

Umetco Minerals Corporation



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February 16, 1994

Branch Chief
Uranium Recovery Branch
Division of Low-Level Waste Management
and Decommissioning, NMSS (5 E2)
11155 Rockville Pike
Rockville, MD 20850

ATTN: Mr. Allan T. Mullins

Reference: Source Material License SUA-648
Docket No. 40.299

Dear Mr. Mullins:

Pursuant to the reporting requirements of 10 CFR 40.65 and condition No. 39 of our license, we are enclosing two (2) copies of our 40.65 report for the second half of 1993. In addition, one copy has been sent to each of the following addresses:

Director
Division of Radiation Safety
and Safeguards, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

U. S. Nuclear Regulatory Commission
Uranium Recovery Field Office
Lakewood Office Plaza
730 Simms Street, Suite 100
Golden, CO 80401

The information presented indicates the Gas Hills environmental monitoring program is functioning satisfactorily.

Sincerely,

P.J.L. Lyons
General Superintendent

240023

Enclosures as stated

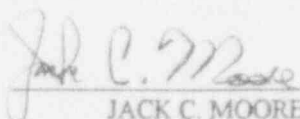
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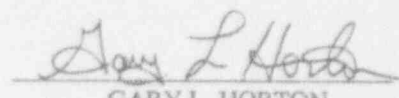
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Mr. Allan Mullins*

UMETCO MINERALS CORPORATION
SECOND HALF 1993 REPORT
10 CFR 40.65
LICENSE SUA-648
DOCKET NO. 40.229

FEBRUARY 16, 1994



JACK C. MOORE
ENVIRONMENTAL COORDINATOR



GARY L. HORTON
ENVIRONMENTAL TECHNICIAN

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SECTION 1.0
SUMMARY

1.0 SUMMARY

1.1 GROUNDWATER MONITORING

The groundwater remediation program was continued during the second half of 1993. Map NRC-DEQ-94-01 and NRC-DEQ-94-02 show the monitor well locations, collection and injection wells and associated potentiometric contours of groundwater levels for the lower and upper Wind River aquifers.

Analysis of data indicates that groundwater quality is improving in each aquifer. The lower Wind River aquifer is the most improved. If the elements Nickel and Ra226 continue to plateau in some of the wells for the next two sample periods, application for ACL will be considered.

1.2 IX/RO AND GROUNDWATER REMEDIATION

The IX/RO system is continuing to work effectively to extract objectionable elements from the groundwater utilizing only the two IX exchange resins. The clean water produced from the treatment system is being re-injected into both the lower and upper Wind River aquifers. Re-injection is being done into seven wells in the lower Wind River aquifer at an average rate of 41 gallons per minute (gpm) and into seven wells in the upper Wind River aquifer at an average rate of 31 gallons per minute. The combined rate of injection averages 72 gpm as of year-end.

1.3 AIRBORNE RELEASES

There were no airborne releases during the second half of 1993. Results of air-particulate sampling for the second half of 1993 are tabulated in Section 5.0 of this report. All sample results are 1% or less of MPC.

1.4 LIQUID AND SOLID RELEASES

No effluents were released to the restricted or unrestricted areas during the second half of 1993.

SECTION 2.0
GROUND WATER MONITORING

SECTION 2.1.1
INACTIVE TAILINGS PILES and HEAP LEACH AREA

2.0 GROUNDWATER MONITORING

2.1.1 INACTIVE TAILINGS PILE AND HEAP LEACH AREA LOWER WIND RIVER AQUIFER (Map NRC-DEQ-94-01)

Monitoring of the lower Wind River aquifer groundwater quality in the vicinity of the Inactive Tailings pile has been continued through the second half of 1993. Analysis of the data presented has been done for four sectors around and on the Inactive Tailings pile to demonstrate specific changes which are occurring in the groundwater quality.

Monitor wells MW-2, MW-17, MW-26, MW-23, MW-18 and compliance wells MW-1 and MW-4 are all located in the sector north of the Inactive Tailings pile. Each well in this sector showed slight increases in most radionuclide element concentrations during this period. Only wells MW-1, MW-4 and MW-26 continued to exceed compliance standards in Unat, Ra226 and Ni. The overall trend is still toward improvement in the radionuclides and possibly toward stabilization of Nickel. Sampling of groundwater from all of the wells will be done on a quarterly basis in 1994 to obtain additional data for statistical comparisons.

Monitor wells MW-19, MW-20 and MW-27 are located in the sector up-dip and east of the Inactive Tailings pile. Well MW-20 is above compliance standards for Unat and Ni. The other two wells are in compliance for all elements.

Monitor well DW-3 is located in the sector south of the Inactive Tailings pile. Groundwater from this well is above compliance standards for Ra226 and Ni.

Monitor wells MW-21A, MW-25 and MW-28 are located in the sector west of the Inactive Tailings pile, down gradient of the lower Wind River groundwater flow. Wells MW-21A and MW-25 are still out of compliance with Ni standards. All of the wells meet all other compliance standards.

GROUND WATER ANALYSES FOR M.W. 1

Date Sampled	06/15/92	11/18/92	06/22/93	12/06/93
UNat pCi/l	693.00	555.00	459.00	603.80
UNat % M.P.C.	2.31	1.85	1.53	2.01
Ra226 pCi/l	50.80	10.30	42.50	42.20
Ra226 Error +/-	3.00	0.90	2.00	2.00
Ra226 % M.P.C.	169.33	34.33	141.67	140.67
Ra228 pCi/l	20.50	8.20	16.00	14.90
Ra228 Error +/-	2.50	0.40	2.40	1.90
Ra228 % M.P.C.	68.33	27.33	53.33	49.67
Th230 pCi/l	18.10	<1.0	0.70	1.90
Th230 Error +/-	2.00		0.10	0.20
Th230 % M.P.C.	0.91		0.04	0.10
Pb210 pCi/l	1.10	4.10	3.20	6.10
Pb210 Error +/-	0.60	0.50	0.90	1.00
Pb210 % M.P.C.	1.10	4.10	3.20	6.10
Gross Alpha - U & Rn pCi/l	52.00	10.60	51.20	66.40
Gross Alpha Error +/-	7.20	3.30	7.20	8.10
As mg/l	<0.01	<0.01	<0.01	0.003
Se mg/l	0.066	0.073	0.072	0.048
Fe mg/l	0.37	0.45	0.41	0.37
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.01		
Al mg/l	101.00	121.00		
Be mg/l	0.05	0.04	0.06	
Ni mg/l	0.89	1.05	1.17	1.02
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	0.03		
Ca mg/l	366.00	397.00	351.00	311.00
Mg mg/l	111.00	113.00	122.00	97.80
Na mg/l	143.00	137.00	184.00	157.00
K mg/l	28.80	25.90		
NH3 mg/l	137.00	138.00		
NO3 mg/l	37.00	36.30	47.80	25.40
SO4 mg/l	2246.00	2431.00	2376.00	2025.00
Cl mg/l	248.00	235.00	232.00	215.00
TDS mg/l	3537.00	3310.00	4090.00	3268.00
pH	3.93	4.12	4.15	4.43
Water Elevation	6814.22	6813.29	6812.66	6812.06

GROUND WATER ANALYSES FOR M. W. 2

Date Sampled	05/19/92	11/17/92	06/22/93	11/22/93
UNat pCi/l	111.60	65.60	92.50	101.20
UNat % M.P.C.	0.37	0.22	0.31	0.34
Ra226 pCi/l	22.00	8.30	21.50	22.90
Ra226 Error +/-	1.80	0.60	1.40	1.60
Ra226 % M.P.C.	73.33	27.67	71.67	76.33
Ra228 pCi/l	9.90	2.80	7.10	2.80
Ra228 Error +/-	1.10	0.40	2.60	0.30
Ra228 % M.P.C.	33.00	9.33	23.67	9.33
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	6.60	7.50	2.40	10.00
Pb210 Error +/-	0.80	0.60	0.90	1.10
Pb210 % M.P.C.	6.60	7.50	2.40	10.00
Gross Alpha - U & Rn pCi/l	22.50	8.60	25.00	27.10
Gross Alpha Error +/-	4.70	2.90	5.10	5.20
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	<0.005	0.012	0.005	0.001
Fe mg/l	2.47	5.20	4.58	6.22
Pb mg/l	<0.01	<0.01		
Mo mg/l	0.04	<0.01		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.10	0.15	0.14	0.11
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	208.00	253.00	257.00	172.00
Mg mg/l	43.30	52.00	40.80	26.30
Na mg/l	68.20	76.80	60.00	46.70
K mg/l	12.80	12.40		
NH3 mg/l	0.39	0.76		
NO3 mg/l	3.57	3.98	3.11	1.17
SO4 mg/l	725.00	896.00	780.00	528.00
Cl mg/l	26.80	32.20	26.40	22.20
TDS mg/l	1219.00	1465.00	1068.00	921.00
pH	6.27	6.33	5.98	6.58
Water Elevation	6792.96	6792.79	6792.00	6791.57

GROUND WATER ANALYSES FOR M. W. 4

Date Sampled	06/15/92	11/18/92	06/21/93	12/06/93
UNat pCi/l	414.00	63.30	296.00	429.90
UNat % M.P.C.	1.38	0.21	0.99	1.43
Ra226 pCi/l	19.50	4.60	22.40	19.50
Ra226 Error +/-	1.90	0.50	1.50	1.50
Ra226 % M.P.C.	65.00	15.33	74.67	65.00
Ra228 pCi/l	6.30	6.70	13.80	9.60
Ra228 Error +/-	0.60	0.40	2.90	0.50
Ra228 % M.P.C.	21.00	22.33	46.00	32.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	2.00	2.70	1.00	5.20
Pb210 Error +/-	0.60	0.50	0.50	1.00
Pb210 % M.P.C.	2.00	2.70	1.00	5.20
Gross Alpha - U & Rn pCi/l	21.50	<5.0	25.00	33.90
Gross Alpha Error +/-	4.60		5.00	5.80
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	0.106	0.151	0.097	0.054
Fe mg/l	0.12	0.19	0.20	0.13
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	5.15	5.40		
Be mg/l	<0.01	<0.01	<0.01	
Ni mg/l	0.32	0.28	0.31	0.31
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	517.00	604.00	656.00	644.00
Mg mg/l	120.00	129.00	149.00	129.00
Na mg/l	71.90	69.10	77.80	75.40
K mg/l	17.50	18.50		
NH3 mg/l	3.33	4.05		
NO3 mg/l	3.69	4.50	5.24	3.70
SO4 mg/l	1529.00	1935.00	2039.00	2031.00
Cl mg/l	239.00	237.00	290.00	247.00
TDS mg/l	2949.00	3079.00	3493.00	3606.00
pH	5.33	5.54	5.12	5.64
Water Elevation	6814.26	6813.34	6812.74	6812.31

GROUND WATER ANALYSES FOR M. W. 17

Date Sampled	05/19/92	11/17/92	06/22/93	11/22/93
UNat pCi/l	13.50	18.00	17.10	18.60
UNat % M.P.C.	0.05	0.06	0.06	0.06
Ra226 pCi/l	26.50	7.30	30.80	32.00
Ra226 Error +/-	1.90	0.60	2.20	1.80
Ra226 % M.P.C.	88.33	24.33	102.67	106.67
Ra228 pCi/l	20.70	7.00	25.10	11.30
Ra228 Error +/-	1.30	0.50	5.40	0.50
Ra228 % M.P.C.	69.00	23.33	83.67	37.67
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	2.10	<1.0	4.00
Pb210 Error +/-		0.50		1.00
Pb210 % M.P.C.		2.10		4.00
Gross Alpha - U & Rn pCi/l	26.90	7.60	43.30	48.90
Gross Alpha Error +/-	5.20	2.80	6.60	7.00
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	0.214	0.215	0.113	0.128
Fe mg/l	0.21	0.30	0.69	0.82
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.02		
Al mg/l	0.40	0.42		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.09	0.04	0.12	0.11
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	529.00	533.00	512.00	482.00
Mg mg/l	130.00	134.00	124.00	121.00
Na mg/l	143.00	97.30	92.90	103.00
K mg/l	13.50	18.50		
NH3 mg/l	5.80	6.18		
NO3 mg/l	14.40	40.50	3.90	39.70
SO4 mg/l	1939.00	1602.00	1911.00	1756.00
Cl mg/l	103.00	89.90	95.60	88.90
TDS mg/l	3231.00	3028.00	3039.00	3117.00
pH	5.66	5.95	5.50	5.76
Water Elevation	6805.61	6804.94	6804.35	6804.05

GROUND WATER ANALYSES FOR M. W. 18

Date Sampled	05/19/92	11/17/92	06/09/93	11/22/93
UNat pCi/l	12.10	5.00	9.90	13.90
UNat % M.P.C.	0.04	0.02	0.03	0.05
Ra226 pCi/l	4.30	0.70	4.70	7.90
Ra226 Error +/-	0.80	0.30	0.80	0.50
Ra226 % M.P.C.	14.33	2.33	15.67	26.33
Ra228 pCi/l	8.60	<1.0	54.50	4.50
Ra228 Error +/-	1.20		6.10	0.40
Ra228 % M.P.C.	28.67		181.67	15.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	1.60	2.60	<1.0
Pb210 Error +/-		0.50	0.50	
Pb210 % M.P.C.		1.60	2.60	
Gross Alpha - U & Rn pCi/l	<5.0	<5.0	5.00	14.60
Gross Alpha Error +/-			0.90	3.80
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	0.015	0.018	0.009	0.015
Fe mg/l	<1.0	<0.10	<0.10	<0.05
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.02		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	<0.01	<0.01	<0.01	0.01
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	67.10	68.70	60.00	57.70
Mg mg/l	18.50	12.70	11.90	10.90
Na mg/l	36.20	37.00	31.10	24.30
K mg/l	6.20	6.80		
NH3 mg/l	<0.10	<0.10		
NO3 mg/l	0.87	3.11	2.90	3.93
SO4 mg/l	237.00	209.00	163.00	173.00
Cl mg/l	13.80	32.20	11.50	9.70
TDS mg/l	443.00	424.00	466.00	353.00
pH	6.80	6.59	6.90	6.67
Water Elevation	6815.67	6815.09	6814.55	6814.57

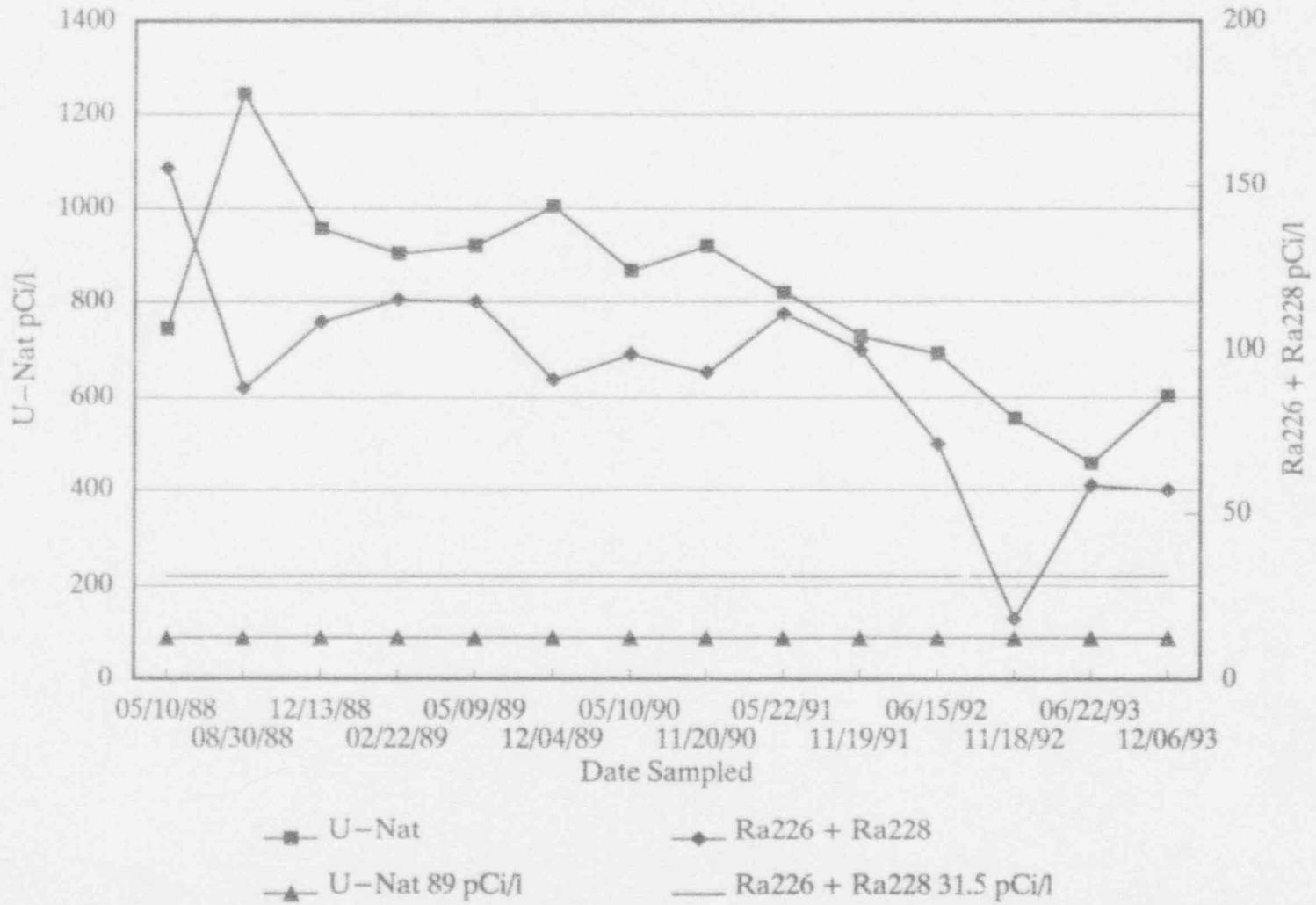
GROUND WATER ANALYSES FOR M.W. 23

Date Sampled	05/19/92	11/17/92	06/22/93	11/22/93
UNat pCi/l	57.80	24.00	52.40	41.80
UNat % M.P.C.	0.19	0.08	0.17	0.14
Ra226 pCi/l	14.10	4.00	13.20	25.50
Ra226 Error +/-	0.80	0.50	1.10	1.70
Ra226 % M.P.C.	47.00	13.33	44.00	85.00
Ra228 pCi/l	<1.0	<1.0	5.50	4.90
Ra228 Error +/-			1.60	0.50
Ra228 % M.P.C.			18.33	16.33
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	3.20	<1.0	<1.0
Pb210 Error +/-		0.50		
Pb210 % M.P.C.		3.20		
Gross Alpha - U & Rn pCi/l	13.50	<5.0	15.70	32.80
Gross Alpha Error +/-	3.70		3.90	5.80
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	0.058	0.053	0.051	0.052
Fe mg/l	0.06	<0.10	<0.10	<0.05
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.02	<0.01	0.04	0.03
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.01	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	355.00	384.00	386.00	340.00
Mg mg/l	73.90	79.20	86.60	69.90
Na mg/l	65.30	56.50	56.50	49.40
K mg/l	13.00	14.50		
NH3 mg/l	3.89	3.12		
NO3 mg/l	14.10	43.20	49.90	36.70
SO4 mg/l	1129.00	1100.00	1125.00	979.00
Cl mg/l	71.30	64.10	62.70	67.10
TDS mg/l	2118.00	2011.00	1856.00	1946.00
pH	6.30	6.30	6.02	6.25
Water Elevation	6811.07	6810.48	6809.93	6809.81

