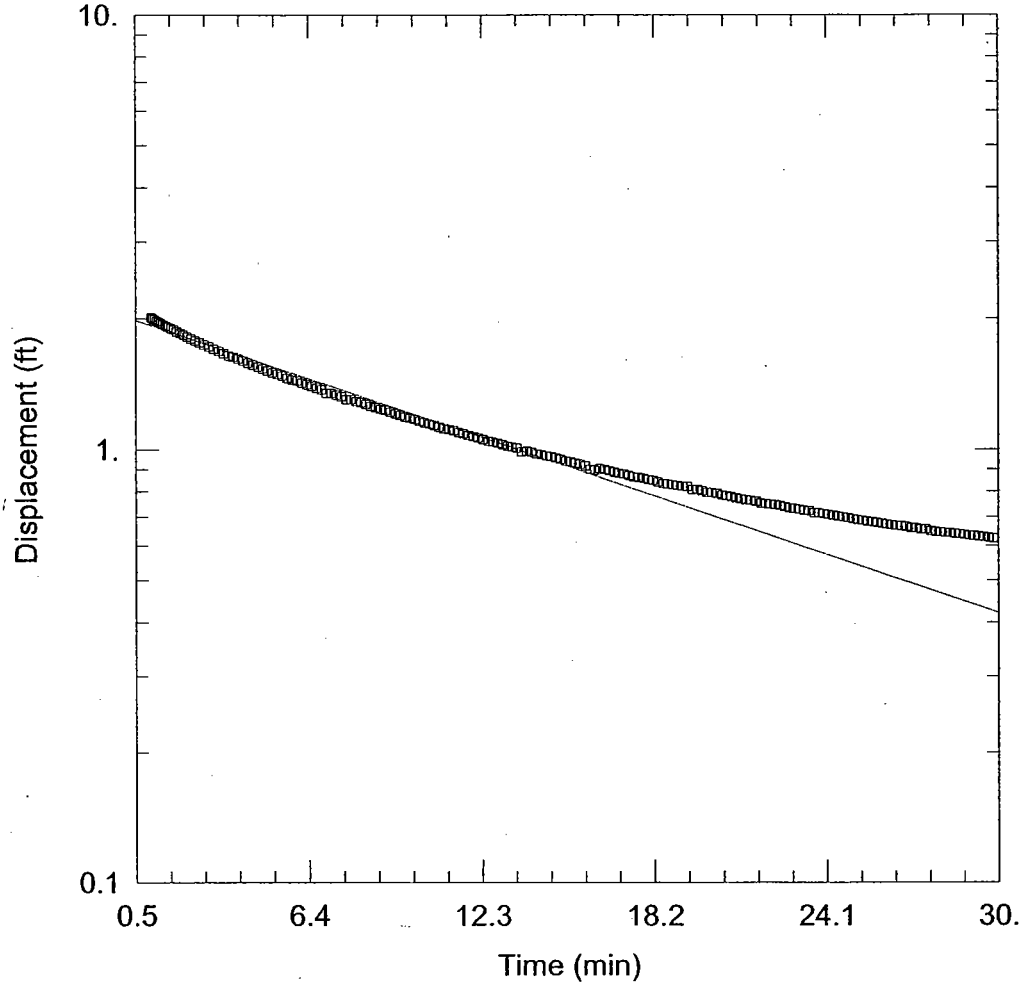
Appendix B
Hydraulic Conductivity Test Calculations



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-107R.aqt
Date: 12/01/00 Time: 10:51:30

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-107R
Test Date: 6/21/00

AQUIFER DATA

Saturated Thickness: 119. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-107R)

Initial Displacement: 2.013 ft Water Column Height: 119. ft
Casing Radius: 0.083 ft Wellbore Radius: 0.166 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 8.346E-05 ft/min y0 = 2.038 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-107R.aqt
Date: 12/01/00
Time: 10:54:13

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 6/21/00
Test Well: MW-107R

AQUIFER DATA

Saturated Thickness: 119. ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-107R

X Location: 0. ft
Y Location: 0. ft

No. of observations: 186

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1.025	2.013	10.18	1.163	20.51	0.786
1.084	2.001	10.34	1.154	20.68	0.783
1.147	1.99	10.51	1.145	20.84	0.779
1.213	1.975	10.68	1.137	21.01	0.774
1.283	1.967	10.84	1.128	21.18	0.77
1.358	1.954	11.01	1.119	21.34	0.766
1.437	1.941	11.18	1.112	21.51	0.763
1.521	1.926	11.34	1.104	21.68	0.759
1.609	1.915	11.51	1.096	21.84	0.753
1.703	1.902	11.68	1.088	22.01	0.75
1.802	1.887	11.84	1.079	22.18	0.748
1.908	1.87	12.01	1.072	22.34	0.746
2.019	1.853	12.18	1.065	22.51	0.743
2.137	1.837	12.34	1.056	22.68	0.738
2.262	1.818	12.51	1.047	22.84	0.733
2.395	1.801	12.68	1.041	23.01	0.731
2.535	1.781	12.84	1.034	23.18	0.728
2.684	1.762	13.01	1.027	23.34	0.724
2.842	1.743	13.18	1.018	23.51	0.722
3.008	1.724	13.34	1.013	23.68	0.715
3.175	1.705	13.51	1.007	23.84	0.714

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
3.342	1.685	13.68	0.987	24.01	0.711
3.508	1.665	13.84	0.992	24.18	0.708
3.675	1.645	14.01	0.985	24.34	0.705
3.842	1.633	14.18	0.978	24.51	0.702
4.008	1.615	14.34	0.974	24.68	0.699
4.175	1.599	14.51	0.968	24.84	0.696
4.342	1.58	14.68	0.962	25.01	0.692
4.508	1.565	14.84	0.955	25.18	0.689
4.675	1.548	15.01	0.949	25.34	0.686
4.842	1.534	15.18	0.942	25.51	0.683
5.008	1.518	15.34	0.936	25.68	0.682
5.175	1.503	15.51	0.93	25.84	0.678
5.342	1.489	15.68	0.925	26.01	0.676
5.508	1.476	15.84	0.917	26.18	0.673
5.675	1.46	16.01	0.901	26.34	0.67
5.842	1.447	16.18	0.896	26.51	0.668
6.008	1.436	16.34	0.904	26.68	0.668
6.175	1.421	16.51	0.899	26.84	0.665
6.342	1.41	16.68	0.893	27.01	0.66
6.508	1.397	16.84	0.886	27.18	0.66
6.675	1.384	17.01	0.881	27.34	0.656
6.842	1.372	17.18	0.877	27.51	0.656
7.008	1.347	17.34	0.87	27.68	0.65
7.175	1.347	17.51	0.865	27.84	0.647
7.342	1.336	17.68	0.861	28.01	0.646
7.508	1.324	17.84	0.858	28.18	0.643
7.675	1.304	18.01	0.852	28.34	0.642
7.842	1.303	18.18	0.848	28.51	0.64
8.008	1.291	18.34	0.841	28.68	0.639
8.175	1.281	18.51	0.834	28.84	0.637
8.342	1.271	18.68	0.832	29.01	0.634
8.508	1.258	18.84	0.829	29.18	0.633
8.675	1.249	19.01	0.826	29.34	0.63
8.842	1.239	19.18	0.823	29.51	0.629
9.008	1.231	19.34	0.821	29.68	0.626
9.175	1.219	19.51	0.808	29.84	0.624
9.342	1.21	19.68	0.808	30.01	0.621
9.508	1.2	19.84	0.803	30.18	0.607
9.675	1.19	20.01	0.797	30.34	0.607
9.842	1.181	20.18	0.795	30.51	0.603
10.01	1.173	20.34	0.792	30.68	0.605

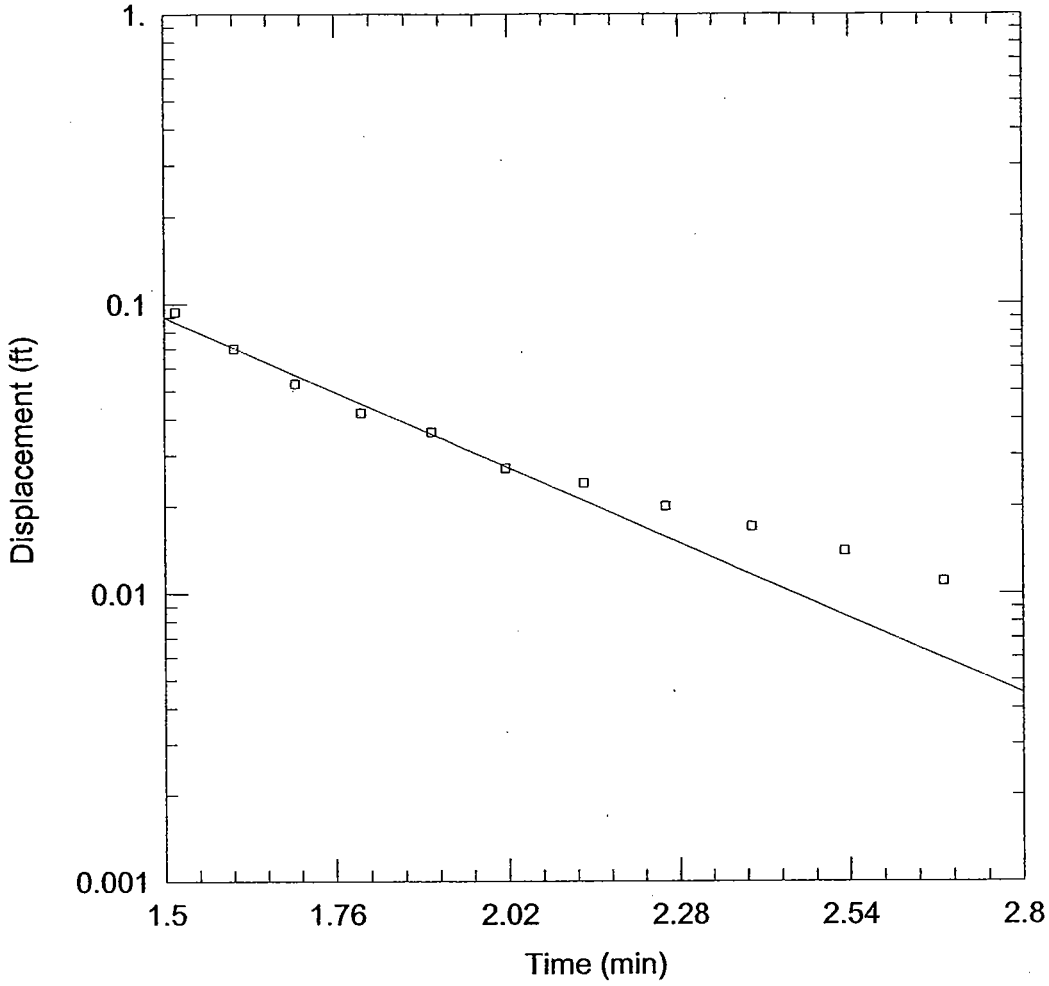
SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

;timated Parameters

Parameter	Estimate	
K	8.346E-05	ft/min
y0	2.038	ft



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-112U.aqt
Date: 12/01/00 Time: 09:33:33

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-112U
Test Date: 6/19/00

AQUIFER DATA

Saturated Thickness: 9.46 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-112U)

Initial Displacement: 0.499 ft Water Column Height: 9.46 ft
Casing Radius: 0.083 ft Wellbore Radius: 0.166 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002463 ft/min y0 = 2.833 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-112U.aqt
Date: 12/01/00
Time: 09:33:57

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 6/19/00
Test Well: MW-112U

AQUIFER DATA

Saturated Thickness: 9.46 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-112U

X Location: 0. ft
Y Location: 0. ft

No. of observations: 13

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1.355	0.499	1.799	0.042	2.392	0.017
1.434	0.125	1.904	0.036	2.532	0.014
1.517	0.094	2.016	0.027	2.681	0.011
1.606	0.07	2.134	0.024		
1.7	0.053	2.259	0.02		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.002463	ft/min
y0	2.833	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
K	0.002846	0.001293	ft/min
y0	9.75	17.28	ft

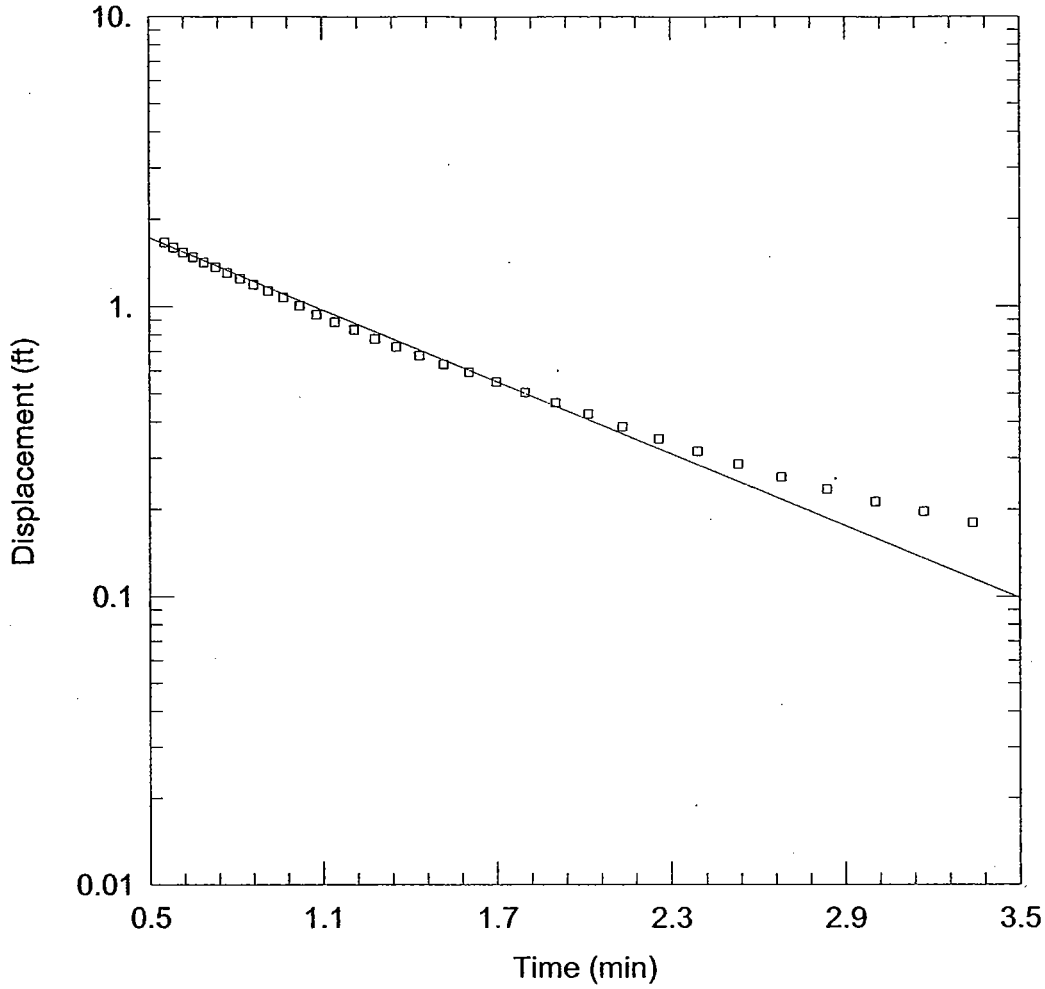
Parameter Correlations

	K	y0
K	1.00	0.99
y0	0.99	1.00

Residual Statistics

for weighted residuals

Sum of Squares ... 0.07863 ft^2
Variance..... 0.007148 ft^2
Std. Deviation ..... 0.08455 ft
Mean ..... -0.01133 ft
No. of Residuals... 13.
No. of Estimates... 2



MW-111U

Data Set: J:\OProjects\Pownal\slugtests\mw111u.aqt
Date: 12/01/00 Time: 09:28:29

PROJECT INFORMATION

Company: TRC Environmental Corporation
Client: EPA Region I
Project: 02136-0220
Test Location: Pownal, Vermont
Test Well: MW-111U
Test Date: 06/20/00

AQUIFER DATA

Saturated Thickness: 9.98 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-111U)

Initial Displacement: 1.71 ft Water Column Height: 9.98 ft
Casing Radius: 0.083 ft Wellbore Radius: 0.163 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001036 ft/min y0 = 2.777 ft

Data Set: J:\OProjects\Pownal\slugtests\mw111u.aqt
Title: MW-111u
Date: 12/01/00
Time: 09:28:14

PROJECT INFORMATION

Company: TRC Environmental Corporation
Client: EPA Region I
Project: 02136-0220
Location: Pownal, Vermont
Test Date: 06/20/00
Test Well: MW-111U

AQUIFER DATA

Saturated Thickness: 9.98 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-111U

Y Location: 0. ft
X Location: 0. ft

No. of observations: 86

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	1.71	2.681	0.258	7.505	0.133
0.5535	1.66	2.838	0.234	7.672	0.133
0.5848	1.594	3.005	0.212	7.838	0.133
0.618	1.535	3.172	0.196	8.005	0.131
0.6532	1.477	3.338	0.18	8.172	0.131
0.6905	1.418	3.505	0.169	8.338	0.131
0.73	1.363	3.672	0.162	8.505	0.131
0.7718	1.305	3.838	0.156	8.672	0.133
0.8162	1.249	4.005	0.152	8.838	0.133
0.8632	1.19	4.172	0.147	9.005	0.131
0.913	1.133	4.338	0.144	9.172	0.131
0.9657	1.075	4.505	0.143	9.338	0.133
1.022	1.006	4.672	0.139	9.505	0.133
1.081	0.937	4.838	0.137	9.672	0.134
1.143	0.883	5.005	0.137	9.838	0.134
1.21	0.83	5.172	0.136	10.01	0.133
1.28	0.774	5.338	0.134	10.17	0.133
1.355	0.725	5.505	0.134	10.34	0.133
1.434	0.677	5.672	0.133	10.51	0.131
1.517	0.632	5.838	0.133	10.67	0.128

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1.606	0.593	6.005	0.133	10.84	0.128
1.7	0.549	6.172	0.134	11.01	0.131
1.799	0.505	6.338	0.136	11.17	0.131
1.904	0.465	6.505	0.134	11.34	0.133
2.016	0.426	6.672	0.133	11.51	0.131
2.134	0.385	6.838	0.133	11.67	0.133
2.259	0.349	7.005	0.133	11.84	0.133
2.392	0.316	7.172	0.133	12.01	0.133
2.532	0.286	7.338	0.133		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001036	ft/min
y0	2.777	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
K	0.0007585	3.76E-05	ft/min
y0	2.091	0.07514	ft

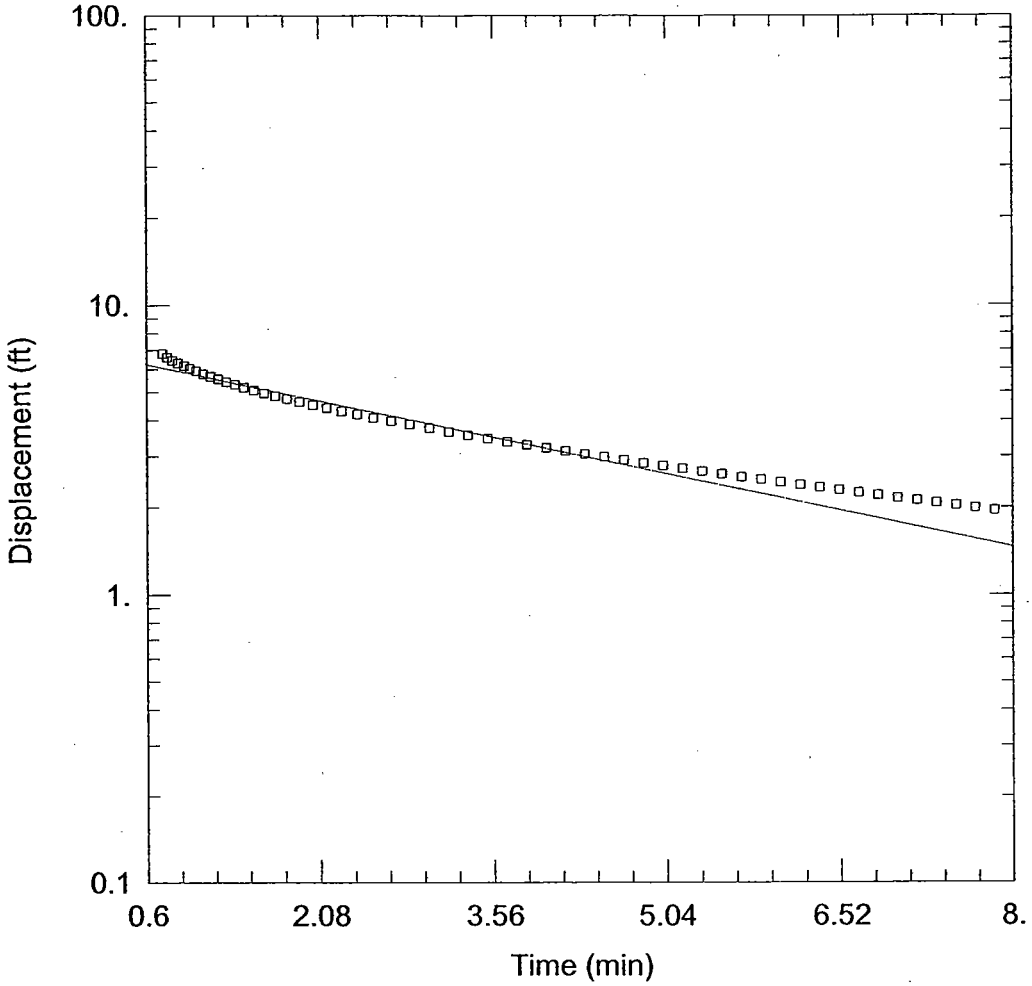
Parameter Correlations

	K	y0
K	1.00	0.82
y0	0.82	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . 1.094 ft^2
Variance. . . . . 0.01303 ft^2
Std. Deviation . . . . . 0.1141 ft
Mean . . . . . 0.05501 ft
No. of Residuals . . . 86.
No. of Estimates . . . 2



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-110R.aqt
Date: 12/01/00 Time: 09:17:37

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-110R
Test Date: 6/21/00

AQUIFER DATA

Saturated Thickness: 22.95 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-110R)

Initial Displacement: 6.83 ft Water Column Height: 22.95 ft
Casing Radius: 0.083 ft Wellbore Radius: 0.166 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.0002477 ft/min y0 = 7.02 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-110R.aqt
Date: 12/01/00
Time: 09:17:24

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 6/21/00
Test Well: MW-110R

AQUIFER DATA

Saturated Thickness: 22.95 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-110R

X Location: 0. ft
Y Location: 0. ft

No. of observations: 120

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.7377	6.805	5.513	2.606	12.18	1.216
0.7795	6.611	5.679	2.544	12.35	1.194
0.8238	6.45	5.846	2.494	12.51	1.173
0.8708	6.31	6.013	2.442	12.68	1.155
0.9207	6.176	6.179	2.387	12.85	1.137
0.9733	6.048	6.346	2.341	13.01	1.116
1.029	5.921	6.513	2.291	13.18	1.096
1.088	5.796	6.679	2.247	13.35	1.077
1.151	5.674	6.846	2.201	13.51	1.06
1.217	5.554	7.013	2.154	13.68	1.043
1.288	5.434	7.179	2.114	13.85	1.026
1.362	5.316	7.346	2.071	14.01	1.01
1.441	5.197	7.513	2.032	14.18	0.992
1.525	5.083	7.679	1.991	14.35	0.976
1.613	4.971	7.846	1.952	14.51	0.959
1.707	4.855	8.013	1.916	14.68	0.945
1.807	4.743	8.179	1.882	14.85	0.929
1.912	4.631	8.346	1.844	15.01	0.916
2.023	4.522	8.513	1.808	15.18	0.9
2.142	4.412	8.679	1.776	15.35	0.885
2.267	4.304	8.846	1.743	15.51	0.874

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
2.399	4.194	9.013	1.71	15.68	0.858
2.54	4.084	9.179	1.678	15.85	0.845
2.688	3.976	9.346	1.648	16.01	0.832
2.846	3.866	9.513	1.619	16.18	0.821
3.013	3.758	9.679	1.588	16.35	0.808
3.179	3.648	9.846	1.561	16.51	0.793
3.346	3.55	10.01	1.532	16.68	0.782
3.513	3.458	10.18	1.506	16.85	0.771
3.679	3.371	10.35	1.479	17.01	0.757
3.846	3.288	10.51	1.453	17.18	0.747
4.013	3.21	10.68	1.428	17.35	0.734
4.179	3.129	10.85	1.404	17.51	0.725
4.346	3.055	11.01	1.378	17.68	0.715
4.513	2.983	11.18	1.352	17.85	0.704
4.679	2.914	11.35	1.327	18.01	0.695
4.846	2.847	11.51	1.306	18.18	0.686
5.013	2.784	11.68	1.282	18.35	0.678
5.179	2.723	11.85	1.259	18.51	0.672
5.346	2.662	12.01	1.238	18.68	0.66

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice

.SUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002477	ft/min
y0	7.02	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
K	0.0001885	3.762E-06	ft/min
y0	6.483	0.08053	ft

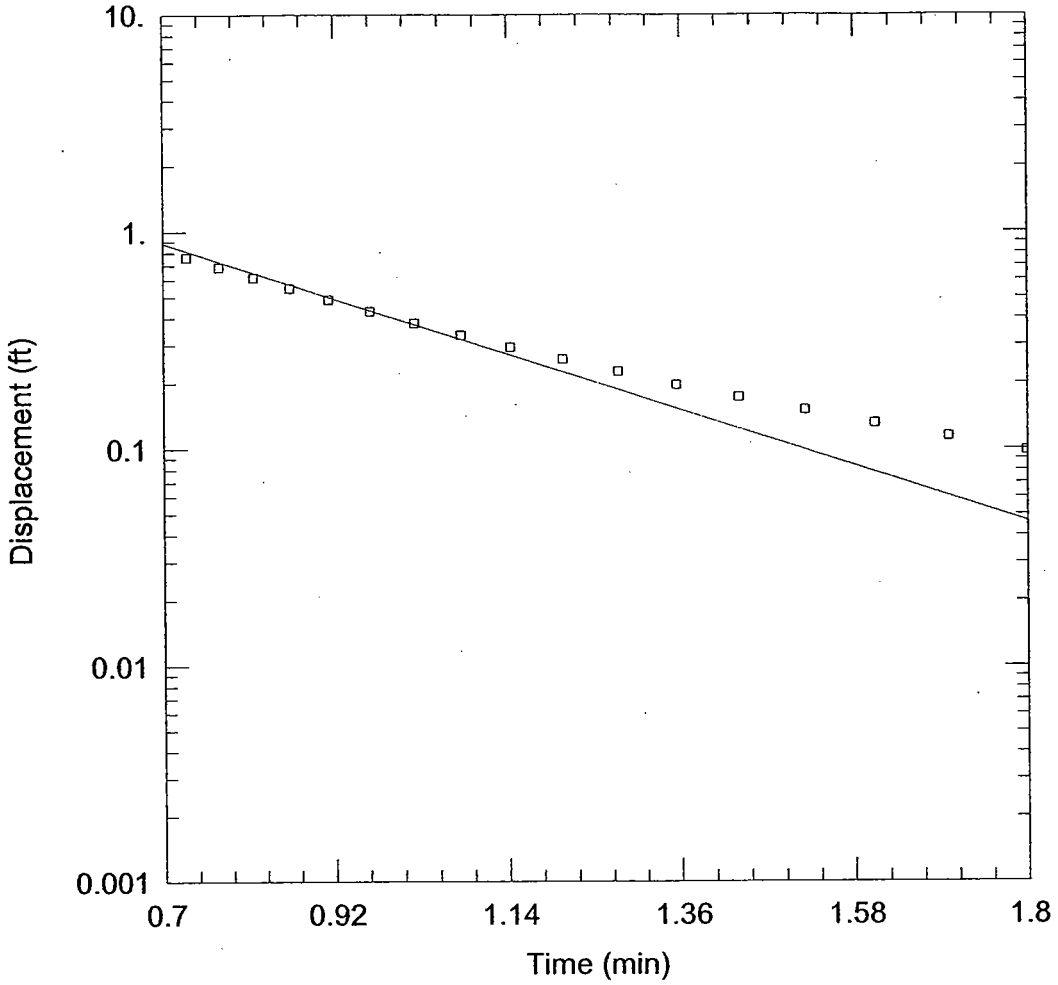
Parameter Correlations

	K	y0
K	1.00	0.73
y0	0.73	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . 8.637 ft^2
Variance. . . . . 0.07319 ft^2
Std. Deviation . . . . . 0.2705 ft
Mean . . . . . 0.04716 ft
No. of Residuals . . . 120.
No. of Estimates . . . 2



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-109U.aqt
Date: 12/01/00 Time: 08:57:17

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-109U
Test Date: 6/20/00

AQUIFER DATA

Saturated Thickness: 10.15 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-109U)

Initial Displacement: 1.599 ft
Water Column Height: 10.15 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.166 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.002911 ft/min
y0 = 5.771 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-109U.aqt
Date: 12/01/00
Time: 08:57:41

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 6/20/00
Test Well: MW-109U

AQUIFER DATA

Saturated Thickness: 10.15 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-109U

X Location: 0. ft
Y Location: 0. ft

No. of observations: 57

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.5238	1.599	1.517	0.151	4.172	0.007
0.5535	1.315	1.606	0.131	4.338	0.007
0.5848	1.167	1.7	0.114	4.505	0.005
0.618	1.048	1.799	0.098	4.672	0.005
0.6532	0.945	1.904	0.088	4.838	0.004
0.6905	0.85	2.016	0.076	5.005	0.005
0.73	0.763	2.134	0.066	5.172	0.004
0.7718	0.687	2.259	0.056	5.338	0.002
0.8162	0.615	2.392	0.049	5.505	0.002
0.8632	0.548	2.532	0.043	5.672	0.004
0.913	0.486	2.681	0.036	5.838	0.005
0.9657	0.43	2.838	0.028	6.005	0.007
1.022	0.379	3.005	0.026	6.172	0.007
1.081	0.333	3.172	0.02	6.338	0.005
1.143	0.293	3.338	0.017	6.505	0.002
1.21	0.258	3.505	0.015	6.672	0.004
1.28	0.226	3.672	0.013	6.838	0.004
1.355	0.197	3.838	0.01	7.172	0.002
1.434	0.173	4.005	0.007	7.338	0.002

SOLUTION

^quifer Model: Unconfined
lution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.00207	ft/min
y0	2.846	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
K	0.002911	8.518E-05	ft/min
y0	5.771	0.3033	ft

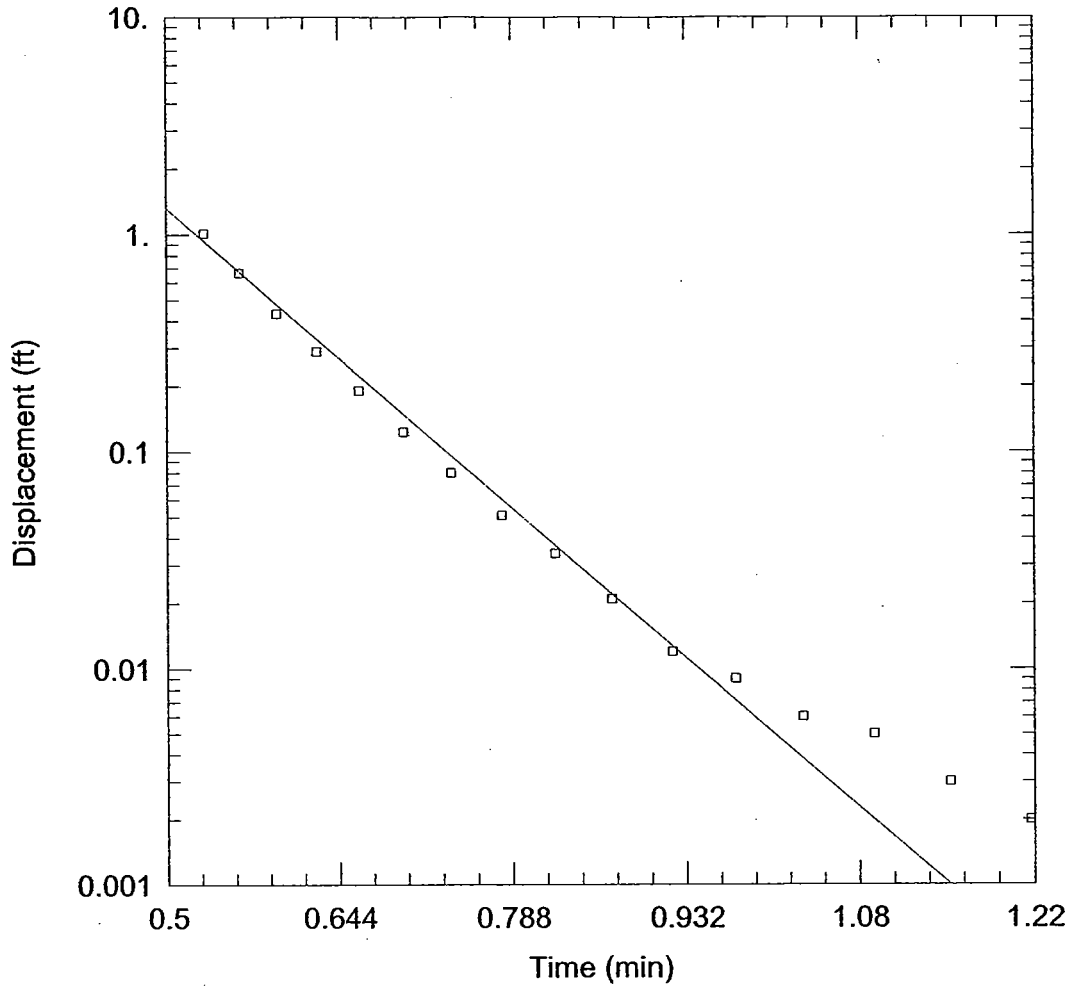
Parameter Correlations

	K	y0
K	1.00	0.97
y0	0.97	1.00

esidual Statistics

for weighted residuals

Sum of Squares ... 0.0847 ft^2
Variance..... 0.00154 ft^2
Std. Deviation ..... 0.03924 ft
Mean ..... 0.01313 ft
No. of Residuals... 57.
No. of Estimates... 2



