL
TIME (MST): 1600-2000

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.28	3.31	4.01	0.83	0.00	0.00	8.43	3.2
NNE	1.93	5.52	3.18	0.55	0.00	0.00	11.19	2.7
NE	0.14	3.18	1.52	0.55	0.00	0.00	5.39	3.0
ENE	0.00	1.10	0.55	0.14	0.00	0.00	1.80	2.9
E	0.28	0.55	0.41	0.14	0.00	0.00	1.38	2.6
ESE	0.00	0.55	0.14	0.00	0.00	0.00	0.69	2.1
SE	0.69	0.83	0.97	0.55	0.00	0.00	3.04	3.3
SSE	0.00	1.38	0.41	0.00	0.00	0.00	1.80	2.5
S	0.28	2.21	0.69	0.41	0.00	0.00	3.59	3.0
SSW	0.55	1.80	2.76	1.38	0.97	0.00	7.46	4.4
SW	0.55	2.35	5.25	2.49	1.10	0.00	11.74	4.3
WSW	0.28	2.35	3.04	2.35	0.83	0.14	8.98	4.7
W	0.14	2.35	3.45	2.21	0.41	0.00	8.56	4.2
WNW	0.14	0.97	1.24	0.69	0.00	0.00	3.04	3.7
NW	0.00	2.07	3.31	2.49	0.55	0.14	8.56	4.6
NNW	0.41	0.97	2.90	3.45	0.97	0.00	8.70	5.1
All	5.66	31.49	33.84	18.23	4.83	0.28	94.34	3.9

Calm (less than 1.0 m/s) = 5.7
Period mean wind speed = 3.7 m/s

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TABLE B-6

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL
TIME (MST): 2000-2400

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.69	10.91	10.50	0.41	0.00	0.00	22.51	2.9
NNE	0.83	8.84	8.43	0.28	0.00	0.00	18.37	2.8
NE	1.66	2.35	1.52	0.00	0.00	0.00	5.52	2.3
ENE	0.28	0.83	0.28	0.00	0.00	0.00	1.38	2.1
E	0.41	0.41	0.28	0.00	0.00	0.00	1.10	2.1
ESE	0.00	0.55	0.28	0.14	0.14	0.00	1.10	3.5
SE	0.14	0.14	1.10	0.14	0.28	0.00	1.80	4.7
SSE	0.00	0.28	0.55	0.14	0.14	0.00	1.10	3.9
S	0.14	0.14	0.55	0.83	0.00	0.00	1.66	5.0
SSW	0.00	1.24	0.55	1.38	0.14	0.00	3.31	4.5
SW	0.41	0.55	1.24	0.55	0.14	0.00	2.90	4.0
WSW	0.28	0.55	1.52	0.55	0.00	0.00	2.90	3.6
W	0.28	1.66	1.10	0.69	0.00	0.00	3.73	3.3
WNW	0.55	1.80	1.10	0.14	0.14	0.00	3.73	2.8
NW	0.41	2.62	3.04	0.83	0.41	0.00	7.32	3.8
NNW	0.69	4.70	6.63	1.38	0.41	0.28	14.09	3.7
All	6.77	37.57	38.67	7.46	1.80	0.28	92.54	3.2

Calm (less than 1.0 m/s) = 7.5
Period mean wind speed = 3.1 m/s

TABLE B-7

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL
TIME (MST): 0000-2400

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.81	4.90	3.73	0.48	0.05	0.00	9.97	2.8
NNE	1.59	8.59	4.33	0.44	0.00	0.00	14.94	2.6
NE	1.04	3.98	1.17	0.39	0.00	0.00	6.58	2.5
ENE	0.62	1.17	0.30	0.05	0.00	0.00	2.14	2.1
E	0.51	0.94	0.14	0.02	0.00	0.00	1.61	1.9
ESE	0.51	1.57	0.37	0.12	0.02	0.00	2.58	2.4
SE	0.44	1.68	1.24	0.41	0.05	0.00	3.82	3.1
SSE	0.25	2.16	1.31	0.21	0.02	0.00	3.96	2.8
S	0.32	2.12	2.26	0.85	0.23	0.00	5.78	3.7
SSW	0.41	2.26	2.69	1.70	0.37	0.00	7.44	4.0
SW	0.32	1.61	2.21	1.61	0.60	0.00	6.35	4.3
WSW	0.30	1.24	1.57	1.34	0.46	0.02	4.93	4.5
W	0.28	1.22	1.36	0.92	0.21	0.00	3.98	4.0
WNW	0.35	1.04	1.29	0.28	0.05	0.00	2.99	3.2
NW	0.32	1.98	2.21	1.43	0.39	0.02	6.35	4.1
NNW	0.53	2.39	2.69	1.66	0.78	0.07	8.13	4.3
All	8.59	38.86	28.87	11.90	3.22	0.12	91.55	3.4