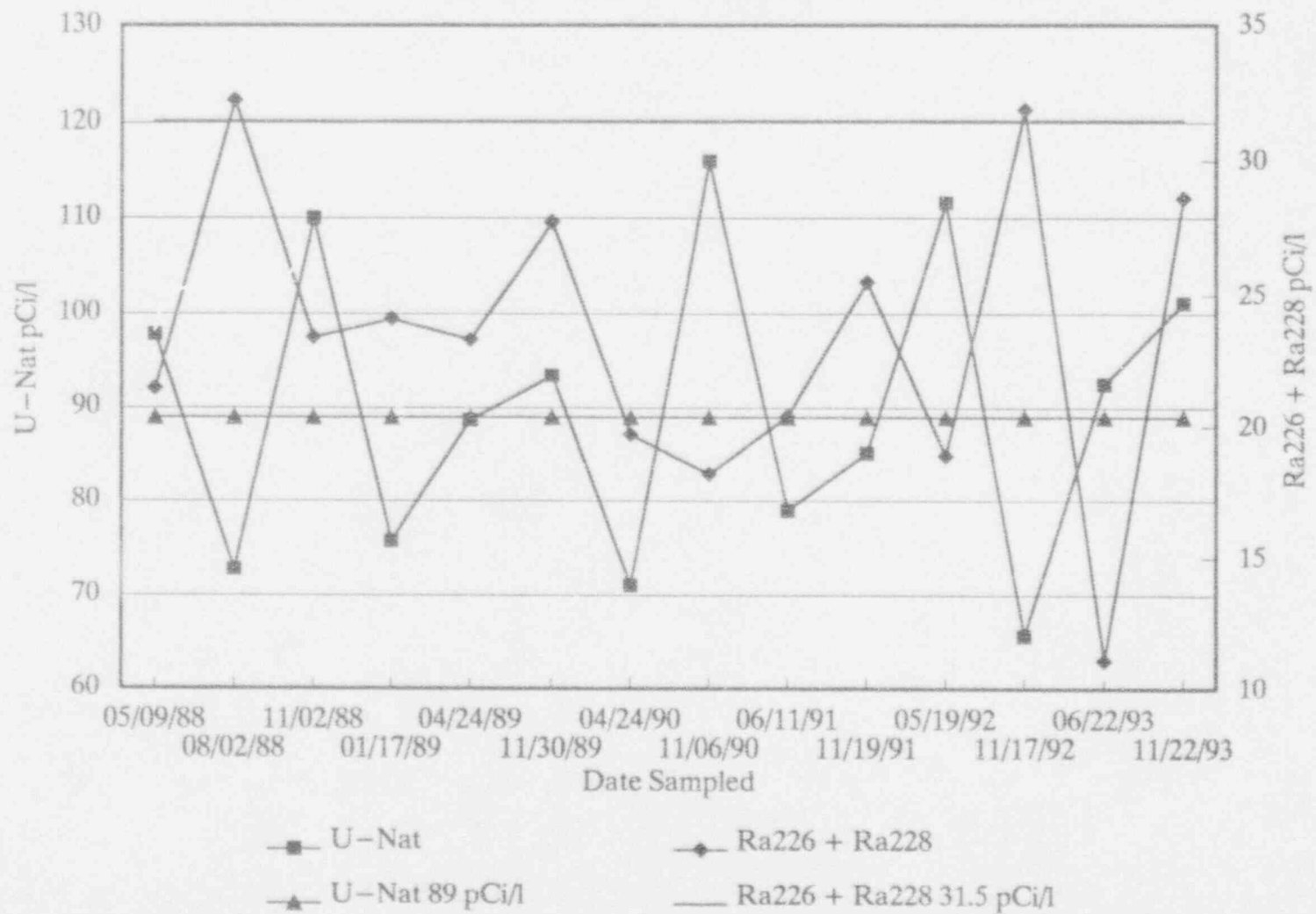
GROUND WATER ANALYSES FOR M. W. 26

Date Sampled	05/19/92	11/17/92	06/22/93	11/22/93
UNat pCi/l	65.00	28.10	135.00	146.00
UNat % M.P.C.	0.22	0.09	0.45	0.49
Ra226 pCi/l	62.10	15.80	80.70	91.00
Ra226 Error +/-	2.90	0.80	2.80	3.40
Ra226 % M.P.C.	207.00	52.67	269.00	303.33
Ra228 pCi/l	6.40	5.80	9.00	6.60
Ra228 Error +/-	1.50	0.70	1.90	0.50
Ra228 % M.P.C.	21.33	19.33	30.00	22.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	5.00	<1.0	5.40
Pb210 Error +/-		0.60		1.00
Pb210 % M.P.C.		5.00		5.40
Gross Alpha - U & Rn pCi/l	63.40	15.90	84.40	101.00
Gross Alpha Error +/-	7.90	3.90	9.20	10.00
As mg/l	0.02	0.01	<0.01	0.002
Se mg/l	0.025	0.053	0.030	0.032
Fe mg/l	1.42	1.17	1.17	1.37
Pb mg/l	<0.01	<0.01		
Mo mg/l	0.02	0.03		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	<0.01	<0.01	0.02	0.02
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	252.00	294.00	327.00	278.00
Mg mg/l	47.60	46.80	51.50	42.50
Na mg/l	38.30	37.90	35.50	31.20
K mg/l	10.80	9.00		
NH3 mg/l	<0.10	<0.10		
NO3 mg/l	12.93	17.20	31.00	27.80
SO4 mg/l	791.00	838.00	839.00	735.00
Cl mg/l	19.70	18.00	22.50	20.30
TDS mg/l	1400.00	1404.00	1302.00	1407.00
pH	6.92	6.78	6.32	6.82
Water Elevation	6804.00	6803.45	6803.03	6802.81

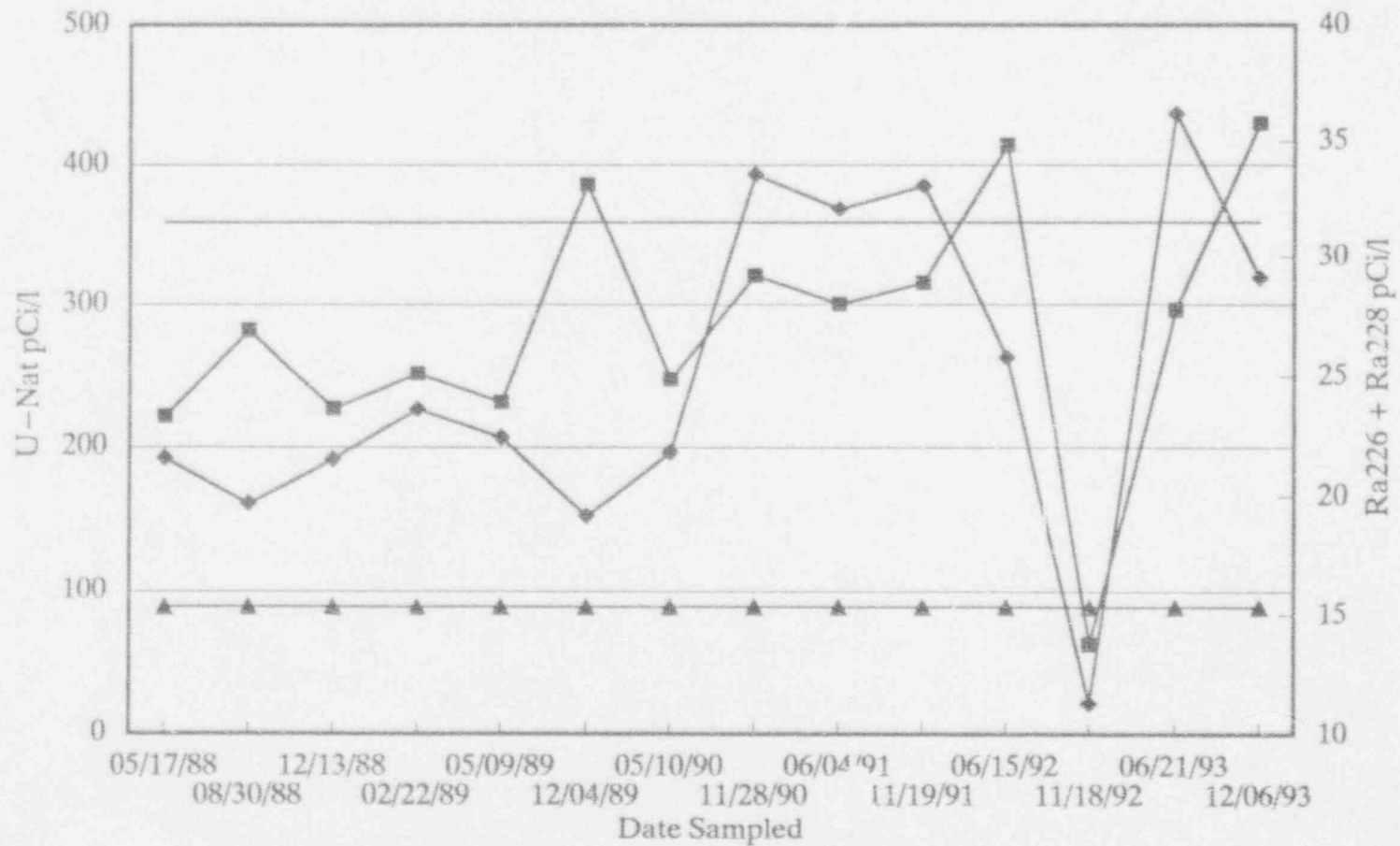
M.W. 1 U-Nat & Ra226 + Ra228



M.W. 2 U-Nat & Ra226 + Ra228

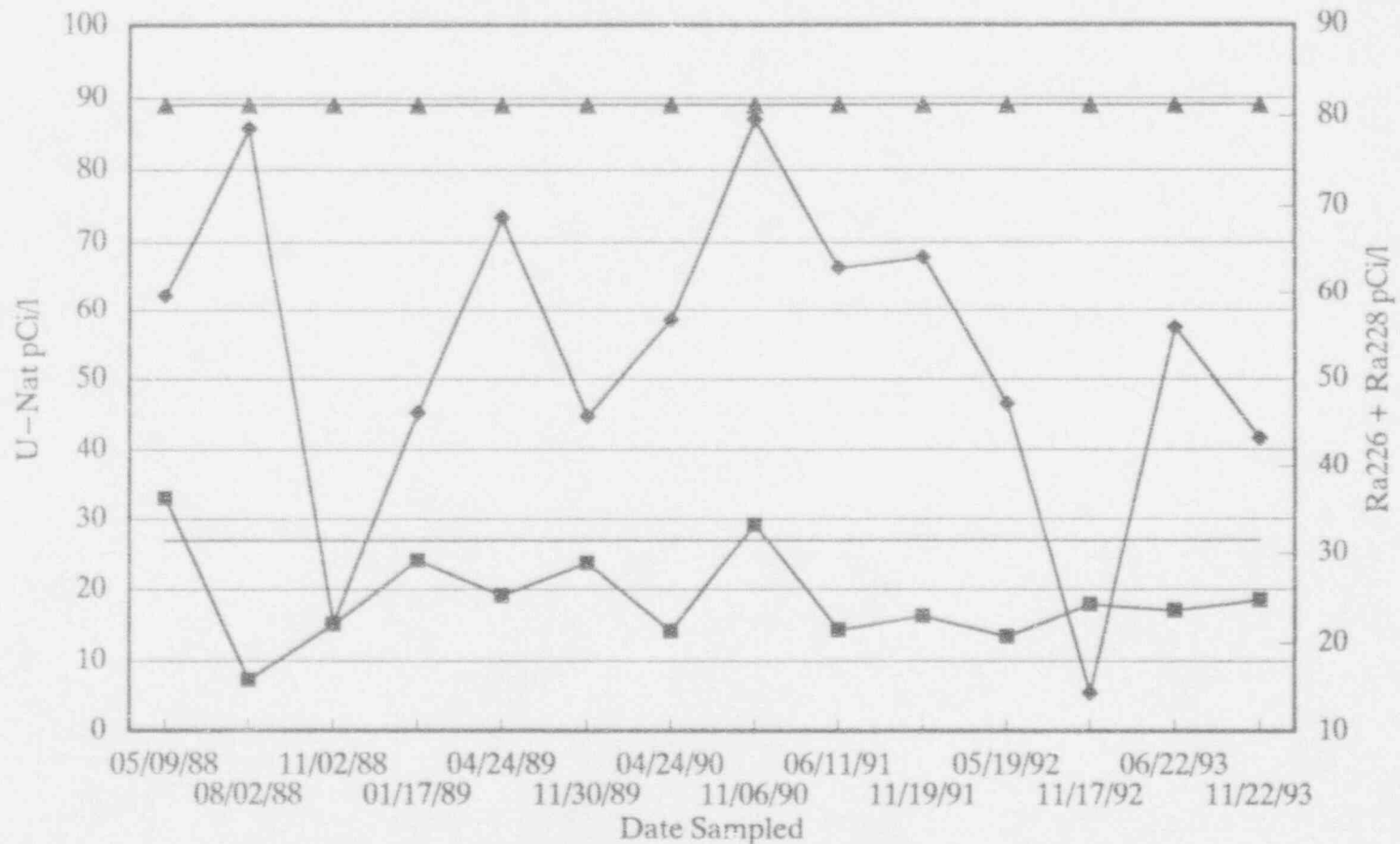


M.W. 4 U-Nat & Ra226 + Ra228



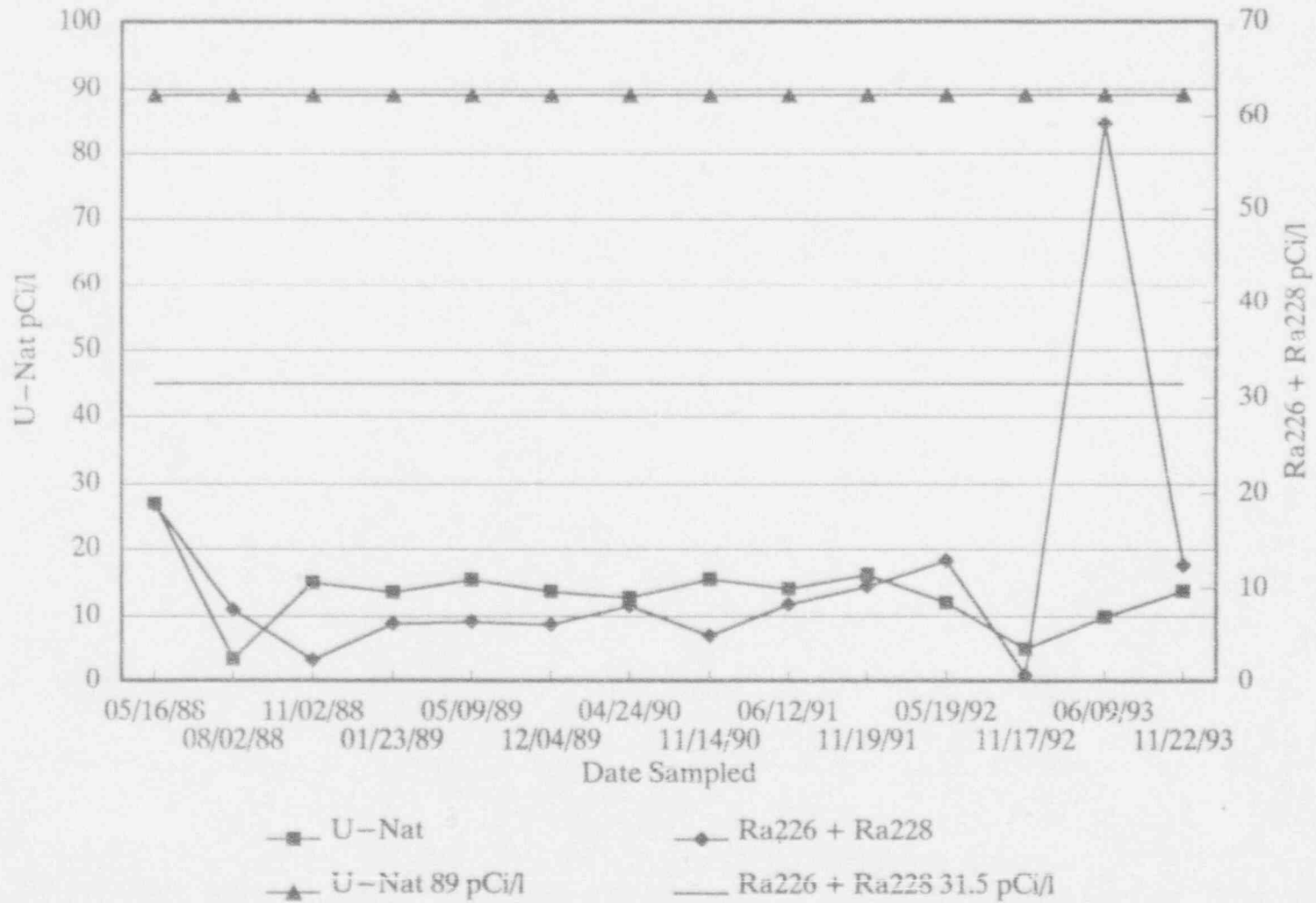
- U-Nat
- ◆ Ra226 + Ra228
- ▲ U-Nat 89 pCi/l
- Ra226 + Ra228 31.5 pCi/l