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-107Ub1.aqt
Date: 11/30/00 Time: 16:52:44

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-107U
Test Date: 6/20/00

AQUIFER DATA

Saturated Thickness: 9.41 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-107U)

Initial Displacement: 1.011 ft
Water Column Height: 9.41 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.25 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.01055 ft/min
y0 = 331.1 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-107Ub1.aqt
Date: 11/30/00
Time: 16:52:35

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 6/20/00
Test Well: MW-107U

AQUIFER DATA

Saturated Thickness: 9.41 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-107U

X Location: 0. ft
Y Location: 0. ft

No. of observations: 18

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.5315	1.011	0.7377	0.08	1.029	0.006
0.5612	0.665	0.7795	0.051	1.088	0.005
0.5925	0.432	0.8238	0.034	1.151	0.003
0.6257	0.289	0.8708	0.021	1.217	0.002
0.6608	0.191	0.9207	0.012	1.288	0.002
0.6982	0.123	0.9733	0.009	1.362	0.002

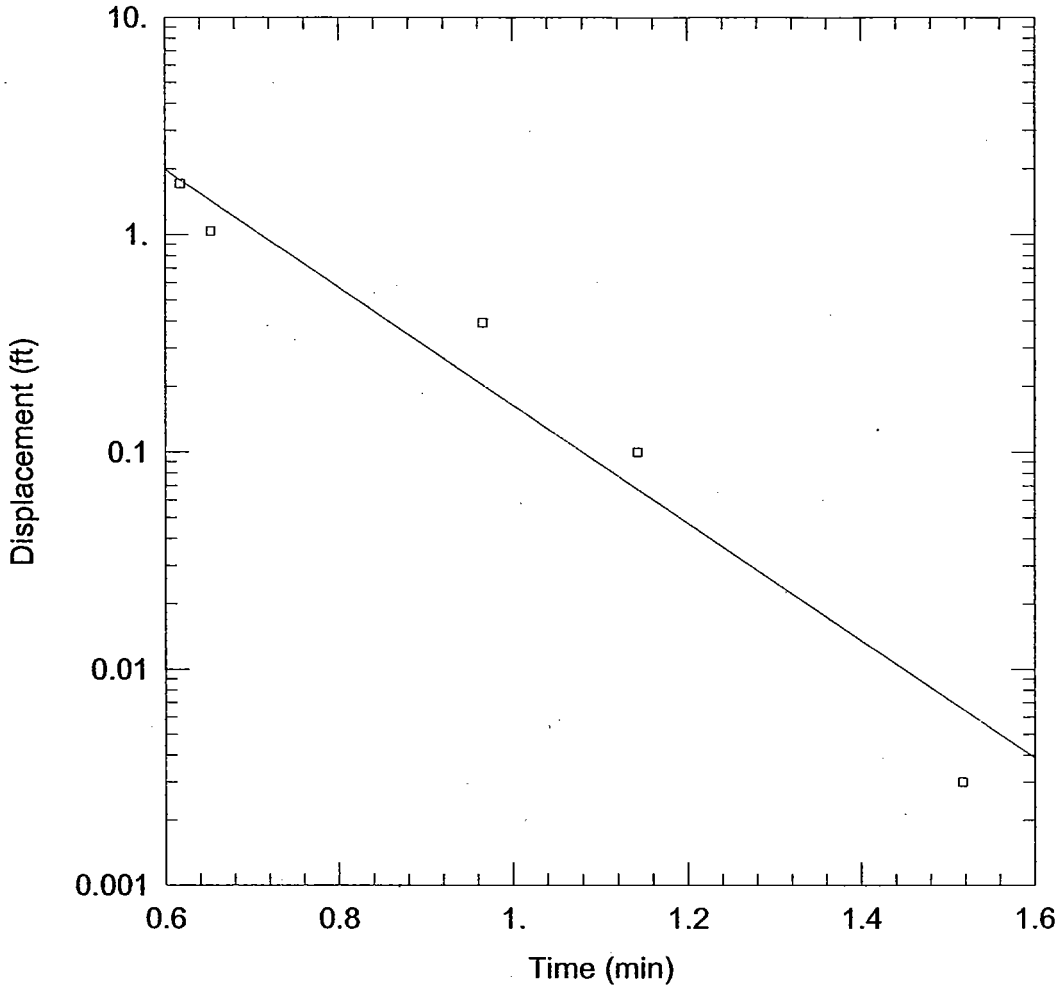
SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.01055	ft/min
y0	331.1	ft



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-103Rb2.aqt
Date: 11/30/00 Time: 16:36:52

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-103R
Test Date: 6/21/00

AQUIFER DATA

Saturated Thickness: 77.1 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-103R)

Initial Displacement: 1.72 ft
Water Column Height: 77.1 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.125 ft
Screen Length: 20. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.005146 ft/min
y0 = 84.19 ft

AQTESOLV for Windows

Data Set: J:\OProjects\Pownal\slugtests\MW-103Rb2.aqt
Date: 11/30/00
Time: 16:37:07

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 6/21/00
Test Well: MW-103R

AQUIFER DATA

Saturated Thickness: 77.1 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-103R

X Location: 0. ft
Y Location: 0. ft

No. of observations: 5

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.618	1.72	0.9657	0.394	1.517	0.003
0.6532	1.041	1.143	0.1		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.005146	ft/min
y0	84.19	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error

K	0.003221	0.001082	ft/min
y0	16.48	13.98	ft

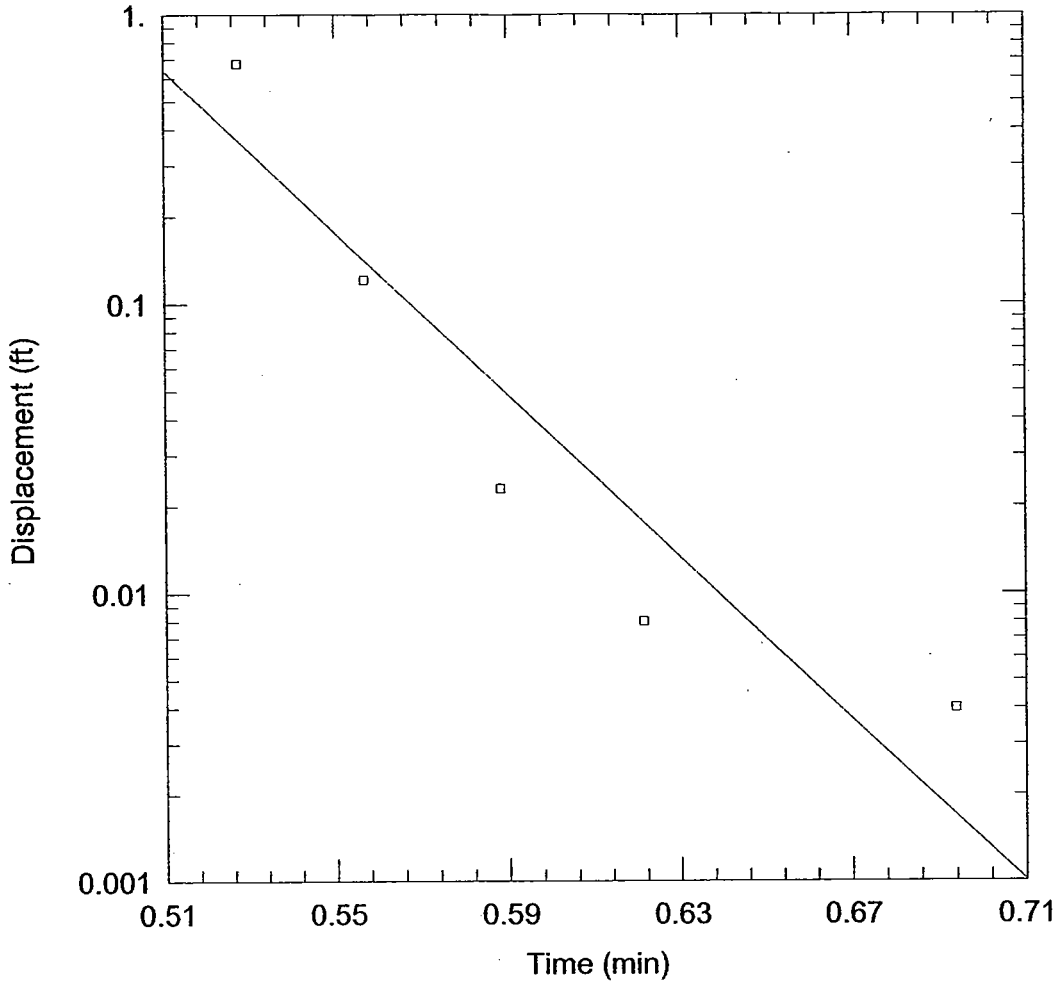
Parameter Correlations

	K	y0
K	1.00	0.99
y0	0.99	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . 0.1298 ft^2
Variance. . . . . 0.04326 ft^2
Std. Deviation . . . . . 0.208 ft
Mean . . . . . -0.02346 ft
No. of Residuals . . . 5.
No. of Estimates . . . 2



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-104Ub1.aqt
Date: 11/30/00 Time: 16:13:09

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-104U
Test Date: 6/20/00

AQUIFER DATA

Saturated Thickness: 10.35 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-104U)

Initial Displacement: 0.675 ft Water Column Height: 10.35 ft
Casing Radius: 0.083 ft Wellbore Radius: 0.166 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.03521 ft/min y0 = 9.097E+06 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-104Ub1.aqt
Date: 11/30/00
Time: 16:13:32

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 6/20/00
Test Well: MW-104U

AQUIFER DATA

Saturated Thickness: 10.35 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-104U

X Location: 0. ft
Y Location: 0. ft

No. of observations: 5

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.5272	0.675	0.5882	0.023	0.6938	0.004
0.5568	0.121	0.6213	0.008		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.03521	ft/min
y0	9.097E+06	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error

K	0.01234	0.02617	ft/min
y0	100.	1284.1	ft

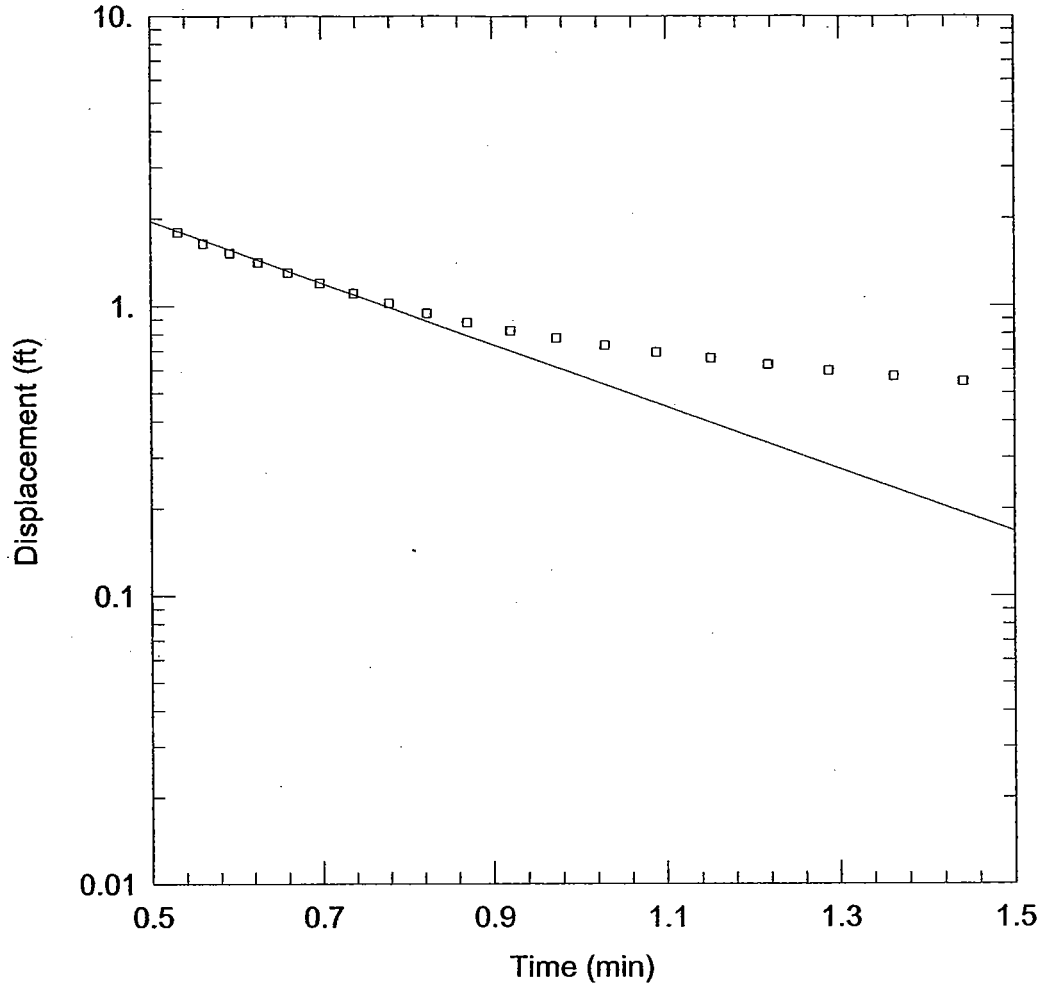
Parameter Correlations

	K	y0
K	1.00	1.00
y0	1.00	1.00

Residual Statistics

for weighted residuals

Sum of Squares ... 0.198 ft^2
Variance..... 0.066 ft^2
Std. Deviation ..... 0.2569 ft
Mean ..... 0.02713 ft
No. of Residuals... 5.
No. of Estimates... 2



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-103Ub1.aqt
Date: 11/30/00 Time: 15:29:37

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-103U
Test Date: 6/21/00

AQUIFER DATA

Saturated Thickness: 7.64 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-103U)

Initial Displacement: 1.796 ft
Water Column Height: 7.64 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.166 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.002512 ft/min
y0 = 6.688 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-103Ub1.aqt
Date: 11/30/00
Time: 15:23:52

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 6/21/00
Test Well: MW-103U

AQUIFER DATA

Saturated Thickness: 7.64 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-103U

X Location: 0. ft
Y Location: 0. ft

No. of observations: 66

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.5315	1.796	1.807	0.463	5.179	0.179
0.5612	1.64	1.912	0.444	5.346	0.172
0.5925	1.52	2.023	0.426	5.513	0.169
0.6257	1.41	2.142	0.41	5.679	0.163
0.6608	1.302	2.267	0.391	5.846	0.159
0.6982	1.199	2.399	0.375	6.013	0.154
0.7377	1.104	2.54	0.358	6.179	0.147
0.7795	1.019	2.688	0.343	6.346	0.147
0.8238	0.941	2.846	0.326	6.513	0.144
0.8708	0.875	3.013	0.304	6.679	0.141
0.9207	0.818	3.179	0.294	6.846	0.137
0.9733	0.771	3.346	0.28	7.013	0.134
1.029	0.73	3.513	0.267	7.179	0.131
1.088	0.691	3.679	0.255	7.346	0.13
1.151	0.658	3.846	0.244	7.513	0.127
1.217	0.625	4.013	0.232	7.679	0.125
1.288	0.596	4.179	0.224	7.846	0.123
1.362	0.57	4.346	0.213	8.013	0.117
1.441	0.547	4.513	0.206	8.179	0.12
1.525	0.522	4.679	0.198	8.346	0.118
1.613	0.501	4.846	0.192	8.513	0.117

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1.707	0.482	5.013	0.185	8.679	0.115

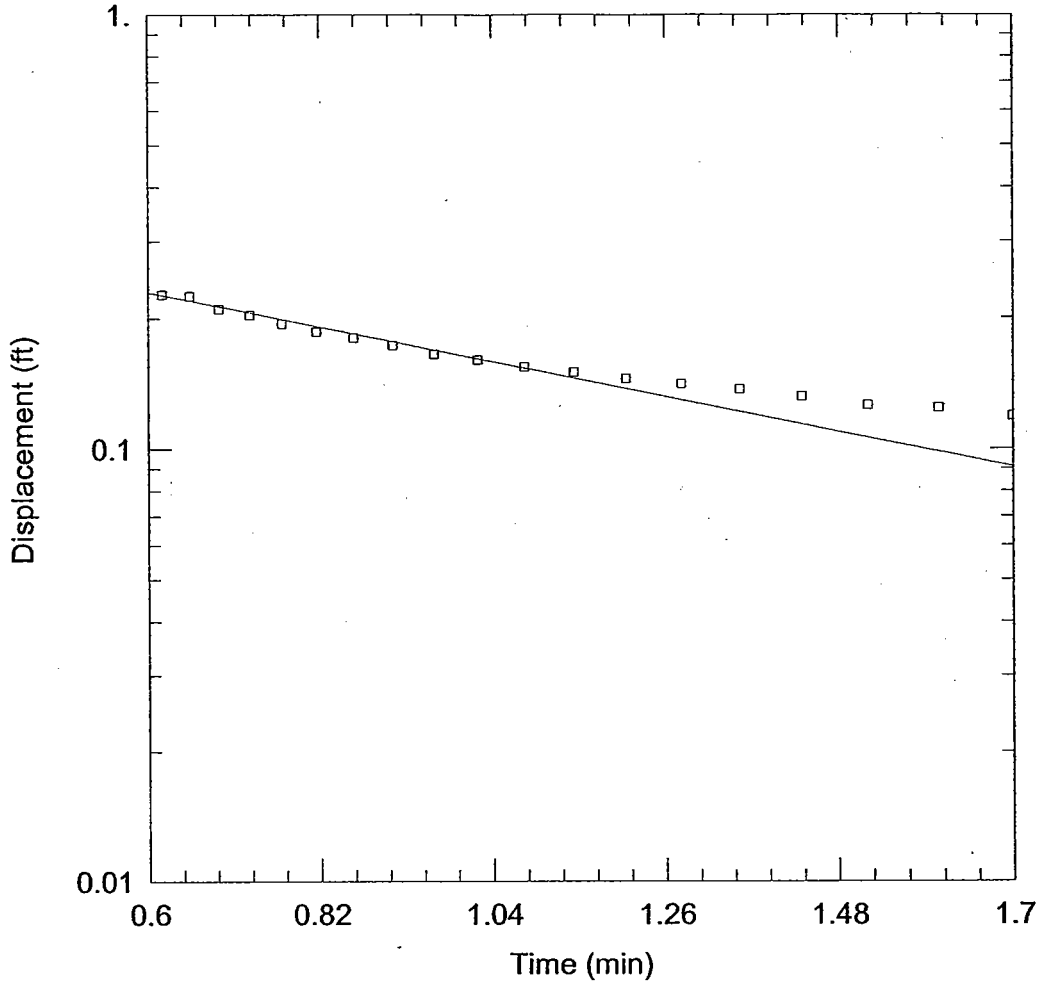
SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.002512	ft/min
y0	6.688	ft



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-102U.aqt
Date: 11/30/00 Time: 14:48:08

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-102U
Test Date: 6/19/00

AQUIFER DATA

Saturated Thickness: 8.62 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-102U)

Initial Displacement: 0.375 ft
Water Column Height: 8.62 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.166 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0008837 ft/min
y0 = 0.3806 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-102U.aqt
Date: 11/30/00
Time: 14:48:33

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 6/19/00
Test Well: MW-102U

AQUIFER DATA

Saturated Thickness: 8.62 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-102U

X Location: 0. ft
Y Location: 0. ft

No. of observations: 125

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.0558	0.375	0.9657	0.165	6.672	0.06
0.067	0.366	1.022	0.16	6.838	0.059
0.0782	0.372	1.081	0.154	7.005	0.057
0.0893	0.363	1.143	0.15	7.172	0.057
0.1005	0.369	1.21	0.145	7.338	0.057
0.1117	0.37	1.28	0.141	7.505	0.056
0.1228	0.367	1.355	0.137	7.672	0.056
0.134	0.366	1.434	0.132	7.838	0.054
0.1452	0.373	1.517	0.126	8.005	0.054
0.1563	0.37	1.606	0.124	8.172	0.053
0.1675	0.357	1.7	0.119	8.338	0.051
0.1787	0.378	1.799	0.116	8.505	0.051
0.1898	0.366	1.904	0.113	8.672	0.051
0.201	0.35	2.016	0.111	8.838	0.051
0.2122	0.373	2.134	0.108	9.005	0.05
0.2233	0.369	2.259	0.106	9.172	0.05
0.235	0.367	2.392	0.103	9.338	0.05
0.2475	0.357	2.532	0.1	9.505	0.05
0.2607	0.366	2.681	0.099	9.672	0.048
0.2747	0.366	2.838	0.096	9.838	0.047
0.2895	0.372	3.005	0.092	10.01	0.047

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.3052	0.37	3.172	0.089	10.17	0.046
0.3218	0.372	3.338	0.086	10.34	0.046
0.3395	0.373	3.505	0.085	10.51	0.044
0.3582	0.367	3.672	0.083	10.67	0.044
0.378	0.367	3.838	0.082	10.84	0.041
0.399	0.369	4.005	0.082	11.01	0.04
0.4212	0.363	4.172	0.08	11.17	0.04
0.4447	0.373	4.338	0.077	11.34	0.04
0.4695	0.366	4.505	0.076	11.51	0.04
0.4958	0.356	4.672	0.074	11.67	0.038
0.5238	0.353	4.838	0.073	11.84	0.04
0.5535	0.369	5.005	0.07	12.01	0.038
0.5848	0.278	5.172	0.07	12.17	0.038
0.618	0.227	5.338	0.069	12.34	0.04
0.6532	0.225	5.505	0.067	12.51	0.038
0.6905	0.21	5.672	0.064	12.67	0.04
0.73	0.203	5.838	0.063	12.84	0.038
0.7718	0.194	6.005	0.064	13.01	0.038
0.8162	0.186	6.172	0.06	13.17	0.038
0.8632	0.18	6.338	0.061	13.34	0.038
0.913	0.173	6.505	0.06		

SOLUTION

`quifer Model: Unconfined
olution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0008837	ft/min
y0	0.3806	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
K	0.0005984	3.951E-05	ft/min
y0	0.4	0.009979	ft

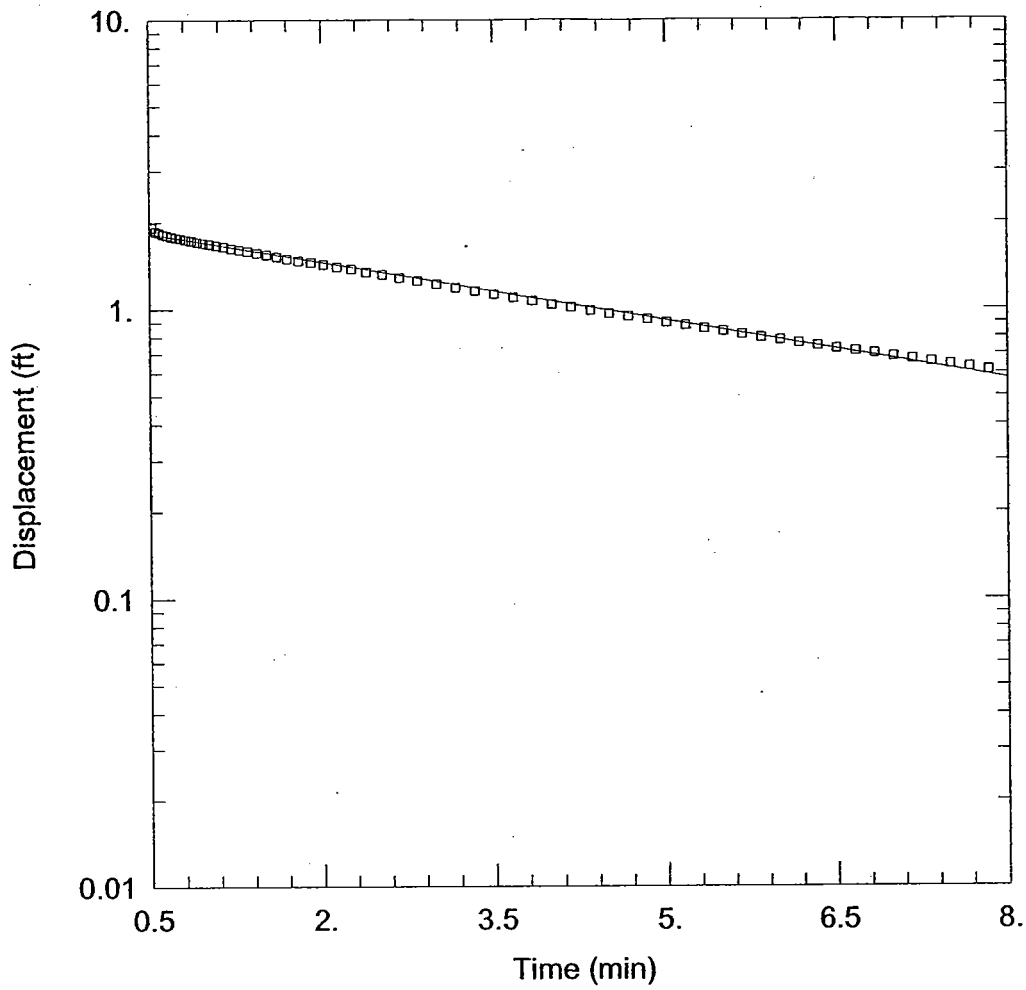
Parameter Correlations

	K	y0
K	1.00	0.66
y0	0.66	1.00

.esidual Statistics

for weighted residuals

Sum of Squares ... 0.2216 ft^2
Variance..... 0.001801 ft^2
Std. Deviation ..... 0.04244 ft
Mean..... 0.01872 ft
No. of Residuals... 125.
No. of Estimates... 2



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-101U.aqt
Date: 11/30/00 Time: 13:26:19

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-101U
Test Date: 6/21/00

AQUIFER DATA

Saturated Thickness: 6.32 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-101U)

Initial Displacement: 1.919 ft
Water Column Height: 6.32 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.166 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0001511 ft/min
y0 = 1.977 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-101U.aqt
Date: 11/30/00
Time: 13:26:45

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 6/21/00
Test Well: MW-101U

AQUIFER DATA

Saturated Thickness: 6.32 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-101U

X Location: 0. ft
Y Location: 0. ft

No. of observations: 274

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.5238	1.919	13.17	0.393	28.5	0.295
0.5535	1.86	13.34	0.39	28.67	0.294
0.5848	1.84	13.51	0.387	28.84	0.292
0.618	1.819	13.67	0.383	29.	0.294
0.6532	1.804	13.84	0.38	29.17	0.292
0.6905	1.786	14.01	0.377	29.34	0.292
0.73	1.77	14.17	0.374	29.5	0.292
0.7718	1.756	14.34	0.372	29.67	0.292
0.8162	1.74	14.51	0.37	29.84	0.291
0.8632	1.726	14.67	0.367	30.	0.289
0.913	1.708	14.84	0.363	30.17	0.289
0.9657	1.694	15.01	0.361	30.34	0.289
1.022	1.677	15.17	0.359	30.5	0.289
1.081	1.661	15.34	0.357	30.67	0.288
1.143	1.643	15.51	0.354	30.84	0.289
1.21	1.625	15.67	0.353	31.	0.288
1.28	1.606	15.84	0.351	31.17	0.286
1.355	1.586	16.	0.348	31.34	0.288
1.434	1.565	16.17	0.347	31.5	0.288
1.517	1.544	16.34	0.344	31.67	0.289
1.606	1.521	16.5	0.344	31.84	0.288

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1.7	1.493	16.67	0.343	32.01	0.286
1.799	1.47	16.84	0.341	32.17	0.286
1.904	1.45	17.	0.34	32.34	0.285
2.016	1.424	17.17	0.338	32.51	0.281
2.134	1.396	17.34	0.335	32.67	0.284
2.259	1.371	17.5	0.334	32.84	0.284
2.392	1.342	17.67	0.331	33.01	0.286
2.532	1.313	17.84	0.331	33.17	0.284
2.681	1.281	18.	0.331	33.34	0.286
2.838	1.249	18.17	0.331	33.51	0.286
3.005	1.217	18.34	0.331	33.67	0.284
3.172	1.183	18.5	0.33	33.84	0.282
3.338	1.153	18.67	0.328	34.01	0.278
3.505	1.124	18.84	0.328	34.17	0.276
3.672	1.095	19.	0.327	34.34	0.276
3.838	1.067	19.17	0.325	34.51	0.275
4.005	1.038	19.34	0.325	34.67	0.276
4.172	1.014	19.5	0.324	34.84	0.275
4.338	0.987	19.67	0.324	35.01	0.275
4.505	0.962	19.84	0.325	35.17	0.275
4.672	0.942	20.	0.324	35.34	0.275
4.838	0.92	20.17	0.324	35.51	0.273
5.005	0.896	20.34	0.322	35.67	0.273
5.172	0.877	20.5	0.321	35.84	0.275
5.338	0.854	20.67	0.321	36.01	0.273
5.505	0.836	20.84	0.32	36.17	0.275
5.672	0.816	21.	0.318	36.34	0.275
5.838	0.796	21.17	0.318	36.51	0.278
6.005	0.779	21.34	0.317	36.67	0.279
6.172	0.761	21.5	0.317	36.84	0.279
6.338	0.745	21.67	0.315	37.01	0.282
6.505	0.727	21.84	0.315	37.17	0.285
6.672	0.712	22.	0.314	37.34	0.285
6.838	0.699	22.17	0.314	37.51	0.286
7.005	0.683	22.34	0.312	37.67	0.288
7.172	0.669	22.5	0.312	37.84	0.288
7.338	0.655	22.67	0.312	38.01	0.288
7.505	0.642	22.84	0.312	38.17	0.288
7.672	0.629	23.	0.311	38.34	0.289
7.838	0.613	23.17	0.31	38.51	0.289
8.005	0.605	23.34	0.31	38.67	0.291
8.172	0.592	23.5	0.31	38.84	0.291
8.338	0.582	23.67	0.308	39.01	0.291
8.505	0.571	23.84	0.308	39.17	0.291
8.672	0.558	24.	0.308	39.34	0.286
8.838	0.546	24.17	0.308	39.51	0.292
9.005	0.542	24.34	0.307	39.67	0.292
9.172	0.532	24.5	0.305	39.84	0.297
9.338	0.523	24.67	0.304	40.01	0.295
9.505	0.516	24.84	0.305	40.17	0.292
9.672	0.509	25.	0.304	40.34	0.294

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
9.838	0.501	25.17	0.305	40.51	0.295
10.01	0.493	25.34	0.304	40.67	0.294
10.17	0.486	25.5	0.305	40.84	0.297
10.34	0.478	25.67	0.305	41.01	0.297
10.51	0.473	25.84	0.305	41.17	0.297
10.67	0.465	26.	0.302	41.34	0.297
10.84	0.458	26.17	0.305	41.51	0.297
11.01	0.454	26.34	0.302	41.67	0.297
11.17	0.448	26.5	0.305	41.84	0.297
11.34	0.442	26.67	0.302	42.01	0.297
11.51	0.437	26.84	0.302	42.17	0.299
11.67	0.431	27.	0.301	42.34	0.297
11.84	0.426	27.17	0.302	42.51	0.298
12.01	0.421	27.34	0.301	42.67	0.298
12.17	0.418	27.5	0.301	42.84	0.299
12.34	0.413	27.67	0.298	43.01	0.299
12.51	0.409	27.84	0.298	43.17	0.298
12.67	0.405	28.	0.297	43.34	0.298
12.84	0.402	28.17	0.297		
13.01	0.393	28.34	0.295		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0001511	ft/min
y0	1.977	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
K	8.437E-05	2.829E-06	ft/min
y0	1.629	0.03326	ft

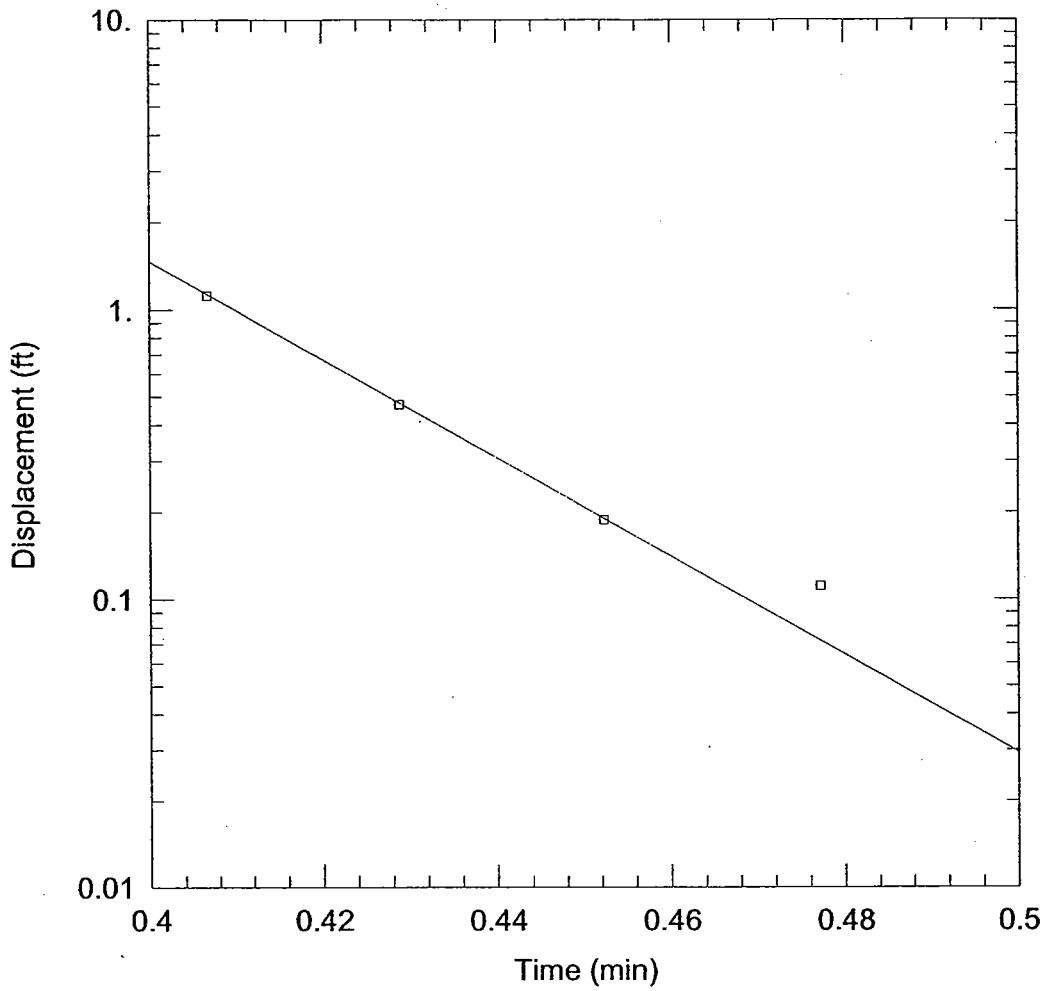
Parameter Correlations

	K	y0
K	1.00	0.66
y0	0.66	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . 7.716 ft^2
Variance. . . . . 0.02837 ft^2
Std. Deviation . . . . . 0.1684 ft
Mean . . . . . 0.05925 ft
No. of Residuals . . . 274.
No. of Estimates . . . 2