Calm (less than 1.0 m/s) = 8.4
Period mean wind speed = 3.2 m/s

APPENDIX C

FREQUENCY DISTRIBUTION OF WIND DIRECTION BY WIND SPEED FOR EACH STABILITY CLASS

LIST OF TABLES

TABLE C-1

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR STABILITY CLASS A
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.91	3.93	0.00	0.00	0.00	0.00	4.83	1.9
NNE	10.51	3.02	0.00	0.00	0.00	0.00	4.53	1.9
NE	0.00	3.02	0.00	0.00	0.00	0.00	3.02	2.3
ENE	0.91	2.72	0.00	0.00	0.00	0.00	3.63	1.9
E	0.30	2.72	0.00	0.00	0.00	0.00	3.02	2.1
ESE	0.60	4.23	0.00	0.00	0.00	0.00	4.83	2.2
SE	0.60	4.83	0.00	0.00	0.00	0.00	5.44	2.2
SSE	0.30	11.48	0.00	0.00	0.00	0.00	11.78	2.3
S	0.60	14.20	0.00	0.00	0.00	0.00	14.80	2.3
SSW	1.21	12.08	0.00	0.00	0.00	0.00	13.29	2.3
SW	0.00	6.34	0.00	0.00	0.00	0.00	6.34	2.3
WSW	0.91	3.93	0.00	0.00	0.00	0.00	4.83	2.1
W	0.30	2.72	0.00	0.00	0.00	0.00	3.02	2.1
WNW	0.00	2.42	0.00	0.00	0.00	0.00	2.42	2.4
NW	0.60	3.32	0.00	0.00	0.00	0.00	3.93	2.1
NNW	0.00	2.42	0.00	0.00	0.00	0.00	2.42	2.1
All	8.76	83.38	0.00	0.00	0.00	0.00	92.15	2.2

Calm (less than 1.0 m/s) = 7.9%
Period mean wind speed = 2.1 m/s
Percent occurrence for A stability class = 7.6%

TABLE C-2

FREQUENCY OF WINDS BY DIRECTION AND SPEED FOR STABILITY CLASS B JANUARY THROUGH JUNE 1993 UMETCO MINERALS CORPORATION WHITE MESA MILL

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.67	1.57	1.12	0.67	0.00	0.00	4.04	2.8
NNE	1.35	2.02	0.45	0.22	0.00	0.00	4.04	2.1
NE	0.22	2.24	1.57	0.22	0.00	0.00	4.26	2.8
ENE	0.45	0.67	0.45	0.00	0.00	0.00	1.57	2.1
E	0.45	0.67	0.67	0.00	0.00	0.00	1.79	2.4
ESE	0.45	3.81	0.90	0.00	0.00	0.00	5.16	2.2
SE	0.67	5.83	2.02	0.00	0.00	0.00	8.52	2.5
SSE	0.90	4.71	5.16	0.00	0.00	0.00	10.76	2.6
S	0.67	3.36	8.52	0.00	0.00	0.00	12.56	3.0
SSW	0.67	3.59	10.76	0.00	0.00	0.00	15.02	3.1
SW	0.00	3.59	4.26	0.00	0.00	0.00	7.85	2.9
WSW	0.00	2.02	2.69	0.00	0.00	0.00	4.71	2.8
W	0.22	0.90	1.57	0.22	0.00	0.00	2.91	3.1
WNW	0.45	1.12	2.69	0.00	0.00	0.00	4.26	2.8
NW	0.22	0.67	3.36	0.45	0.00	0.00	4.71	3.4
NNW	0.67	0.90	0.90	1.12	0.00	0.00	3.59	3.4
All	8.07	37.67	47.09	2.91	0.00	0.00	95.74	2.8

Calm (less than 1.0 m/s) = 4.3%
Period mean wind speed = 2.7 m/s
Percent occurrence for B stability class = 10.3%

TABLE C-3

FREQUENCY OF WINDS BY DIRECTION AND SPEED FOR STABILITY CLASS C JANUARY THROUGH JUNE 1993 UMETCO MINERALS CORPORATION WHITE MESA MILL