M.W. 17 U-Nat & Ra226 + Ra228

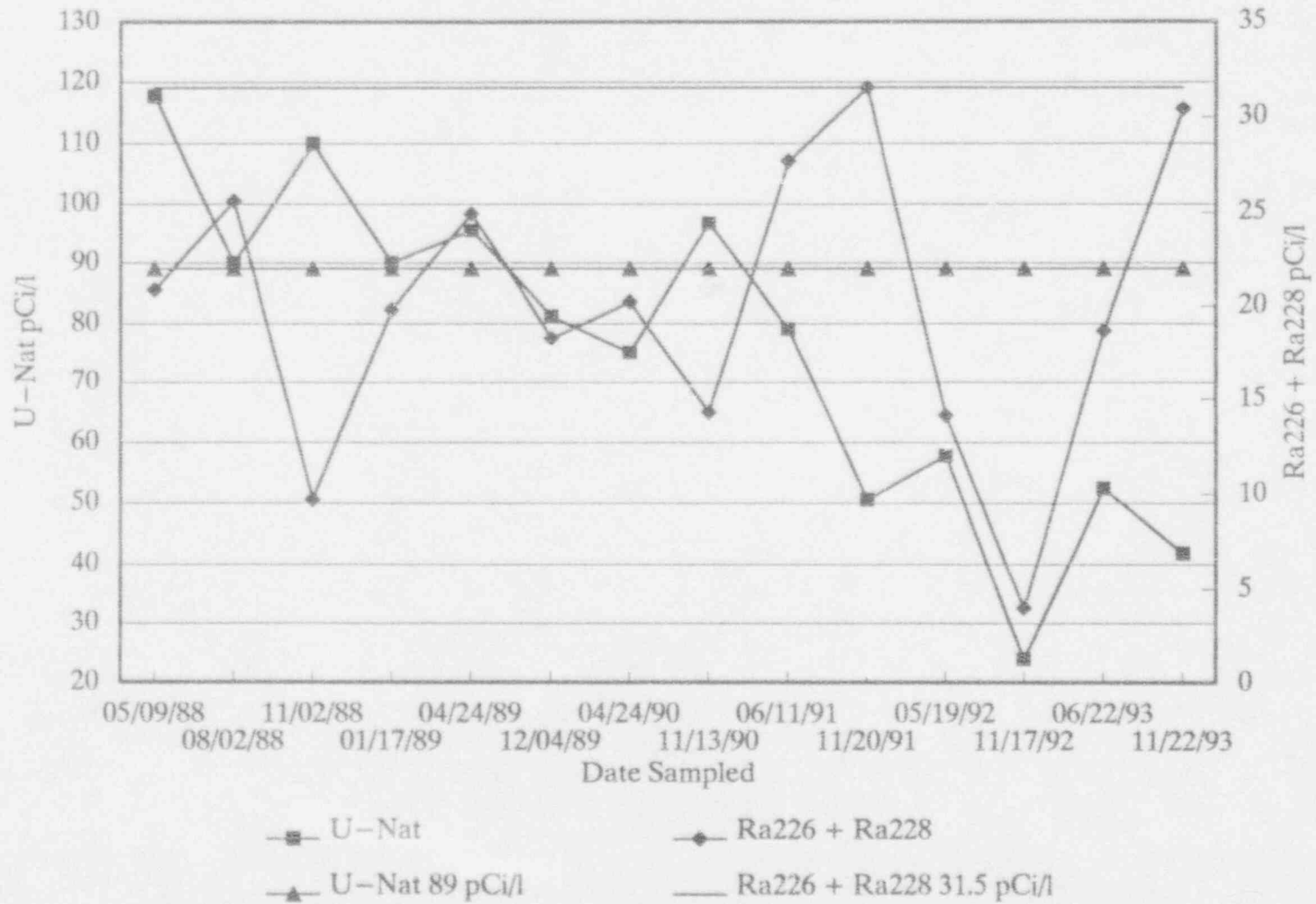


- U-Nat
- ◆ Ra226 + Ra228
- ▲ U-Nat 89 pCi/l
- Ra226 + Ra228 31.5 pCi/l

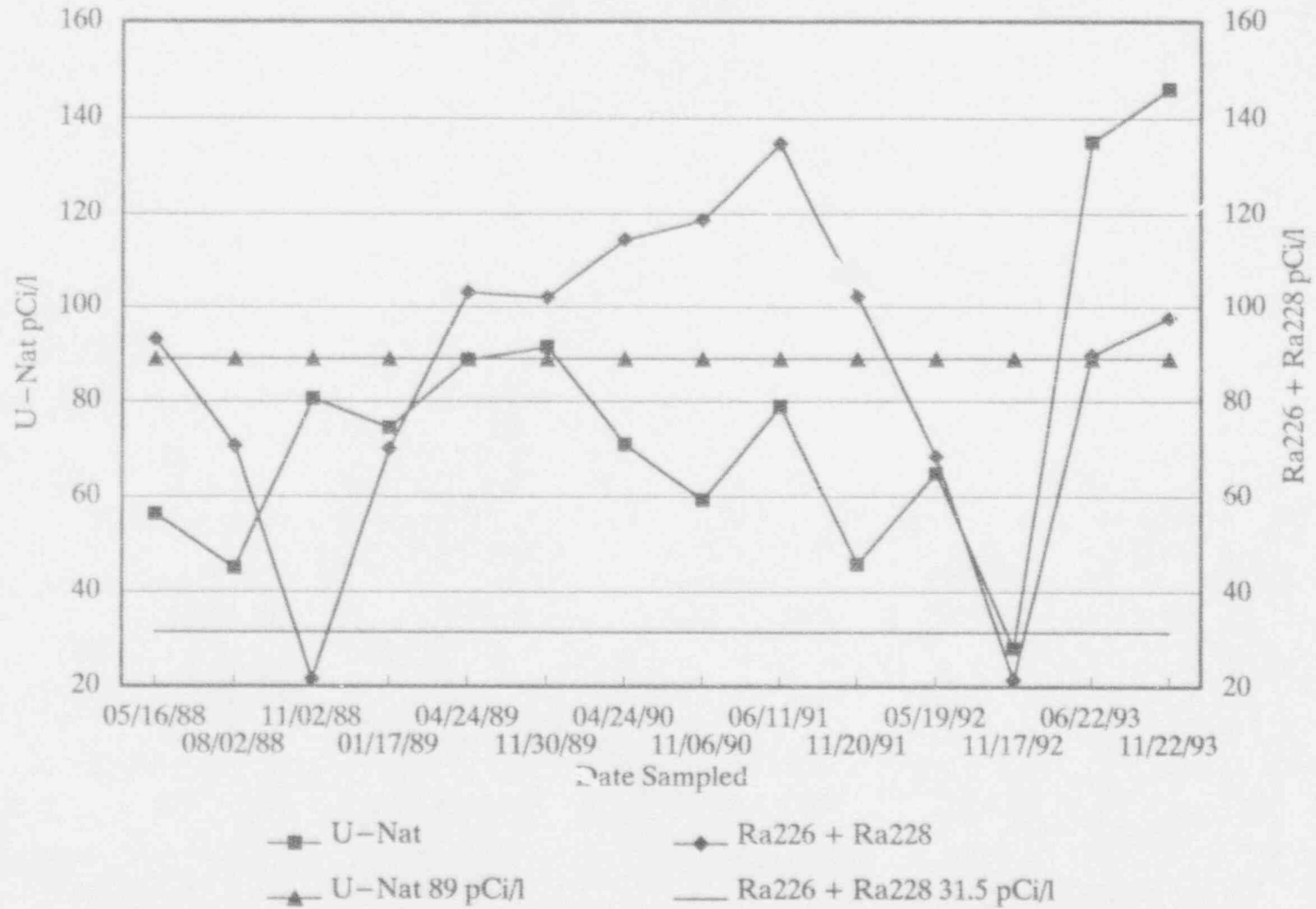
M.W. 18 U-Nat & Ra226 + Ra228



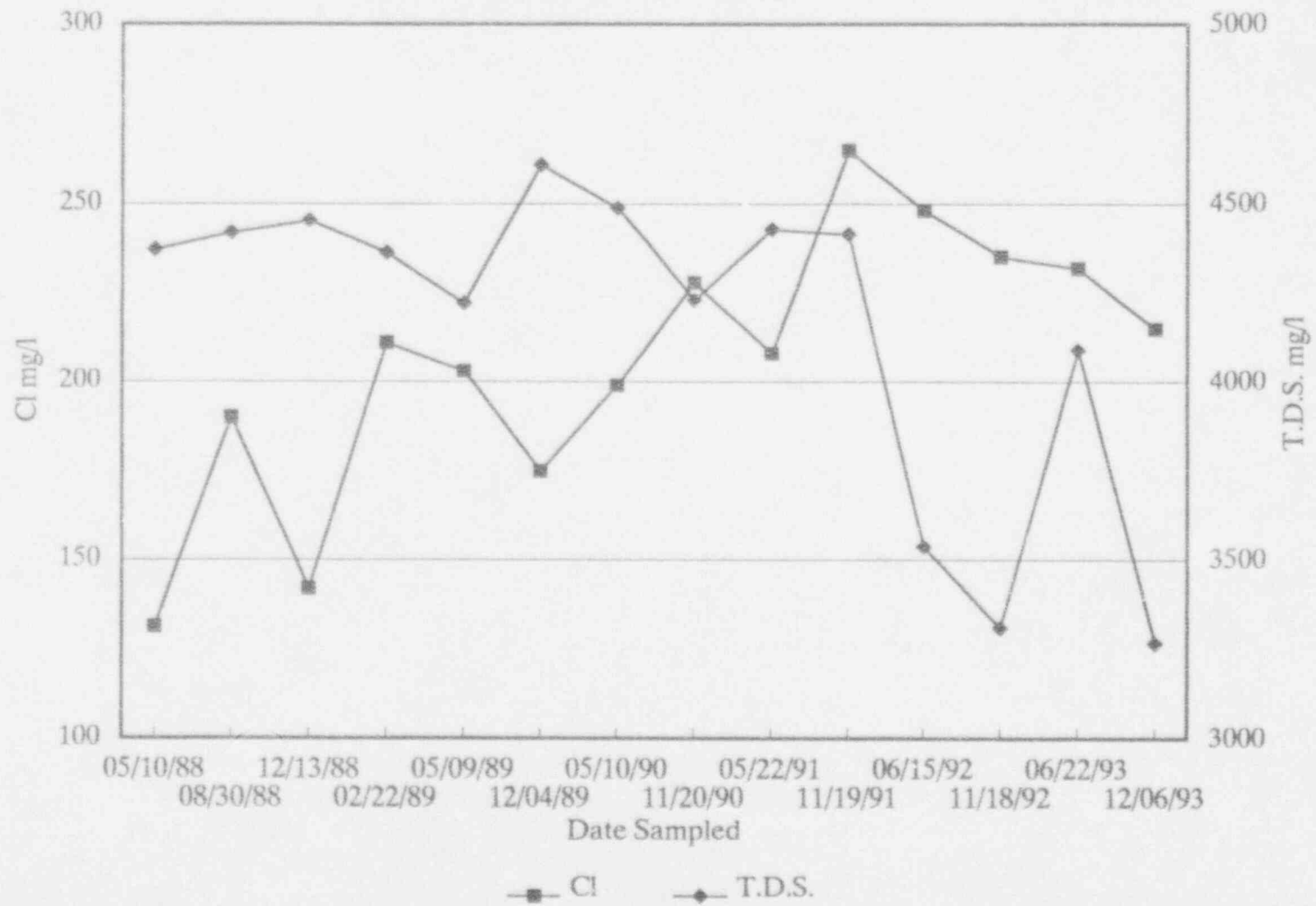
M.W. 23 U-Nat & Ra226 + Ra228



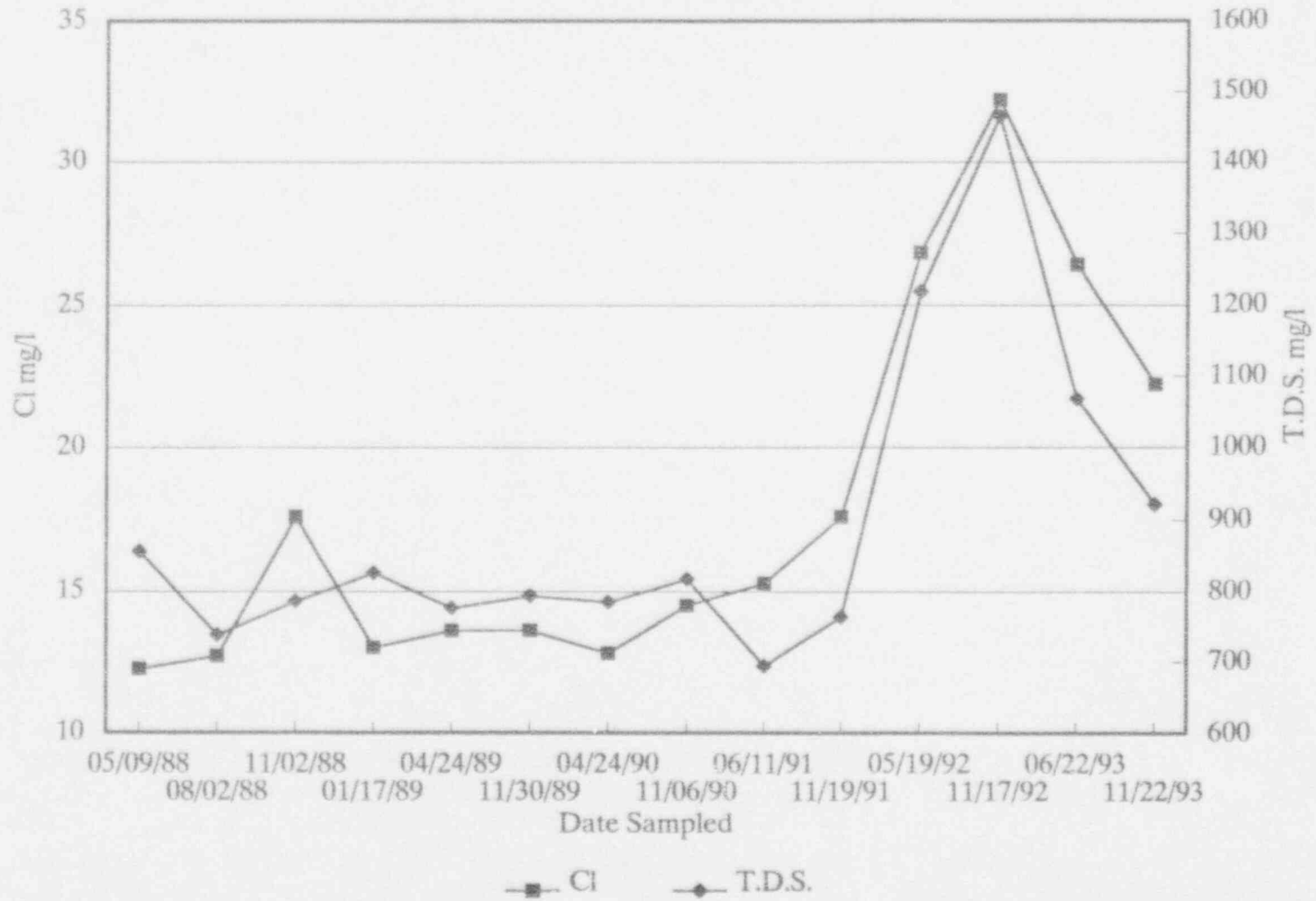
M.W. 26 U-Nat & Ra226 + Ra228



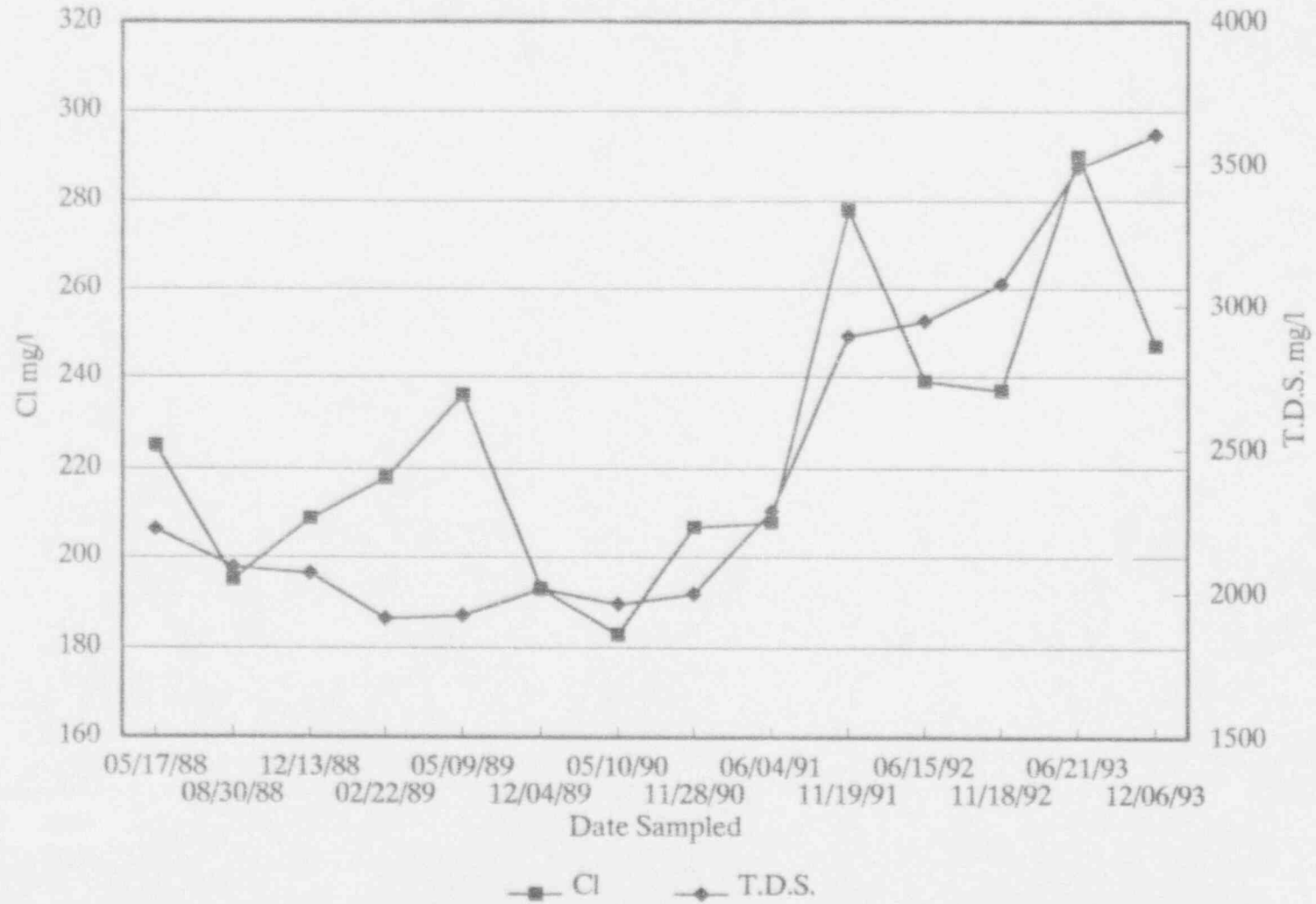
M.W. 1 Chloride & T.D.S.