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-106Ufinal.aqt
Date: 11/29/00 Time: 16:10:09

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-106U
Test Date: 11/15/2000

AQUIFER DATA

Saturated Thickness: 7.02 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-106U)

Initial Displacement: 1.115 ft
Water Column Height: 7.02 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.166 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0392 ft/min
y0 = 9.072E+06 ft

AQTESOLV for Windows

Data Set: J:\OProjects\Pownal\slugtests\MW-106Ufinal.aqt
Date: 11/29/00
Time: 16:09:50

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 11/15/2000
Test Well: MW-106U

AQUIFER DATA

Saturated Thickness: 7.02 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-106U

X Location: 0. ft
Y Location: 0. ft

No. of observations: 4

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.4067	1.115	0.4523	0.188		
0.4288	0.469	0.4772	0.111		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0392	ft/min
y0	9.072E+06	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error

K	0.0392	0.04788	ft/min
y0	9.072E+06	3.641E+06	ft

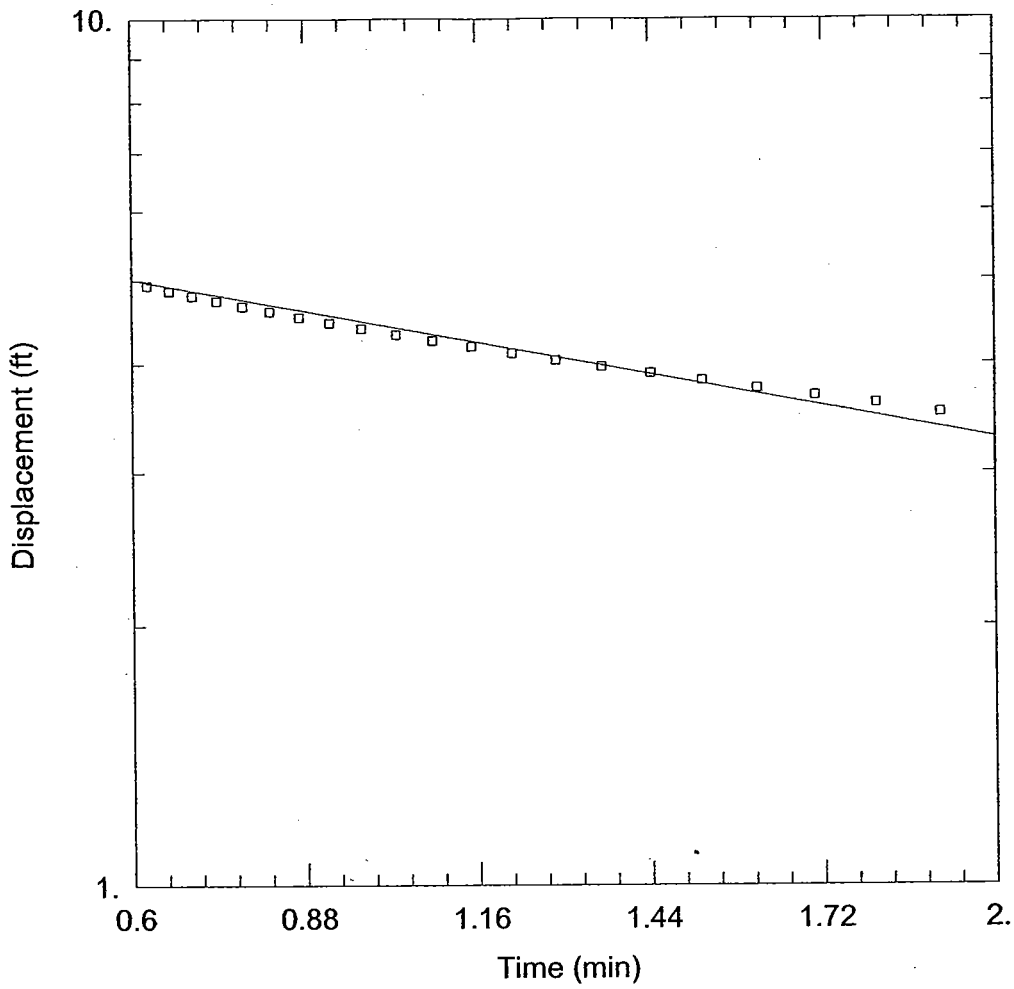
Parameter Correlations

	K	y0
K	1.00	1.00
y0	1.00	1.00

Residual Statistics

for weighted residuals

Sum of Squares ... 0.4265 ft^2
Variance..... 0.2133 ft^2
Std. Deviation ..... 0.4618 ft
Mean ..... -0.07097 ft
No. of Residuals... 4.
No. of Estimates... 2



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-110Ufinal.aqt
Date: 11/29/00 Time: 16:01:42

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-110URETEST
Test Date: 11/15/2000

AQUIFER DATA

Saturated Thickness: 6.13 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-110U)

Initial Displacement: 5.5 ft
Casing Radius: 0.083 ft
Screen Length: 7. ft
Water Column Height: 6.13 ft
Wellbore Radius: 0.166 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0004106 ft/min
y0 = 6.004 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-110Ufinal.aqt
Date: 11/29/00
Time: 16:01:08

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 11/15/2000
Test Well: MW-110URETEST

AQUIFER DATA

Saturated Thickness: 6.13 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-110U

X Location: 0. ft
Y Location: 0. ft

No. of observations: 107

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.5315	5.153	3.846	2.485	9.846	1.14
0.5612	5.079	4.013	2.422	10.01	1.121
0.5925	5.	4.179	2.361	10.18	1.1
0.6257	4.932	4.346	2.303	10.35	1.084
0.6608	4.864	4.513	2.259	10.51	1.059
0.6982	4.798	4.679	2.194	10.68	1.039
0.7377	4.732	4.846	2.143	10.85	1.023
0.7795	4.665	5.013	2.093	11.01	1.006
0.8238	4.599	5.179	2.042	11.18	0.986
0.8708	4.529	5.346	1.995	11.35	0.968
0.9207	4.462	5.513	1.951	11.51	0.952
0.9733	4.394	5.679	1.918	11.68	0.934
1.029	4.324	5.846	1.863	11.85	0.921
1.088	4.254	6.013	1.823	12.01	0.903
1.151	4.183	6.179	1.785	12.18	0.889
1.217	4.109	6.346	1.746	12.35	0.873
1.288	4.039	6.513	1.707	12.51	0.857
1.362	3.969	6.679	1.671	12.68	0.841
1.441	3.901	6.846	1.635	12.85	0.828
1.525	3.826	7.013	1.6	13.01	0.814
1.613	3.748	7.179	1.567	13.18	0.802

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1.707	3.675	7.346	1.537	13.35	0.789
1.807	3.6	7.513	1.502	13.51	0.776
1.912	3.51	7.679	1.469	13.68	0.765
2.023	3.431	7.846	1.437	13.85	0.753
2.142	3.35	8.013	1.416	14.01	0.743
2.267	3.271	8.179	1.387	14.18	0.727
2.399	3.188	8.346	1.359	14.35	0.718
2.54	3.105	8.513	1.331	14.51	0.705
2.688	3.018	8.679	1.307	14.68	0.694
2.846	2.939	8.846	1.281	14.85	0.685
3.013	2.856	9.013	1.258	15.01	0.687
3.179	2.777	9.179	1.232	15.18	0.662
3.346	2.695	9.346	1.212	15.35	0.652
3.513	2.628	9.513	1.188	15.51	0.642
3.679	2.563	9.679	1.179		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0004106	ft/min
y0	6.004	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
K	0.0004106	3.911E-06	ft/min
y0	6.004	0.05011	ft

Parameter Correlations

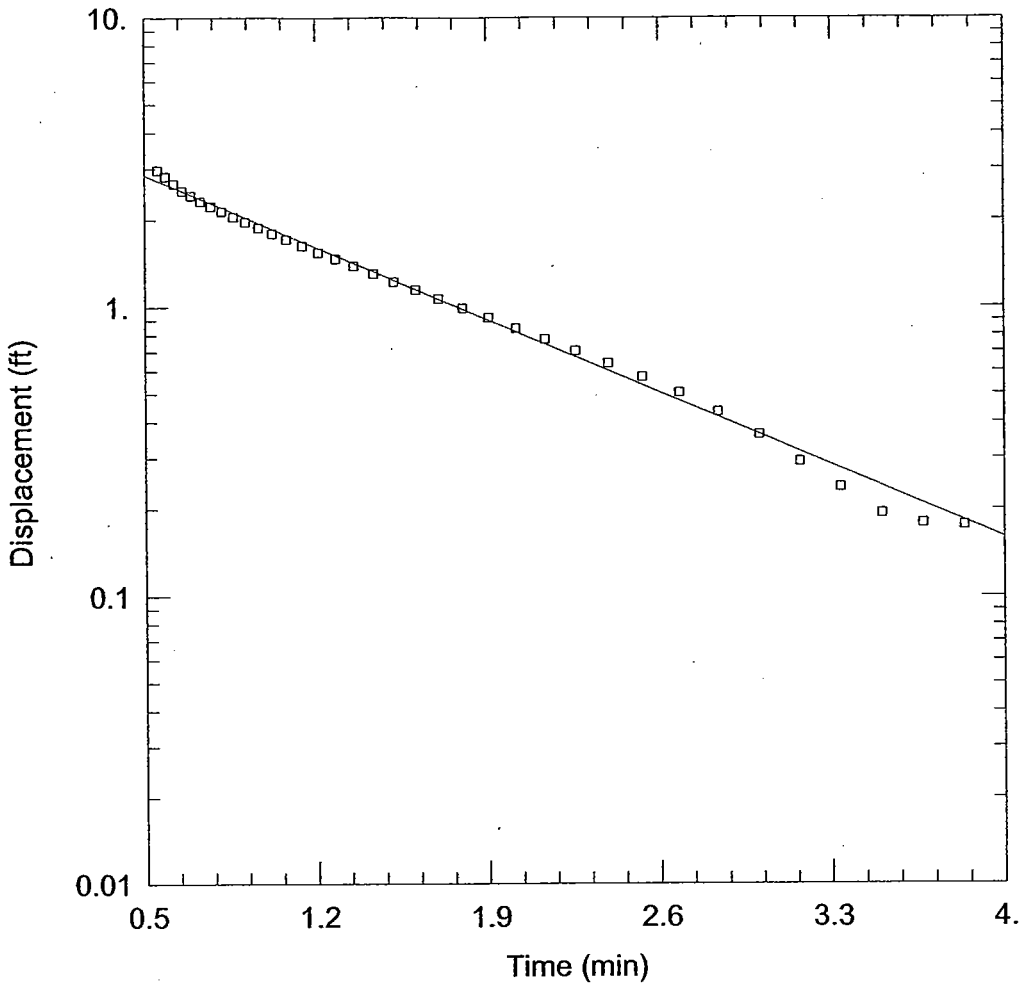
	K	y0
K	1.00	0.70
y0	0.70	1.00

Residual Statistics

for weighted residuals

Sum of Squares ... 3.684 ft^2
Variance..... 0.03509 ft^2
Std. Deviation ..... 0.1873 ft
Mean ..... 0.02909 ft

No. of Residuals . . . 107.
No. of Estimates . . . 2



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-114U.aqt
Date: 11/30/00 Time: 09:55:26

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-114U
Test Date: 11/15/2000

AQUIFER DATA

Saturated Thickness: 12.03 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-114U)

Initial Displacement: 2.97 ft Water Column Height: 12.03 ft
Casing Radius: 0.083 ft Wellbore Radius: 0.333 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0007622 ft/min y0 = 4.309 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-114U.aqt
Date: 11/30/00
Time: 09:58:11

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 11/15/2000
Test Well: MW-114U

AQUIFER DATA

Saturated Thickness: 12.03 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-114U

X Location: 0. ft
Y Location: 0. ft

No. of observations: 56

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.5535	2.969	1.606	1.143	4.338	0.172
0.5848	2.819	1.7	1.065	4.505	0.169
0.618	2.662	1.799	0.989	4.672	0.167
0.6532	2.512	1.904	0.915	4.838	0.17
0.6905	2.421	2.016	0.842	5.005	0.165
0.73	2.311	2.134	0.772	5.172	0.166
0.7718	2.223	2.259	0.703	5.338	0.162
0.8162	2.134	2.392	0.637	5.505	0.167
0.8632	2.044	2.532	0.572	5.672	0.153
0.913	1.96	2.681	0.504	5.838	0.166
0.9657	1.875	2.838	0.434	6.005	0.162
1.022	1.79	3.005	0.362	6.172	0.16
1.081	1.708	3.172	0.292	6.338	0.159
1.143	1.624	3.338	0.238	6.505	0.15
1.21	1.54	3.505	0.193	6.672	0.165
1.28	1.462	3.672	0.179	6.838	0.149
1.355	1.381	3.838	0.176	7.005	0.165
1.434	1.301	4.005	0.176	7.172	0.157
1.517	1.22	4.172	0.173		

SOLUTION

^quifer Model: Unconfined
olution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0007622	ft/min
y0	4.309	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
K	0.0007622	1.901E-05	ft/min
y0	4.309	0.09149	ft

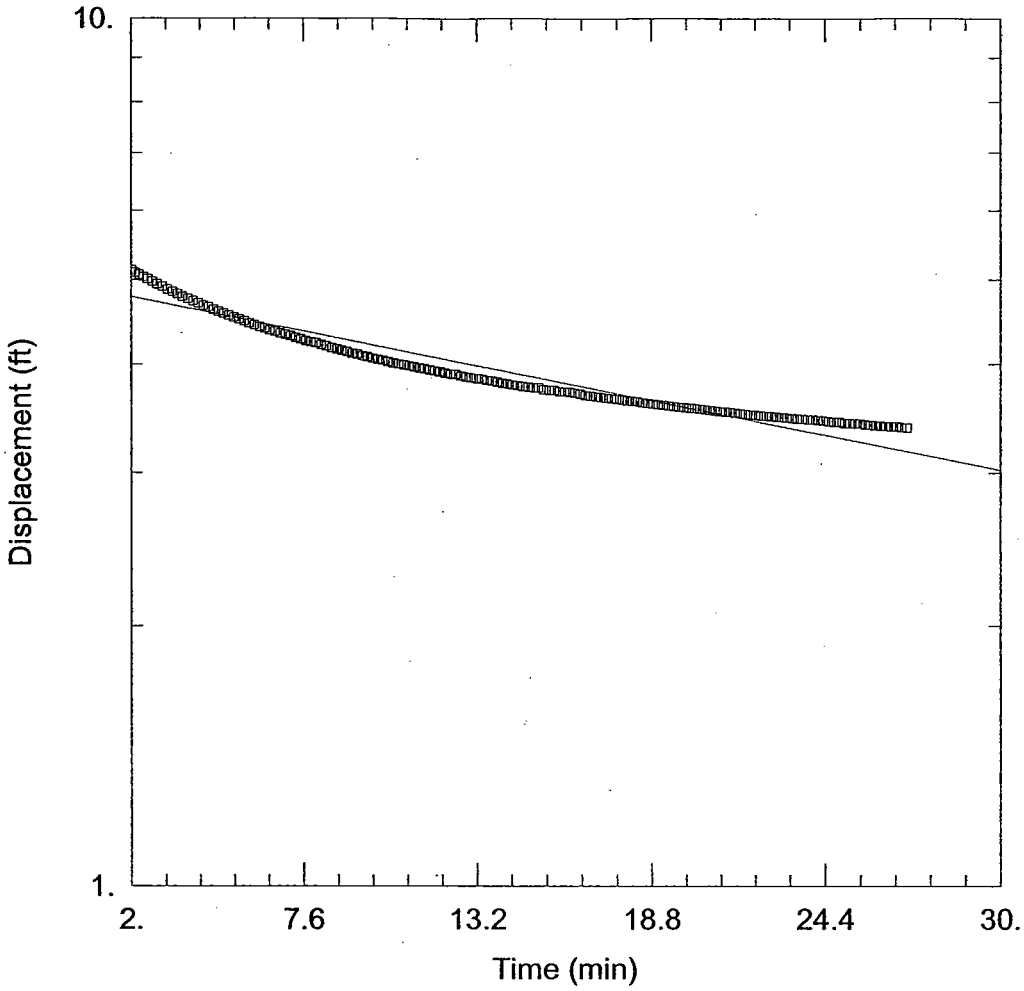
Parameter Correlations

	K	y0
K	1.00	0.90
y0	0.90	1.00

.esidual Statistics

for weighted residuals

Sum of Squares . . . 0.3937 ft^2
Variance. . . . . 0.00729 ft^2
Std. Deviation . . . . . 0.08538 ft
Mean . . . . . 0.03404 ft
No. of Residuals . . . 56.
No. of Estimates . . . 2



WELL TEST ANALYSIS

Data Set: J:\OProjects\Pownal\slugtests\MW-113R.aqt
Date: 11/29/00 Time: 15:59:33

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Test Location: Pownal Tannery
Test Well: MW-113R
Test Date: 11/15/2000

AQUIFER DATA

Saturated Thickness: 18.08 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-113R)

Initial Displacement: 5.2 ft Water Column Height: 18.08 ft
Casing Radius: 0.083 ft Wellbore Radius: 0.166 ft
Screen Length: 10. ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.985E-05 ft/min y0 = 4.944 ft

Data Set: J:\OProjects\Pownal\slugtests\MW-113R.aqt
te: 11/29/00
ne: 16:06:05

PROJECT INFORMATION

Company: TRC
Client: USEPA
Project: 02136-0220-01N93
Location: Pownal Tannery
Test Date: 11/15/2000
Test Well: MW-113R

AQUIFER DATA

Saturated Thickness: 18.08 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-113R

X Location: 0. ft
Location: 0. ft

No. of observations: 154

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1.807	5.185	10.18	4.041	18.85	3.6
1.912	5.159	10.35	4.028	19.01	3.595
2.023	5.131	10.51	4.015	19.18	3.589
2.142	5.102	10.68	4.004	19.35	3.584
2.267	5.075	10.85	3.994	19.51	3.578
2.399	5.046	11.01	3.984	19.68	3.572
2.54	5.014	11.18	3.973	19.85	3.568
2.688	4.981	11.35	3.959	20.01	3.563
2.846	4.948	11.51	3.952	20.18	3.558
3.013	4.915	11.68	3.94	20.35	3.553
3.179	4.881	11.85	3.929	20.51	3.548
3.346	4.85	12.01	3.919	20.68	3.54
3.513	4.821	12.18	3.907	20.85	3.536
3.679	4.788	12.35	3.895	21.01	3.53
3.846	4.759	12.51	3.894	21.18	3.527
4.013	4.73	12.68	3.878	21.35	3.522
4.179	4.704	12.85	3.865	21.51	3.517
4.346	4.676	13.01	3.859	21.68	3.512
4.513	4.656	13.18	3.848	21.85	3.506
4.679	4.624	13.35	3.845	22.01	3.5
4.846	4.6	13.51	3.832	22.18	3.497

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
5.013	4.577	13.68	3.825	22.35	3.491
5.179	4.555	13.85	3.815	22.51	3.487
5.346	4.531	14.01	3.803	22.68	3.483
5.513	4.509	14.18	3.796	22.85	3.478
5.679	4.486	14.35	3.787	23.01	3.475
5.846	4.461	14.51	3.78	23.18	3.473
6.013	4.444	14.68	3.77	23.35	3.467
6.179	4.421	14.85	3.764	23.51	3.461
6.346	4.402	15.01	3.757	23.68	3.46
6.513	4.381	15.18	3.757	23.85	3.454
6.679	4.363	15.35	3.74	24.01	3.455
6.846	4.346	15.51	3.734	24.18	3.448
7.013	4.329	15.68	3.734	24.35	3.441
7.179	4.31	15.85	3.721	24.51	3.436
7.346	4.292	16.01	3.716	24.68	3.432
7.513	4.275	16.18	3.714	24.85	3.431
7.679	4.256	16.35	3.703	25.01	3.418
7.846	4.242	16.51	3.695	25.18	3.418
8.013	4.232	16.68	3.683	25.35	3.415
8.179	4.215	16.85	3.676	25.51	3.415
8.346	4.194	17.01	3.67	25.68	3.406
8.513	4.178	17.18	3.663	25.85	3.405
8.679	4.164	17.35	3.657	26.01	3.399
8.846	4.15	17.51	3.65	26.18	3.396
9.013	4.135	17.68	3.644	26.35	3.393
9.179	4.119	17.85	3.639	26.51	3.39
9.346	4.108	18.01	3.63	26.68	3.393
9.513	4.09	18.18	3.626	26.85	3.384
9.679	4.08	18.35	3.624	27.01	3.38
9.846	4.064	18.51	3.613		
10.01	4.053	18.68	3.607		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	1.985E-05	ft/min
y0	4.944	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
K	1.985E-05	4.452E-07	ft/min

y0	4.944	0.02622	ft

rameter Correlations

	K	y0
K	1.00	0.86
y0	0.86	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . 2.619 ft^2
Variance. . . . . 0.01723 ft^2
Std. Deviation . . . . . 0.1313 ft
Mean . . . . . 0.0008168 ft
No. of Residuals . . . 154.
No. of Estimates . . . 2

Appendix C
Geophysical Investigation Report

Geophysical Survey Report
Pownal Tannery Site
Pownal, Vermont

Prepared for
METCALF & EDDY, INC.
May 2000

GEOPHYSICAL
APPLICATIONS
INCORPORATED

May 26, 2000

Mr. Donald Dwight
METCALF & EDDY, INC.
30 Harvard Mill Square – P.O. Box 4071
Wakefield, MA 01880-5371

Subject: Geophysical Survey
Pownal Tannery Superfund Site
Pownal, Vermont

Dear Mr. Dwight:

Geophysical Applications, Inc. performed geophysical surveys designed to locate buried metal objects (e.g. drums) at the above-noted site. Fieldwork was performed throughout accessible areas around and within five large lagoons. The survey was designed as a reconnaissance of this large area, with greater than normal traverse spacings to minimize brush clearing efforts.

The geophysical survey methods included total-field magnetometry, and electromagnetic conductivity profiling (EM31) augmented with a pipe-and cable locator.

METHODS OF INVESTIGATION

Survey Grid

A reference grid was established by TRC throughout the survey area before geophysical data acquisition. The grid was denoted at approximately 100-foot intervals with labeled wooden stakes. Geophysical Applications supplemented these stakes with pin flags at 25-foot intervals in an east-west direction in areas where magnetic and EM31 data were acquired. We understand that TRC's land surveyor will accurately survey at least a few key stakes to aid in future grid reconstruction.

Brush was precut by TRC every 100 feet along north-south lines prior to geophysical data acquisition. Geophysical Applications cleared additional north-south lines at approximately 25-foot intervals where magnetic and EM31 data were acquired.

Total-field Magnetometer

Buried ferrous objects in the earth's northern hemisphere typically exhibit magnetic dipole anomalies, with high data values south of the object and low data values to the north. These magnetic variations can be measured with a total-field magnetometer, if the survey area is relatively free of aboveground ferrous objects.

A Geometrics model G-858 cesium-vapor magnetometer recorded magnetic data values at approximately 1.5-foot intervals along north-south survey traverses located approximately 25 feet apart. The magnetometer was operated with the sensor approximately 6.5 feet above ground. Recorded data values were stored in the instrument's digital memory, and transferred to a personal computer for processing.

125 Washington Street • Suite Two • Foxboro • MA • 02035
508-543-1388 • FAX 508-543-1019

Magnetic base-station data were recorded at one-minute intervals by a Geometrics model G-856 proton-precession magnetometer set up near grid coordinate 815E/550N. This base station allowed adjustment for natural daily variations in the earth's magnetic field.

A magnetic contour map was prepared using Surfer for Windows with a Kriging grid algorithm, for inclusion with this report (see Figure 2).

EM31 Terrain Conductivity

Electromagnetic terrain conductivity profiling was also performed to help locate electrically-conductive metallic objects, possibly including drums, pipes or other structures associated with the former tannery. Buried metal objects may exhibit EM anomalies, depending upon the objects' sizes, burial depths, and orientation with respect to the EM transmitter/receiver coils.

The EM31 instrument contains transmitter and receiver coils at either end of a 14-foot boom. The fixed intercoil spacing allows the instrument to sense lateral variations in bulk electrical conductivity, at depths up to 15 feet below ground surface.

A Geonics model EM31-MK2 conductivity meter with built-in datalogger recorded EM conductivity (quadrature-phase) and in-phase data values at approximately 2-foot intervals along north-south survey traverses located approximately 25 feet apart. The EM31 was operated in the vertical dipole mode to maximize depth penetration. In addition, long EM traverses were surveyed along the earthen berms surrounding portions of the site area. Several east-west traverses were also acquired at 100-foot intervals along accessible portions of the site (see Figure 1).

High or negative terrain conductivity values (measured in units of milliSiemens per meter, or mS/m) indicate electrically-conductive metallic materials. High conductivity values may also represent non-metallic materials. For example, conductivity anomalies might be observed near metal objects, and also near clayey soil or landfill leachate.

High in-phase data values indicate only metallic objects. In-phase data values are recorded as a ratio between the measured response and applied field strength, in units of parts per thousand (ppt).

EM data recorded during this survey was downloaded to a portable computer, and contoured using Surfer for Windows with a Kriging grid algorithm.

Pipe- and Cable-Locating Instrument

A Schonstedt GA-72CD magnetic locating instrument was also utilized during this survey, to spot-check selected drilling locations within the lagoons. The GA-72CD contains two magnetic sensors, and emits a pitch-varying audible tone near ferrous objects.

SURVEY LIMITATIONS

Magnetic or EM data values may be adversely affected by power lines or aboveground metal objects located within approximately 20 feet of a survey traverse. Anomalies caused by buried metal objects within those regions may be difficult to distinguish from anomalies caused by aboveground objects. Visible metal objects encountered at this site included chain link fences, railroad tracks, power lines, drums, an above-ground storage tank, several "rafts" formerly used in the lagoons, manways, a shed, building foundations, and scattered surface metal. Interference from these sources was minimized during the magnetic survey by operating that instrument with the sensor approximately 6.5 feet above ground surface.

Detailed magnetic and EM31 surveys entail traverses located 10 to 20 feet apart. The 25-foot spacing utilized in this reconnaissance survey may result in some smaller buried metal objects remaining undetected.

Magnetic and EM interpretations are based on identifying anomaly patterns that may not uniquely represent a subsurface object. Anomaly confirmation via test pits, borings or other direct means is recommended.

The magnetometer's investigative depth depends on the quantity of ferrous metal present. Magnetic anomalies represent only ferrous objects. A single steel drum (or similar-sized object) can be detected by a magnetic survey at burial depths up to approximately 6 or 8 feet, in the absence of interference from other magnetic anomaly sources. Groups of drums (or similar-sized ferrous objects) can be detected at greater depths.

RESULTS

Surface features, surface metal and the perimeter EM31 traverses are shown on Figure 1. Figure 2 shows magnetic coverage and contours. Figures 3 and 4 show EM31 conductivity and in-phase coverage and contours.

Magnetic data were recorded at stations represented by red crosses on Figure 2. EM31 data were recorded at stations represented by blue crosses on Figures 3 and 4.

Large ferrous objects (such as USTs, or groups of drums) typically produce magnetic anomalies of several thousand gammas, superimposed on the earth's natural background field of approximately 54,000 gammas. The 100-gamma contour interval shown on Figure 2 was selected to clearly show large anomalies, while minimizing anomalies caused by small near-surface objects.

Magnetic anomalies produced by large objects often resemble magnetic dipoles, with high values south of the object and low values to the north. Buried ferrous objects are typically located halfway between the high-value peak and low-value trough.

Significant interference was observed near the building foundations, chain link fences, rafts, metal cables between utility poles, an old tank and scattered metal surface debris during both the magnetic and EM31 surveys. Survey results are discussed below.

Surface metal caused anomalies at multiple locations throughout the site:

- The building foundations caused large magnetic-dipole and EM31 anomalies centered near coordinates 580E/575N and 550E/680N.
- The metal rafts caused large magnetic-dipole and EM31 inphase anomalies centered near 590E/700N and 500E/290N.
- A 20-foot long tank caused a large magnetic-dipole anomaly, and an EM31 inphase anomaly centered near 710E/600N.
- A pile of surface debris containing metal caused magnetic and EM31 inphase anomalies near 490E/700N.
- Surface metal identified on Figure 1, including pipes, drums, sheet metal, fence posts and other debris caused or contributed to magnetic and/or EM31 anomalies near coordinates 680E to 690E/525N (pipe), 655E to 665E/525N to 550N (pipes), 675E/660N (drum), 675E/670N (drum), 590E/540N (drums), 800E/400N, 165E/585N (shed), 150E/605N to 620N, 525E/2660N to 270N (pipes), 565E/700N to 715N, 402E/992N (fence post),

500E/620N (pipe), 545E/775N, 553E/775N to 790N (pipe), 600E/410N (sheet metal), 675E/460N (drums), 785E/450N, 780E/405N, 875E/425N, 915E to 925E/ 425N, 980E/180N to 190N, 638E to 654E/727N (pipe), 628E/704N (manway), 704E/773N (surface metal and pipe), 585E/490N (pipe), 900E/172N, 525E/302N and 535E/313N (fence posts).

- The chain link fences surrounding Lagoons 1 and 3 caused significant interference, as shown on Figures 2 through 4.
- Steel cable hanging from utility poles between 760E/515N and 935E/490N and lying on the ground between 675E/518N and 746E/518N caused magnetic and EM31 anomalies in that area.

There are few anomalies judged to represent buried metal, however anomalies caused by buried metal objects may be difficult to distinguish from anomalies caused by aboveground objects, including the following locations.

- Magnetic and EM in-phase anomalies located near coordinates 388E to 590E/890N to 880N along a dirt road indicate an east-west trending metallic object in this area. A partially crushed, corrugated metal pipe was observed in the side of an embankment near coordinate 388E/890N, heading east. These anomalies are interpreted to represent a metallic pipe trending roughly east-west beneath the dirt road. In addition to the known outfall pipes shown on TRC's base map, an additional PVC pipe was visible near coordinate 379E/799N, heading east-southeast into an embankment.
- A 200 gamma magnetic anomaly located near 300E/590N cannot be explained by surface metal, however it is located on a steep embankment that may contain metal debris.
- A large magnetic low near 890E to 900E/510N to 545N and an EM31 in-phase anomaly located near 900E/530N may represent cables suspended approximately 5 feet high between the utility poles, or they may represent buried metal in the general vicinity of coordinate 590E/500N. The actual metal target may be located further north or south, however interference from the cables prevents pinpointing the location more accurately. The area immediately north and south of the metal cable south of Lagoon 2 consists of vegetation and debris on a fairly steep slope. Buried metal objects may or may not exist within this debris.
- Magnetic and EM31 in-phase anomalies near coordinate 500E/300N are attributed to a raft, a fence and a pile of pipes, however these metallic objects may mask any buried objects located within the fill and vegetated debris on Lagoon 5's steeply sloped southeast corner.
- An EM31 conductivity anomaly centered near coordinate 630E/800N coincides with a dirt and rock mound located in that area. As there are no corresponding EM31 inphase or magnetic anomalies, this anomaly most likely represents electrically-conductive soil.

The perimeter and east-west EM31 traverses shown on Figure 1 exhibited no anomalies other than those attributed to surface metal.

SUMMARY AND RECOMMENDATIONS

Geophysical surveys at this site disclosed anomalies attributable for the most part to visible metal objects. Magnetic and EM31 profiling indicate a metallic pipe trending east-west approximately between coordinates 388E to 590E/890N, beneath a dirt road.

If Metcalf & Eddy and/or TRC wish to confirm the sources of selected geophysical anomalies, we suggest placing test pits at the following locations:

Test pit 1: Grid coordinate 300E/590N – to investigate a 200 gamma magnetic anomaly on Lagoon 4's south bank.

Test pit 2: Grid coordinate 895E to 900E/500N – to investigate magnetic and EM31 anomalies. Extend the test pit in a north direction as needed.

Test pit 3: Grid coordinate 630E/800N– to investigate an EM31 conductivity near a rock and earth mound.

* * * * *

Please call the undersigned at 508/543-1388 if you have questions regarding our report. We appreciate this opportunity to provide geophysical services to Metcalf & Eddy and we welcome inquiries regarding this survey or future projects.

Sincerely,

GEOPHYSICAL APPLICATIONS, INC.