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.00	0.97	0.81	1.13	0.16	0.00	3.07	4.2
NNE	1.46	3.07	1.46	1.13	0.00	0.00	7.12	2.7
NE	1.13	4.05	1.29	0.16	0.00	0.00	6.63	2.3
ENE	0.49	1.62	0.49	0.16	0.00	0.00	2.75	2.4
E	0.97	1.94	0.16	0.00	0.00	0.00	3.07	1.8
ESE	0.97	2.43	0.65	0.49	0.00	0.00	4.53	2.6
SE	0.81	2.43	1.94	0.49	0.00	0.00	5.66	2.9
SSE	0.32	0.97	2.59	0.65	0.00	0.00	4.53	3.5
S	0.65	2.27	4.21	1.62	0.00	0.00	8.74	3.8
SSW	0.65	2.27	6.31	4.53	0.00	0.00	13.75	4.1
SW	0.32	1.13	5.34	5.34	0.00	0.00	12.14	4.5
WSW	0.65	0.97	2.10	2.27	0.00	0.00	5.99	4.2
W	0.32	0.65	1.46	0.97	0.16	0.00	3.56	4.1
WNW	0.32	0.32	2.27	0.97	0.00	0.00	3.88	4.1
NW	0.00	0.97	2.75	1.29	0.00	0.00	5.02	4.3
NNW	0.49	0.81	1.94	0.97	0.49	0.16	4.85	4.5
All	9.55	26.86	35.76	22.17	0.81	0.16	95.31	3.6

Calm (less than 1.0 m/s) = 4.7%
Period mean wind speed = 3.5 m/s
Percent occurrence for C stability class = 14.2%

TABLE C-4

FREQUENCY OF WINDS BY DIRECTION AND SPEED FOR STABILITY CLASS D JANUARY THROUGH JUNE 1993 UMETCO MINERALS CORPORATION WHITE MESA MILL

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.27	1.26	6.31	0.73	0.07	0.00	8.64	3.6
NNE	0.73	6.98	6.25	0.73	0.00	0.00	14.68	3.0
NE	0.40	3.52	1.99	0.93	0.00	0.00	6.84	3.2
ENE	0.27	0.60	0.47	0.07	0.00	0.00	1.40	2.7
E	0.13	0.40	0.13	0.07	0.00	0.00	0.73	2.4
ESE	0.27	0.40	0.53	0.13	0.07	0.00	1.40	3.2
SE	0.20	0.40	2.13	10.00	0.13	0.00	3.85	4.3
SSE	0.13	1.13	10.00	0.33	0.07	0.00	2.66	3.4
S	0.20	0.80	2.06	1.79	0.66	0.00	5.51	5.0
SSW	0.07	0.73	1.59	2.99	1.06	0.00	6.45	5.7
SW	0.00	0.80	2.13	2.46	1.66	0.00	7.04	5.8
WSW	0.20	0.80	2.66	2.92	1.33	0.07	7.97	5.6
W	0.20	0.80	2.39	2.19	0.53	0.00	6.11	4.9
WNW	0.07	0.53	1.40	0.40	0.13	0.00	2.52	4.2
NW	0.07	10.00	2.79	3.39	1.13	0.07	8.44	5.4
NNW	0.27	0.47	3.99	4.05	1.99	0.13	10.90	5.7
All	3.46	20.60	37.81	24.19	8.84	0.27	95.15	4.5

Calm (less than 1.0 m/s) = 4.9%
Period mean wind speed = 4.4 m/s
Percent occurrence for D stability class = 34.6%

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TABLE C-5

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR STABILITY CLASS E
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.59	6.53	6.77	0.00	0.00	0.00	13.90	2.8
NNE	2.02	19.83	9.86	0.00	0.00	0.00	31.71	2.6
NE	1.54	5.11	0.71	0.12	0.00	0.00	7.48	2.2
ENE	0.24	1.31	0.12	0.00	0.00	0.00	1.66	1.9
E	0.59	0.71	0.00	0.00	0.00	0.00	1.31	1.8
ESE	0.24	1.07	0.00	0.00	0.00	0.00	1.31	1.8
SE	0.24	0.59	0.12	0.00	0.00	0.00	0.95	2.2
SSE	0.12	0.95	0.36	0.00	0.00	0.00	1.43	2.5
S	0.00	0.24	0.36	0.00	0.00	0.00	0.59	3.4
SSW	0.36	1.07	0.71	0.12	0.00	0.00	2.26	3.0
SW	0.48	1.31	1.43	0.00	0.12	0.00	3.33	3.0
WSW	0.12	0.59	0.36	0.00	0.00	0.00	1.07	2.4
W	0.00	1.90	0.83	0.00	0.00	0.00	2.73	2.7
WNW	0.36	1.31	1.07	0.00	0.00	0.00	2.73	2.5
NW	0.12	2.49	2.61	0.12	0.00	0.00	5.34	3.1
NNW	0.83	4.51	4.87	0.00	0.12	0.00	10.33	2.9
All	7.84	49.52	30.17	0.36	0.24	0.00	88.12	2.6