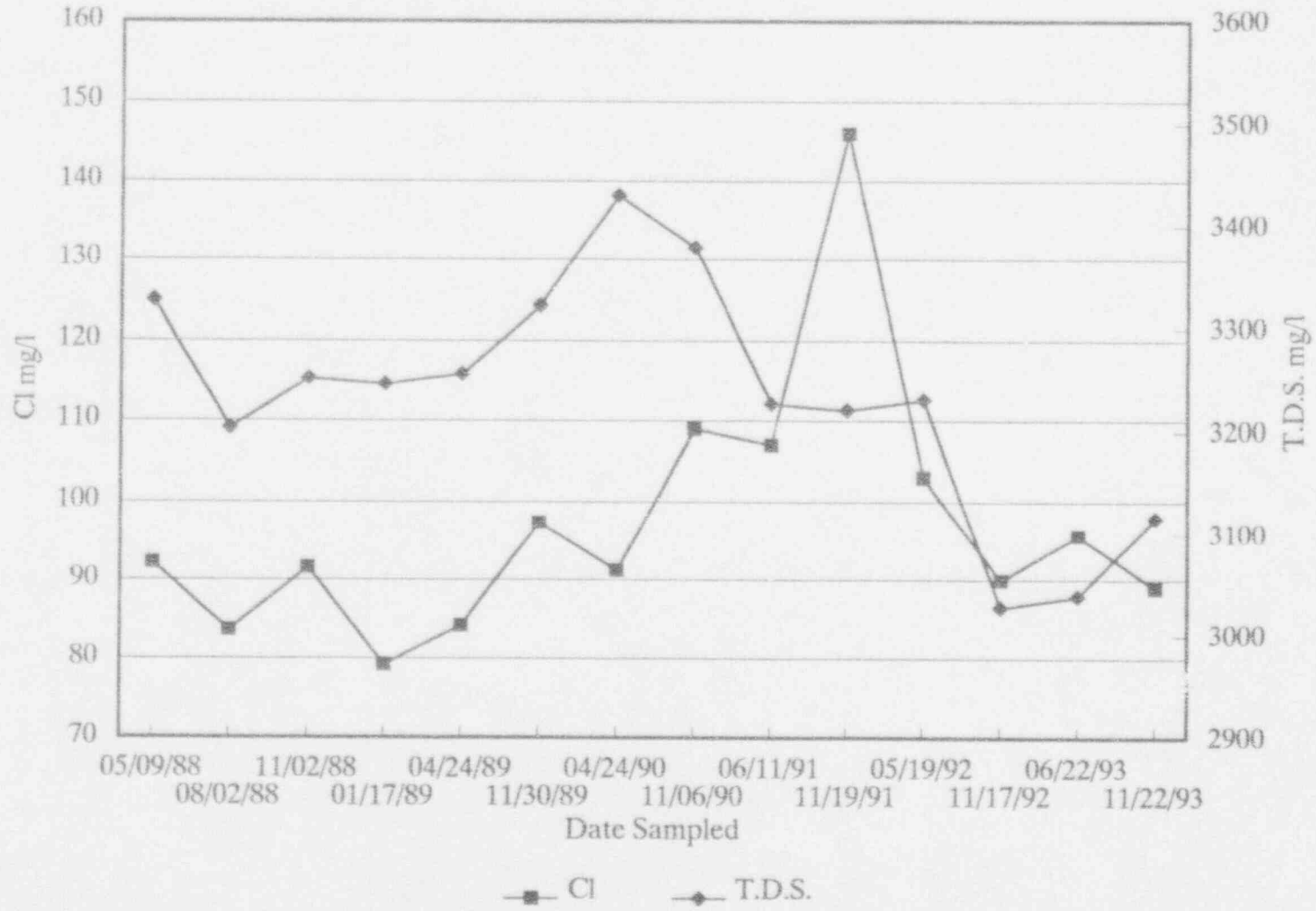
M.W. 2 Chloride & T.D.S.



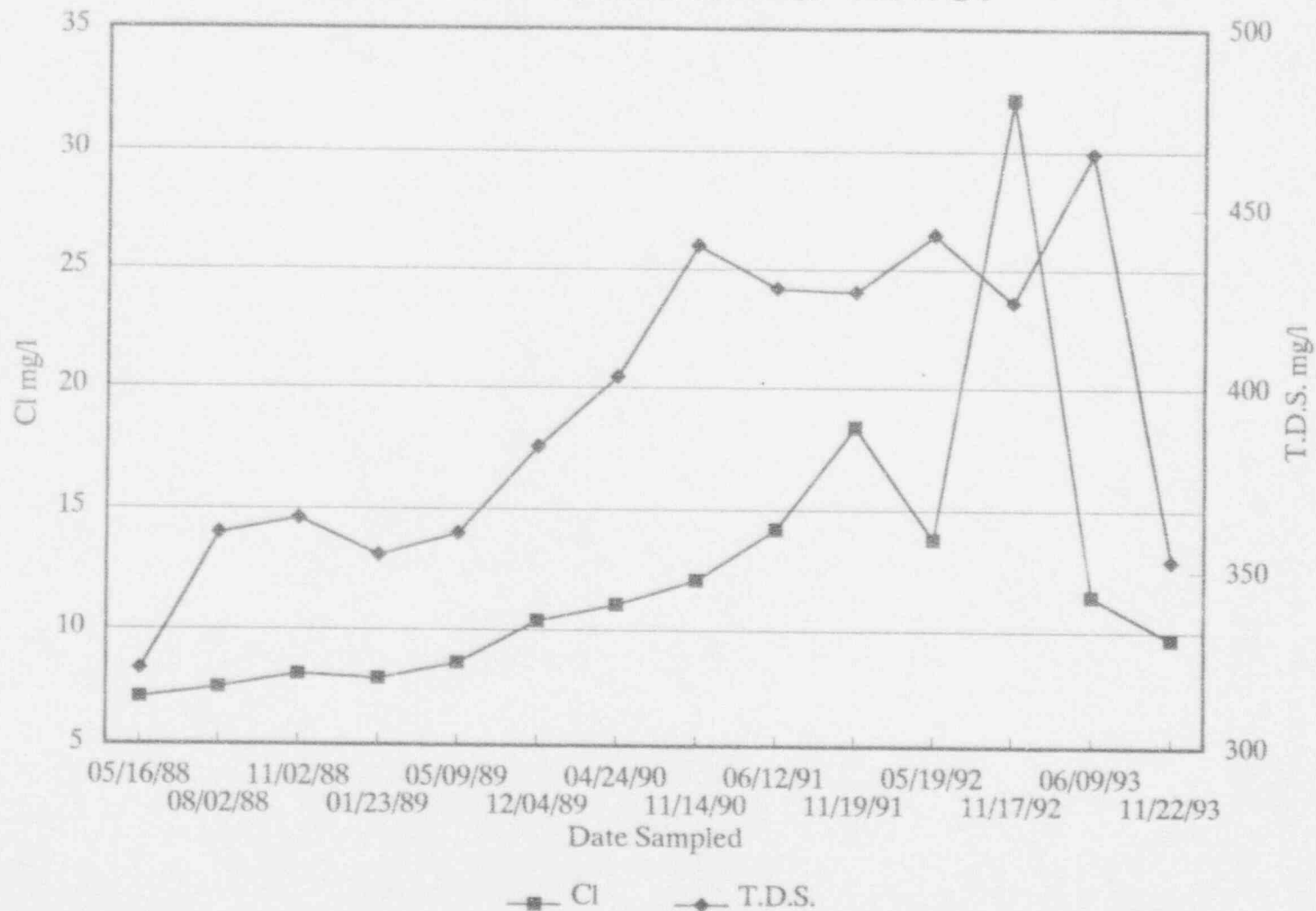
M.W. 4 Chloride & T.D.S.



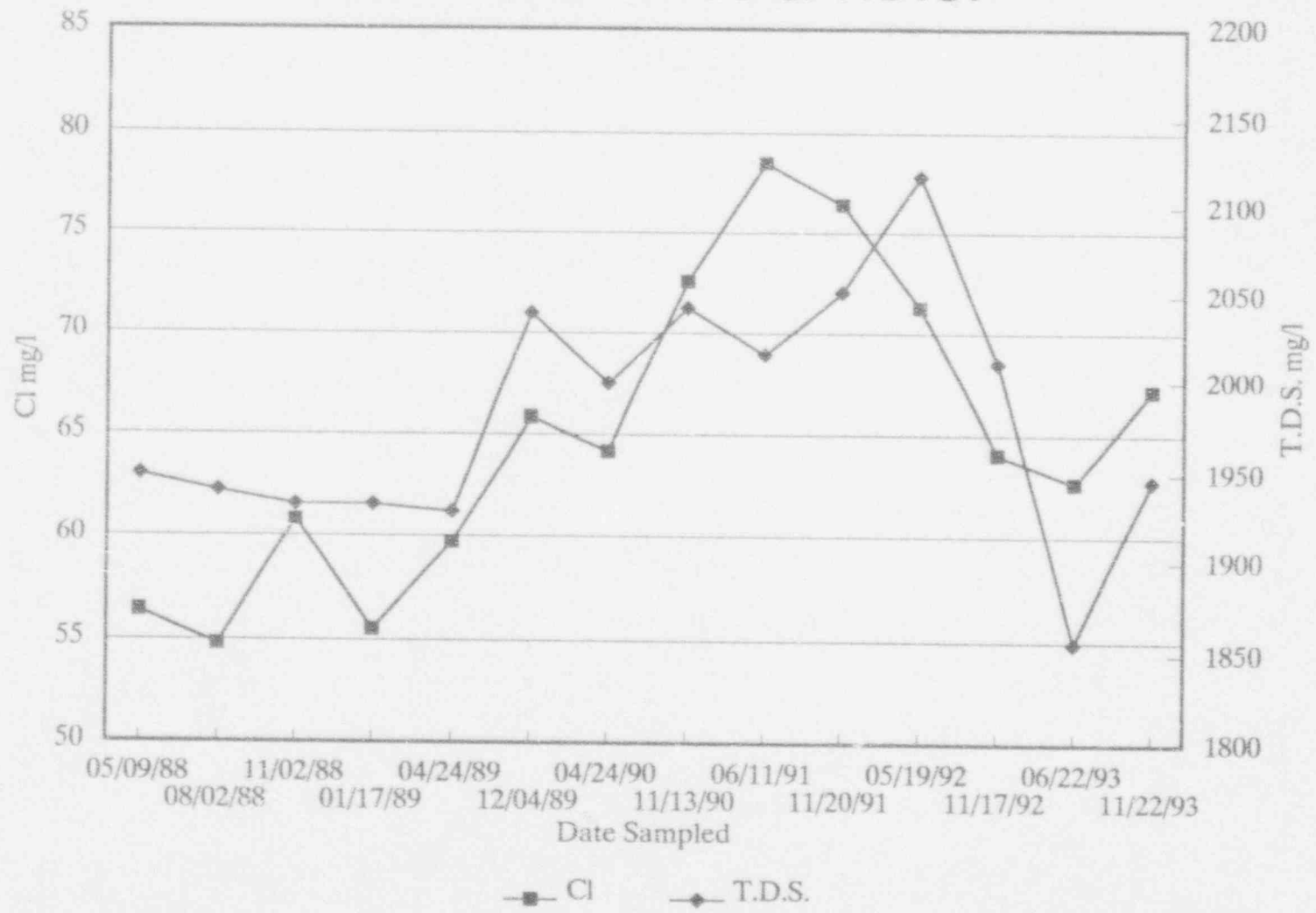
M.W. 17 Chloride & T.D.S.



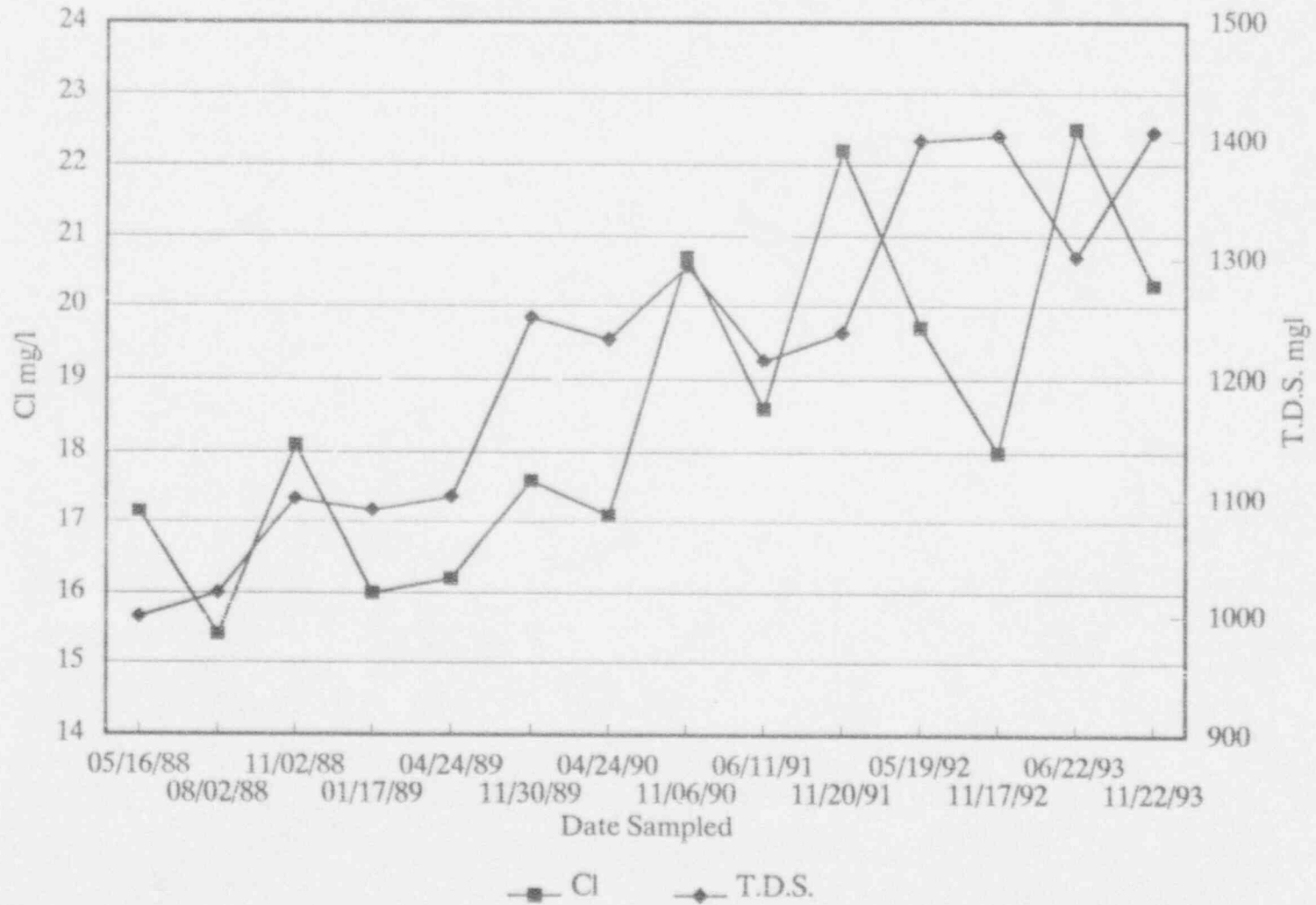
M.W. 18 Chloride & T.D.S.



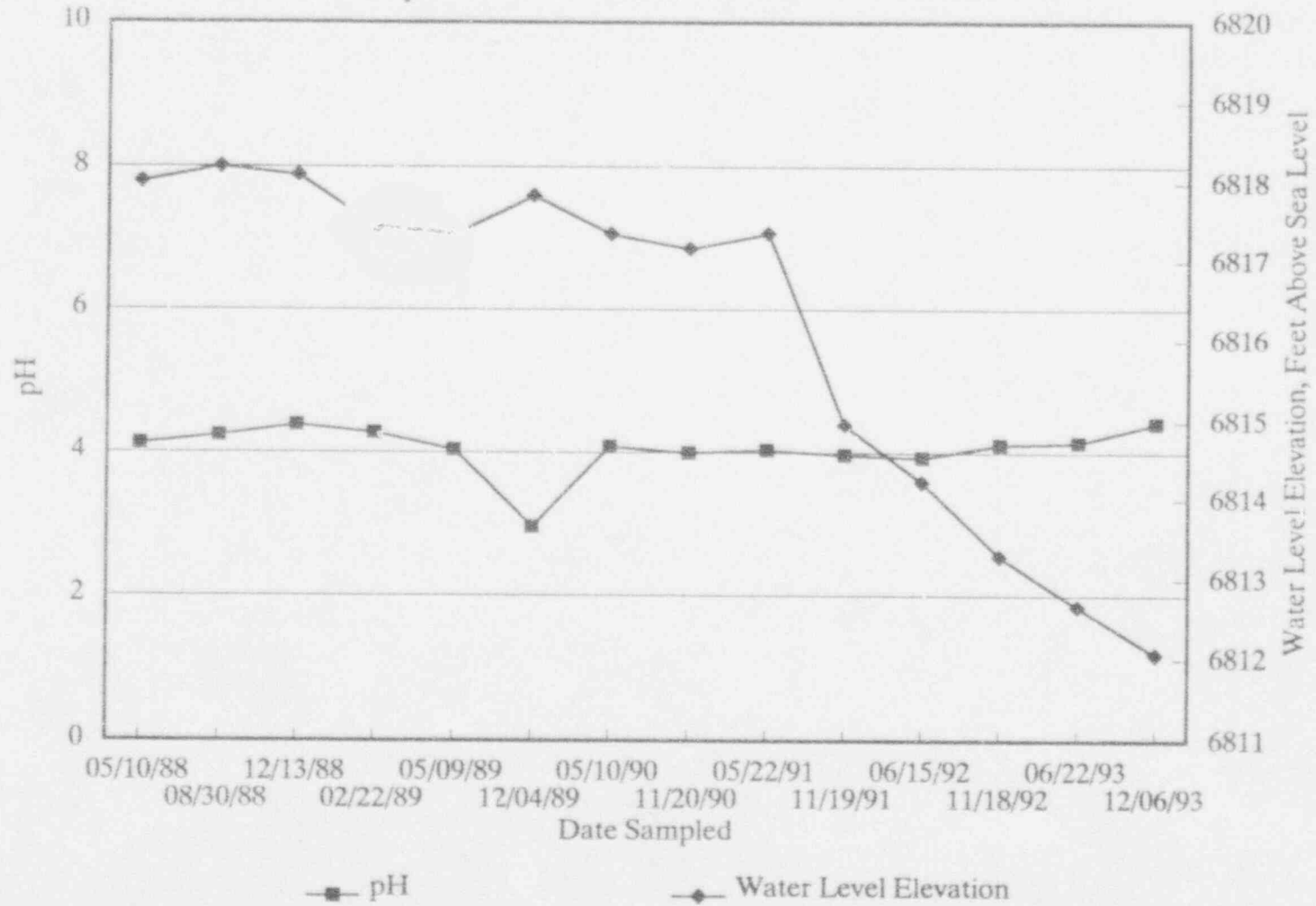
M.W. 23 Chloride & T.D.S.