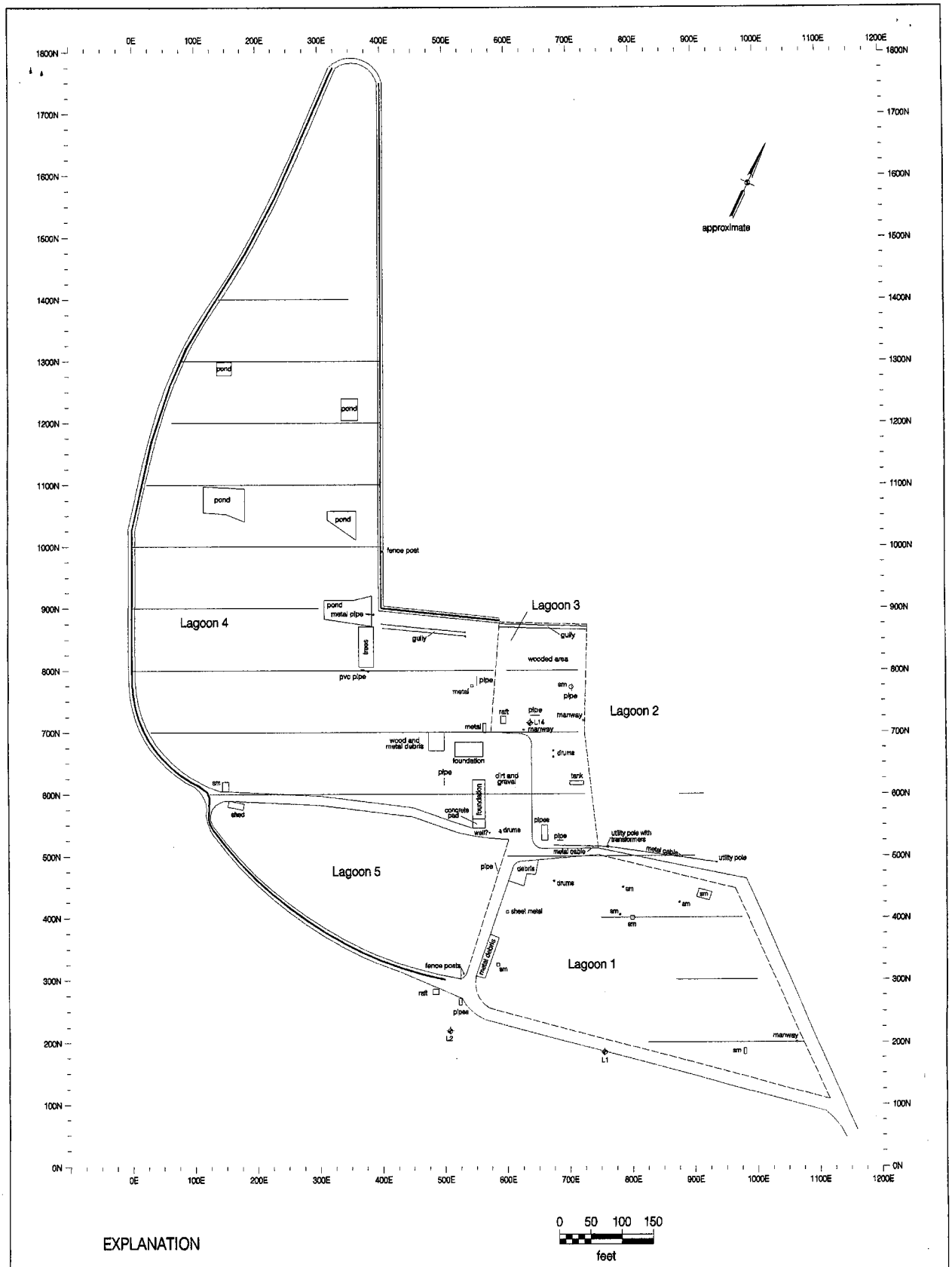
C. V. Sullivan

Charlene V. Sullivan
Geophysicist

M. Blackey

Mark E. Blackey
Principal and Geophysicist

100348 - 100348.rpt



EXPLANATION

- Dirt roads or berms
- Chain link fence
- sm Surface metal
- Drainage pipe in embankment
- L1 Monitoring well
- EM31 perimeter traverse
- EM31 east-west traverse

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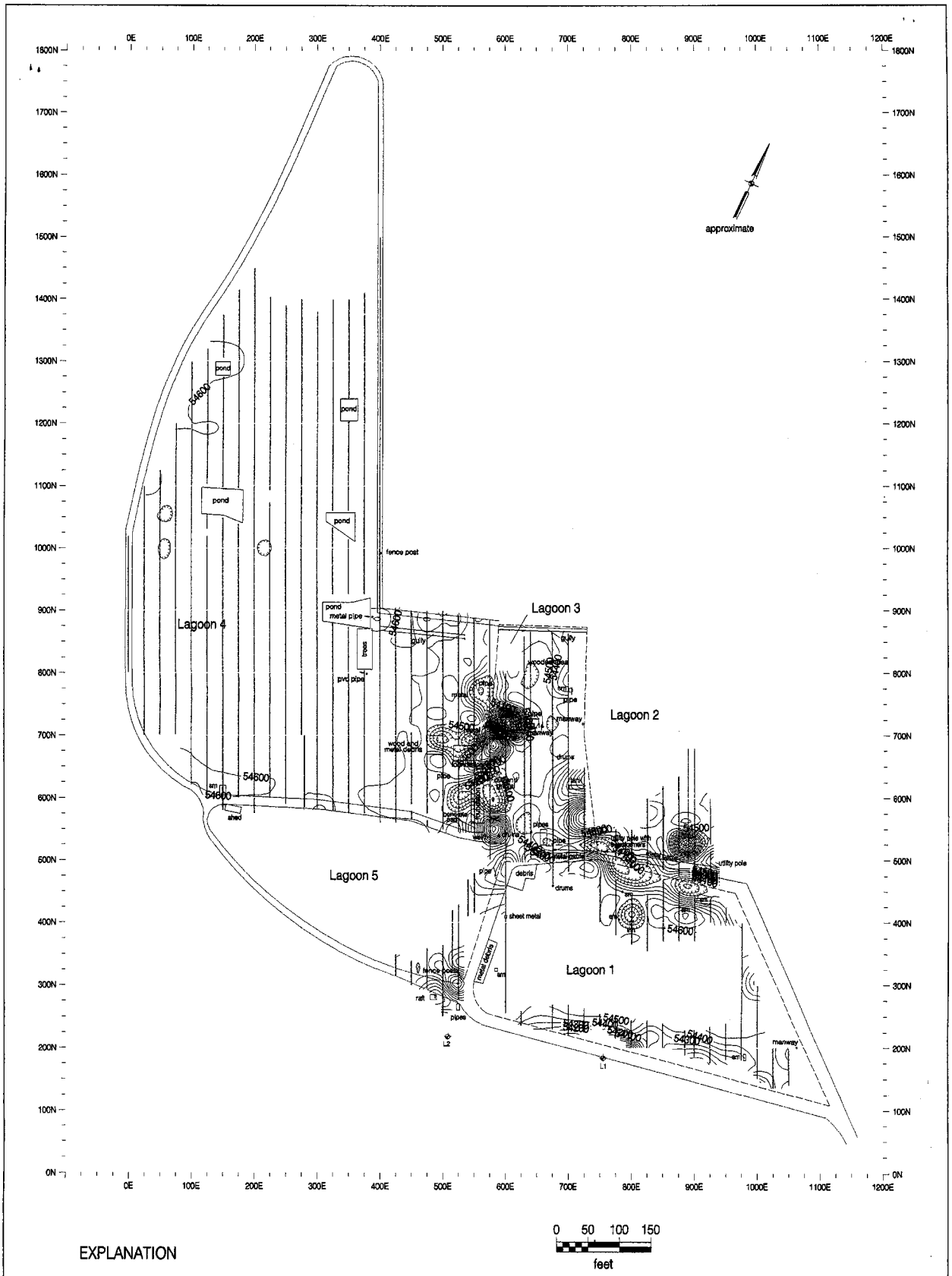
Figure 1
EM31 Perimeter and East-West Traverse Locations
Pownal Tannery Superfund Site
Pownal, Vermont
prepared for
METCALF & EDDY, INC.



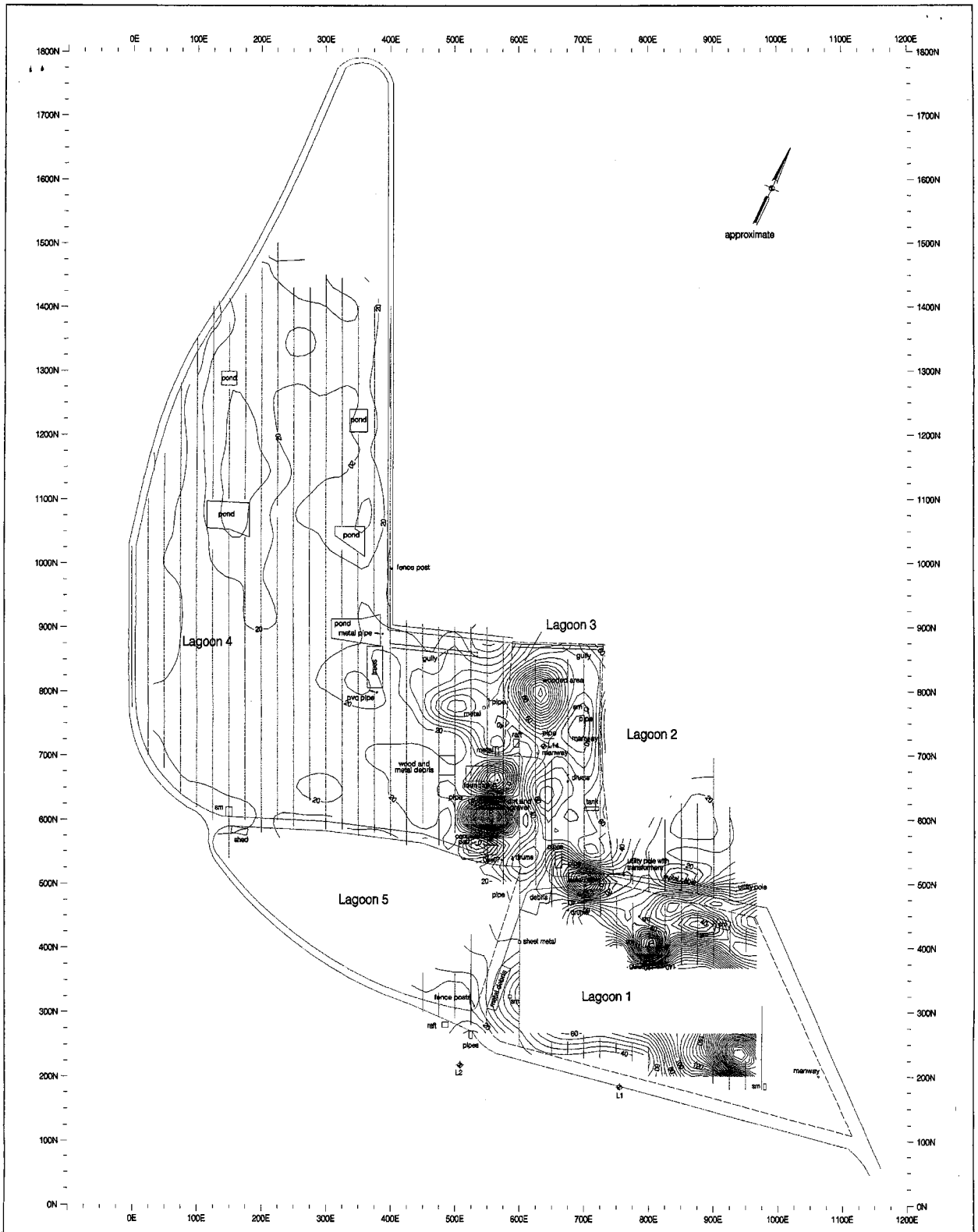
EXPLANATION

- Magnetic data stations
- 54600 Magnetic contour (100 gamma interval)
- Dirt roads or paths
- Chain link fence
- sm Surface metal
- Drainage pipe in embankment
- L1 Monitoring well

100348- 100348.dwg
last modified 5/26/00

GEOPHYSICAL APPLICATIONS INCORPORATED

Figure 2
Magnetic Data Stations and Contours
Pownal Tannery Superfund Site
Pownal, Vermont
prepared for
METCALF & EDDY, INC.



EXPLANATION

- EM31 data station
- 20 EM31 conductivity contour (5 milliSiemen interval)
- Dirt roads or paths
- Chain link fence
- sm Surface metal
- Drainage pipe in embankment
- L1 Monitoring well

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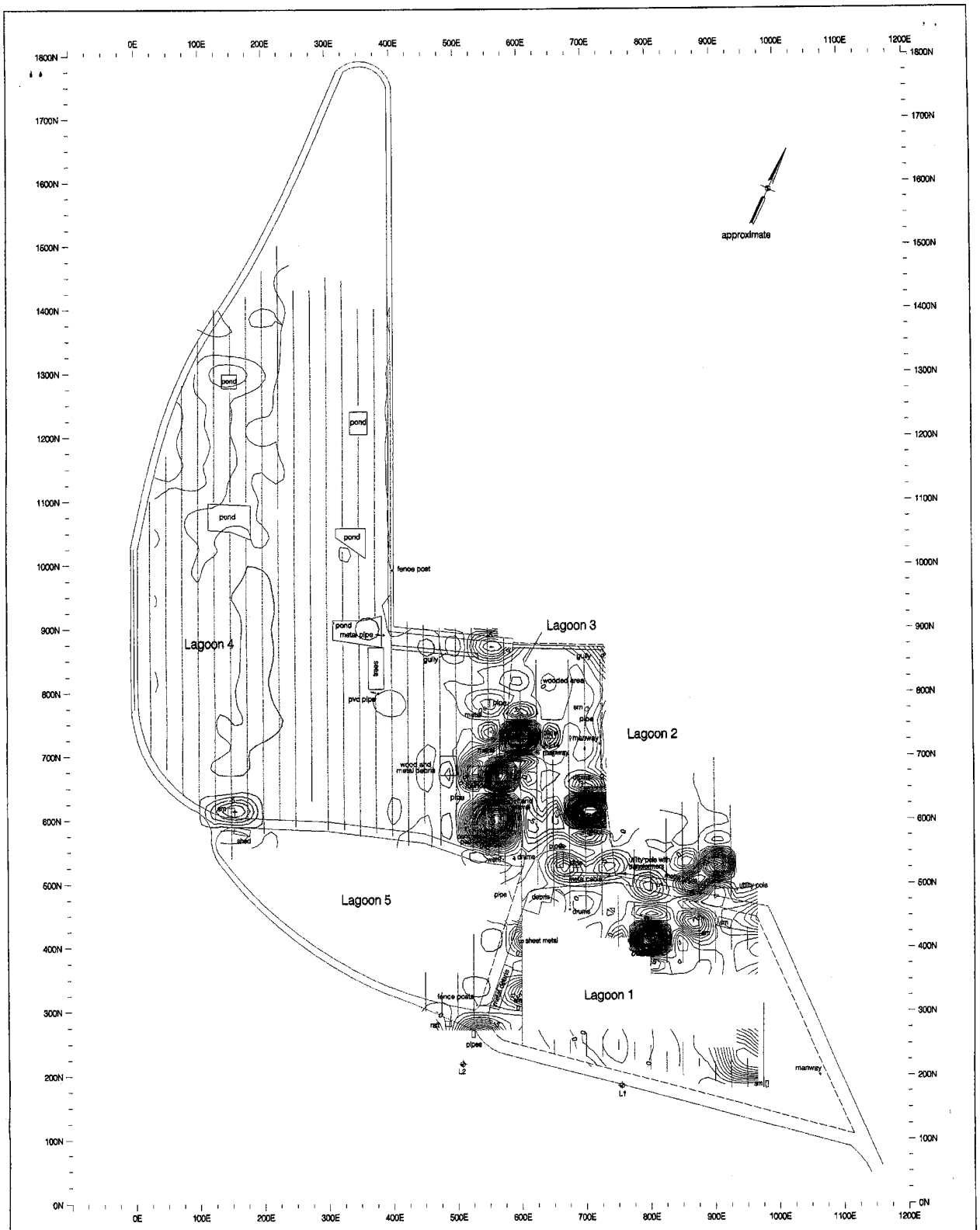
Figure 3
EM31 Conductivity Data Stations and Contours
Pownal Tannery Superfund Site
Pownal, Vermont
prepared for
METCALF & EDDY, INC.



EXPLANATION

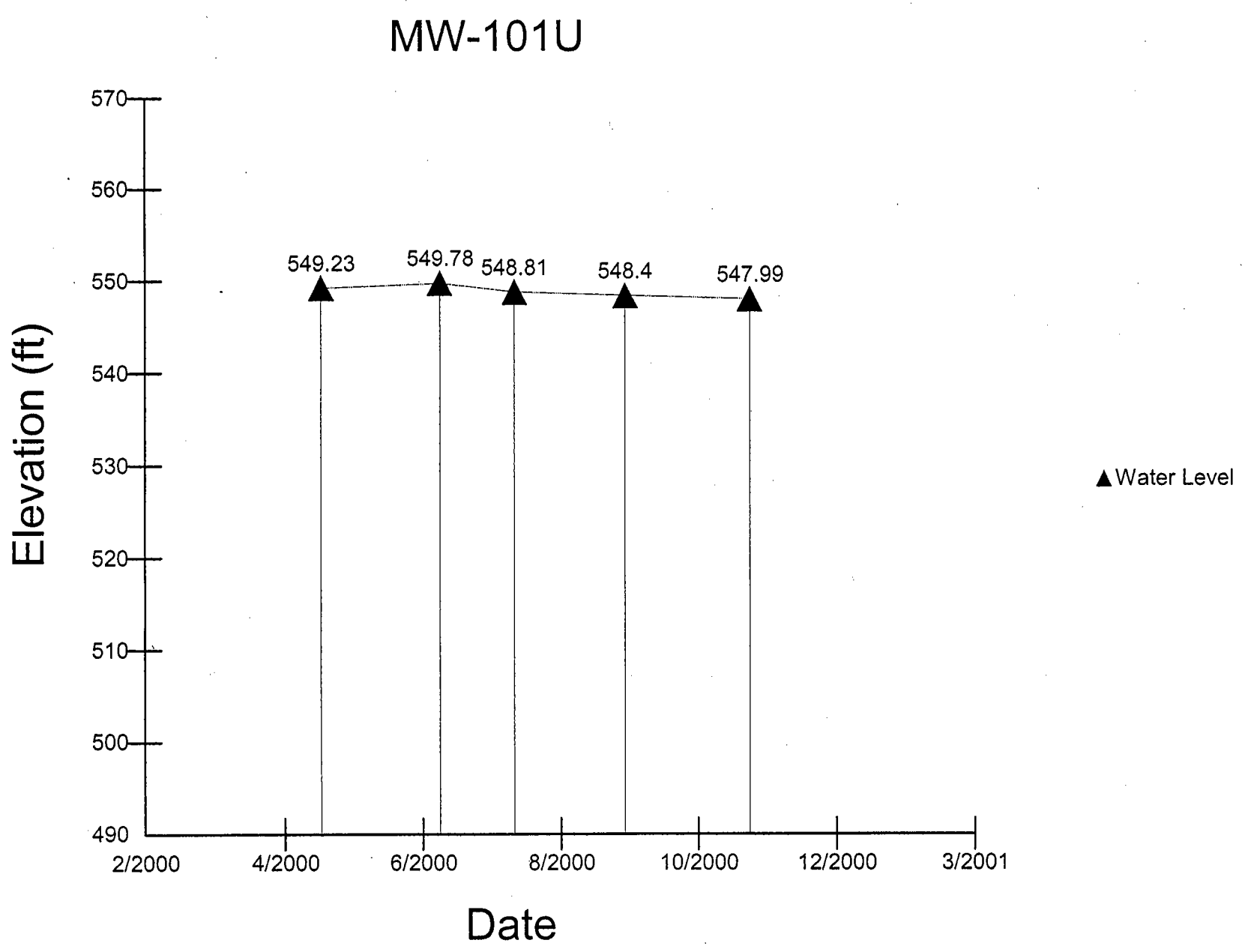
- EM31 data station
- EM31 in-phase contour (1 ppt interval)
- Dirt roads or berms
- Chain link fence
- sm Surface metal
- Drainage pipe in embankment
- L1 Monitoring well

100348- 100348.dwg
last modified 5/26/00

GEOPHYSICAL APPLICATIONS INCORPORATED

Figure 4
EM31 In-phase Data Stations and Contours
Pownal Tannery Superfund Site
Pownal, Vermont
prepared for
METCALF & EDDY, INC.

Appendix D
Hydrographs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550
540
530
520
510
500
490
549.23
549.78
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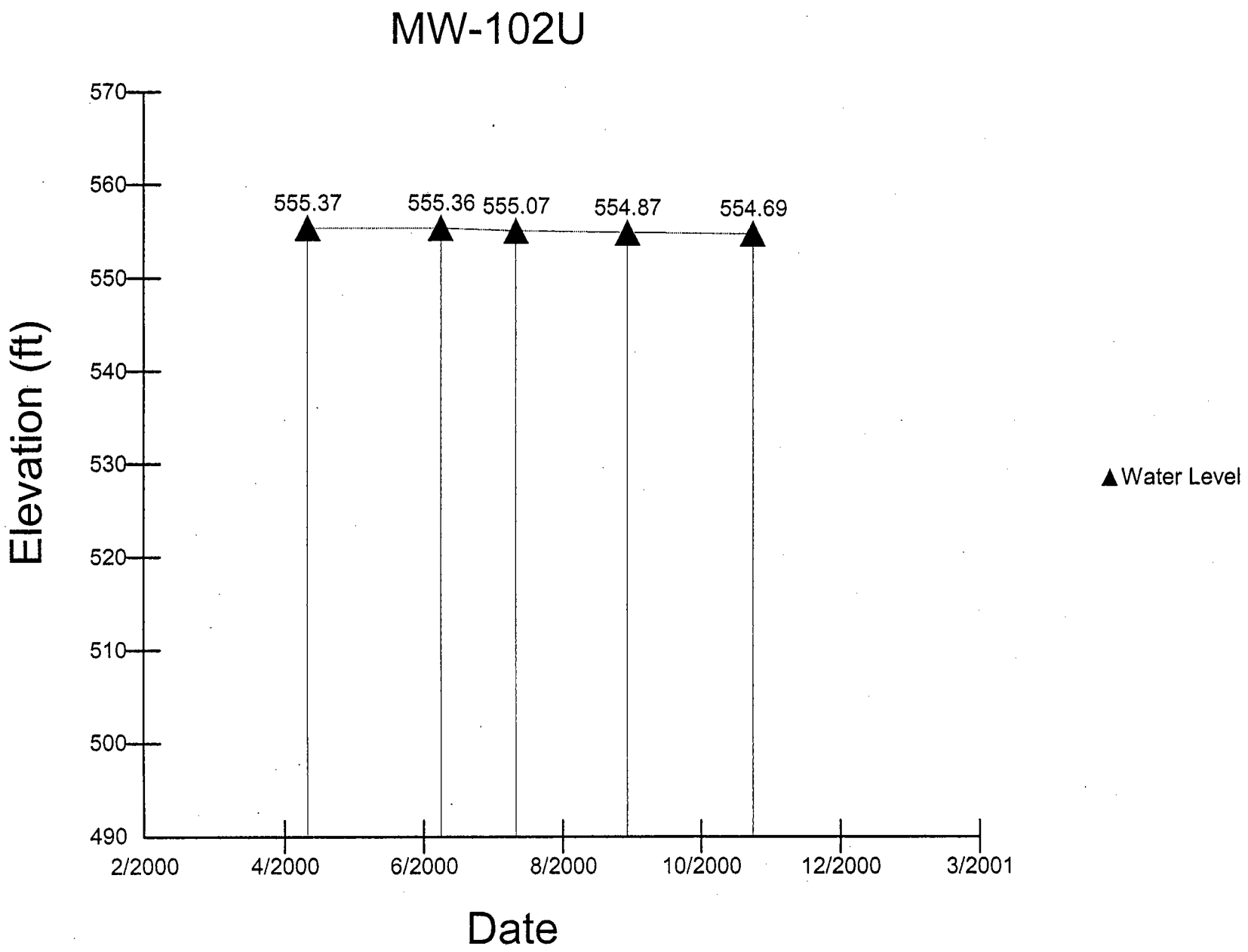
547.99
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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550
540
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520
510
500
490
Elevation (ft)
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555.36
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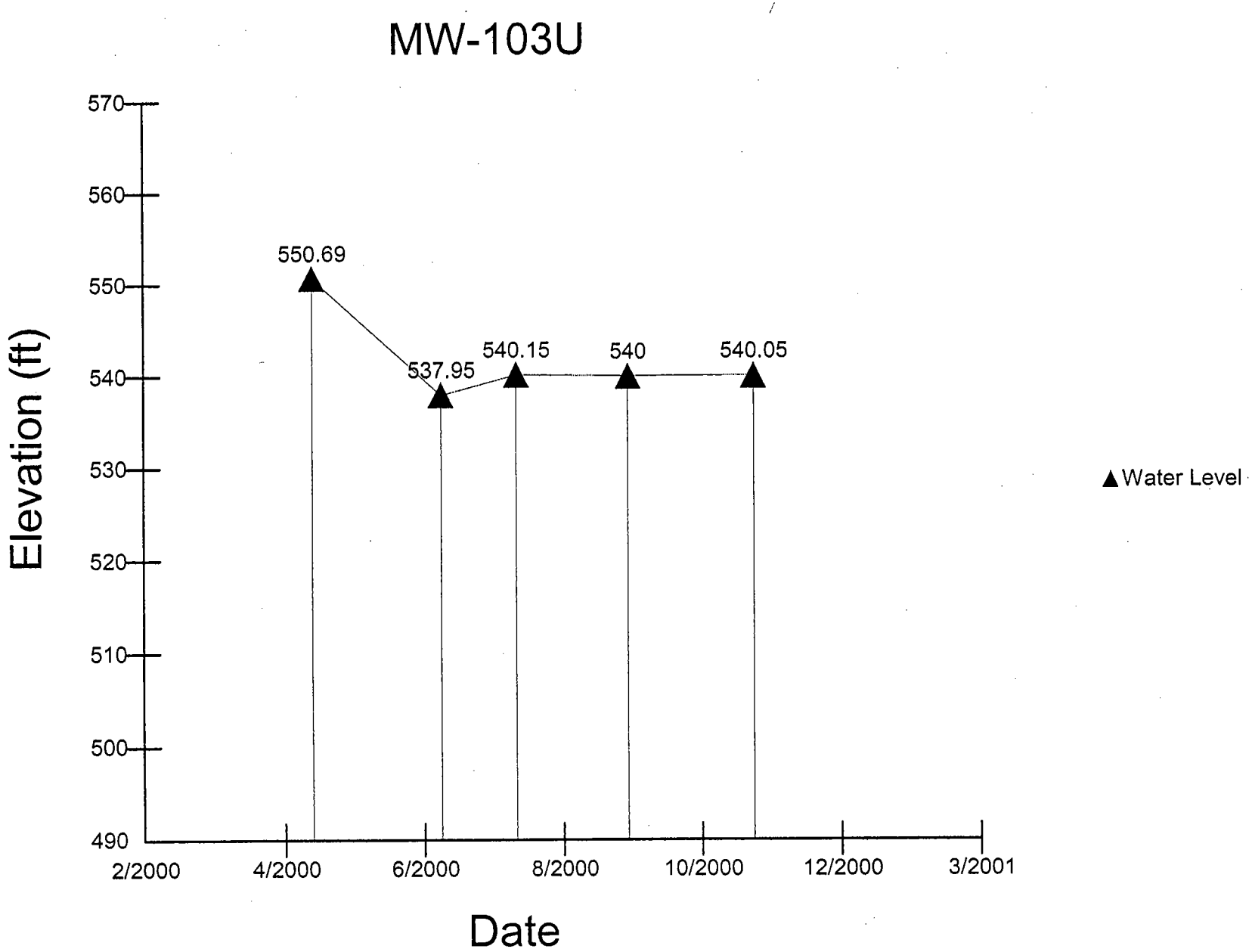
8/2000
10/2000
12/2000
3/2001
Date
Water Level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550
540
530
520
510
500
490
Elevation (ft)
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540
540.05
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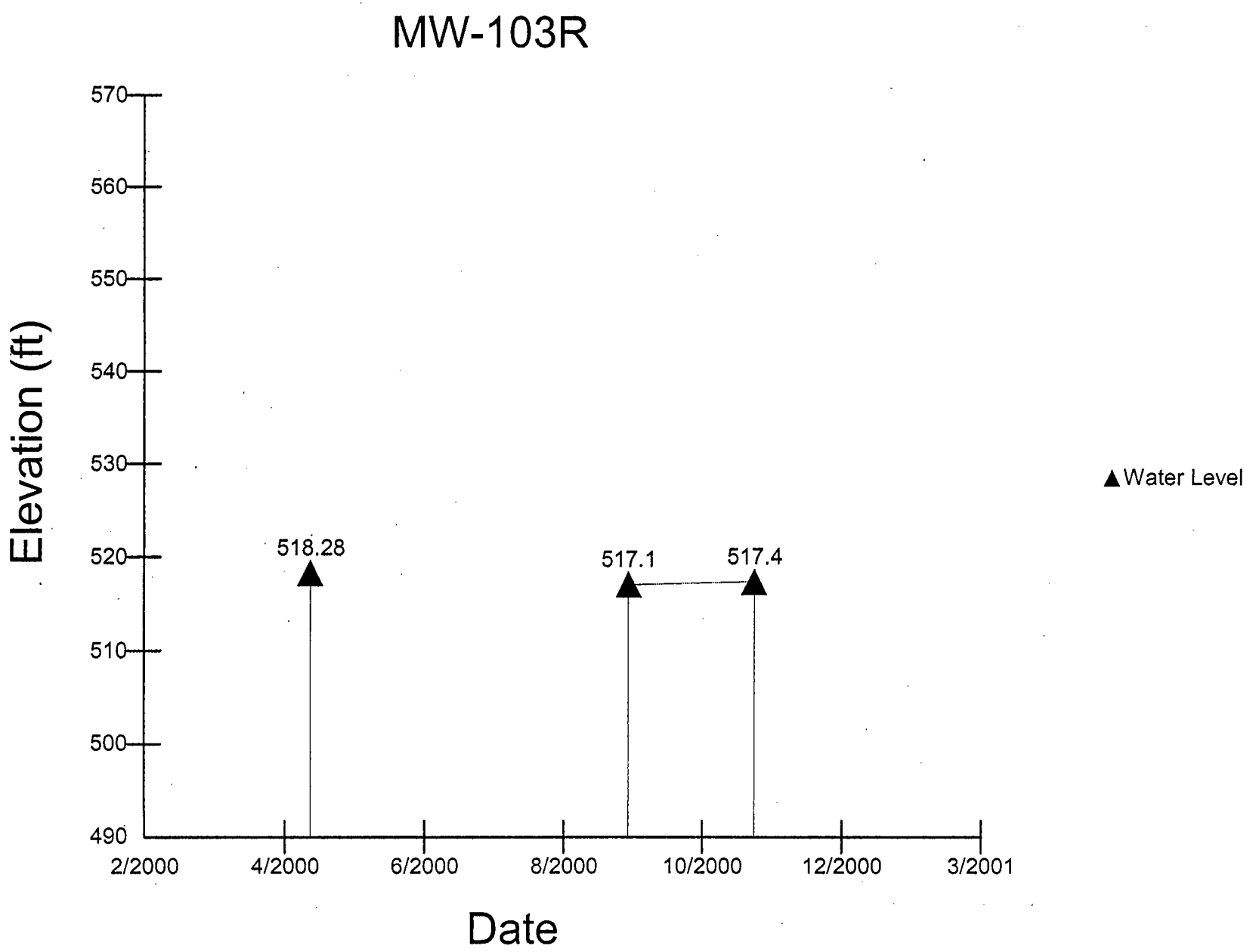
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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550
540
530
520
510
500
490
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517.4
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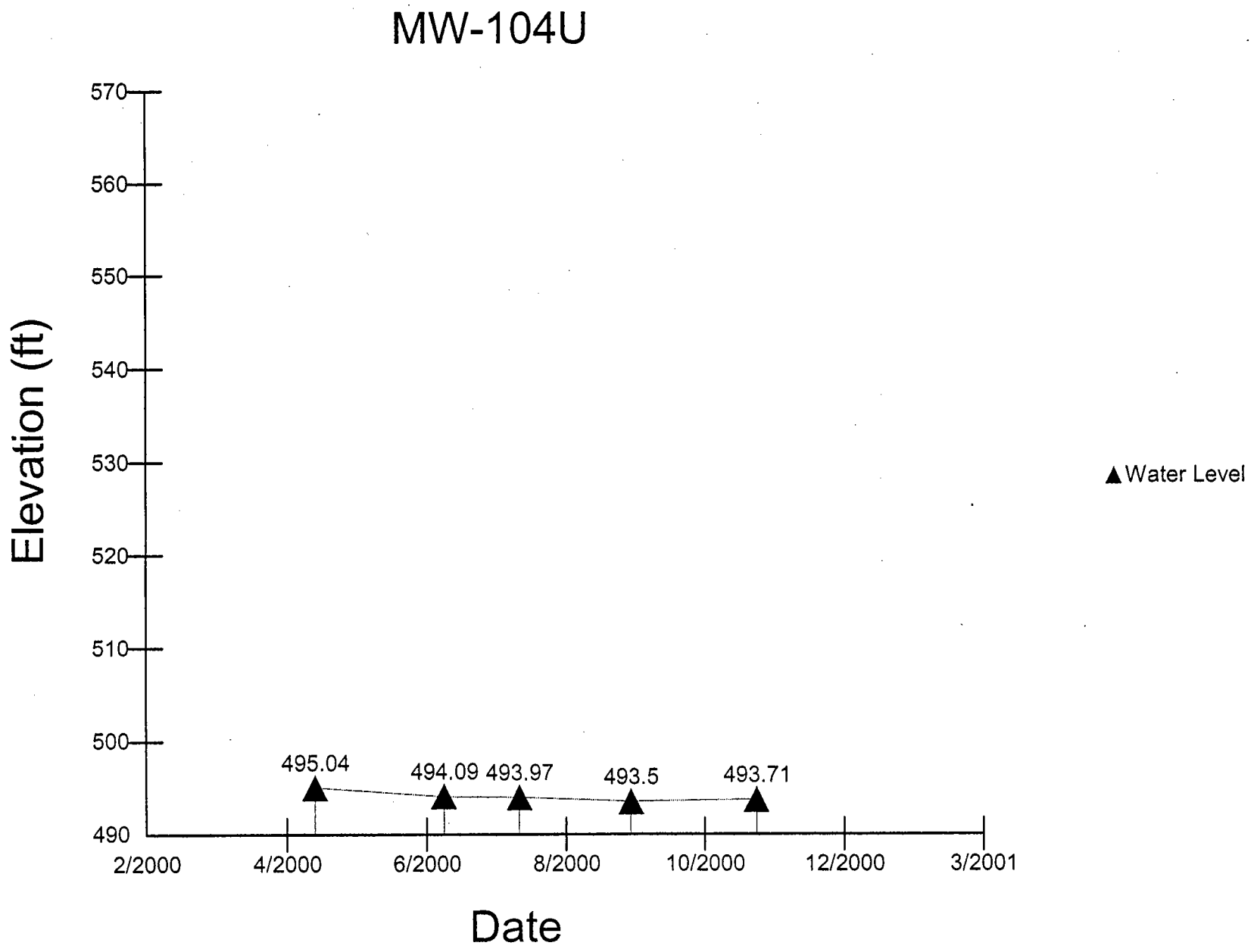
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level