Calm (less than 1.0 m/s) = 11.9%
Period mean wind speed = 2.4 m/s
Percent occurrence for E stability class = 19.4%

TABLE C-6

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR STABILITY CLASS F
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	3.32	18.77	0.00	0.00	0.00	0.00	22.09	2.0
NNE	3.49	10.47	0.00	0.00	0.00	0.00	13.95	1.9
NE	2.99	5.32	0.00	0.00	0.00	0.00	8.31	1.7
ENE	2.16	1.50	0.00	0.00	0.00	0.00	3.65	1.5
E	10.00	0.83	0.00	0.00	0.00	0.00	1.83	1.5
ESE	10.00	1.16	0.00	0.00	0.00	0.00	2.16	1.4
SE	0.66	0.83	0.00	0.00	0.00	0.00	1.50	1.5
SSE	0.17	0.66	0.00	0.00	0.00	0.00	0.83	1.8
S	0.33	0.33	0.00	0.00	0.00	0.00	0.66	1.4
SSW	0.50	1.33	0.00	0.00	0.00	0.00	1.83	1.9
SW	1.33	0.50	0.00	0.00	0.00	0.00	1.83	1.4
WSW	0.33	1.50	0.00	0.00	0.00	0.00	1.83	1.7
W	0.83	1.33	0.00	0.00	0.00	0.00	2.16	1.7
WNW	1.16	1.83	0.00	0.00	0.00	0.00	2.99	1.6
NW	1.50	4.98	0.00	0.00	0.00	0.00	6.48	1.9
NNW	10.00	6.98	0.00	0.00	0.00	0.00	7.97	2.0
All	21.76	58.31	0.00	0.00	0.00	0.00	80.07	1.8

Calm (less than 1.0 m/s) = 19.9%
Period mean wind speed = 1.7 m/s
Percent occurrence for F stability class = 13.9%

TABLE C-7

FREQUENCY OF WINDS BY DIRECTION AND SPEED
FOR STABILITY CLASS All
JANUARY THROUGH JUNE 1993
UMETCO MINERALS CORPORATION
WHITE MESA MILL

Direction	Speed Class Interval (m/s) 1<1.5	1.5<3	3<5	5<8	8<11	>11	All	Mean Speed
N	0.81	4.90	3.73	0.48	0.05	0.00	9.97	2.8
NNE	1.59	8.59	4.33	0.44	0.00	0.00	14.94	2.6
NE	1.04	3.98	1.17	0.39	0.00	0.00	6.58	2.5
ENE	0.62	1.17	0.30	0.05	0.00	0.00	2.14	2.1
E	0.51	0.94	0.14	0.02	0.00	0.00	1.61	1.9
ESE	0.51	1.57	0.37	0.12	0.02	0.00	2.58	2.4
SE	0.44	1.68	1.24	0.41	0.05	0.00	3.82	3.1
SSE	0.25	2.16	1.31	0.21	0.02	0.00	3.96	2.8
S	0.32	2.12	2.26	0.85	0.23	0.00	5.78	3.7
SSW	0.41	2.26	2.69	1.70	0.37	0.00	7.44	4.0
SW	0.32	1.61	2.21	1.61	0.60	0.00	6.35	4.3
WSW	0.30	1.24	1.57	1.34	0.46	0.02	4.93	4.5
W	0.28	1.22	1.36	0.92	0.21	0.00	3.98	4.0
WNW	0.35	1.04	1.29	0.28	0.05	0.00	2.99	3.2
NW	0.32	1.98	2.21	1.43	0.39	0.02	6.35	4.1
NNW	0.53	2.39	2.69	1.66	0.78	0.07	8.13	4.3
All	8.59	38.86	28.87	11.90	3.22	0.12	91.55	3.4

Calm (less than 1.0 m/s) = 8.4%
Period mean wind speed = 3.2 m/s
Percent occurrence for All stability classes = 100.0%