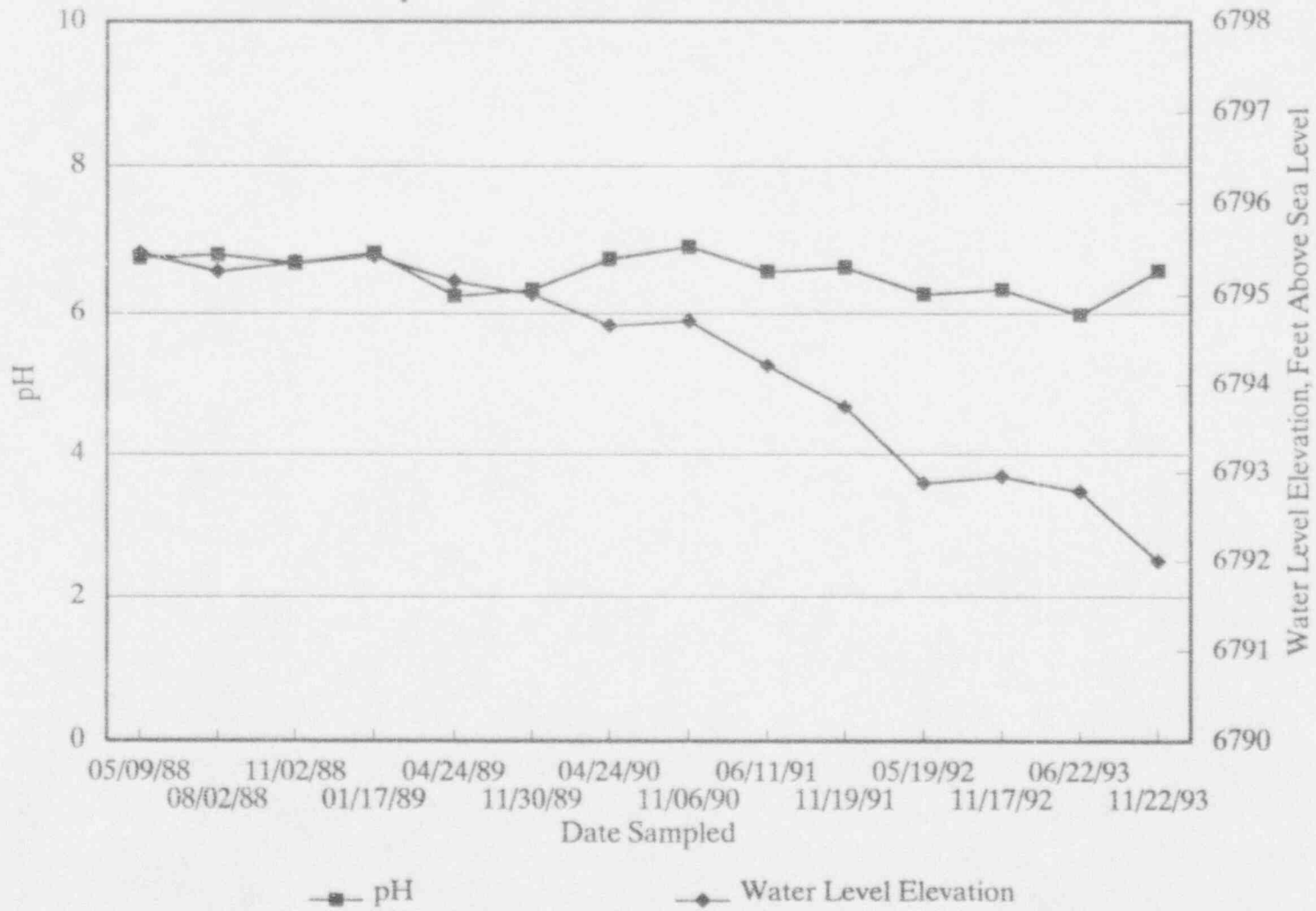
M.W. 26 Chloride & T.D.S.