MW-104U
Elevation (ft)
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560
550
540
530
520
510
500
490
495.04
494.09
493.97
493.5
493.71
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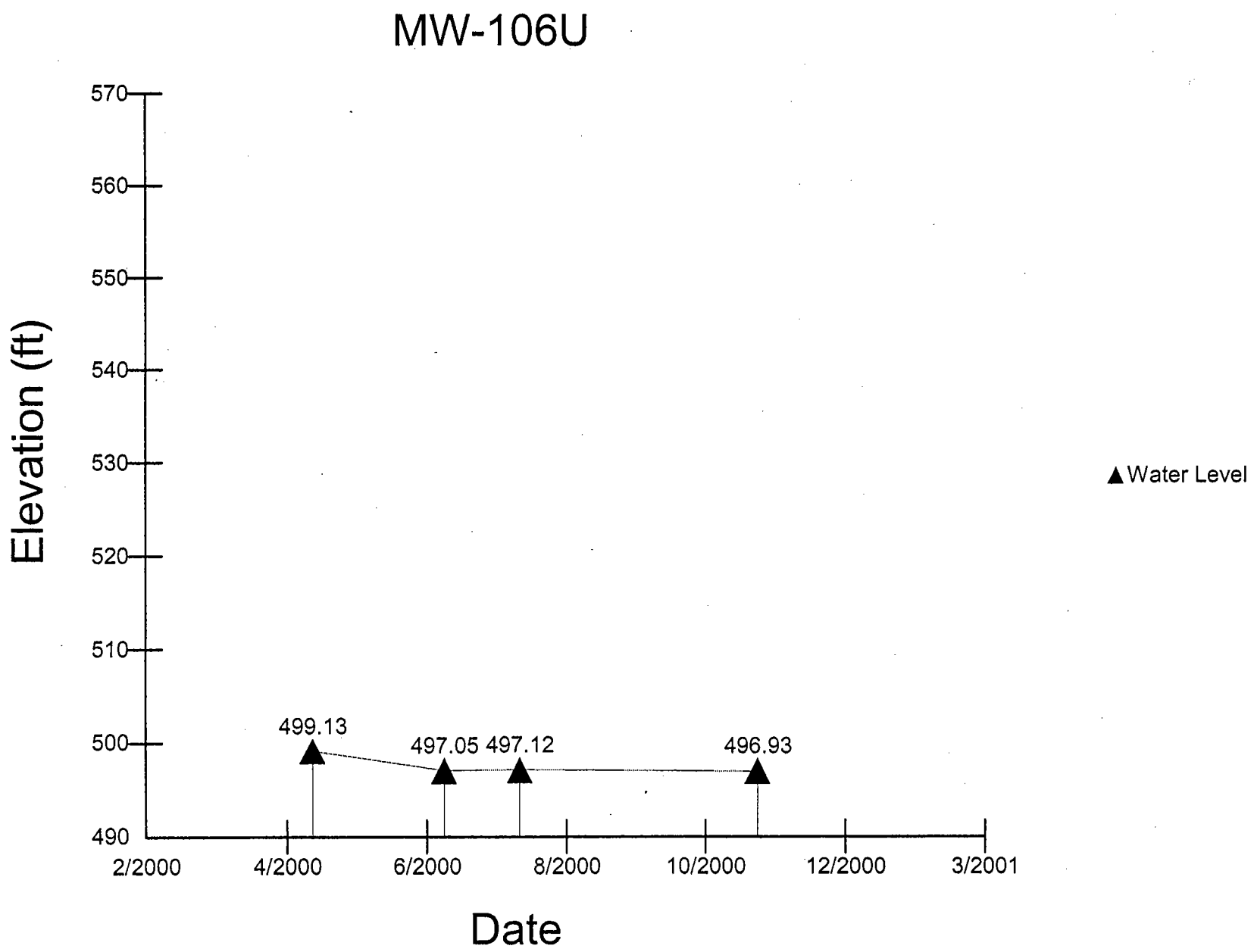
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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Elevation (ft)
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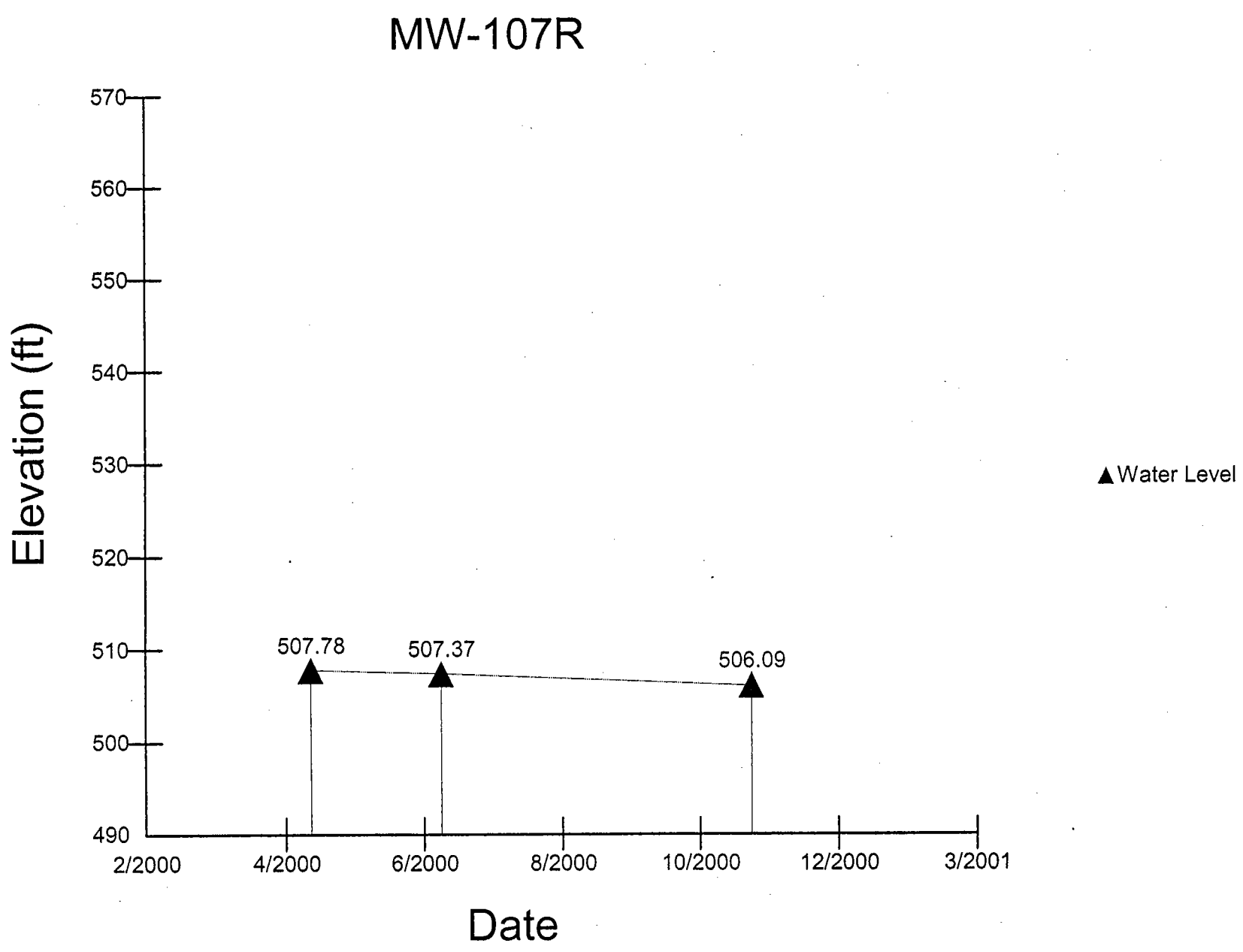
560
550
540
530
520
510
500
490
499.13
497.05
497.12
496.93
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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Elevation (ft)
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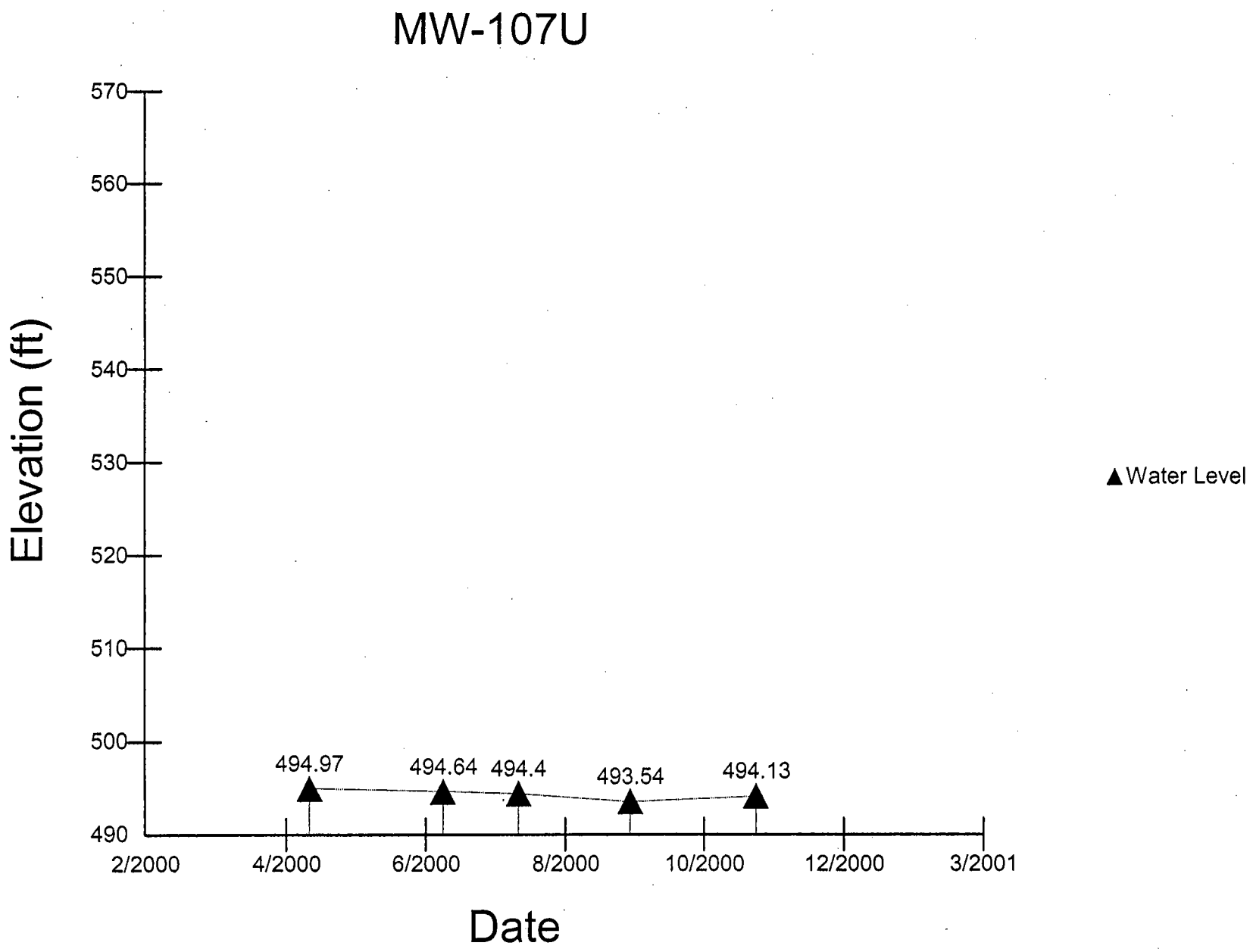
550
540
530
520
510
500
490
507.78
507.37
506.09
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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Elevation (ft)
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520
510
500
490
494.97
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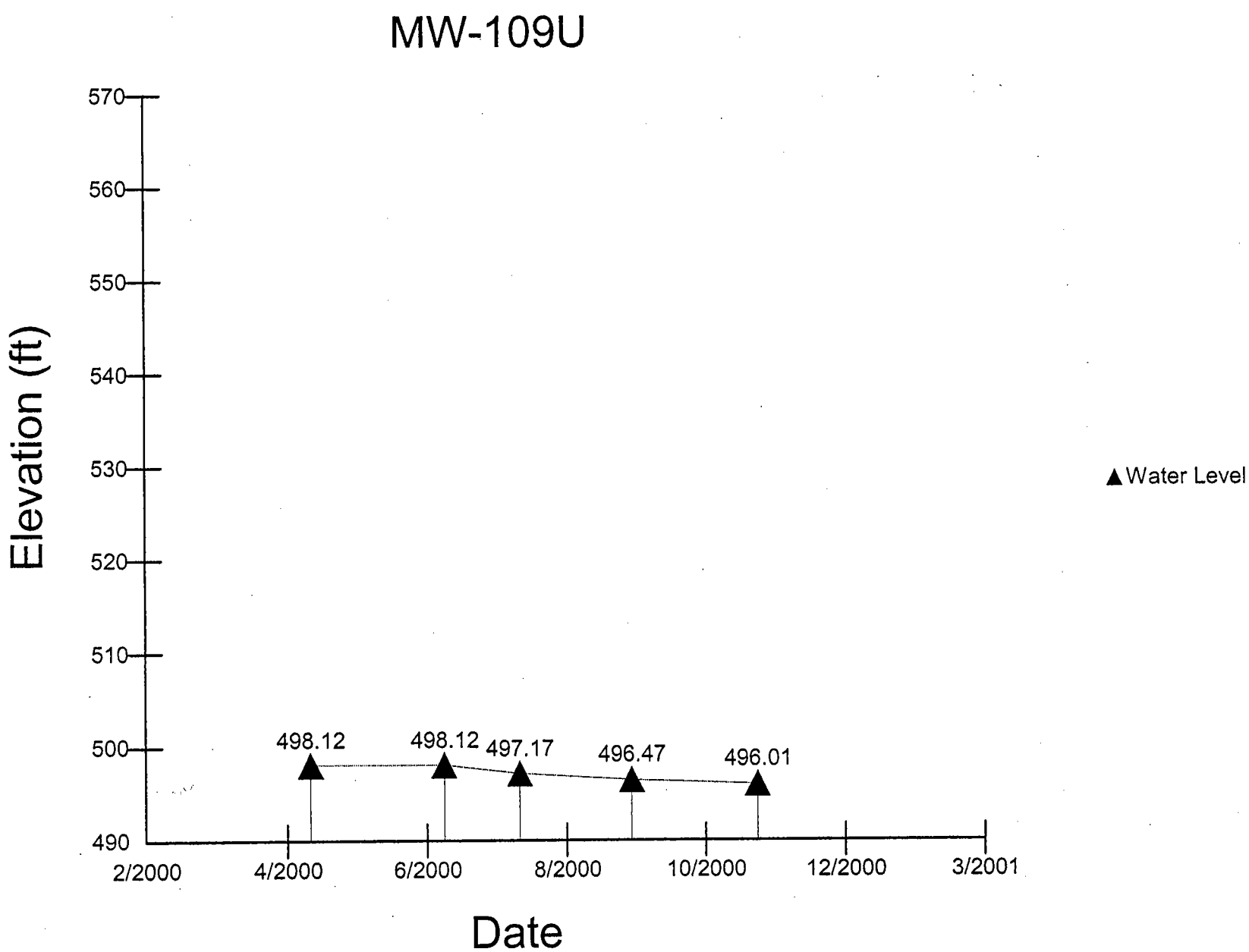
494.4
493.54
494.13
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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Elevation (ft)
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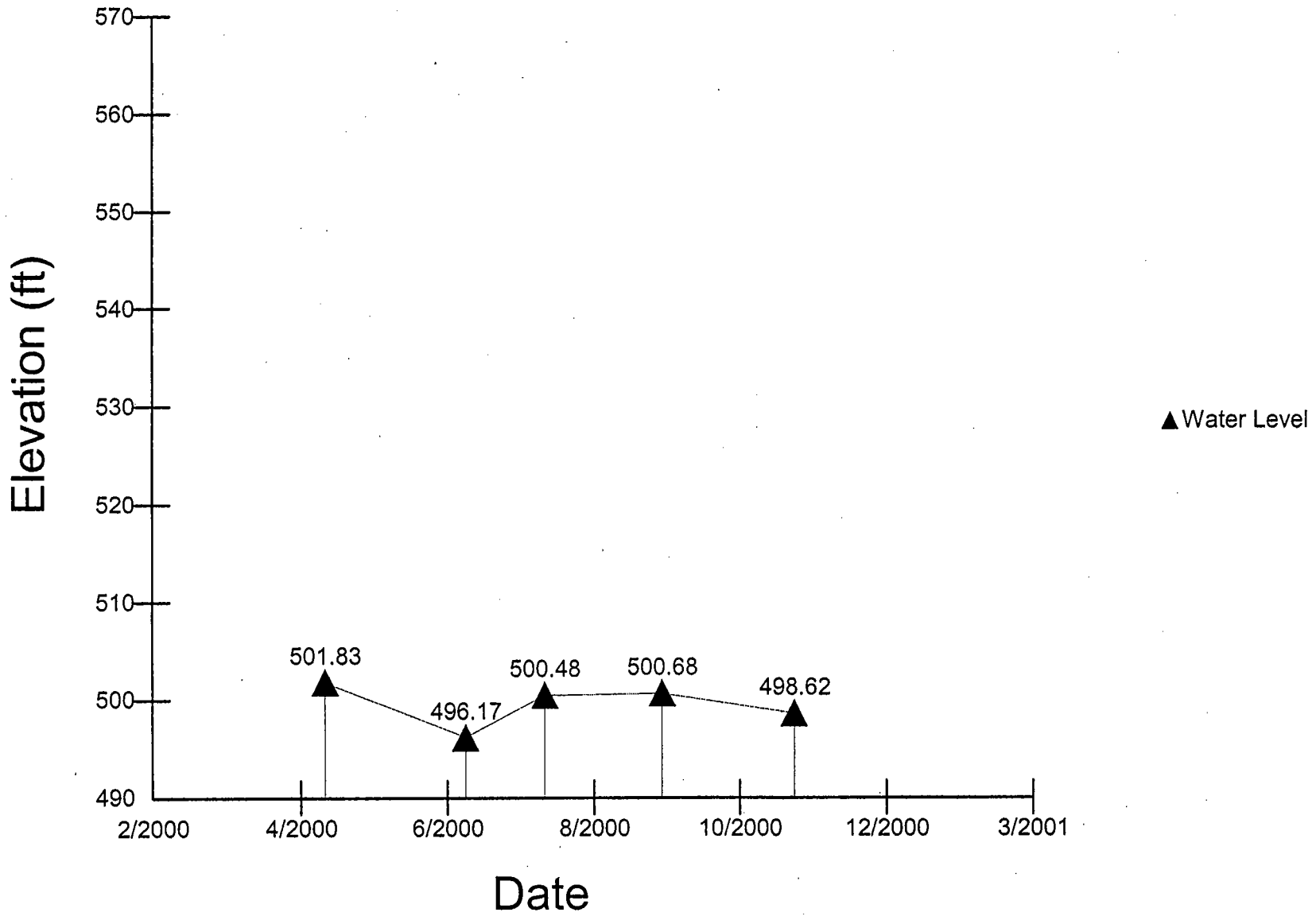
550
540
530
520
510
500
490
498.12
498.12
497.17
496.47
496.01
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

MW-110R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540
530
520
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500
490
Elevation (ft)
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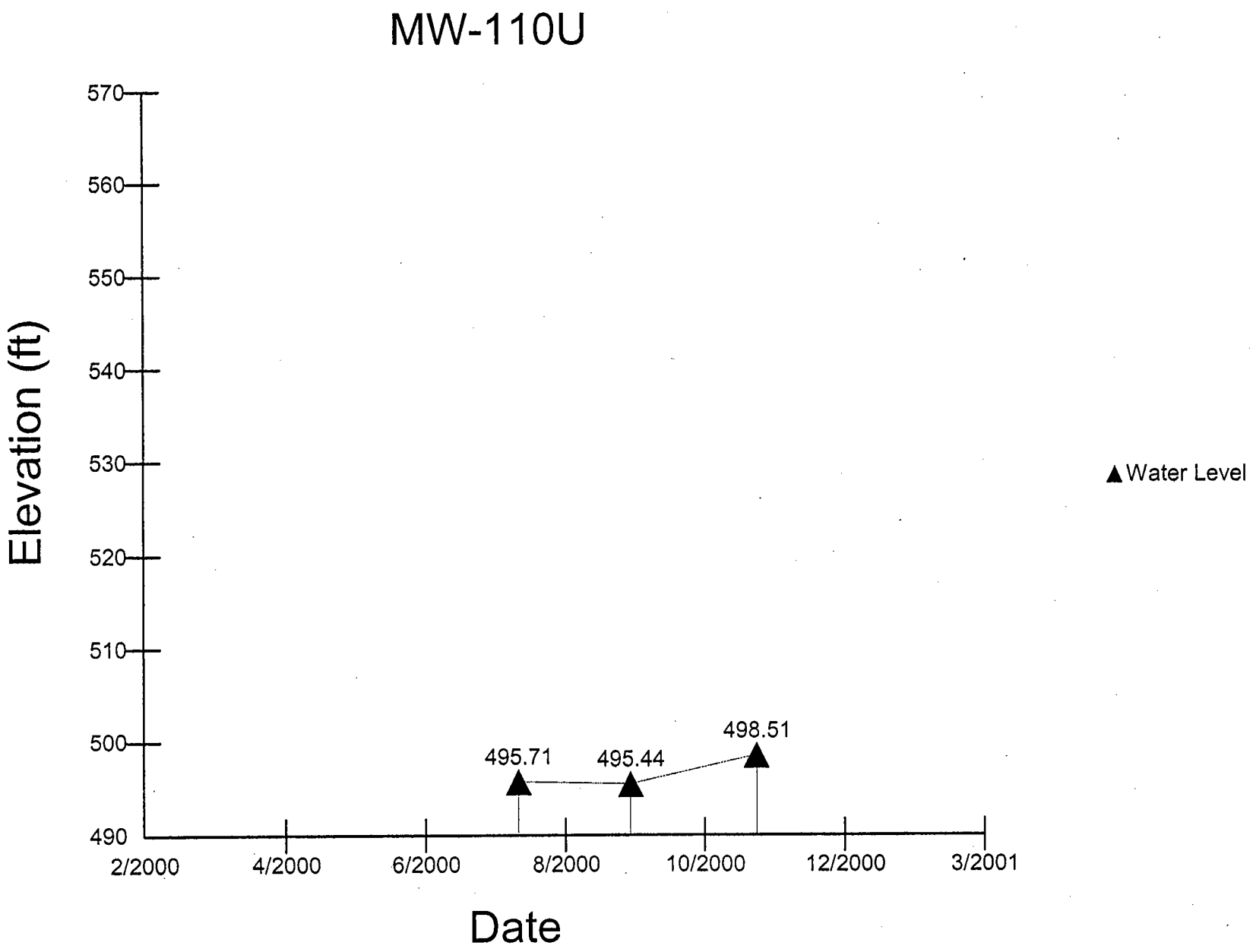
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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Elevation (ft)
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540
530
520
510
500
490
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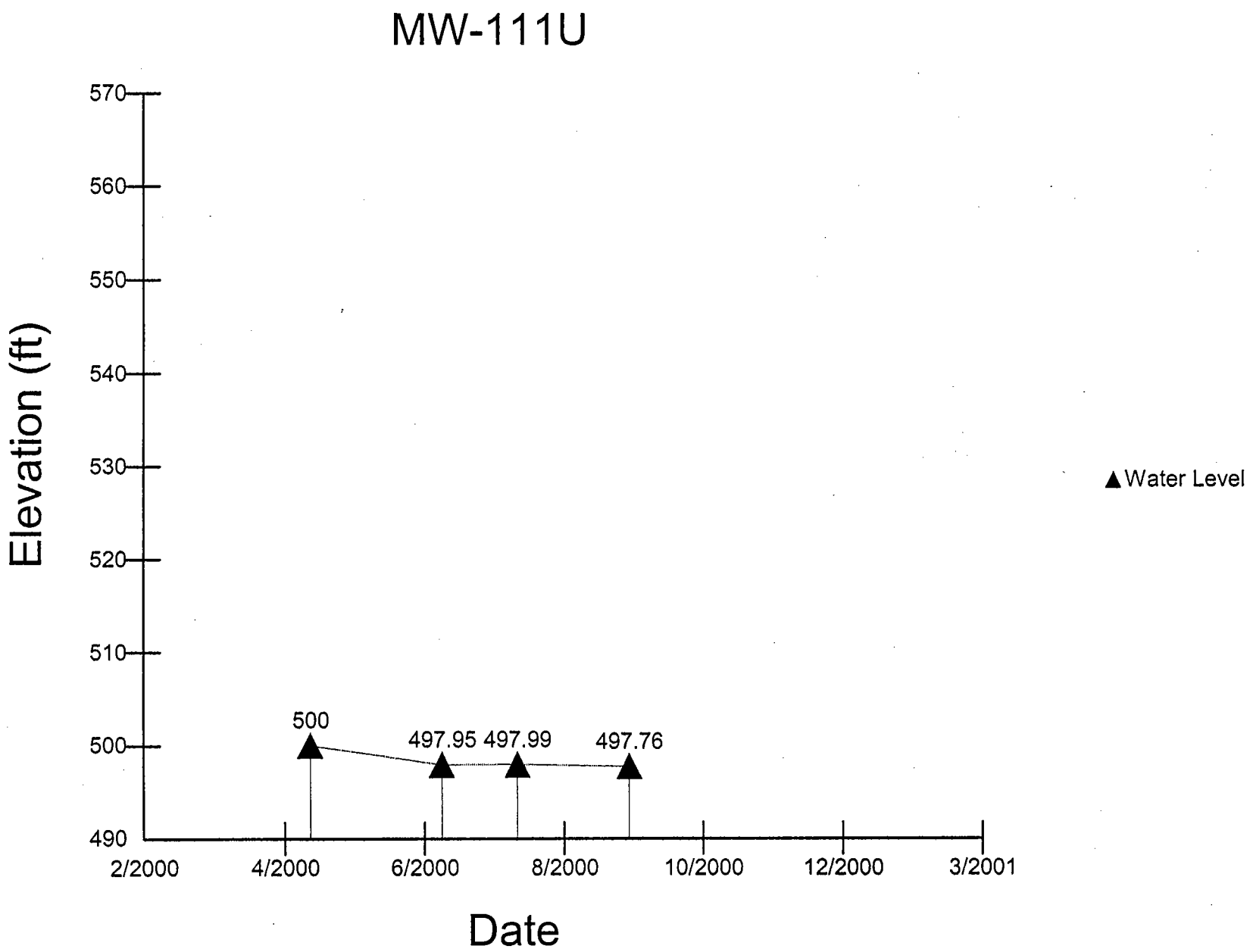
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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Elevation (ft)
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540
530
520
510
500
490
500
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497.76
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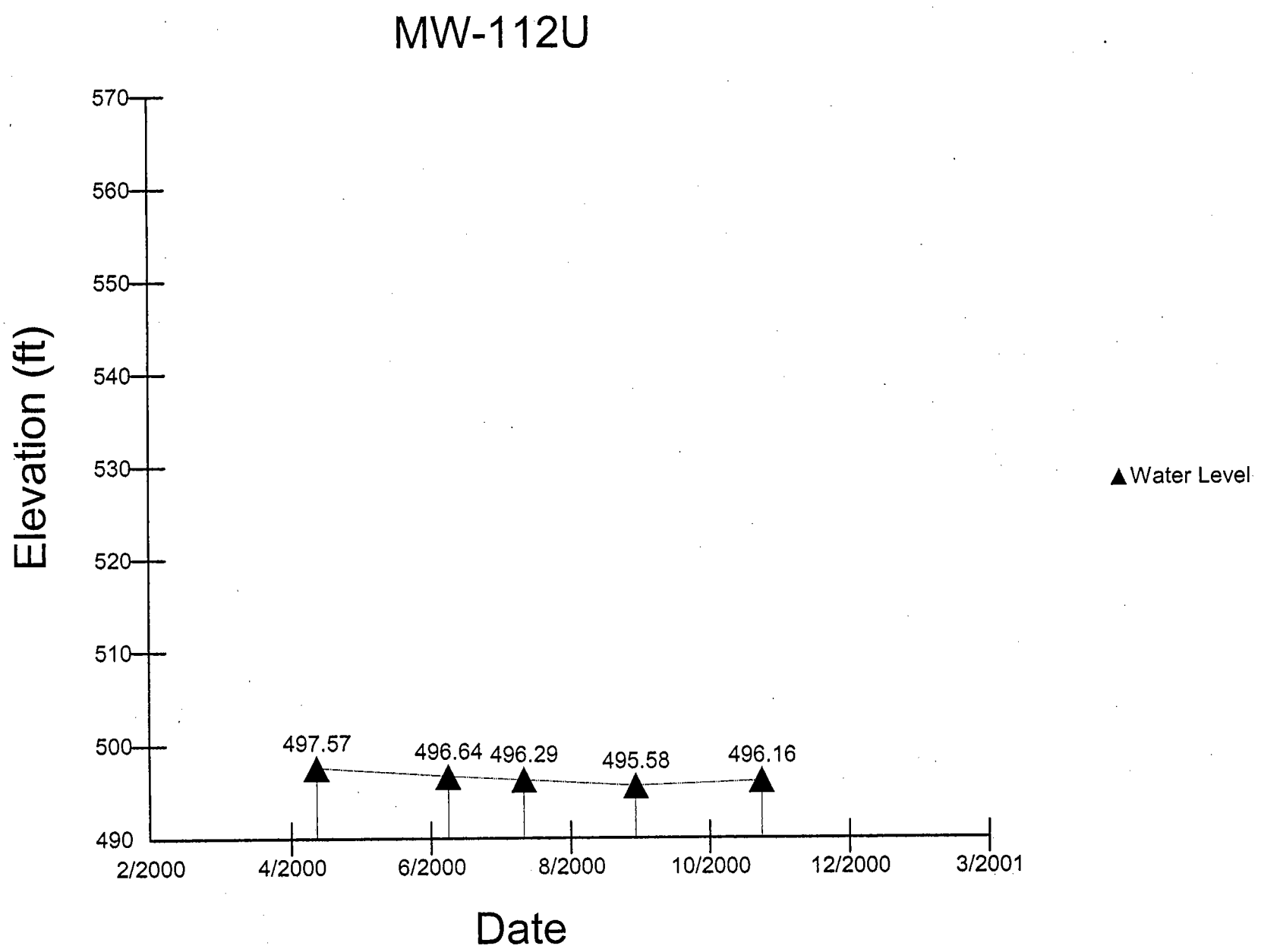
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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Elevation (ft)
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540
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520
510
500
490
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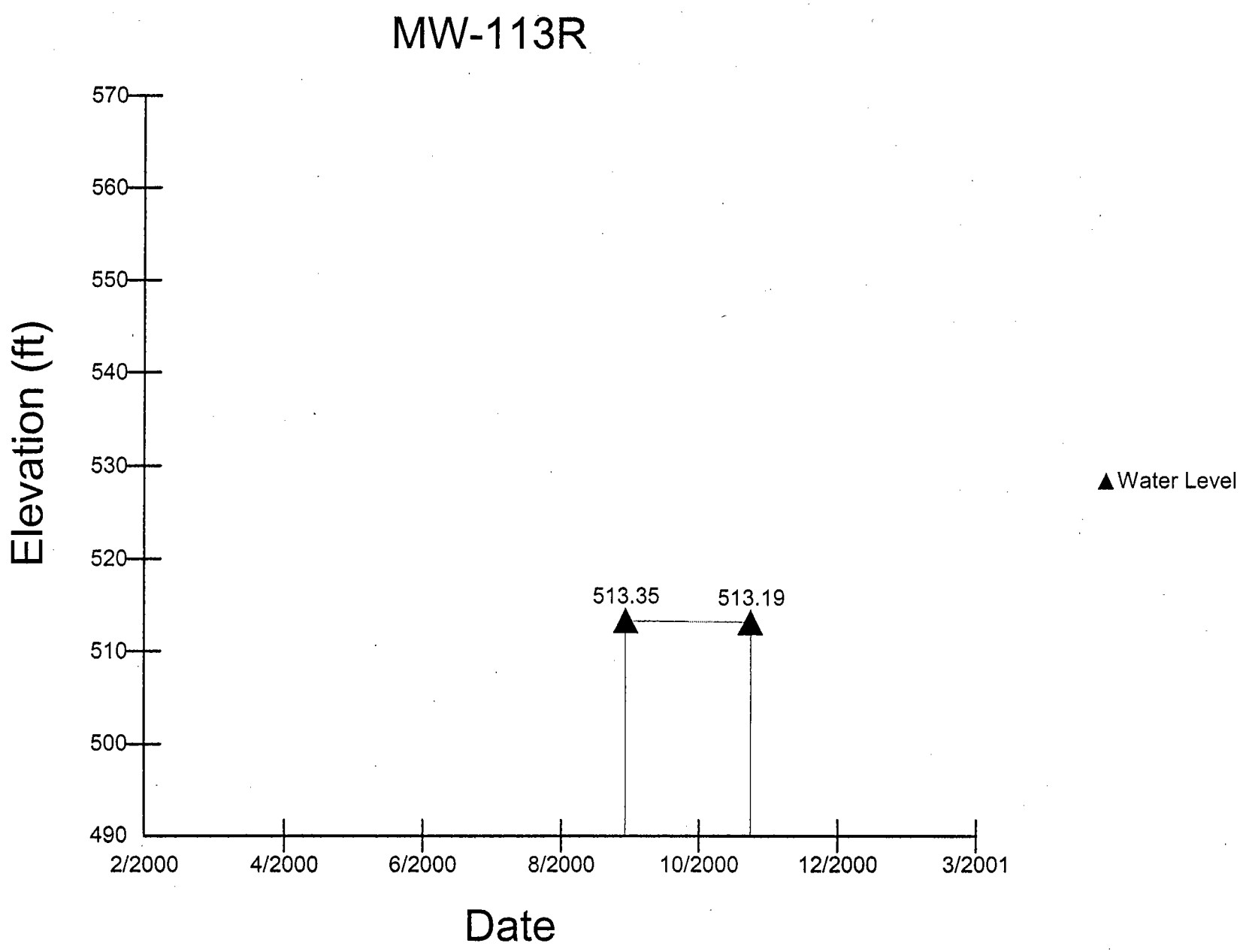
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level