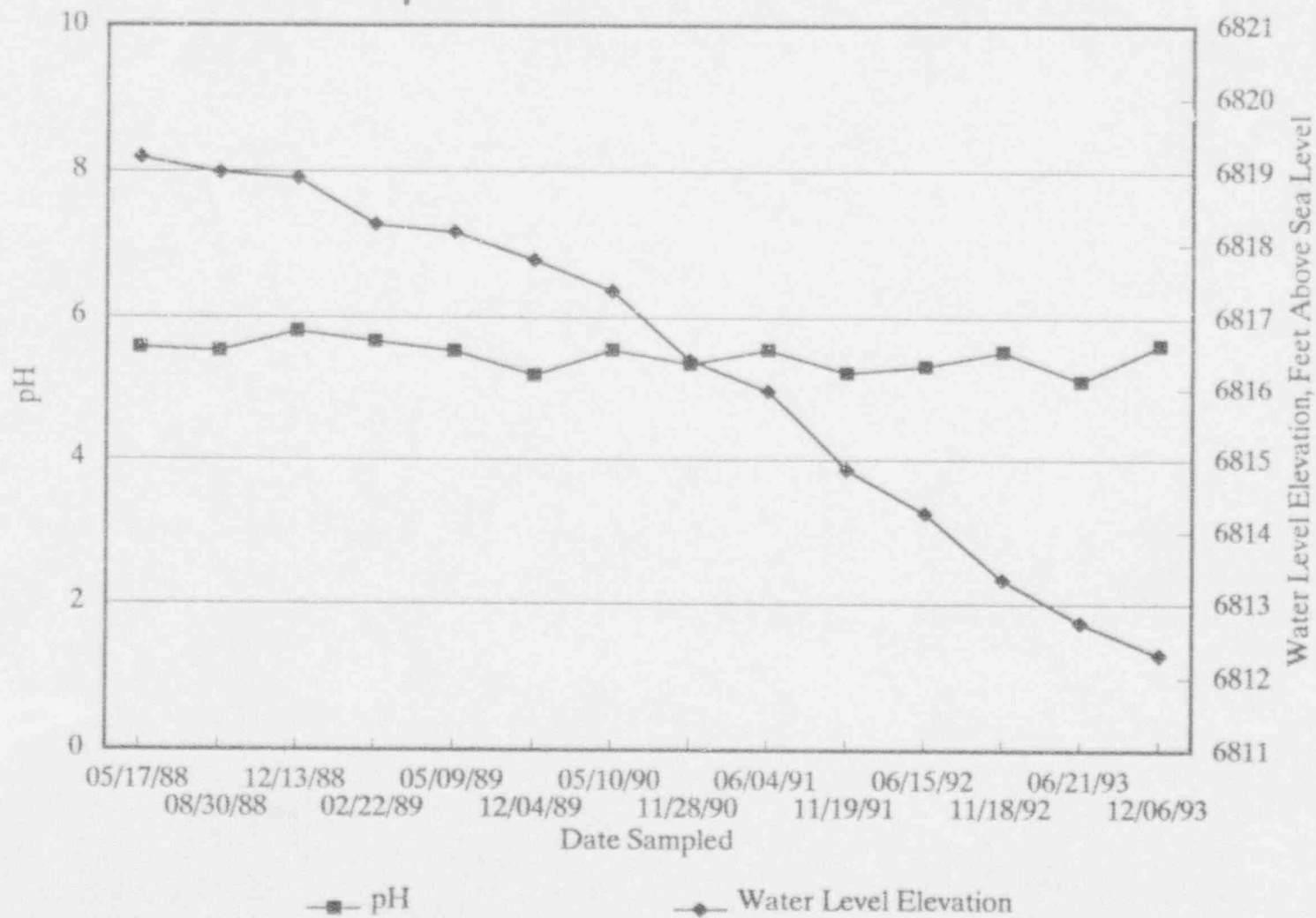
M.W. 1 pH & Water Level Elevation



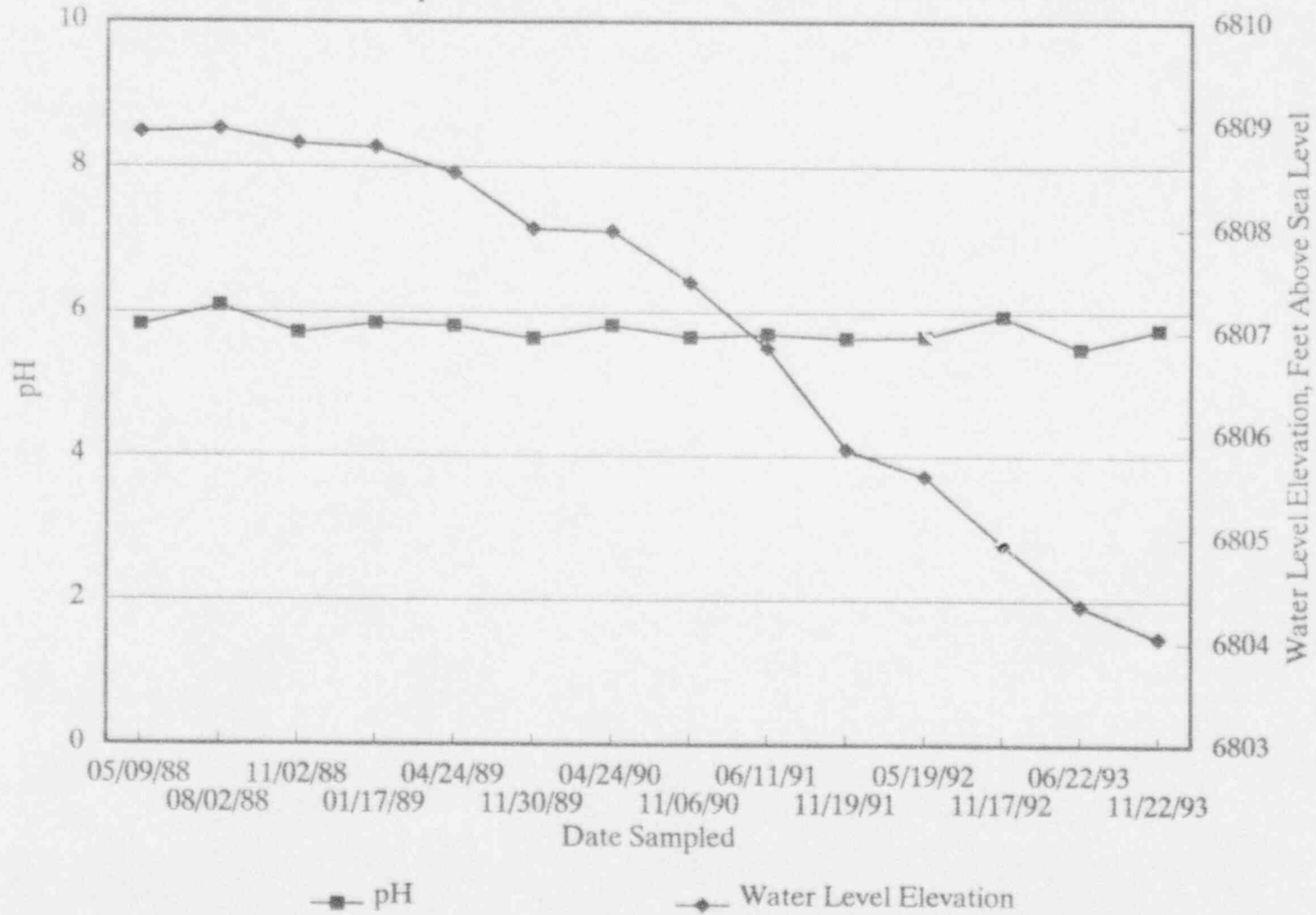
M.W. 2 pH & Water Level Elevation



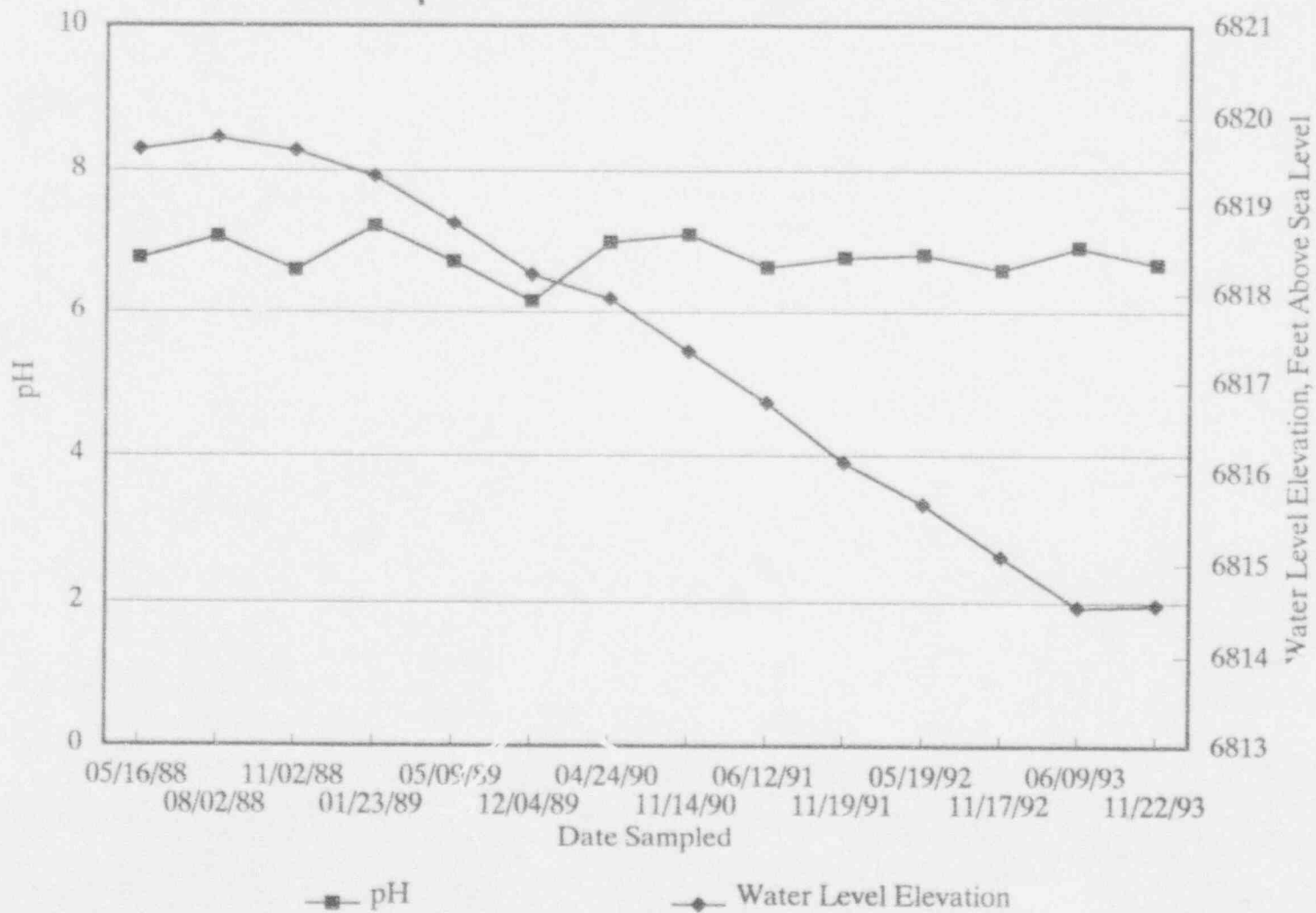
M.W. 4 pH & Water Level Elevation



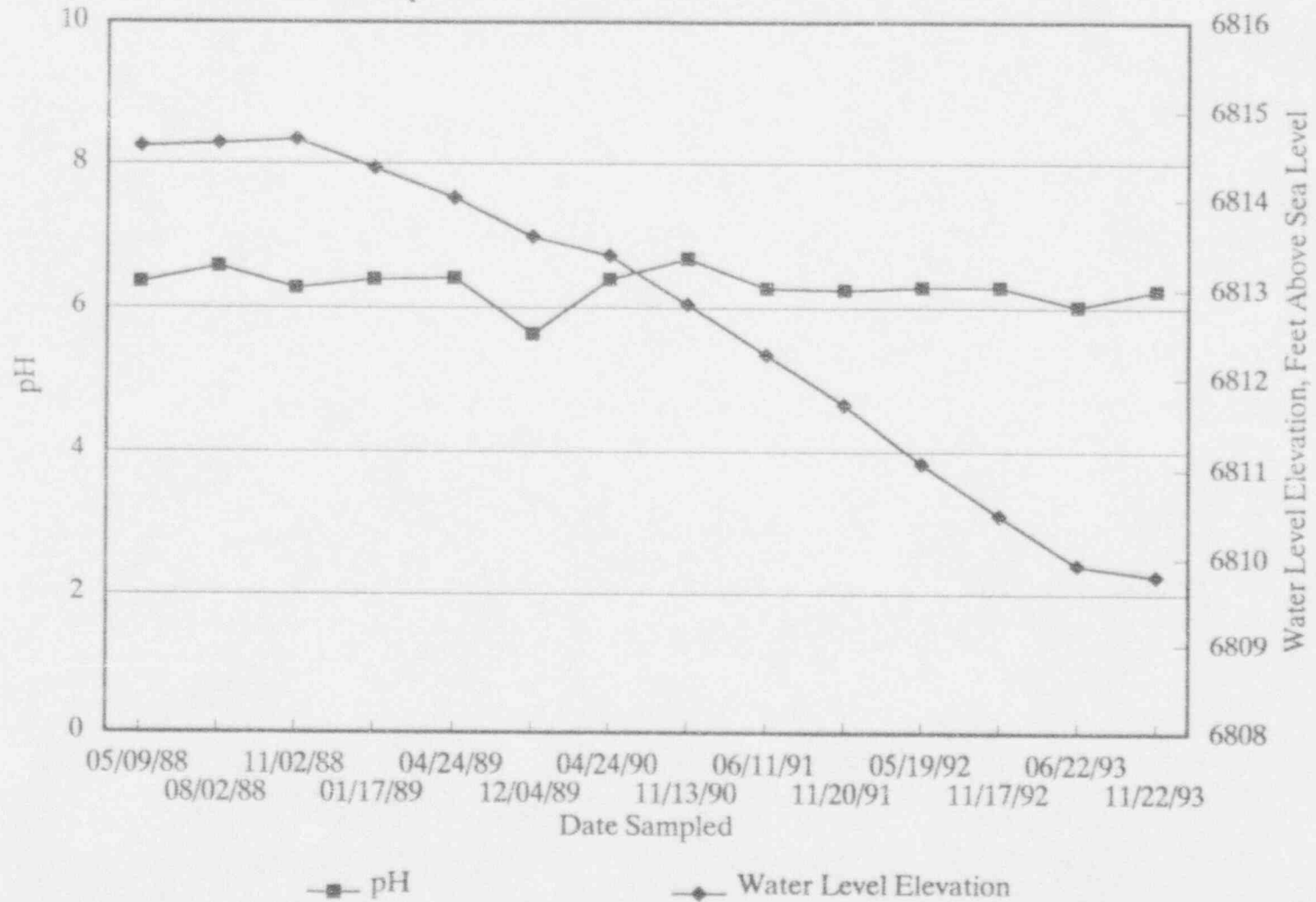
M.W. 17 pH & Water Level Elevation



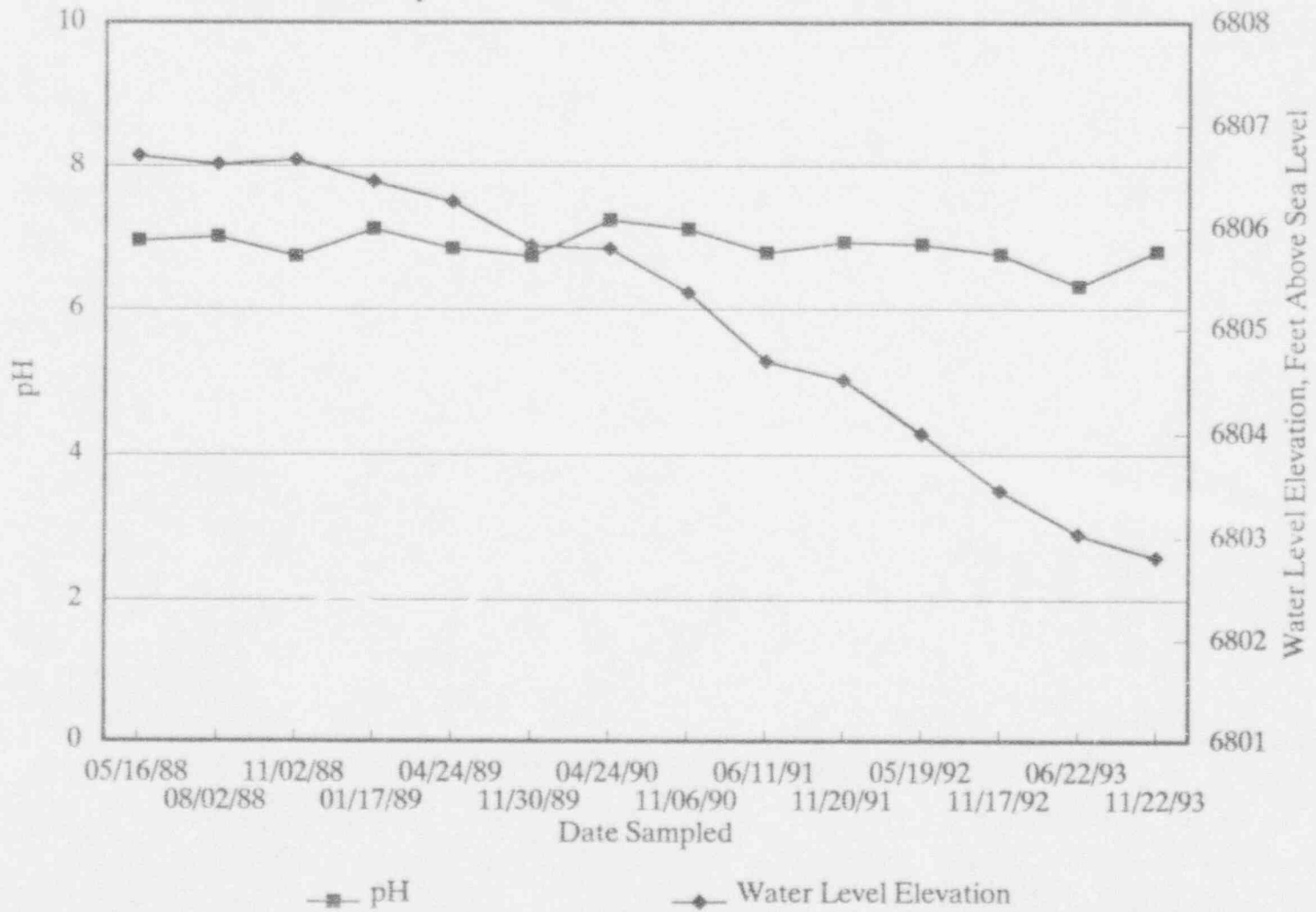
M.W. 18 pH & Water Level Elevation



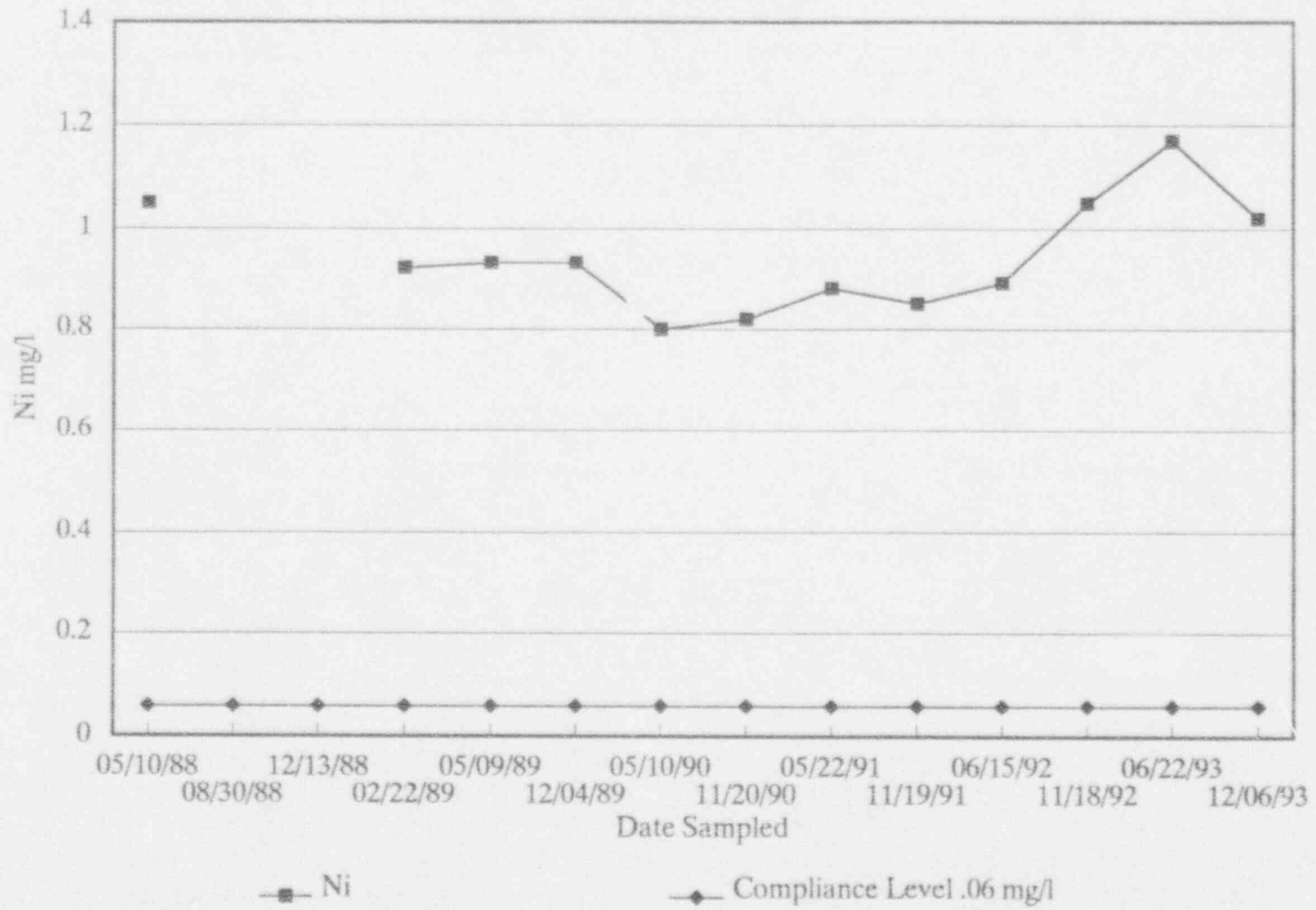
M.W. 23 pH vs Water Level Elevation



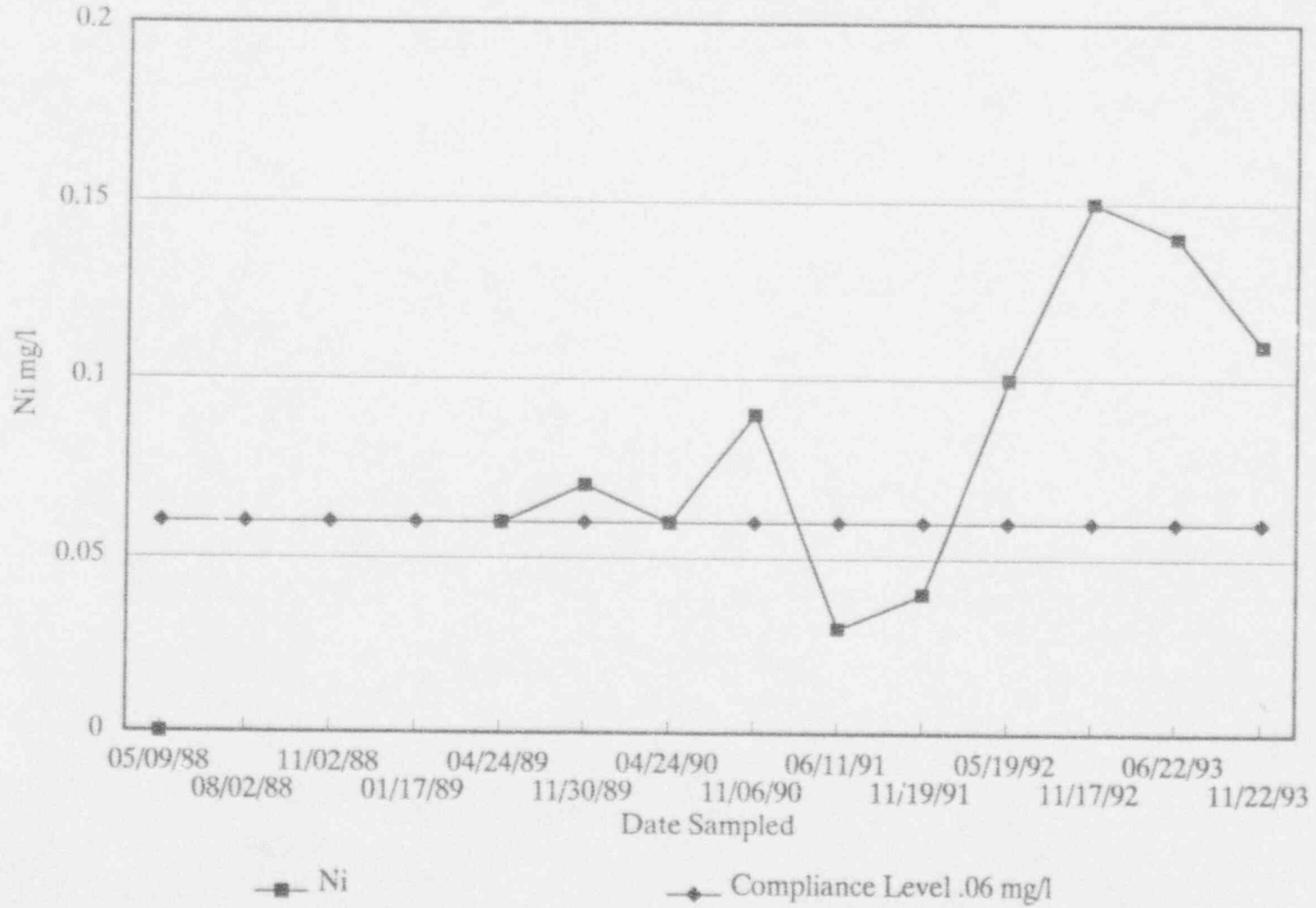
M.W. 26 pH & Water Level Elevation



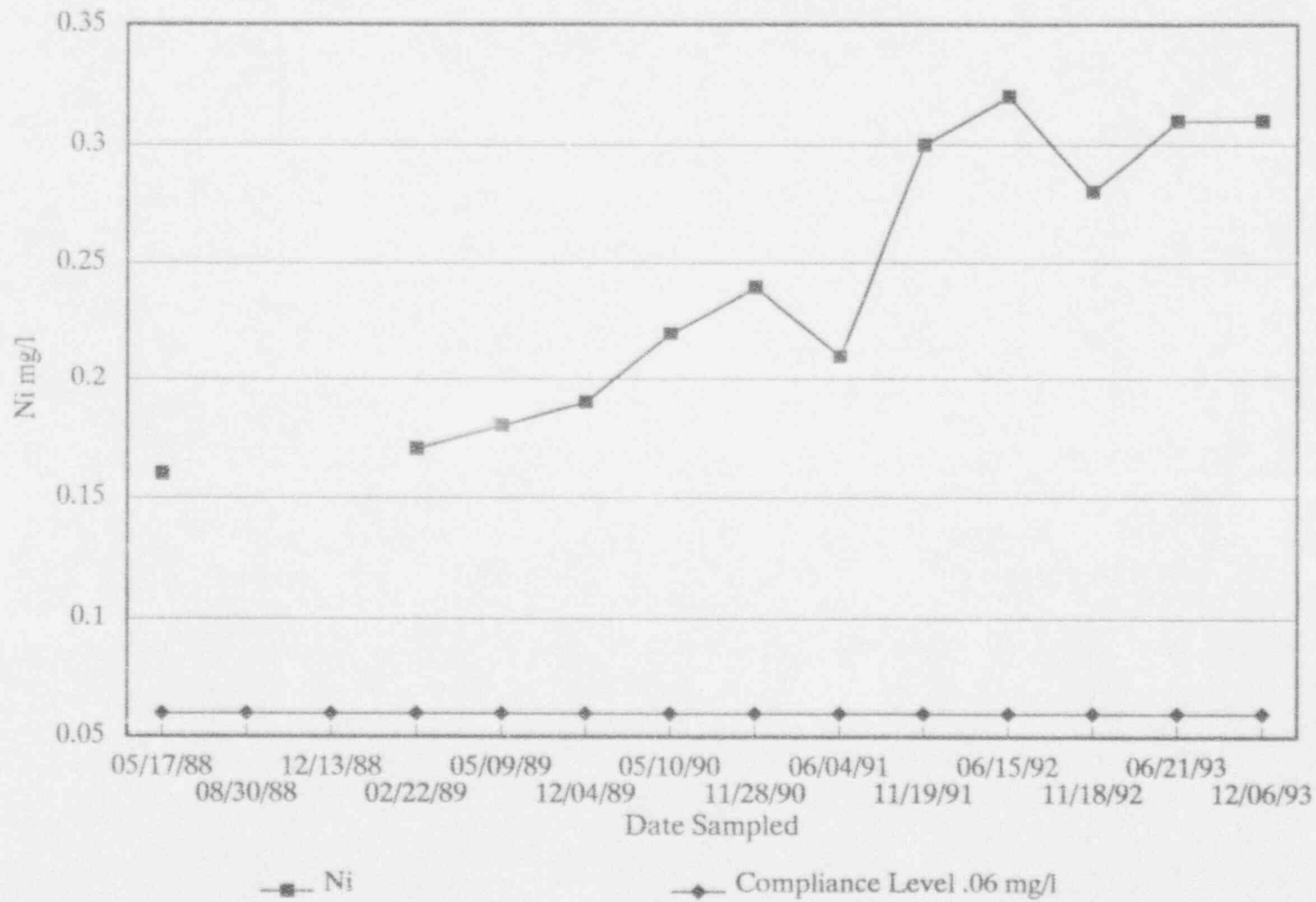
M.W. 1 Nickel



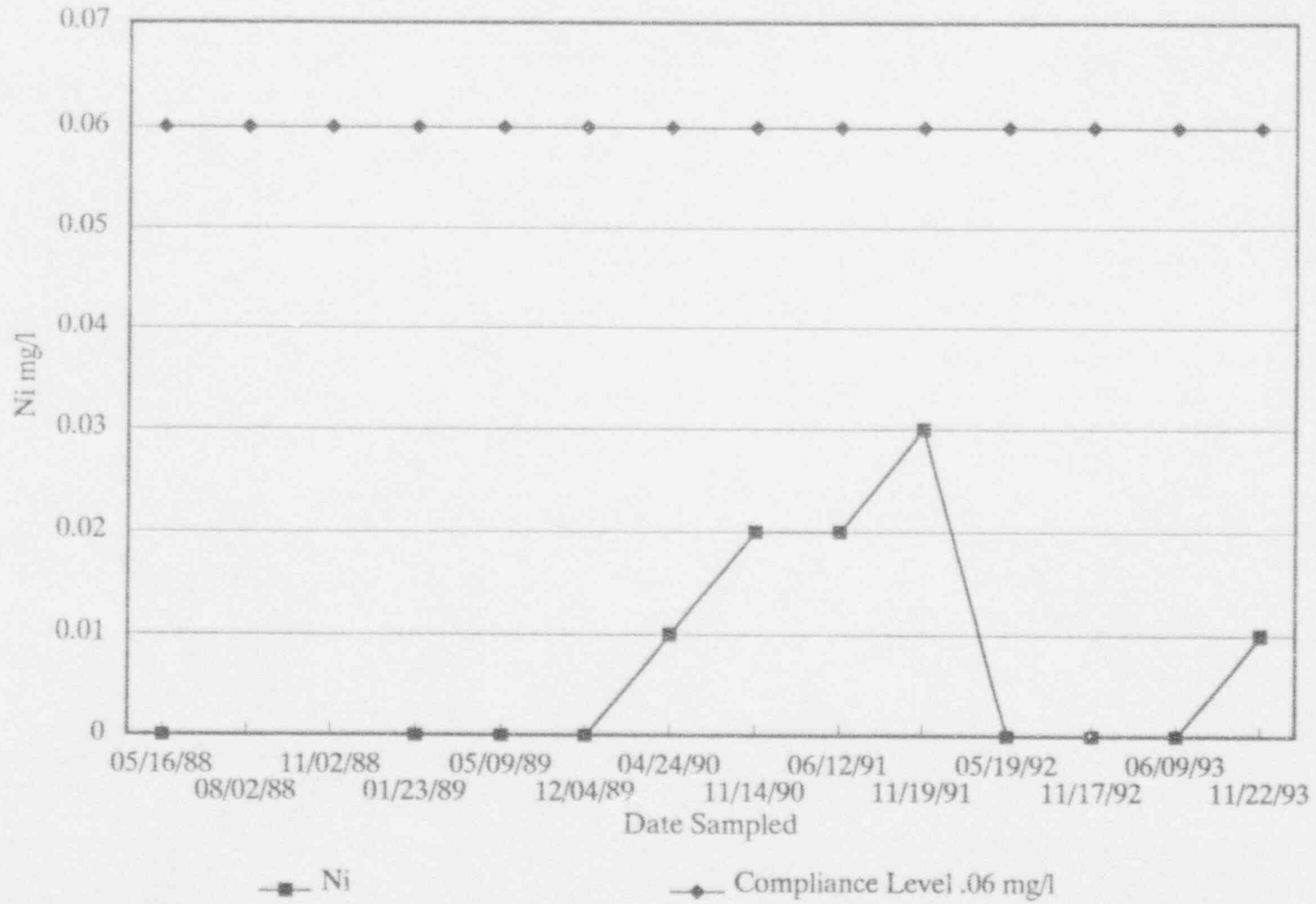
M.W. 2 Nickel



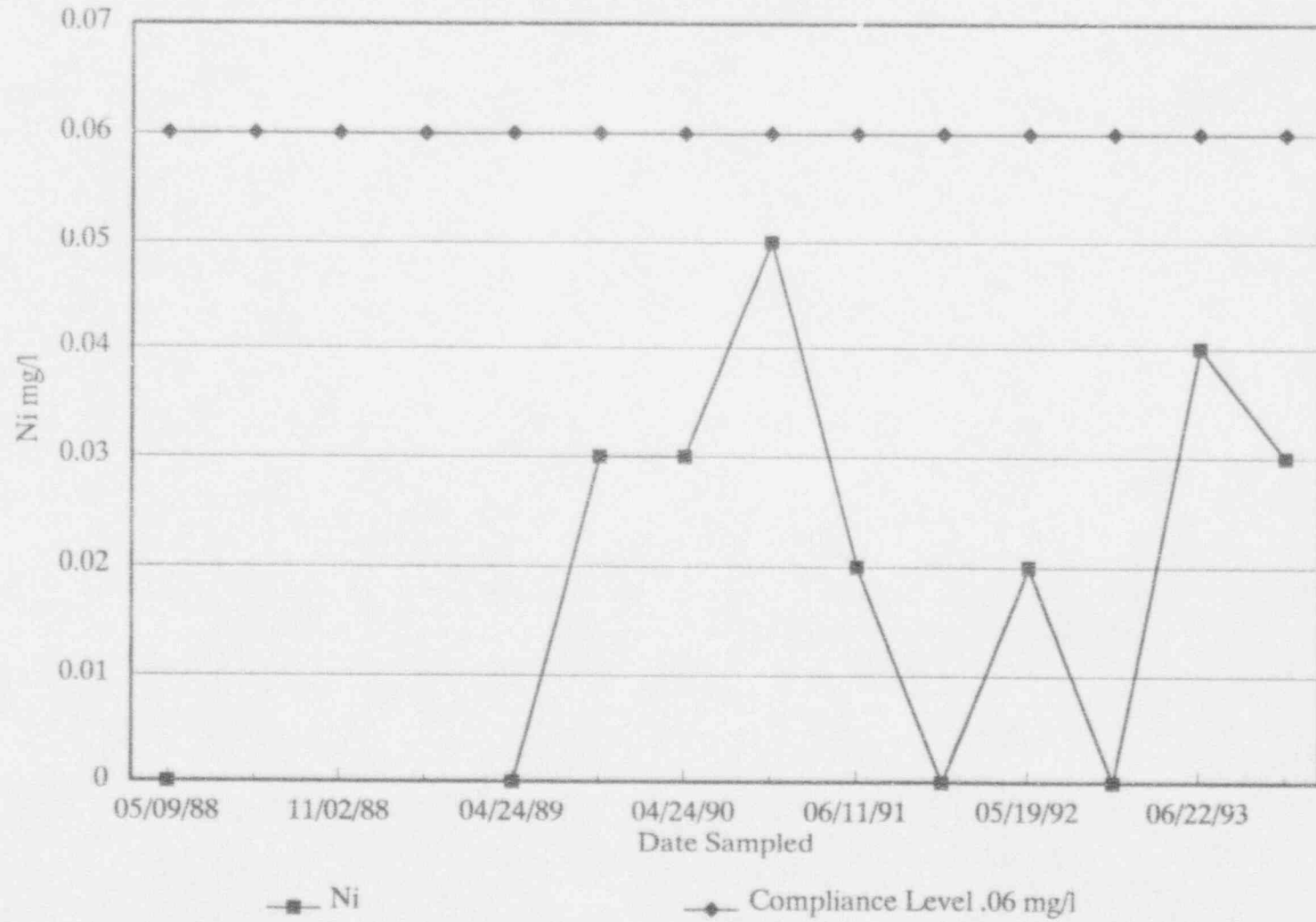
M.W. 4 Nickel



M.W. 18 Nickel



M.W. 23 Nickel



GROUND WATER ANALYSES FOR M. W. 19

Date Sampled	05/19/92	11/17/92	06/22/93	11/23/93
UNat pCi/l	11.80	4.70	23.30	21.00
UNat % M.P.C.	0.04	0.02	0.08	0.07
Ra226 pCi/l	2.40	<0.2	6.90	4.60
Ra226 Error +/-	0.30		0.80	0.50
Ra226 % M.P.C.	8.00		23.00	15.33
Ra228 pCi/l	5.80	1.20	4.70	1.80
Ra228 Error +/-	1.30	0.50	1.90	0.40
Ra228 % M.P.C.	19.33	4.00	15.67	6.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	3.70	<1.0	<1.0
Pb210 Error +/-		0.50		
Pb210 % M.P.C.		3.70		
Gross Alpha - U & Rn pCi/l	<5.0	<5.0	9.50	7.30
Gross Alpha Error +/-			3.10	2.70
As mg/l	<0.01	<0.01	<0.01	0.004
Se mg/l	0.005	0.008	0.006	0.005
Fe mg/l	0.16	0.11	0.32	0.09
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.005
Ni mg/l	0.04	0.05	0.08	<0.05
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	73.40	65.80	69.00	58.60
Mg mg/l	22.90	17.00	20.90	16.10
Na mg/l	28.40	26.90	25.70	24.50
K mg/l	5.00	6.00		
NH3 mg/l	<0.10	<0.10		
NO3 mg/l	<0.10	0.52	0.58	0.35
SO4 mg/l	265.00	227.00	238.00	211.00
Cl mg/l	10.00	7.00	9.90	8.50
TDS mg/l	430.00	425.00	384.00	435.00
pH	6.32	6.46	6.08	6.33
Water Elevation	6823.29	6822.64	6822.11	6822.13

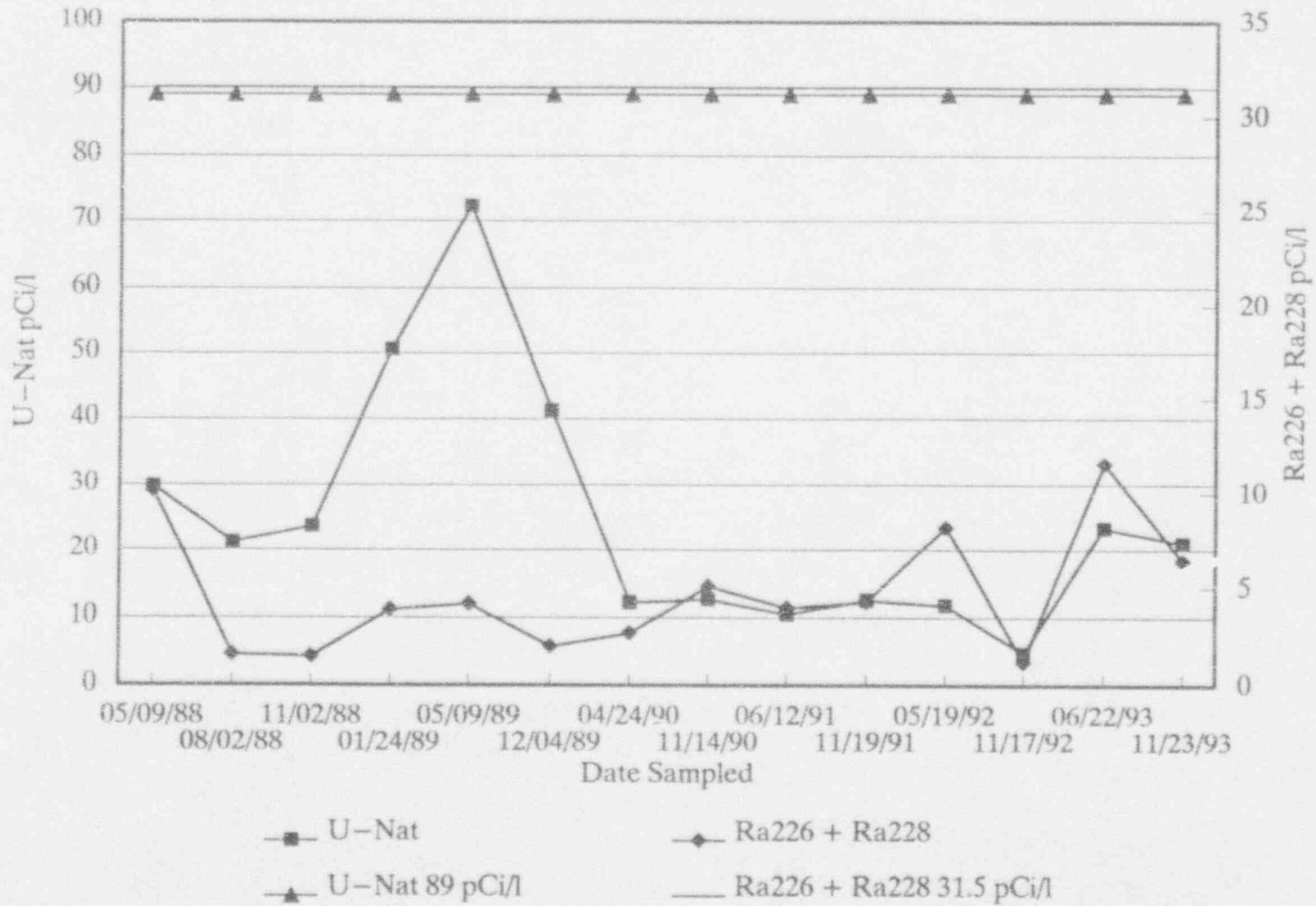
GROUND WATER ANALYSES FOR M. W. 20

Date Sampled	06/15/92	11/04/92	06/14/93	12/06/93
UNat pCi/l	513.00	406.00	287.00	319.50
UNat % M.P.C.	1.71	1.35	0.96	1.07
Ra226 pCi/l	9.70	13.00	9.80	12.20
Ra226 Error +/-	0.70	0.70	0.50	0.60
Ra226 % M.P.C.	32.33	43.33	32.67	40.67
Ra228 pCi/l	4.47	1.90	5.80	6.60
Ra228 Error +/-	0.70	0.60	0.40	0.60
Ra2228 % M.P.C.	14.67	6.33	19.33	22.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	<1.0	1.10	2.60
Pb210 Error +/-			0.90	0.90
Pb210 % M.P.C.			1.10	2.60
Gross Alpha - U & Rn pCi/l	10.30	14.50	12.60	22.10
Gross Alpha Error +/-	3.20	3.80	3.50	4.70
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	8.59	9.80	10.60	11.96
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.03		
Al mg/l	0.12	0.21		
Be mg/l	<0.01	<0.01	<0.01	
Ni mg/l	1.20	0.90	0.81	1.09
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	458.00	460.00	532.00	556.00
Mg mg/l	346.00	357.00	275.00	284.00
Na mg/l	244.00	190.00	184.00	181.00
K mg/l	25.50	27.90		
NH3 mg/l	10.30	10.37		
NO3 mg/l	<0.01	<0.10	<0.10	<0.10
SO4 mg/l	2481.00	2567.00	2396.00	2528.00
Cl mg/l	211.00	201.00	178.00	158.00
TDS mg/l	4463.00	4409.00	4267.00	4276.00
pH	6.50	6.97	5.87	7.07
Water Elevation	6825.57	6824.78	6825.11	6825.51

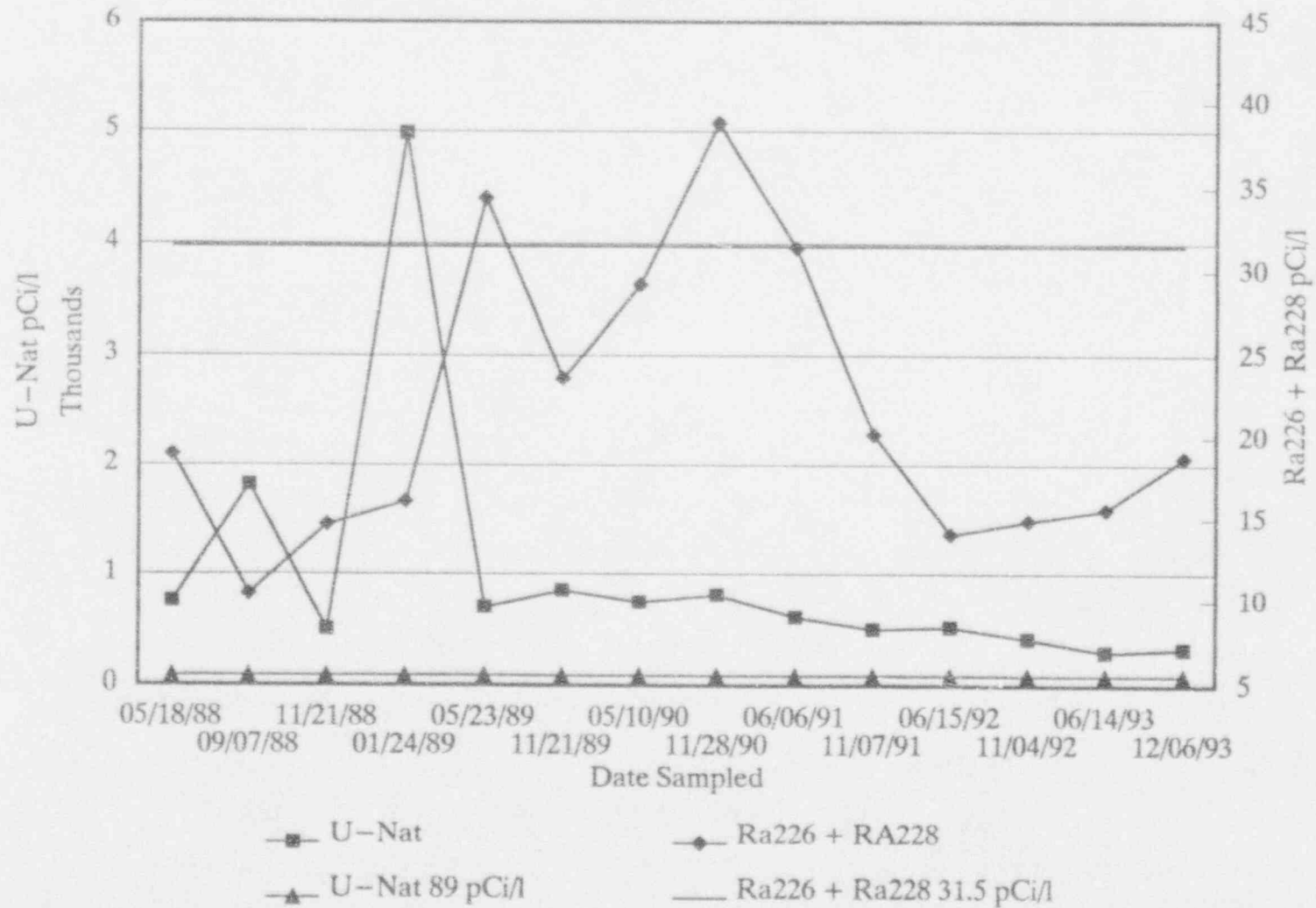
GROUND WATER ANALYSES FOR M. W. 27

Date Sampled	06/16/92	11/04/92	06/21/93	11/17/93
UNat pCi/l	4.80	3.40	11.70	1.50
UNat % M.P.C.	0.02	0.01	0.04	0.01
Ra226 pCi/l	5.20	6.20	7.20	8.30
Ra226 Error +/-	0.50	0.50	0.90	0.50
Ra226 % M.P.C.	17.33	20.67	24.00	27.67
Ra228 pCi/l	<1.0	1.50	6.40	1.40
Ra228 Error +/-		0.70	1.40	0.50
Ra228 % M.P.C.		5.00	21.33	4.67
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	1.20	3.60	<1.0	1.30
Pb210 Error +/-	0.60	0.90		0.60
Pb210 % M.P.C.	1.20	3.60		1.30
Gross Alpha - U & Rn pCi/l	5.30	6.90	7.00	10.40
Gross Alpha Error +/-	2.30	3.00	2.70	3.20
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	9.46	10.10	12.30	11.30
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.03		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	<0.01	0.03	0.05	0.04
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	125.00	150.00	159.00	169.00
Mg mg/l	15.10	14.10	15.50	14.60
Na mg/l	31.30	29.70	32.40	34.80
K mg/l	7.15	9.08		
NH3 mg/l	0.31	0.07		
NO3 mg/l	<0.01	<0.10	<0.01	0.22
SO4 mg/l	305.00	335.00	413.00	405.00
Cl mg/l	6.40	8.20	8.60	5.90
TDS mg/l	660.00	690.00	760.00	721.00
pH	7.10	7.03	5.95	6.88
Water Elevation	6827.01	6826.41	6827.50	6826.82