MW-113R
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560
550
540
530
520
510
500
490
Elevation (ft)
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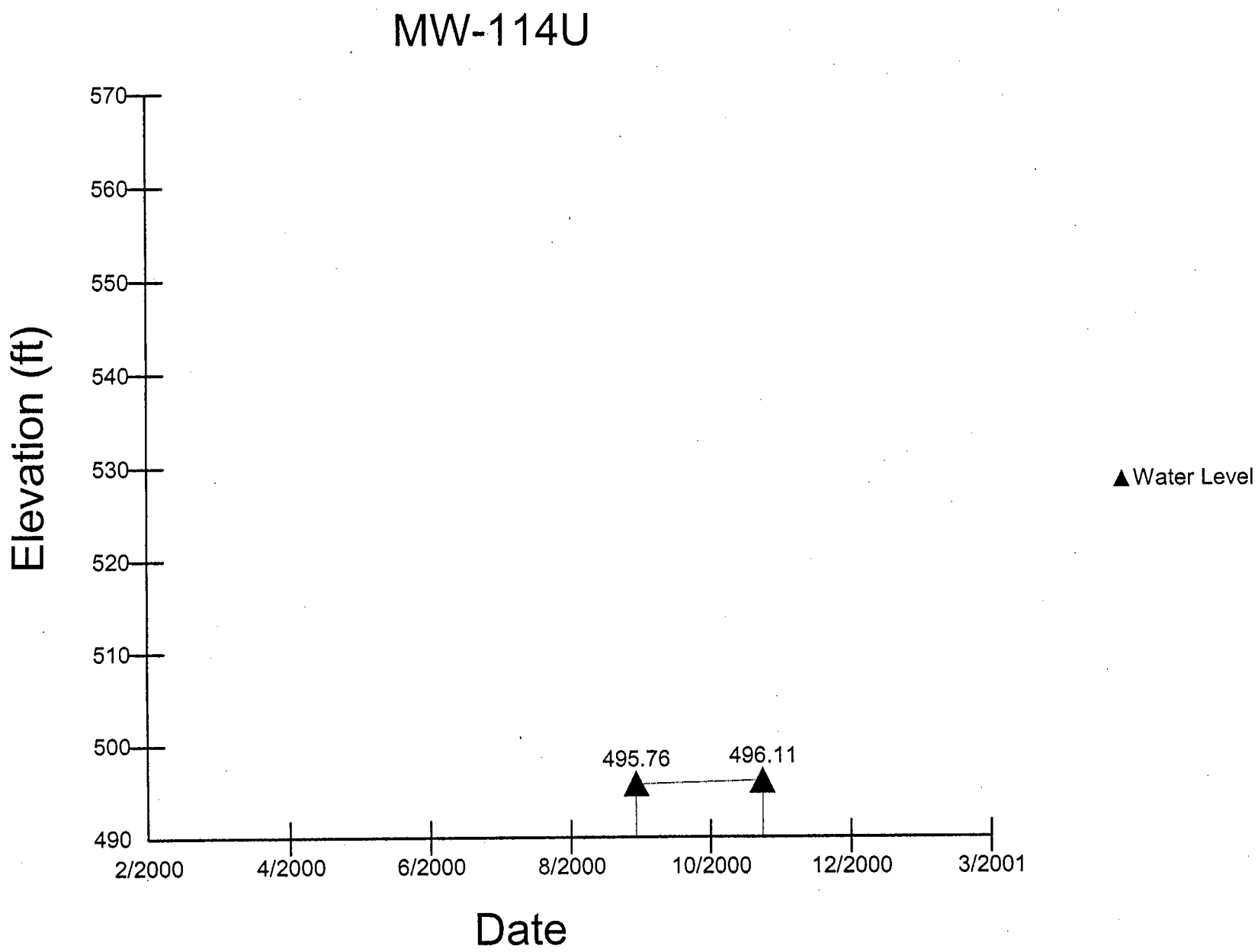
513.19
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level


MW-114U
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550
540
530
520
510
500
490
Elevation (ft)
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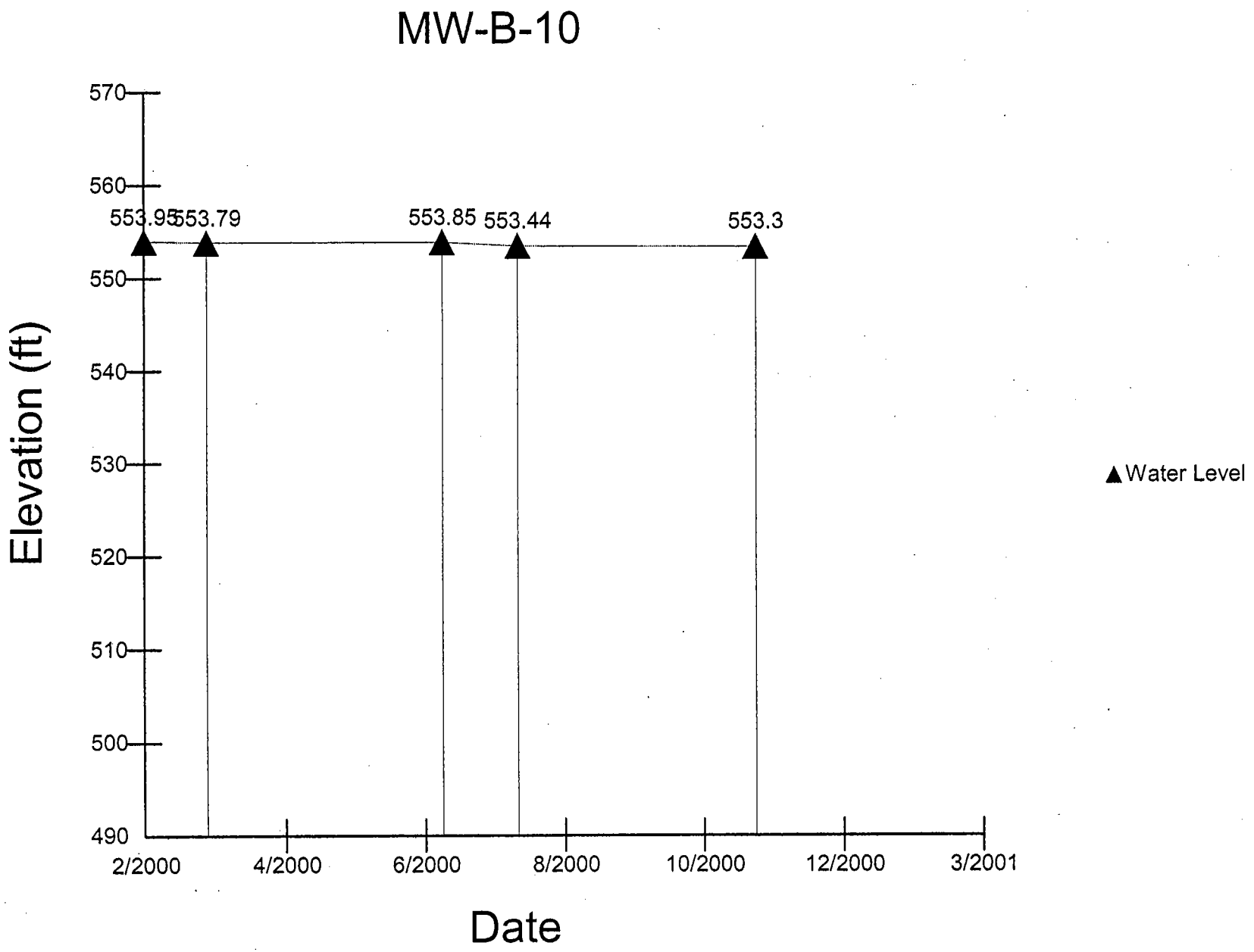
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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550
540
530
520
510
500
490
Elevation (ft)
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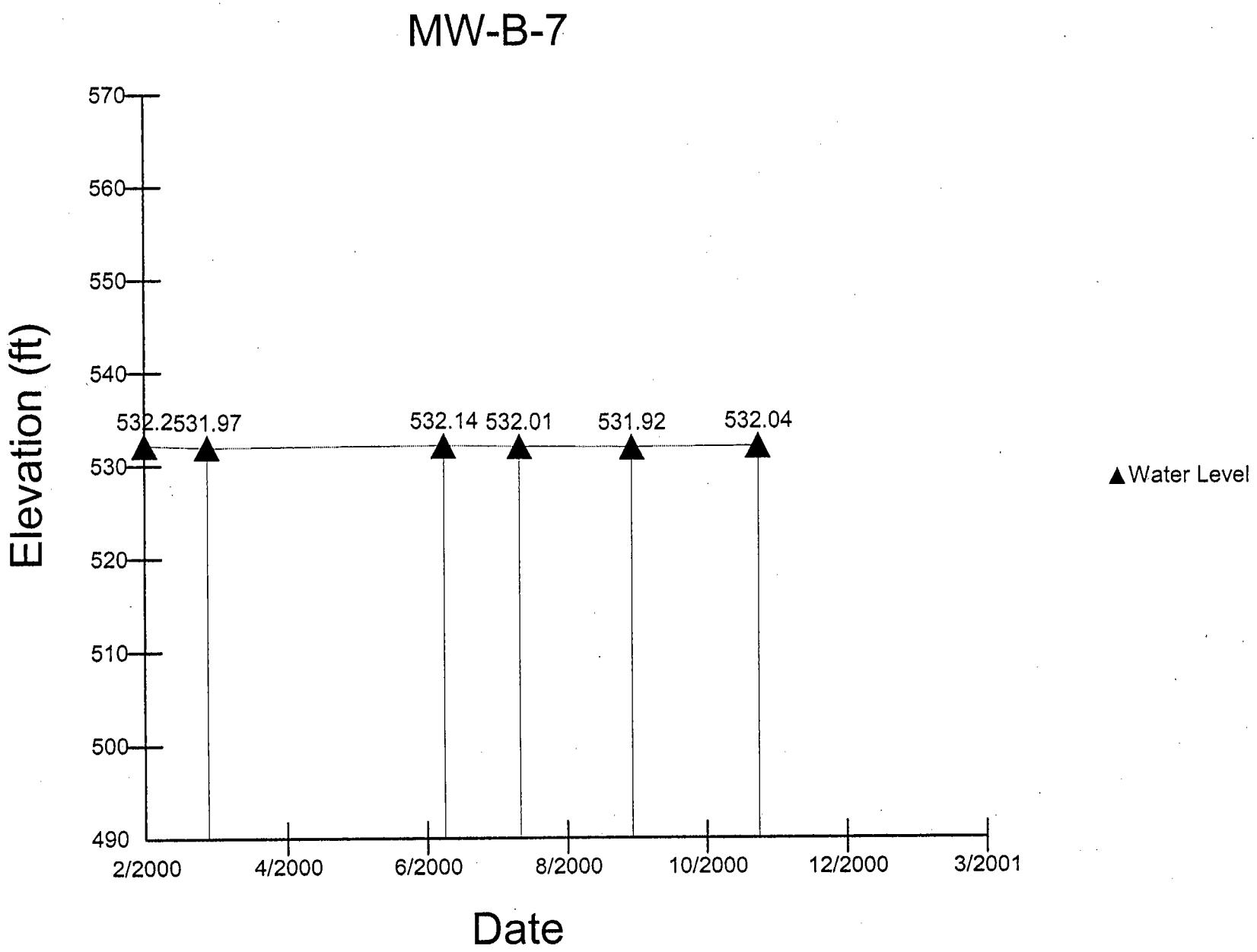
553.79
553.85
553.44
553.3
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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Elevation (ft)
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540
530
520
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500
490
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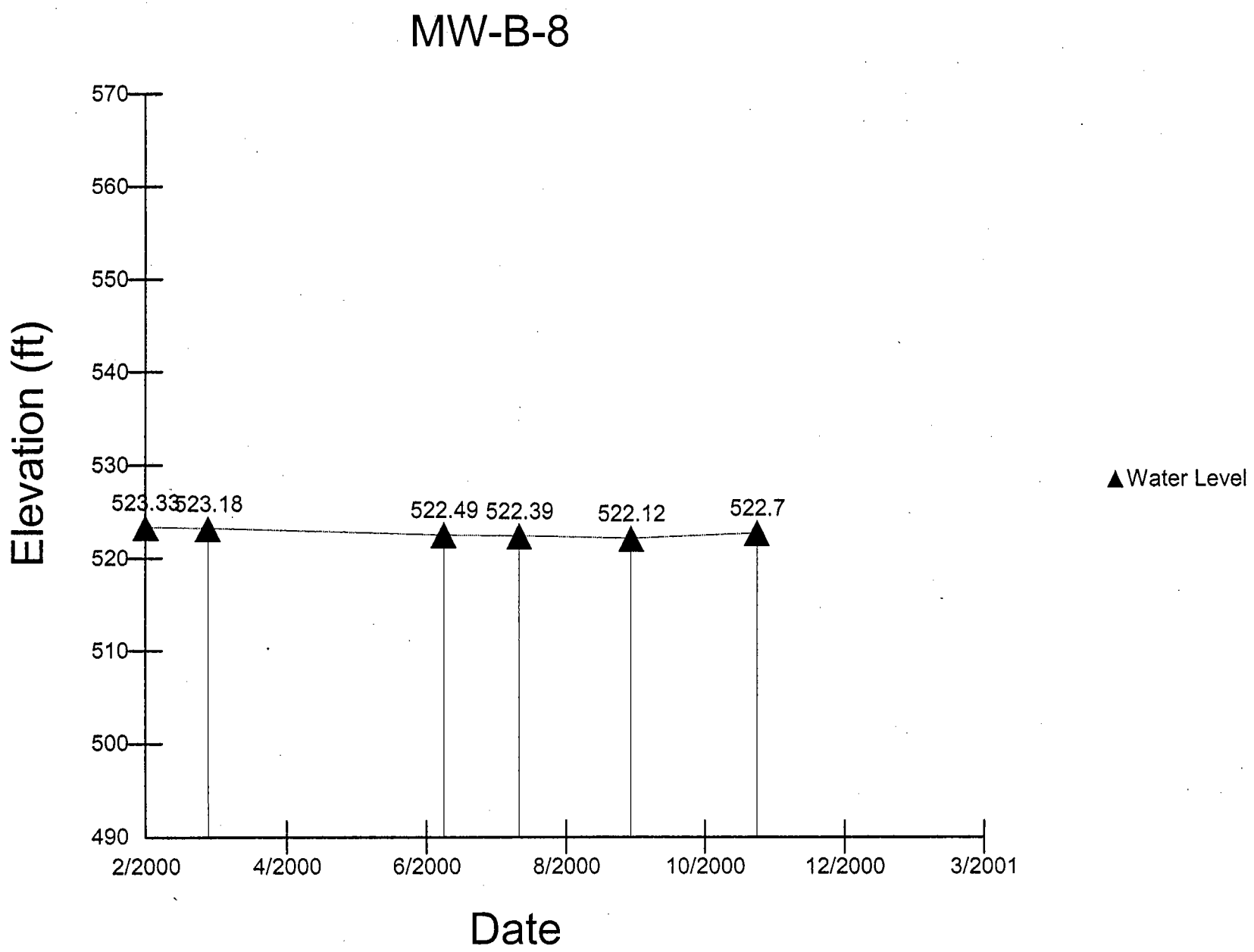
531.97
532.14
532.01
531.92
532.04
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level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Elevation (ft)
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550
540
530
520
510
500
490
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523.18
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522.39
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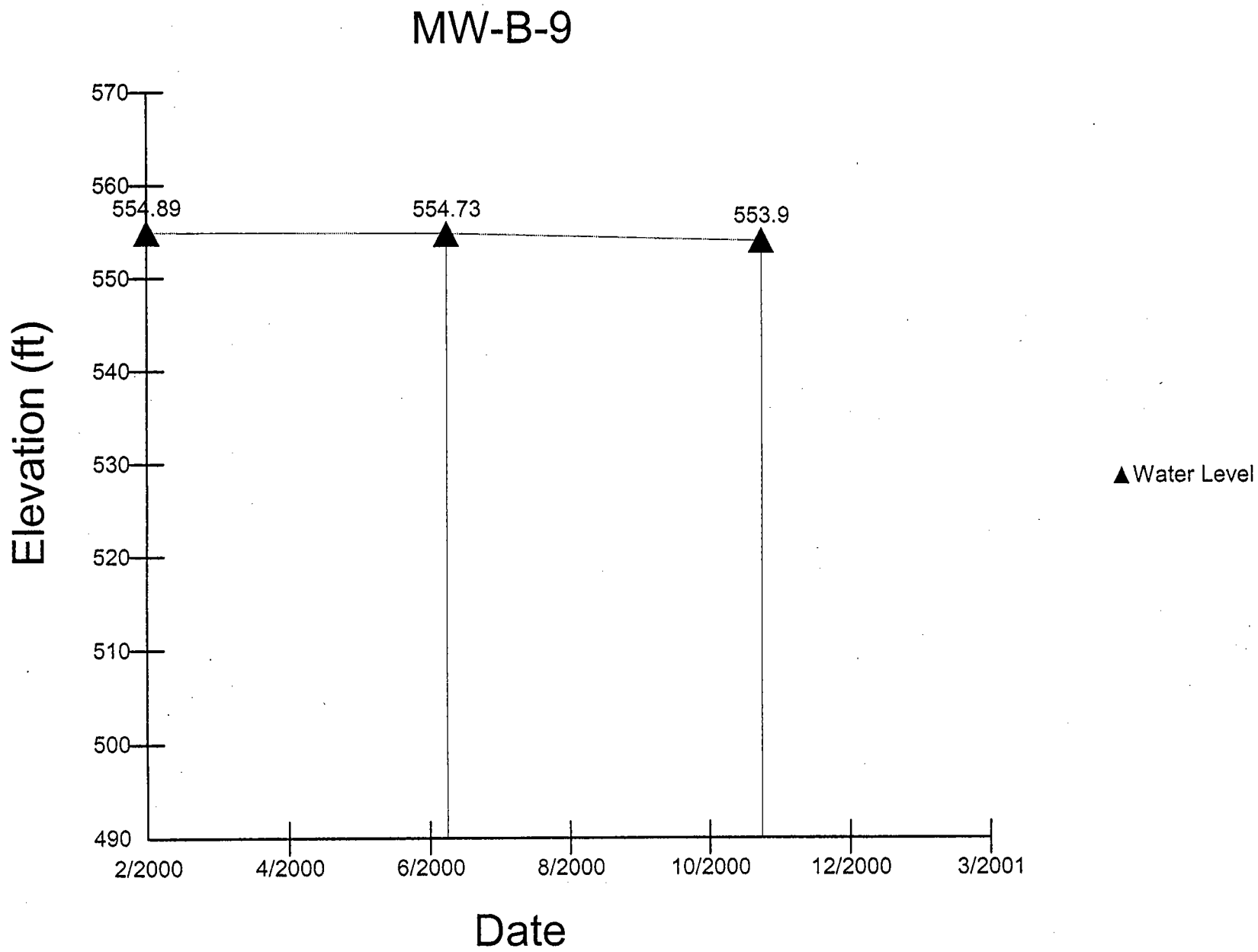
522.7
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level


MW-B-9
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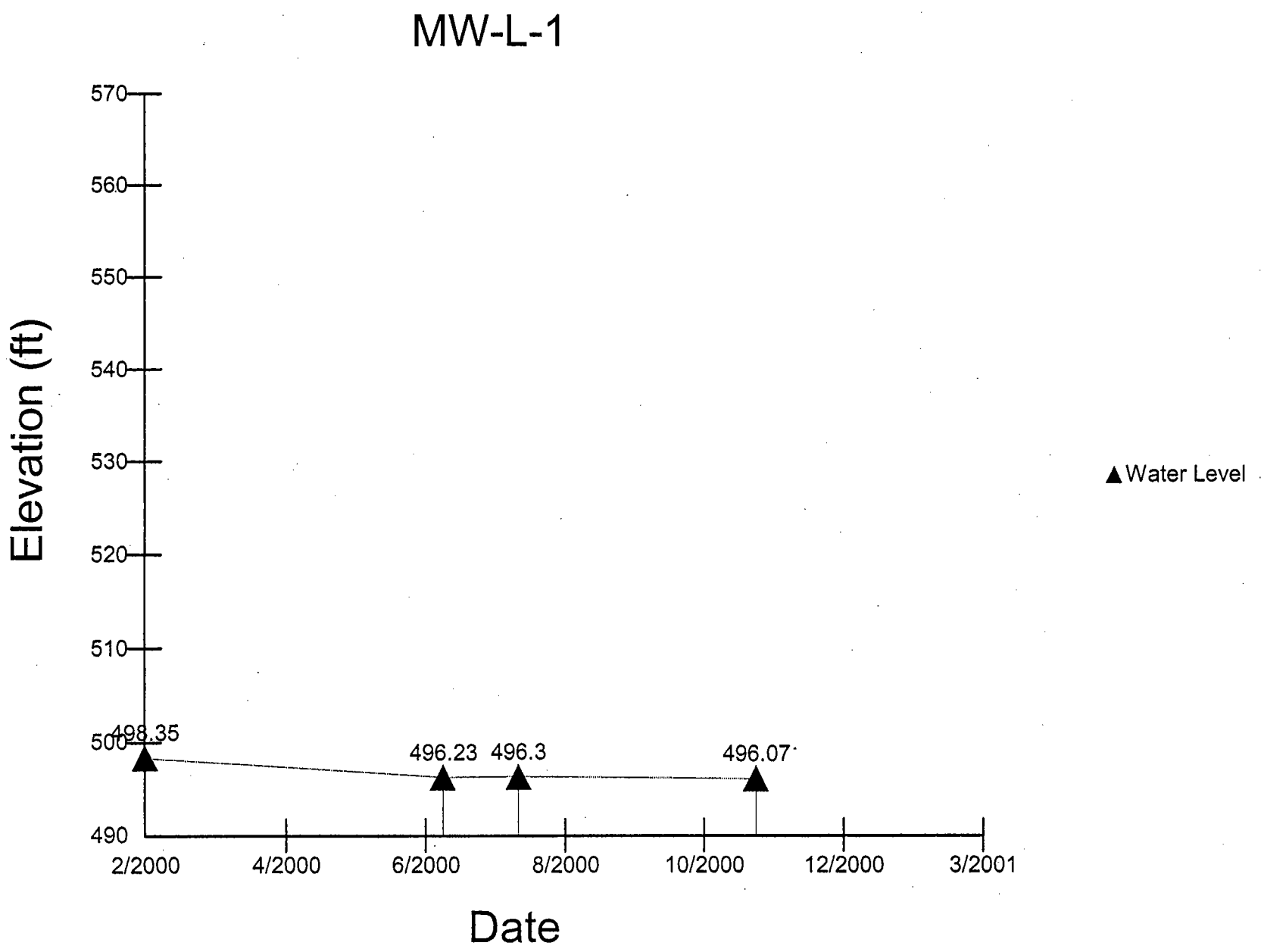
550
540
530
520
510
500
490
554.89
554.73
553.9
Elevation (ft)
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level


MW-L-1
Elevation (ft)
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550
540
530
520
510
500
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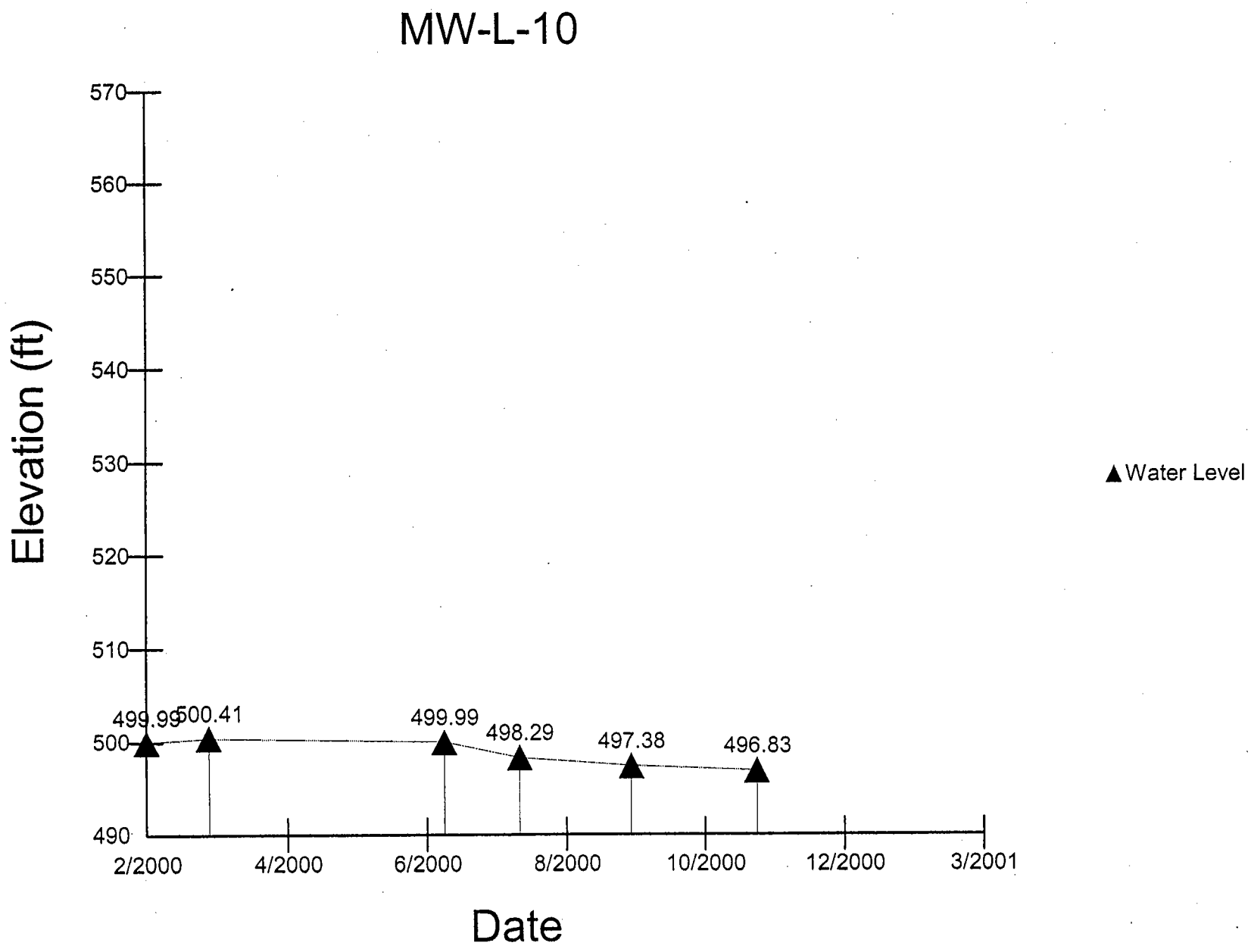
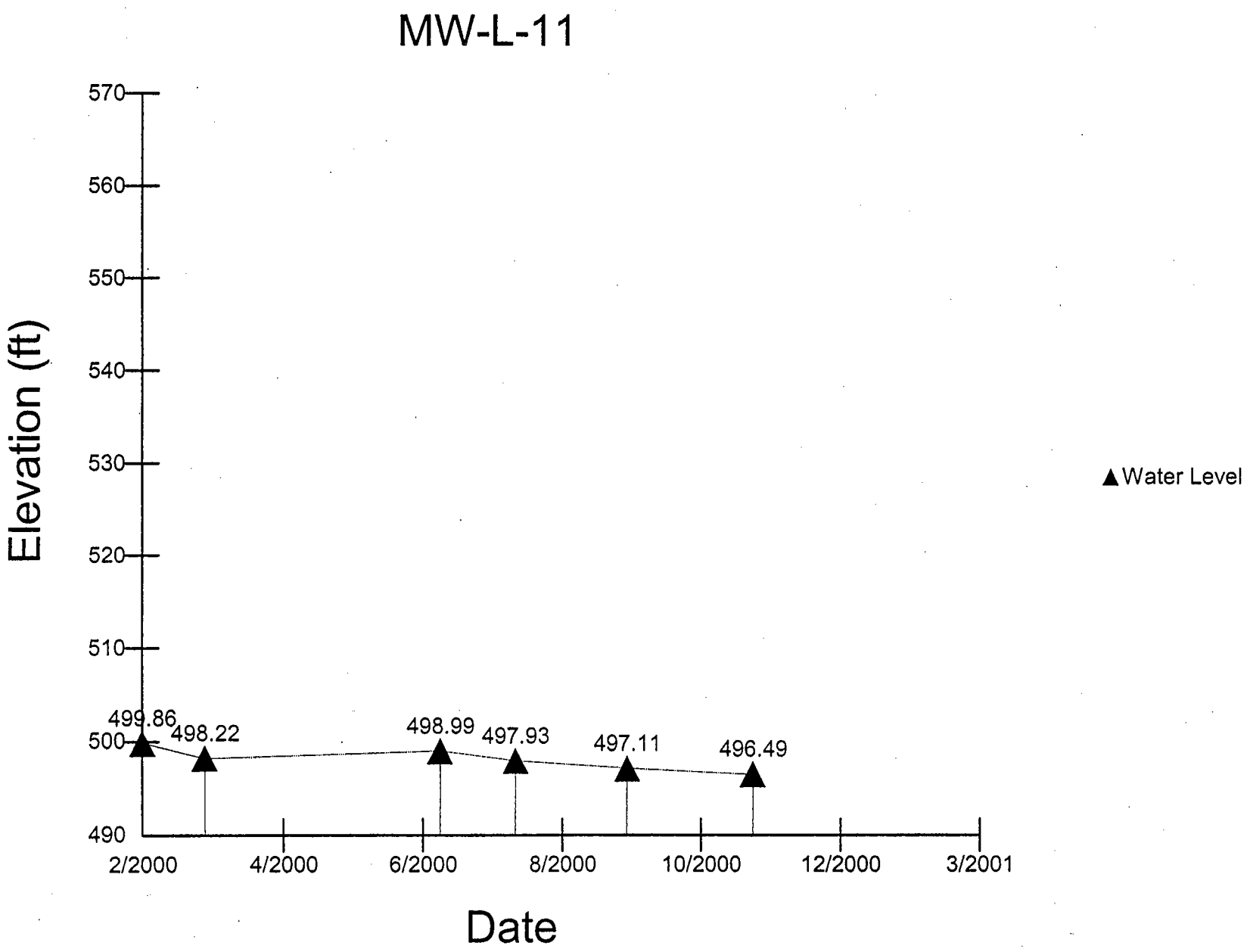
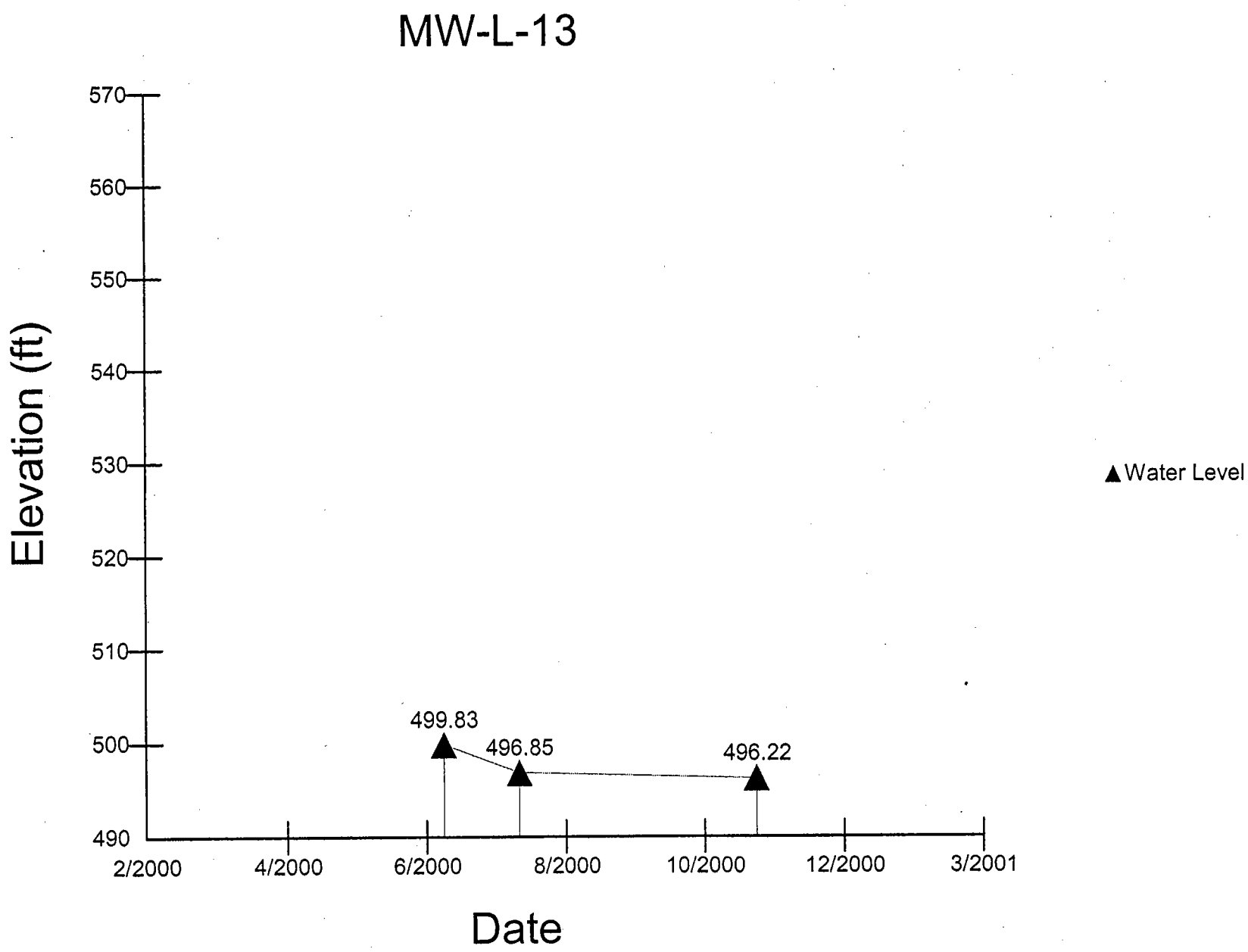
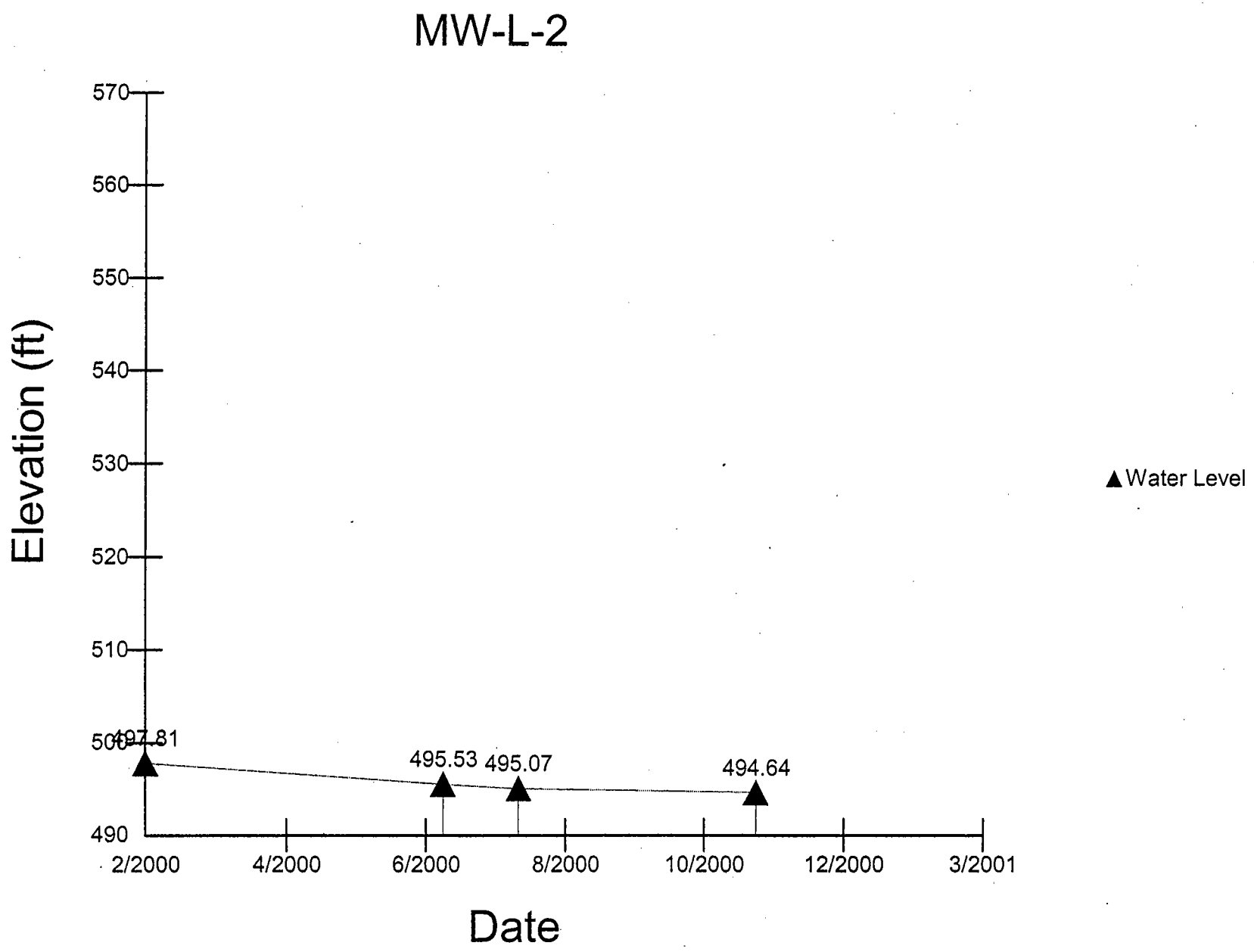
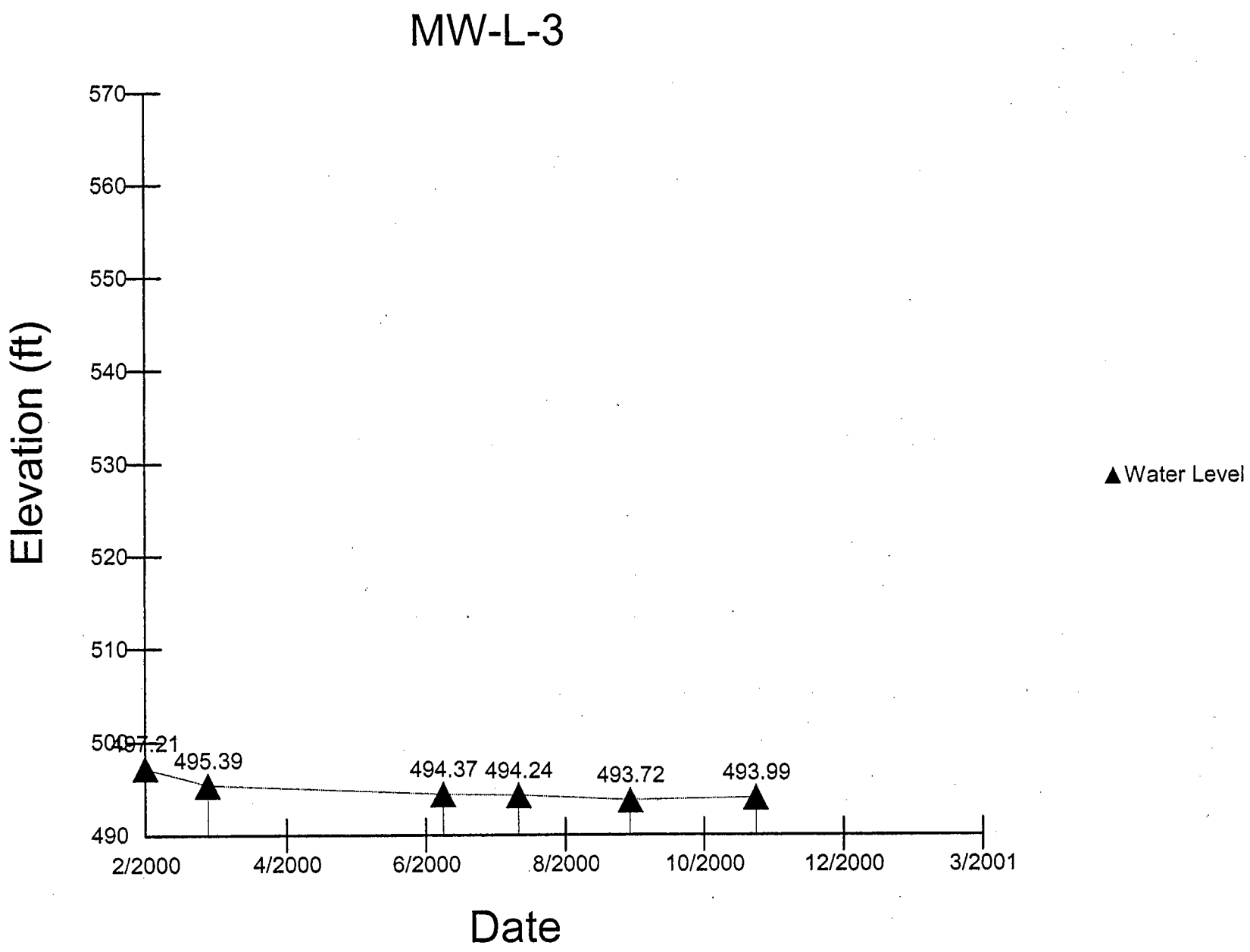
498.35
496.23
496.3
496.07
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

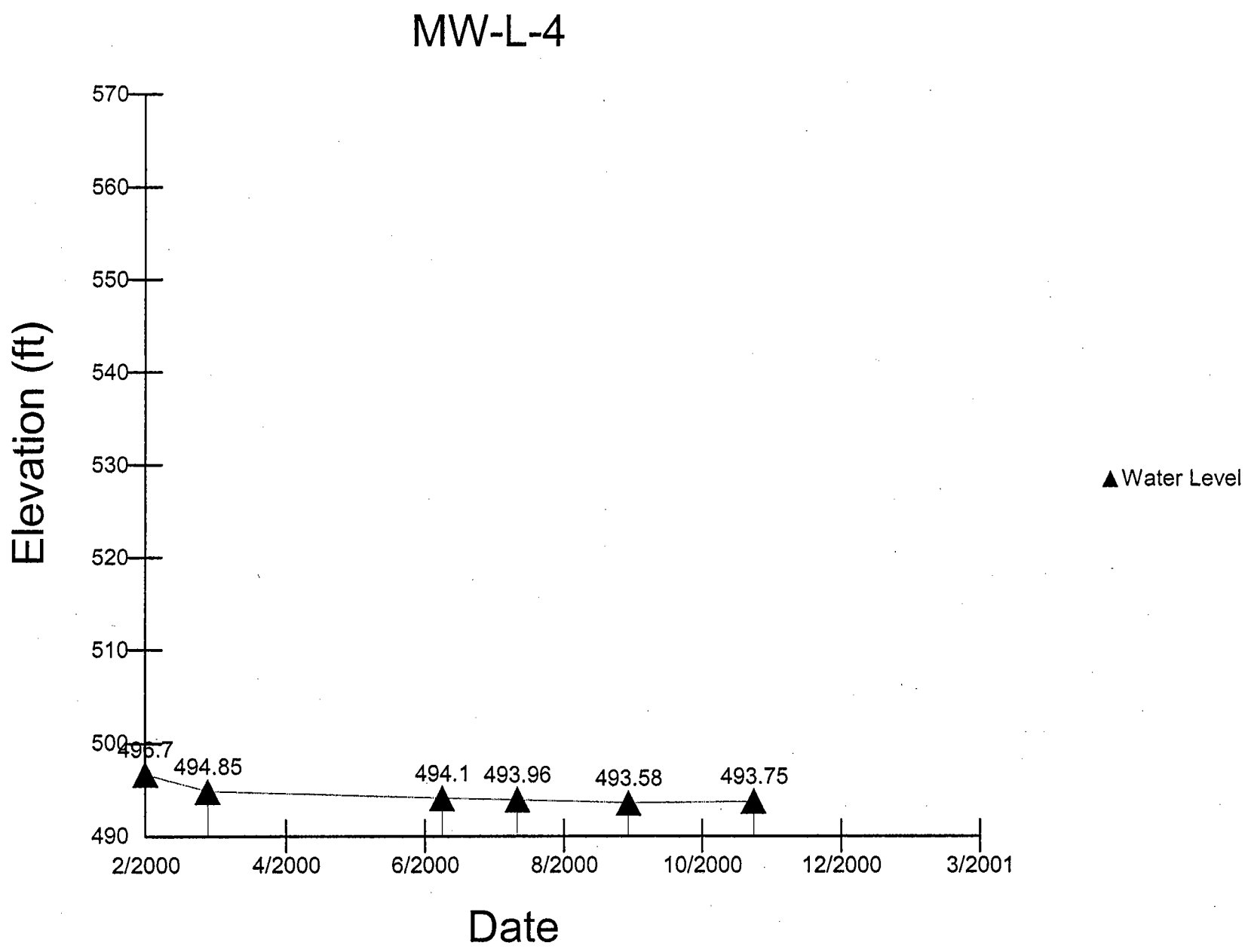

MW-L-10
Elevation (ft)
570
560
550
540
530
520
510
500
490
499.99
500.41
499.99
498.29
497.38
496.83
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

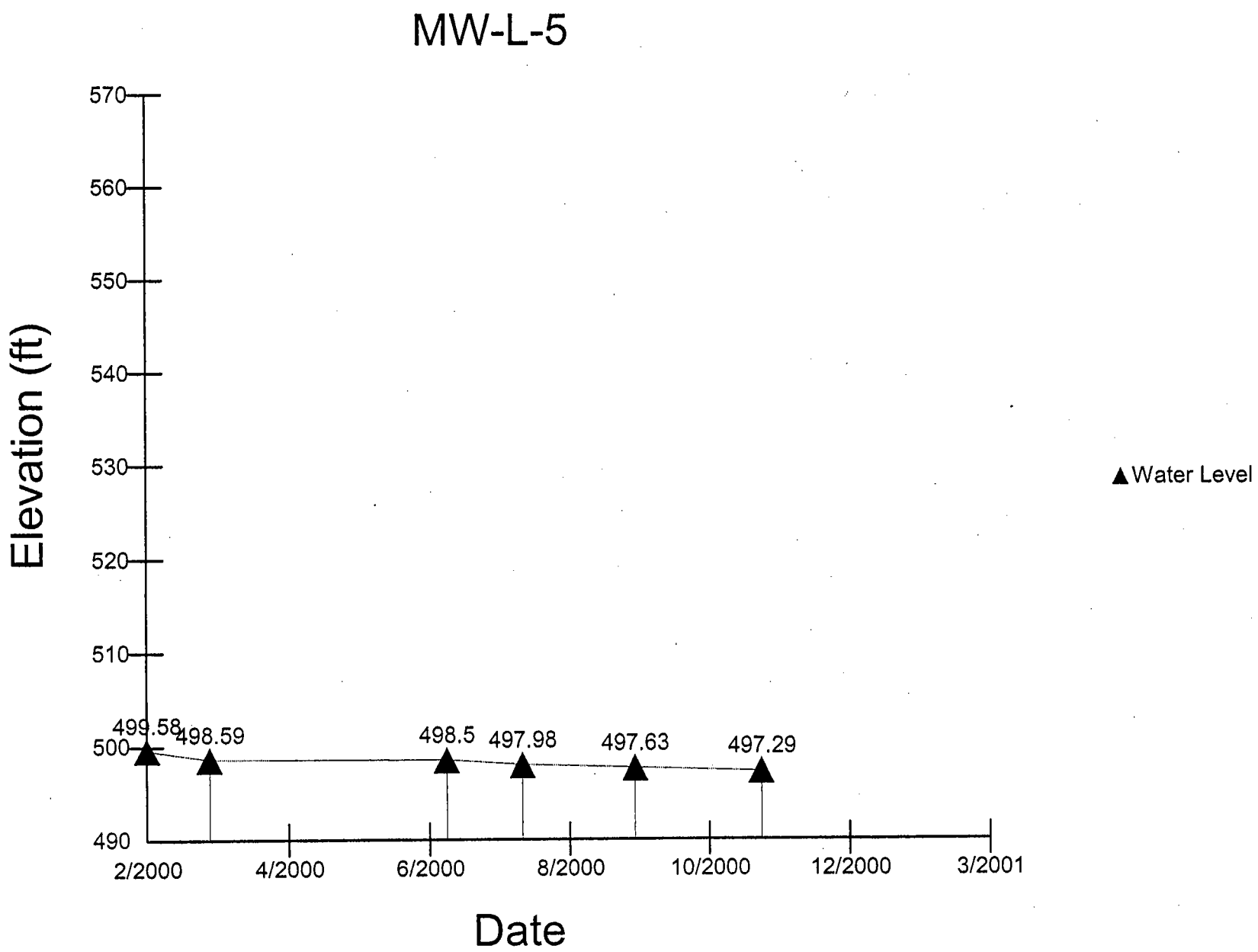

MW-L-11
Elevation (ft)
570
560
550
540
530
520
510
500
490
499.86
498.22
498.99
497.93
497.11
496.49
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

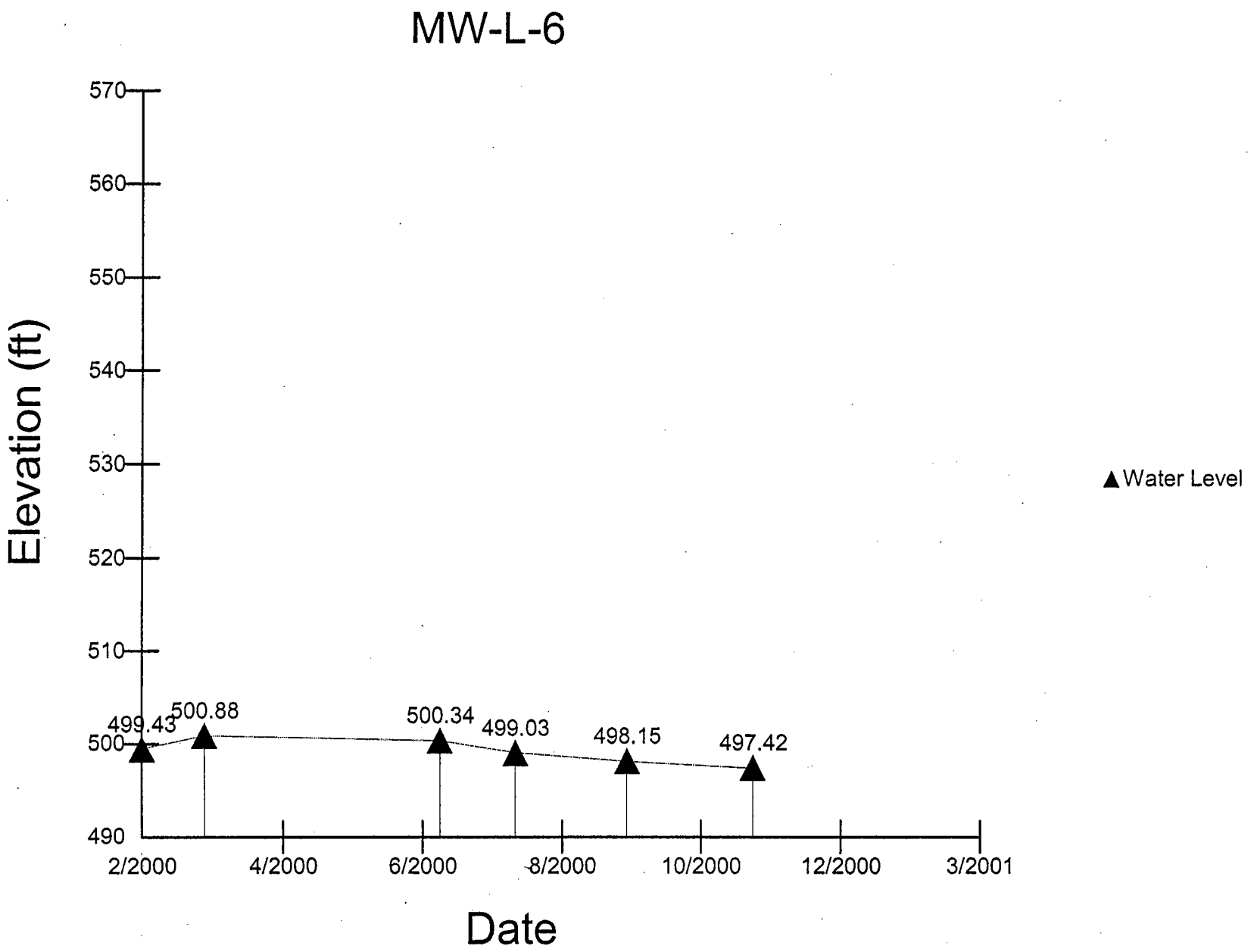

MW-L-13
Elevation (ft)
570
560
550
540
530
520
510
500
490
499.83
496.85
496.22
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

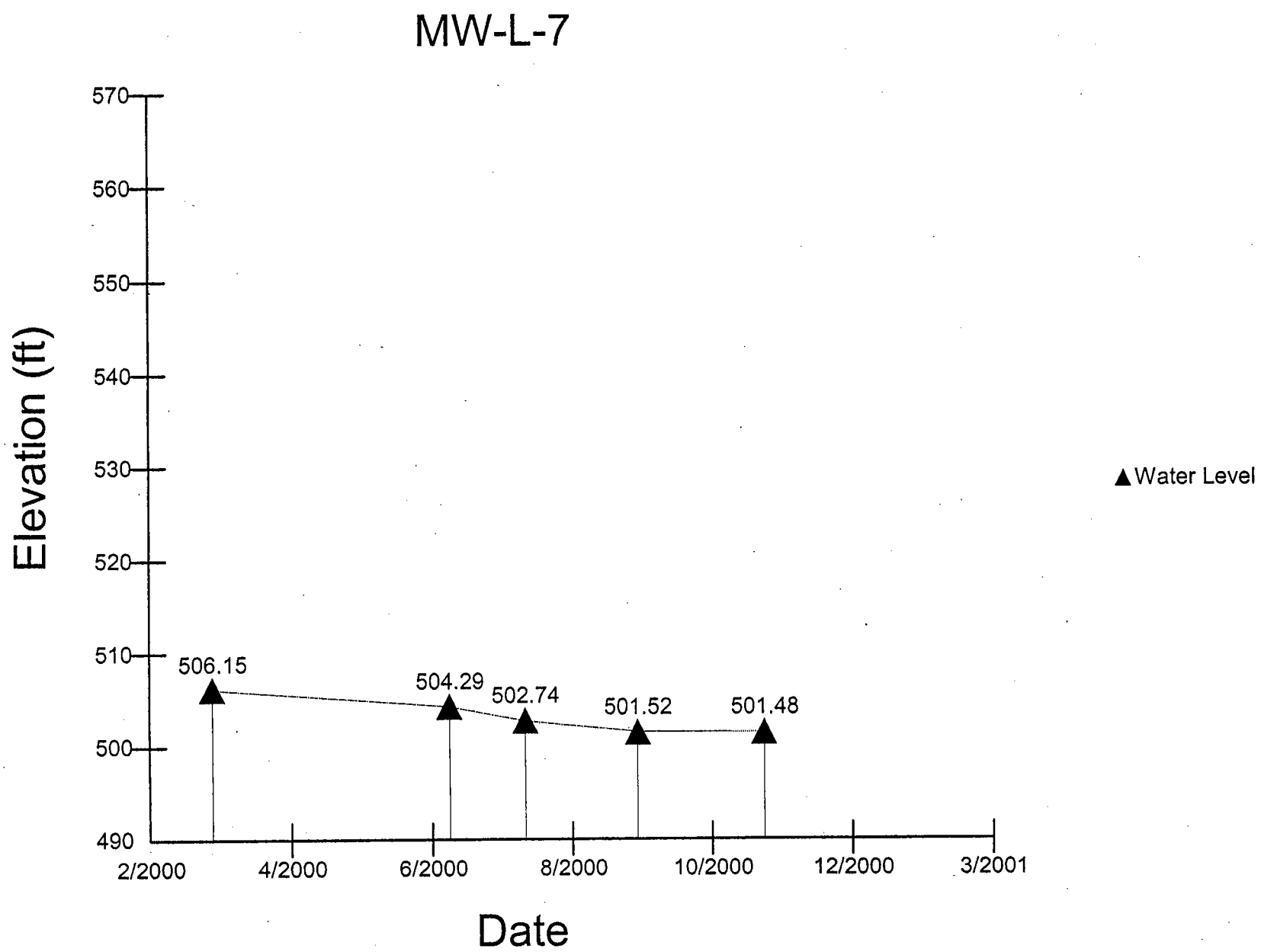

MW-L-2
Elevation (ft)
570
560
550
540
530
520
510
500
490
497.81
495.53
495.07
494.64
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

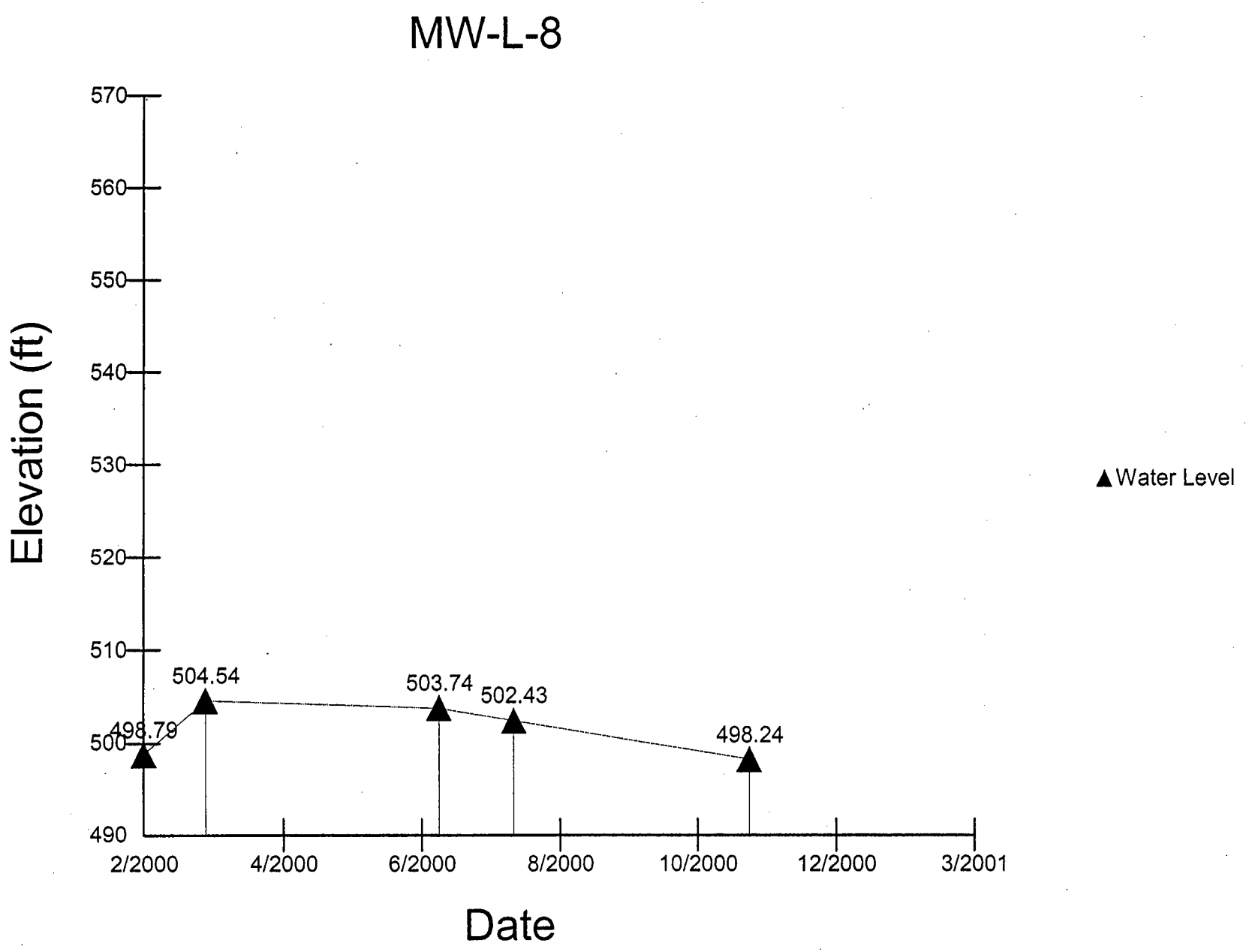

MW-L-3
Elevation (ft)
570
560
550
540
530
520
510
500
490
497.21
495.39
494.37
494.24
493.72
493.99
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

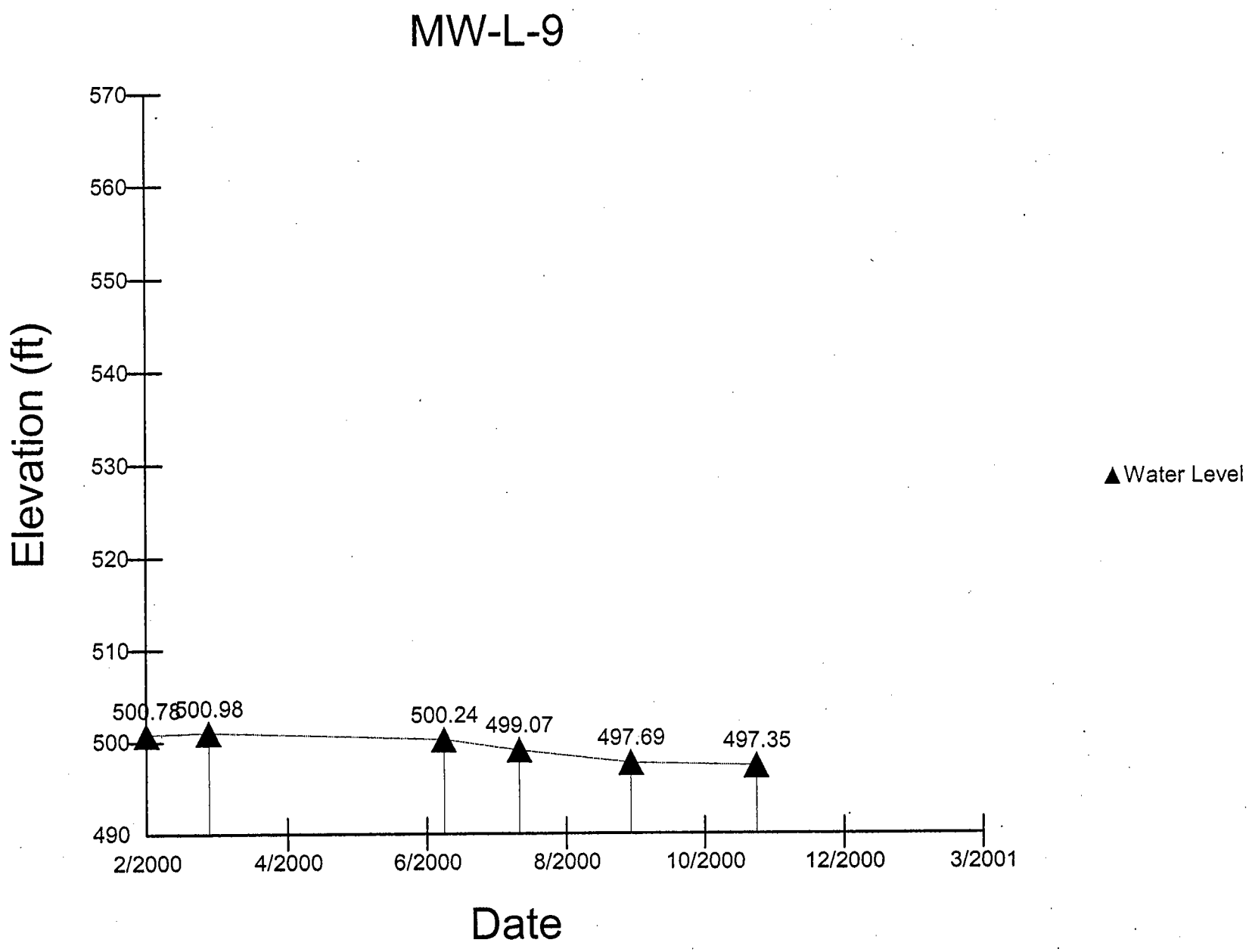

MW-L-4
Elevation (ft)
570
560
550
540
530
520
510
500
490
496.7
494.85
494.1
493.96
493.58
493.75
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

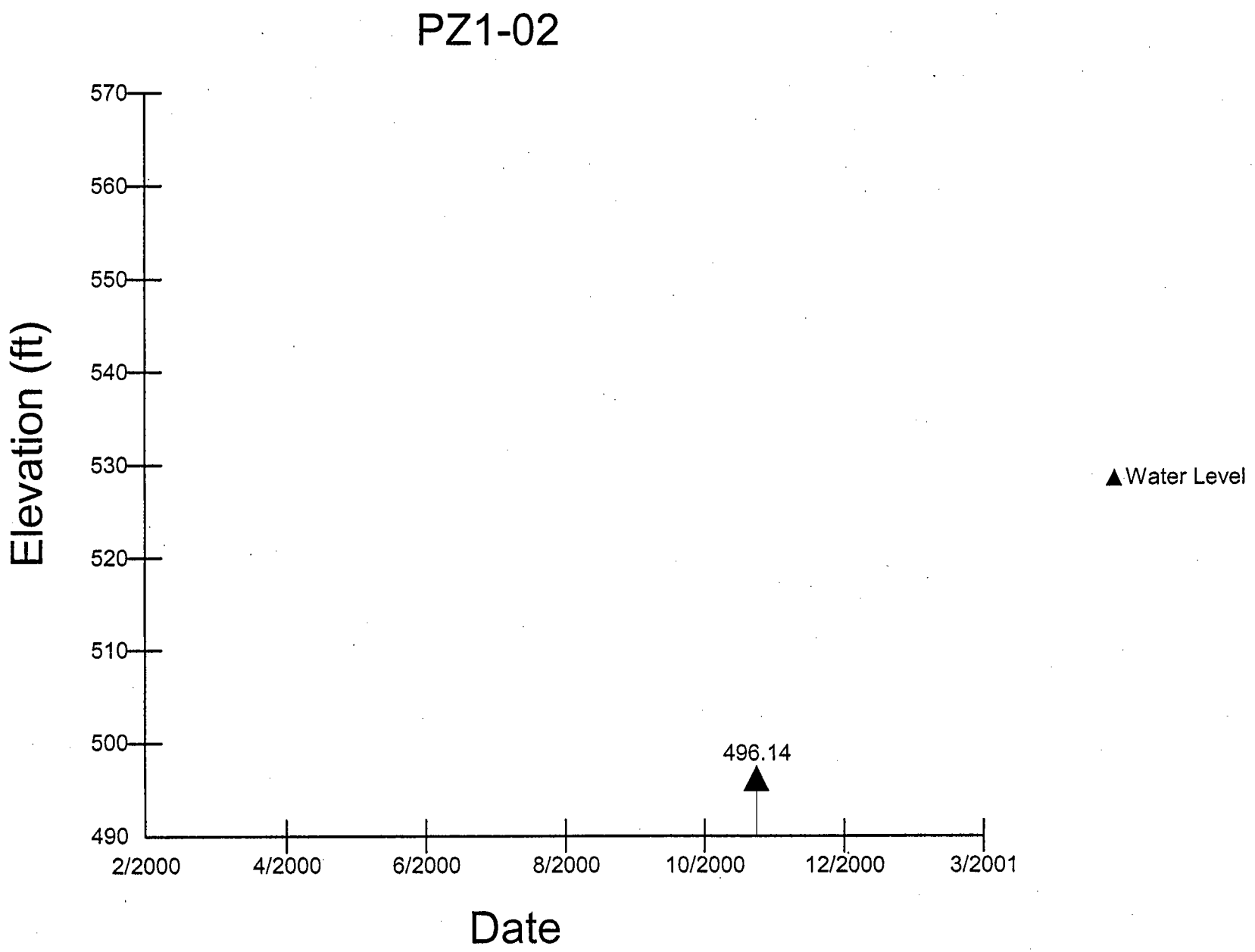

MW-L-5
Elevation (ft)
570
560
550
540
530
520
510
500
490
499.58
498.59
498.5
497.98
497.63
497.29
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

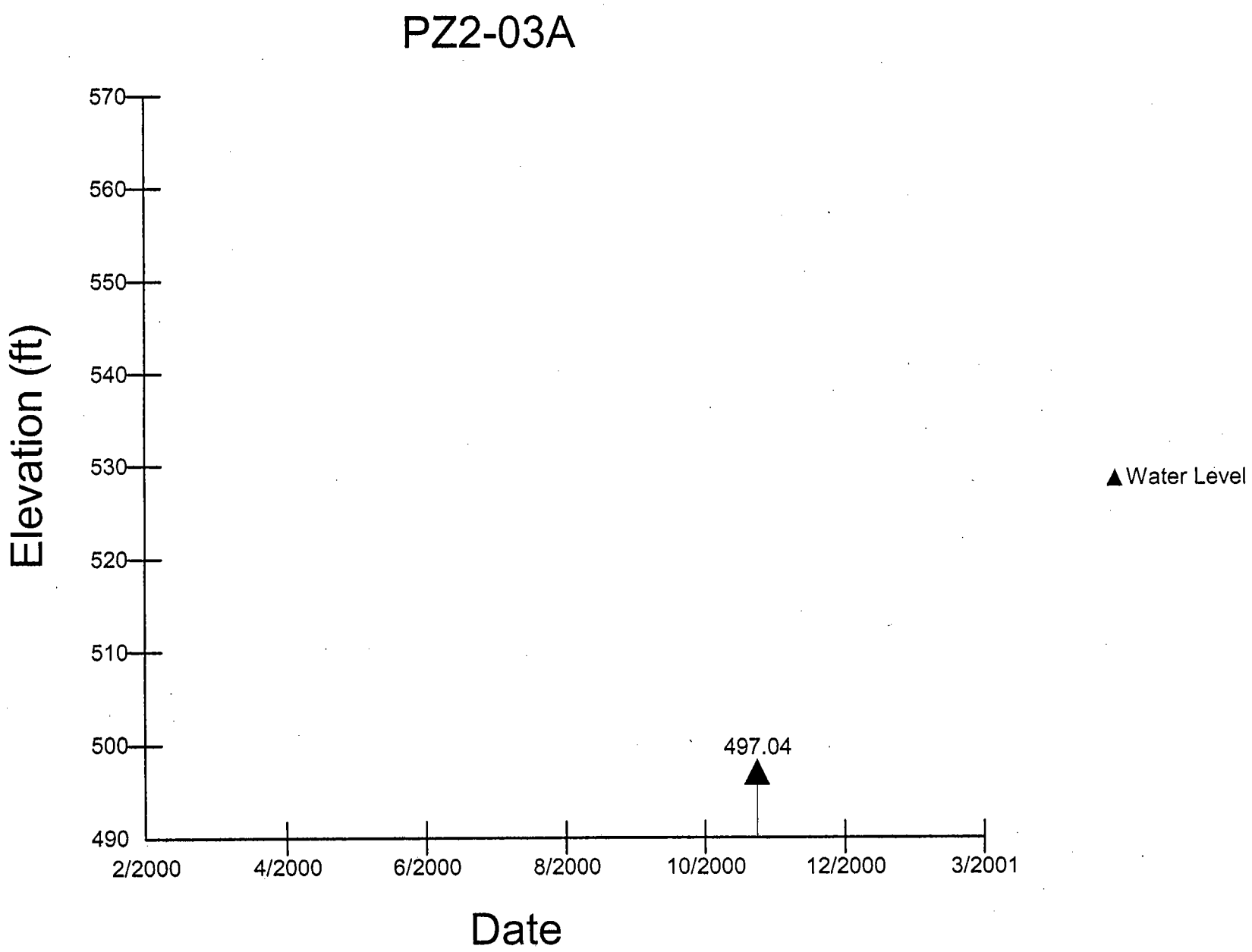

MW-L-6
Elevation (ft)
570
560
550
540
530
520
510
500
490
499.43
500.88
500.34
499.03
498.15
497.42
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

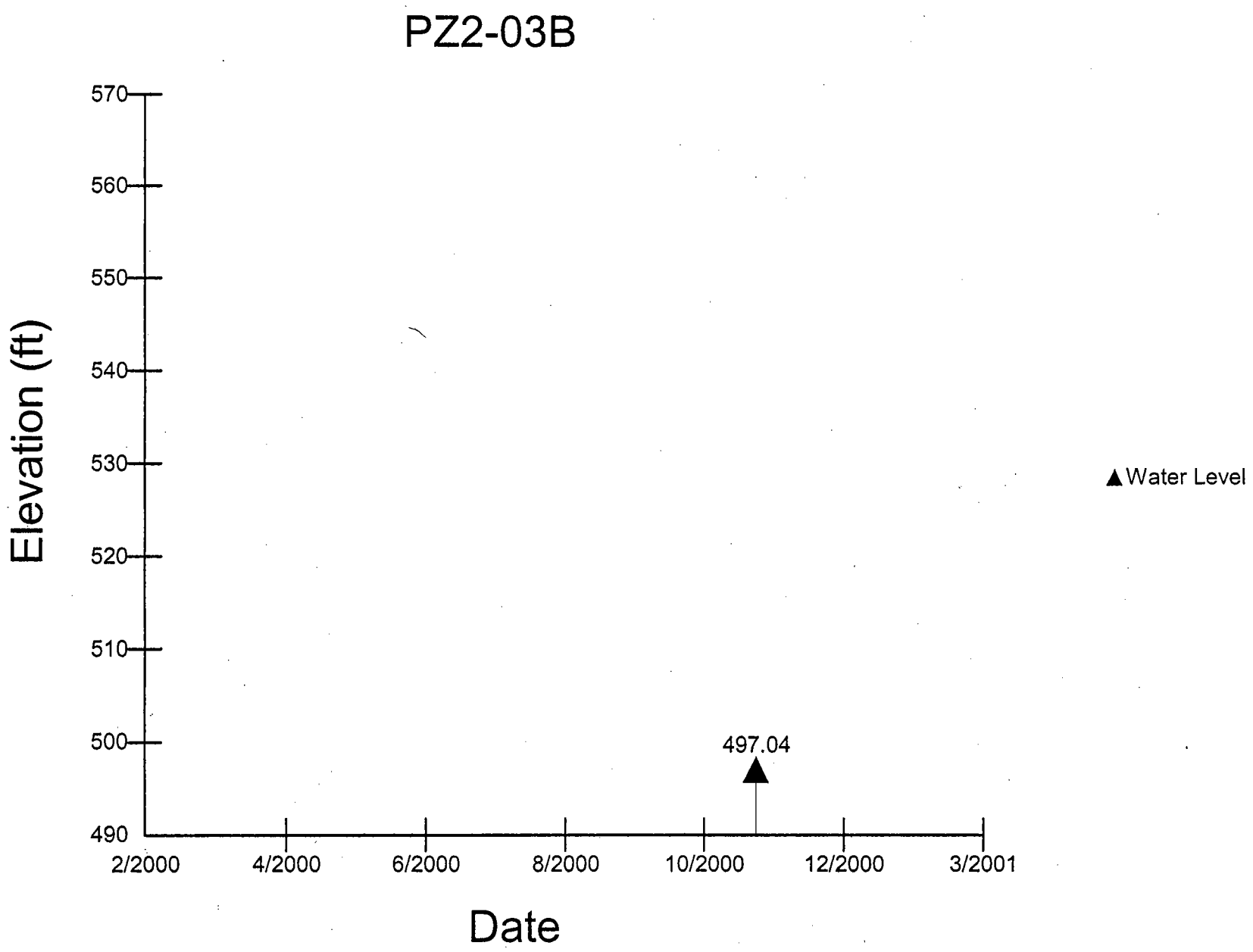

MW-L-7
Elevation (ft)
570
560
550
540
530
520
510
500
490
506.15
504.29
502.74
501.52
501.48
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

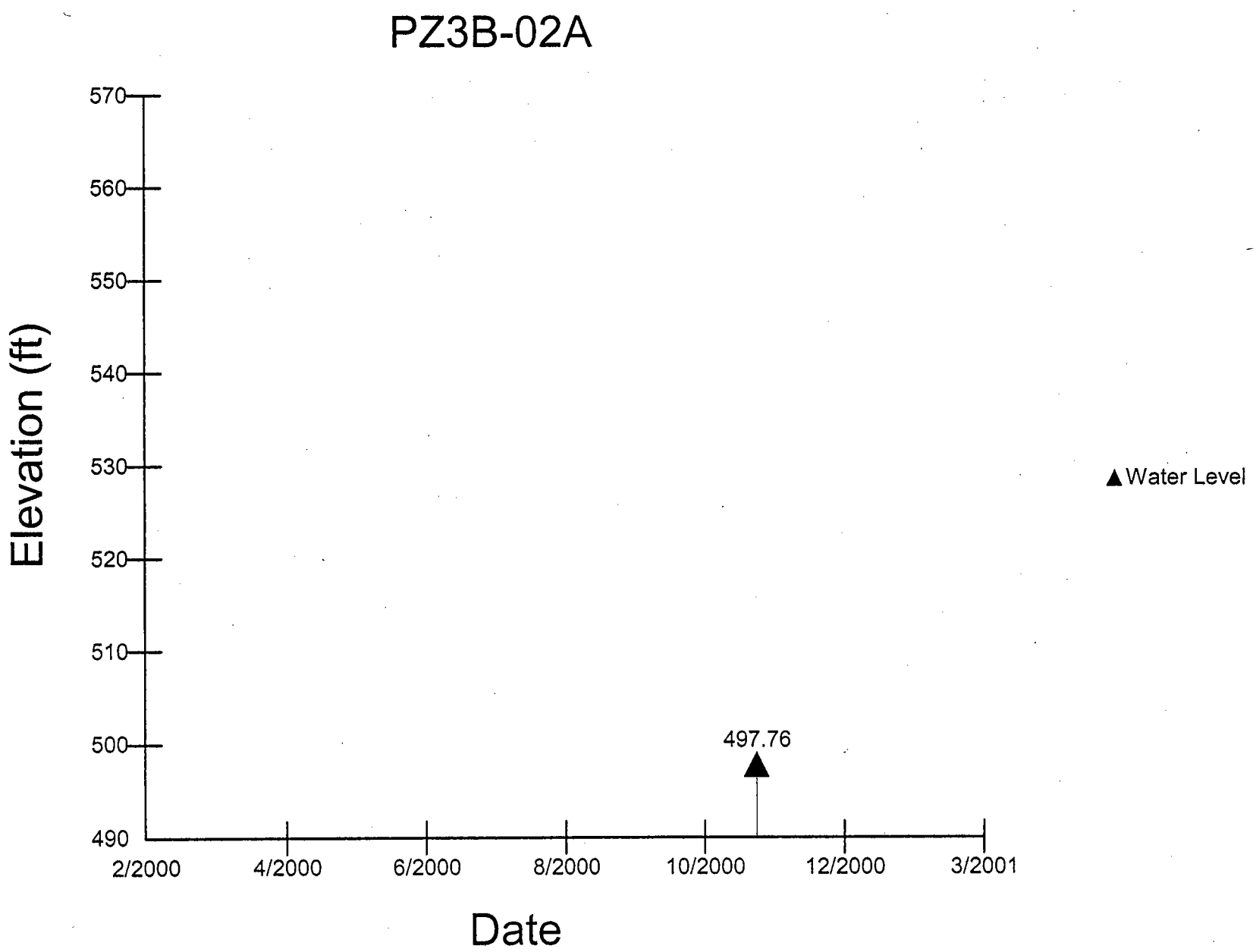

MW-L-8
Elevation (ft)
570
560
550
540
530
520
510
500
490
498.79
504.54
503.74
502.43
498.24
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

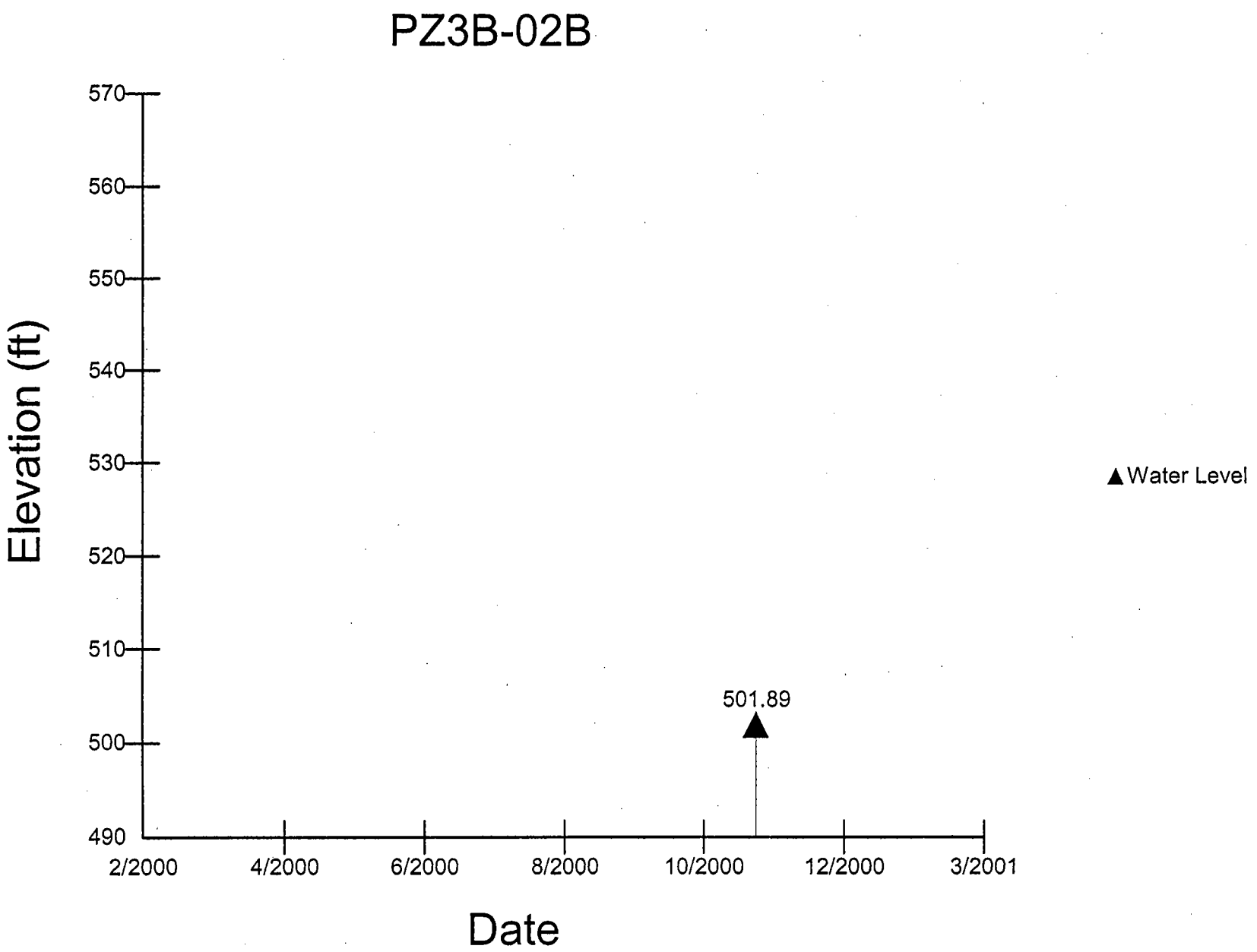

MW-L-9
Elevation (ft)
570
560
550
540
530
520
510
500
490
500.78
500.98
500.24
499.07
497.69
497.35
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

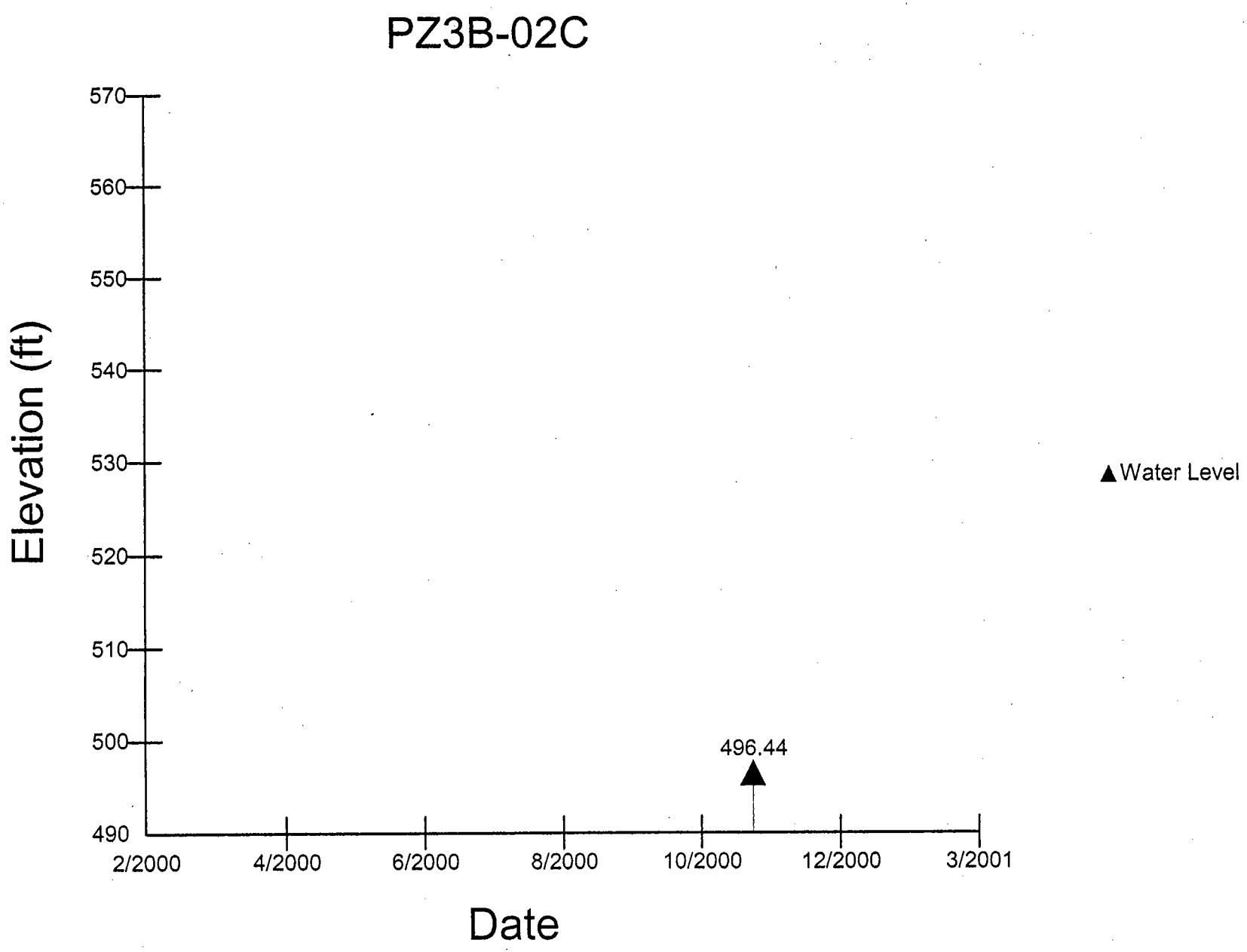

PZ1-02
Elevation (ft)
570
560
550
540
530
520
510
500
490
496.14
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

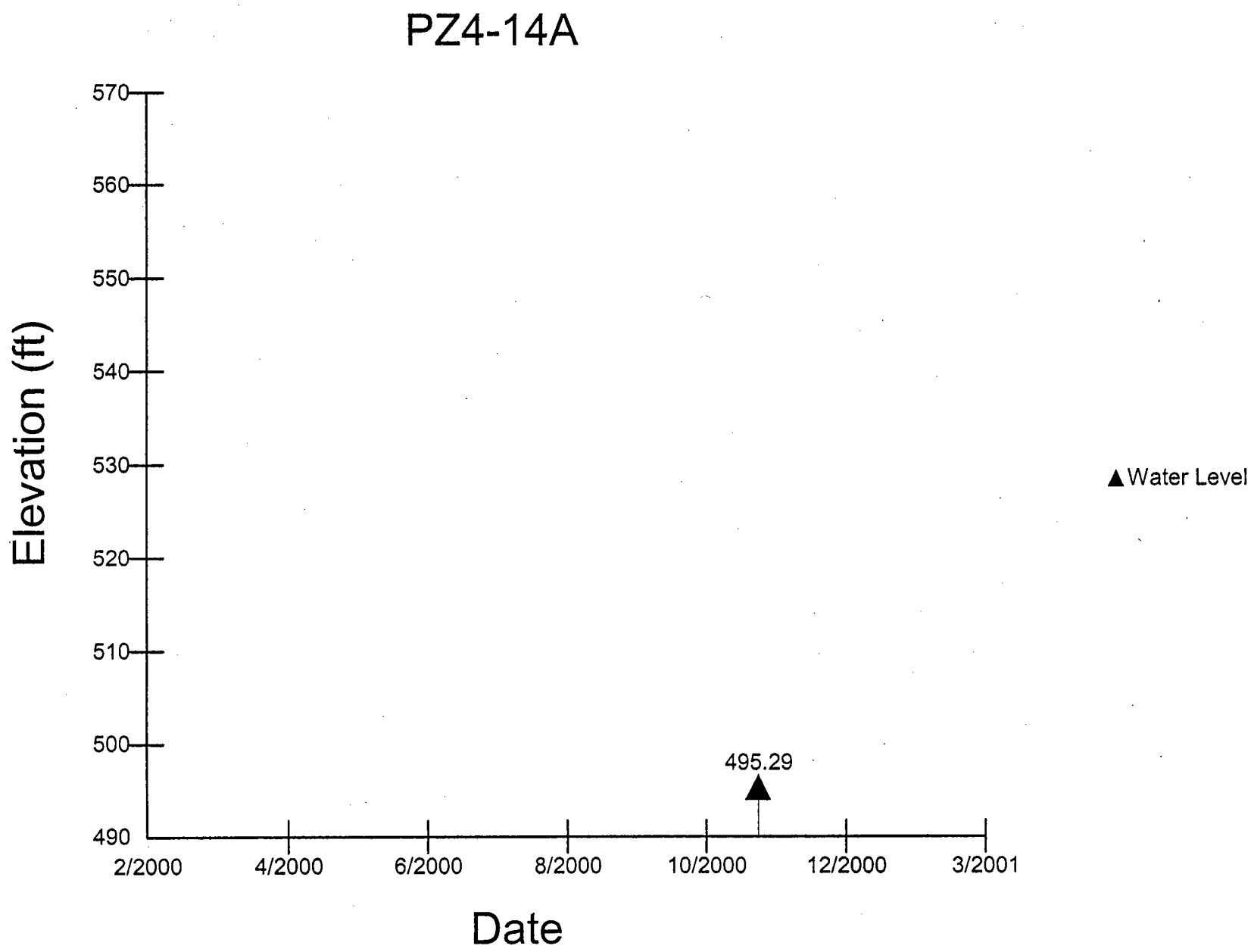

PZ2-03A
Elevation (ft)
570
560
550
540
530
520
510
500
490
497.04
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

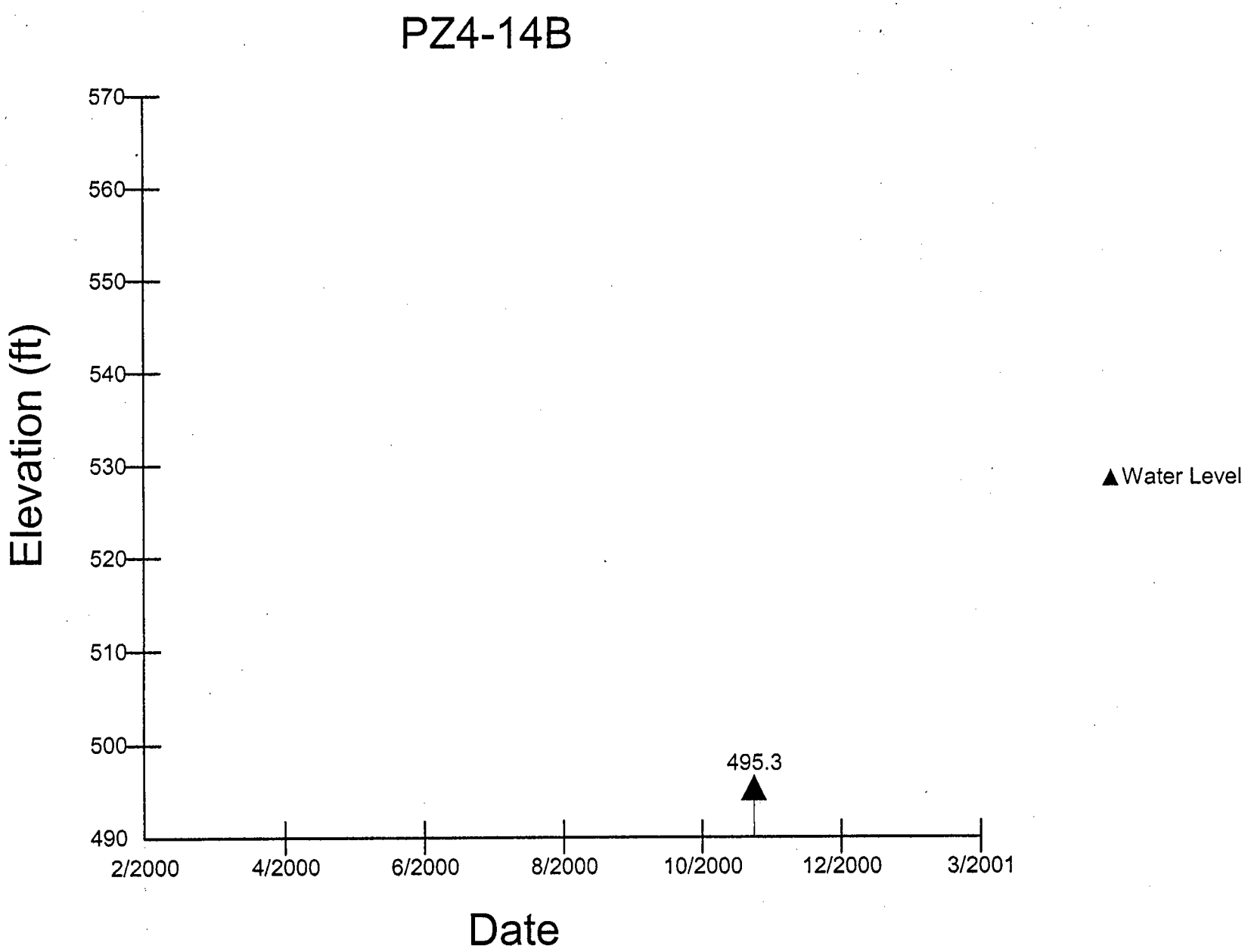

PZ2-03B
Elevation (ft)
570
560
550
540
530
520
510
500
490
497.04
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level

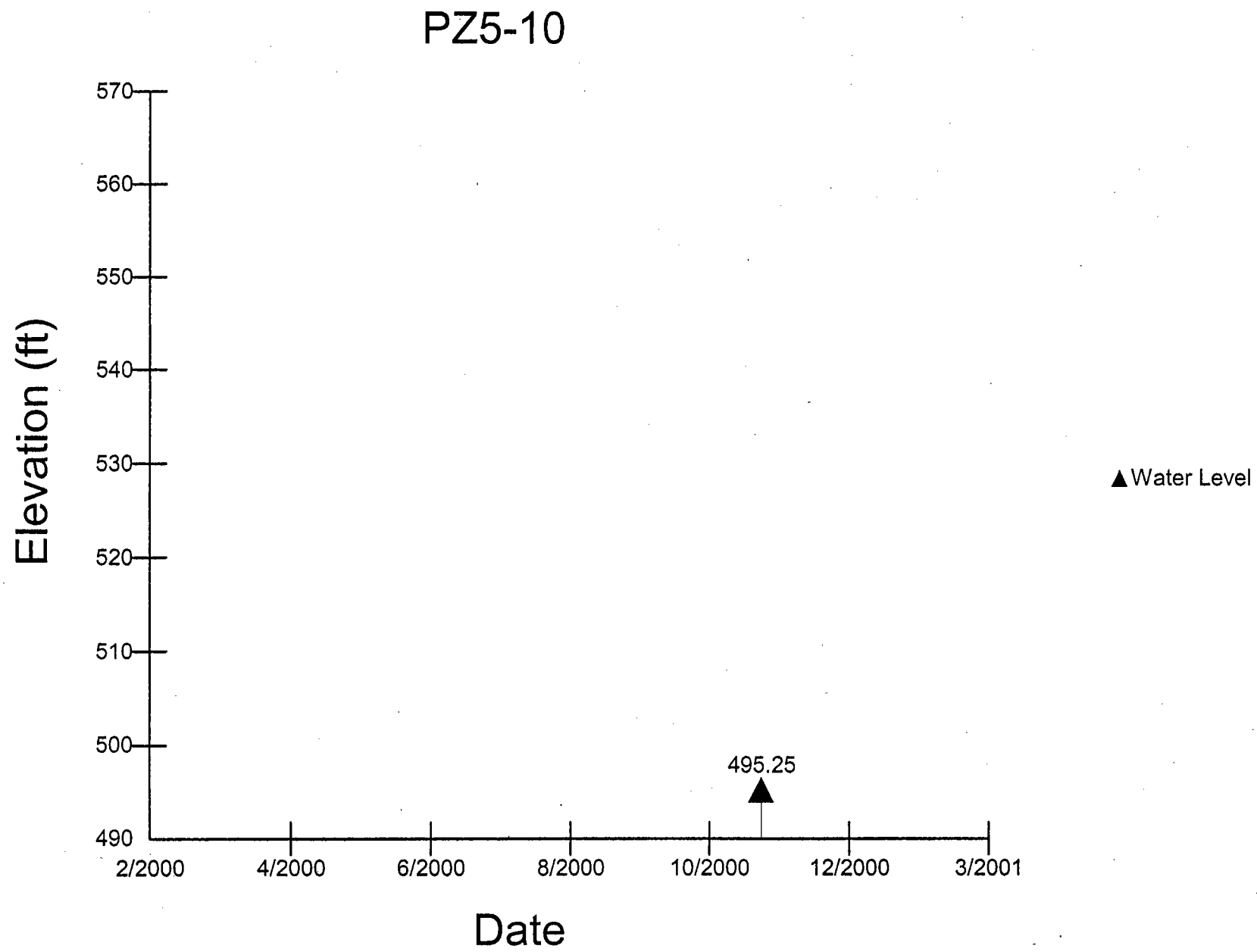

PZ3B-02A
Elevation (ft)
570
560
550
540
530
520
510
500
490
497.76
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level


PZ3B-02B
570
560
550
540
530
520
510
500
490
Elevation (ft)
501.89
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level


PZ3B-02C
Elevation (ft)
570
560
550
540
530
520
510
500
490
496.44
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level


PZ4-14A
570
560
550
540
530
520
510
500
490
Elevation (ft)
495.29
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level


PZ4-14B
Elevation (ft)
570
560
550
540
530
520
510
500
490
495.3
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level


PZ5-10
570
560
550
540
530
520
510
500
490
Elevation (ft)
495.25
2/2000
4/2000
6/2000
8/2000
10/2000
12/2000
3/2001
Date
Water Level