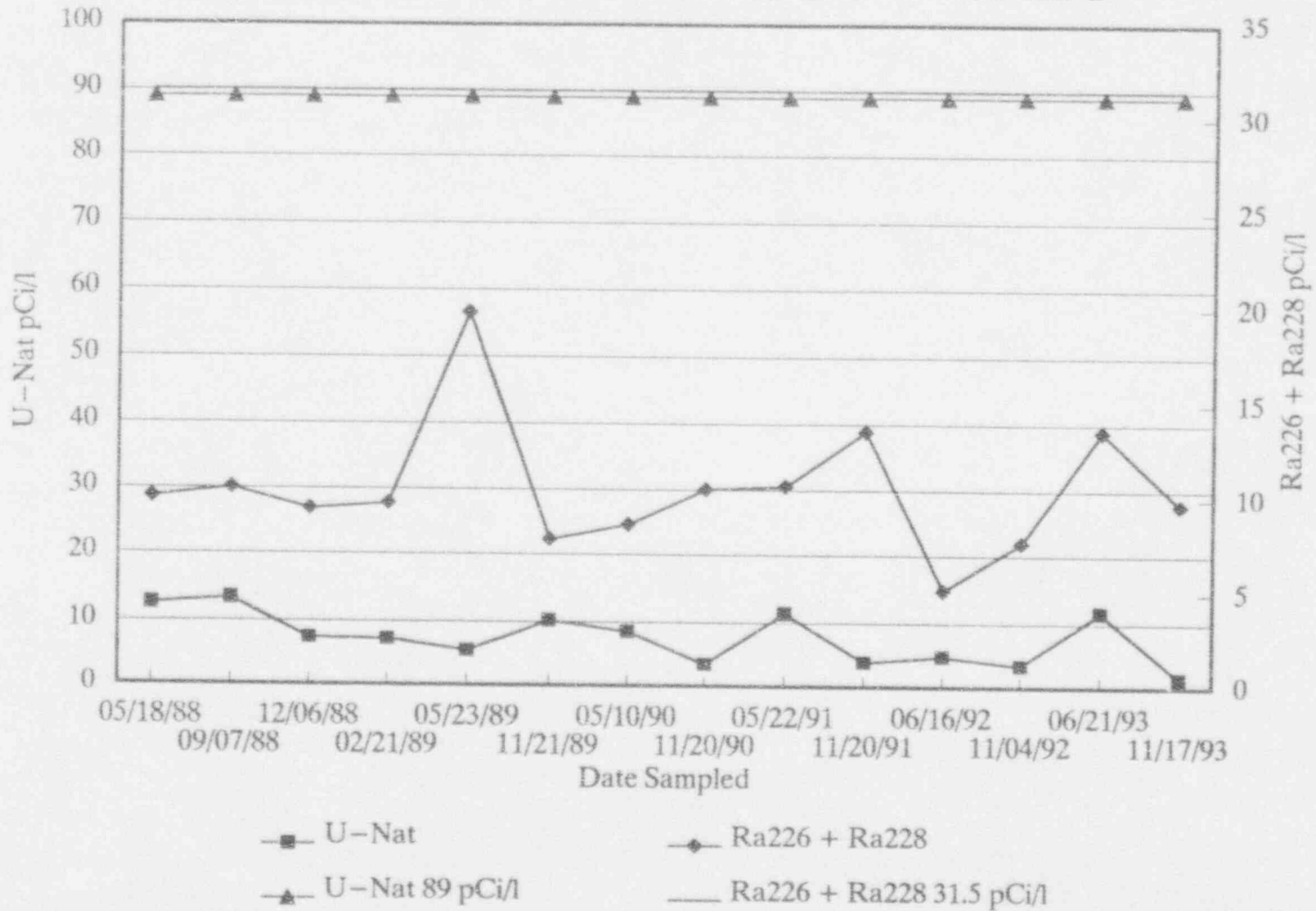
M.W. 19 U-Nat & Ra226 + Ra228



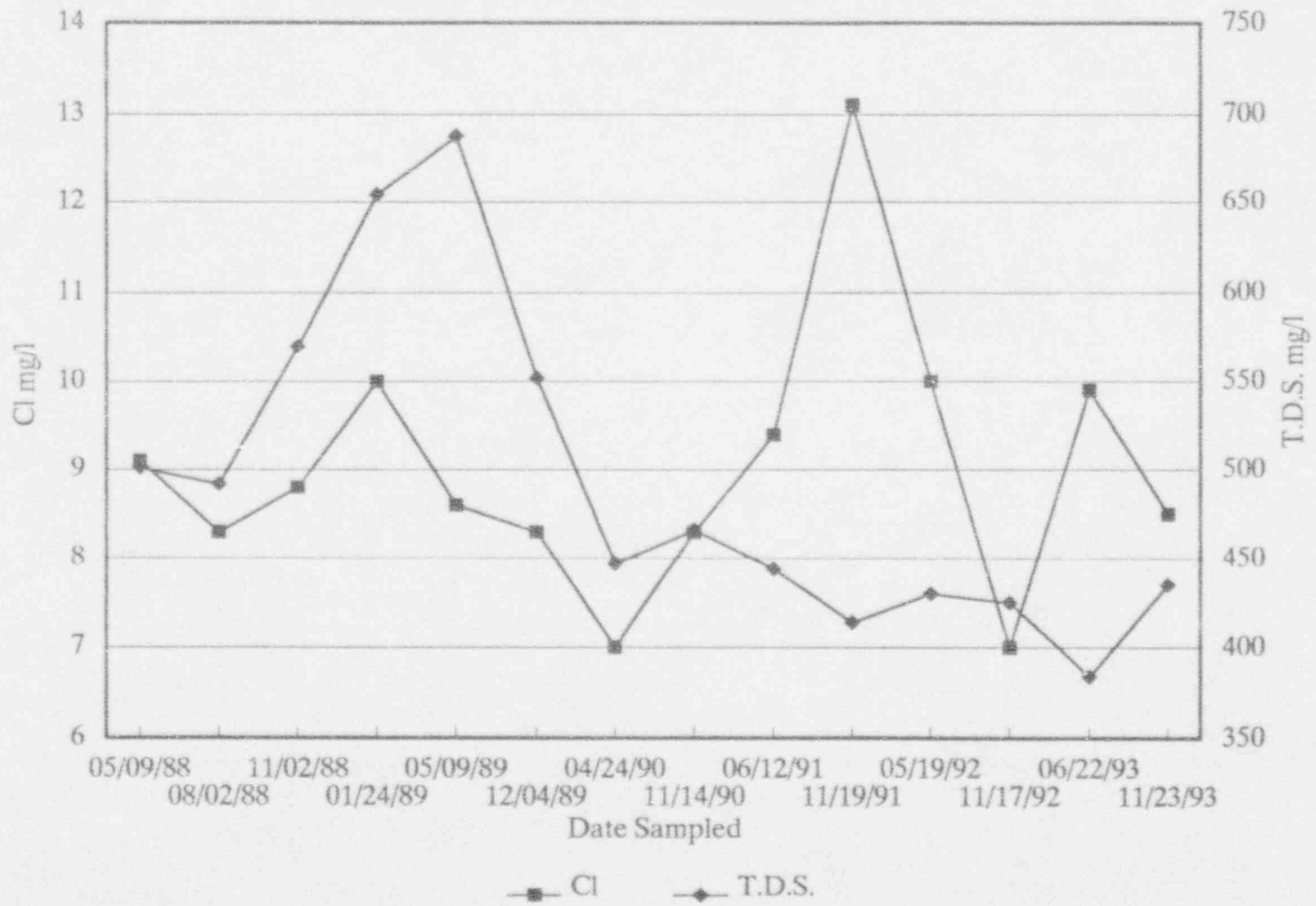
M.W. 20 U-Nat & Ra226 + Ra228



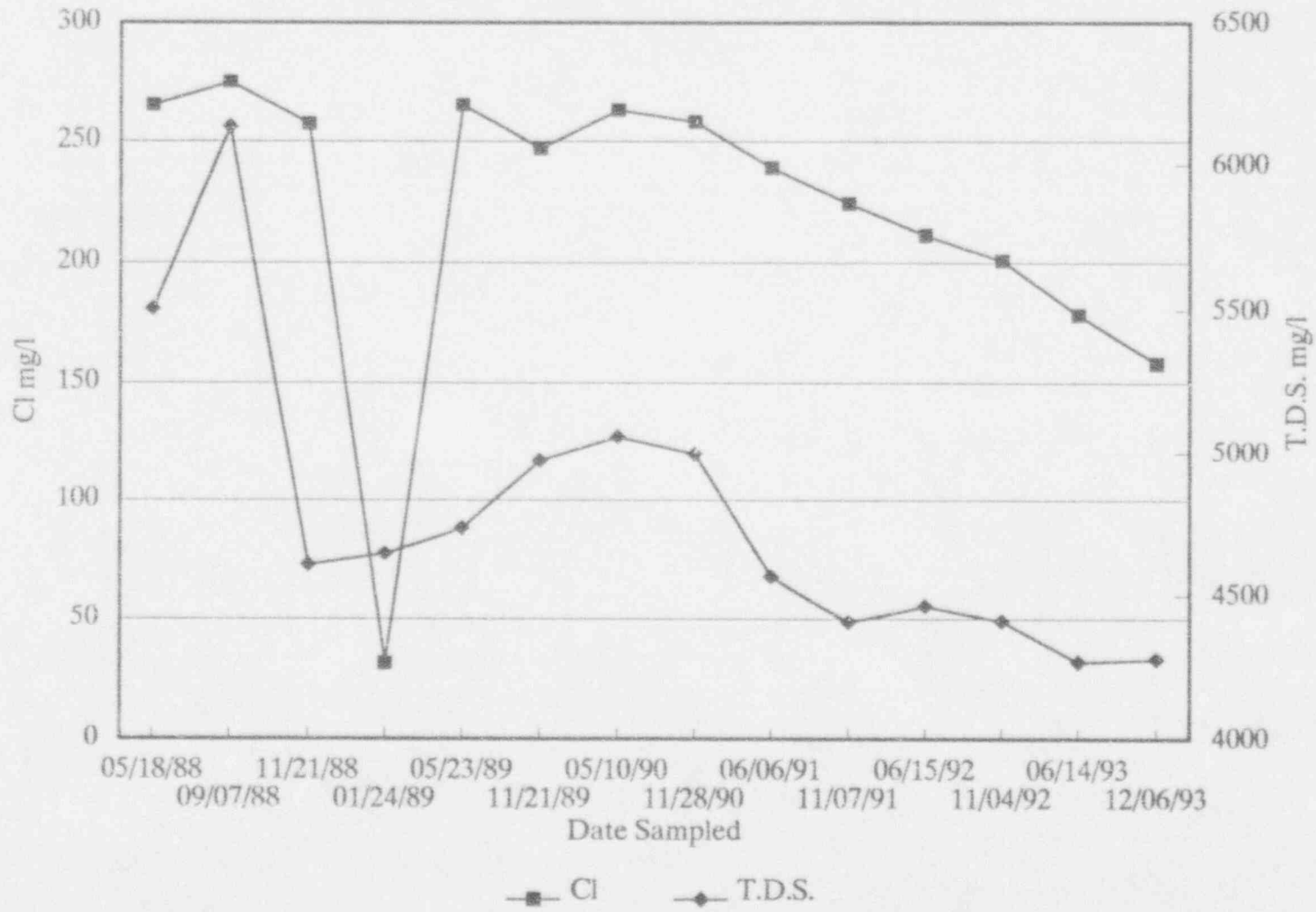
M.W. 27 U-Nat & Ra226 + Ra228



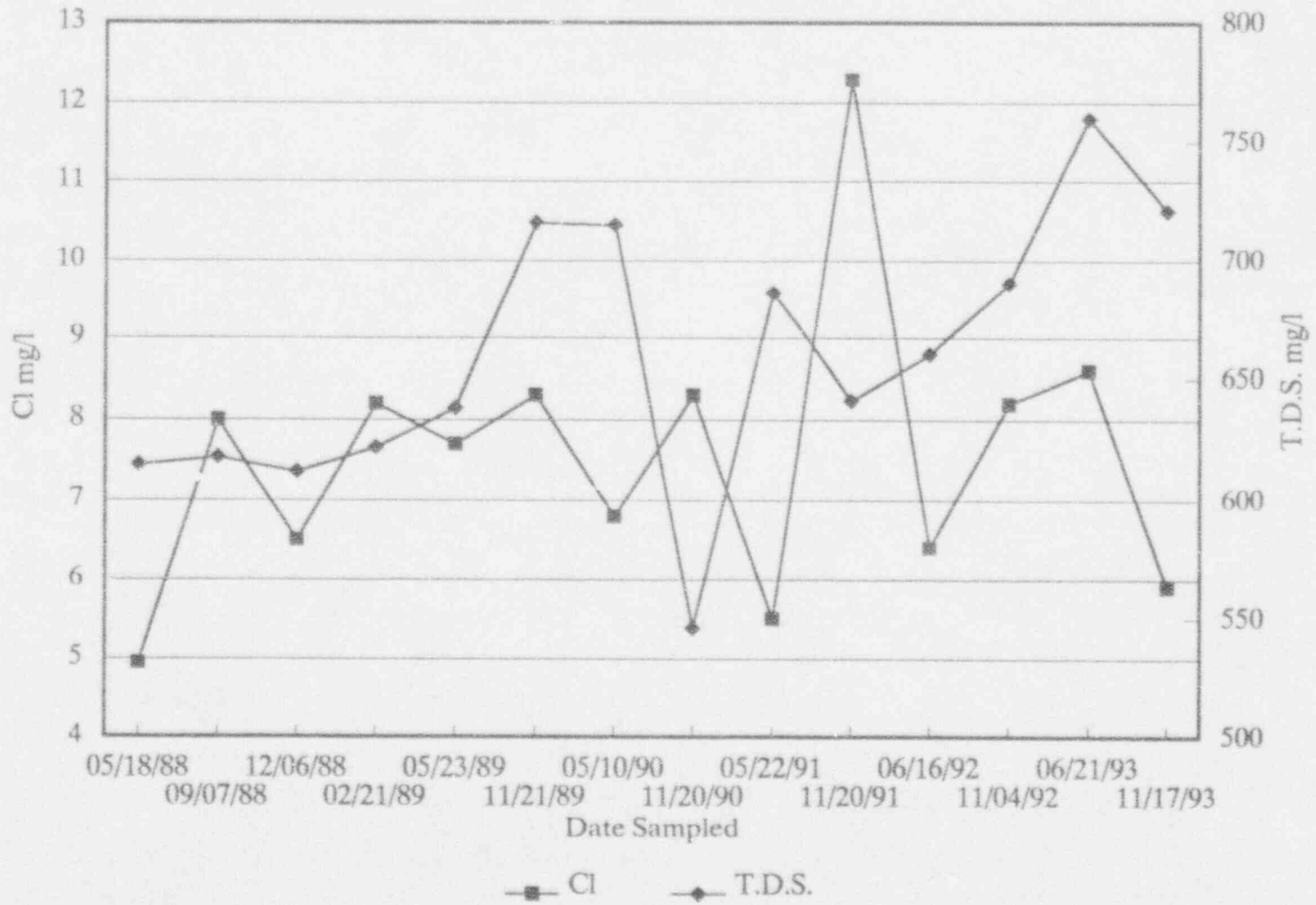
M.W. 19 Chloride & T.D.S.



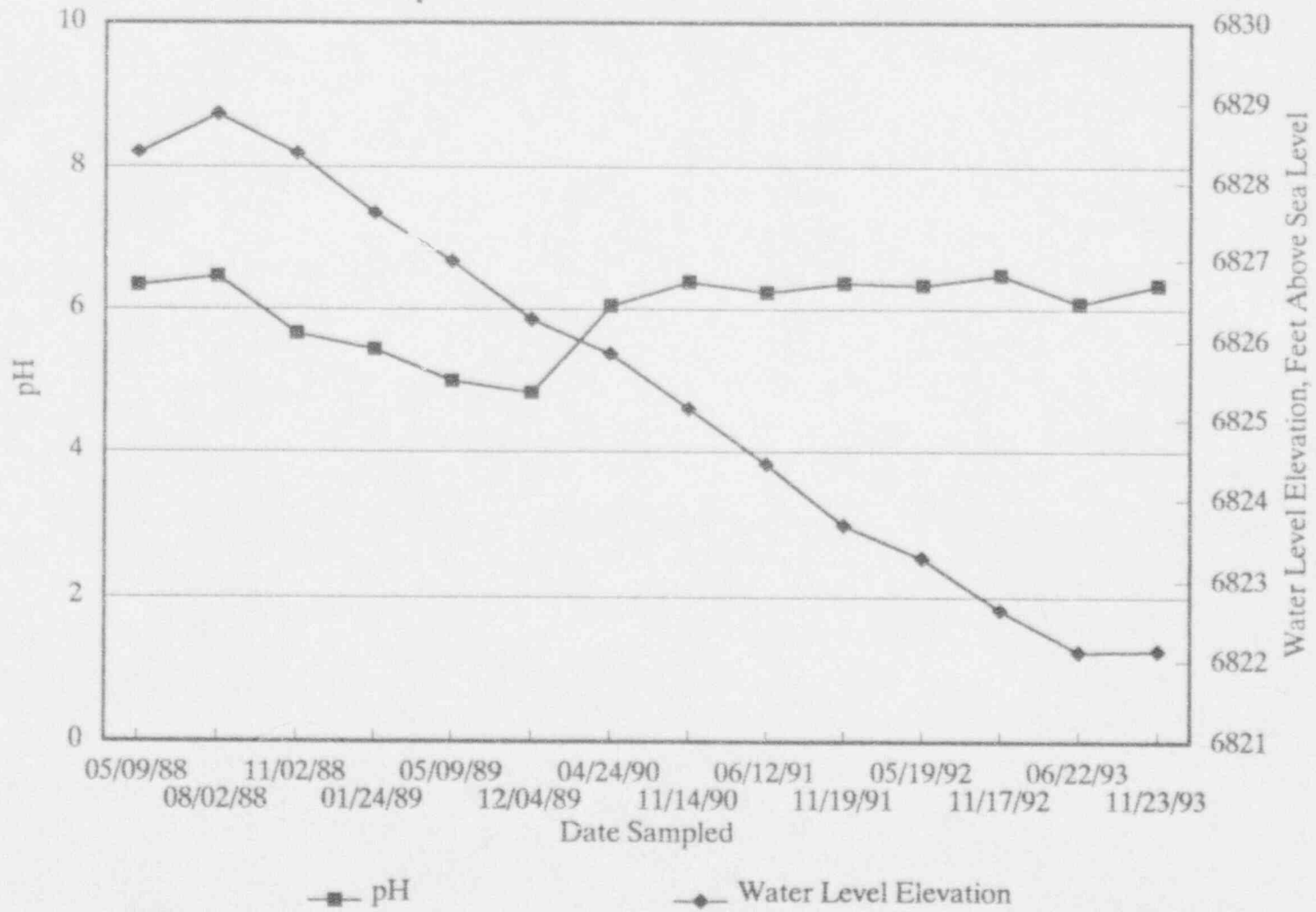
M.W. 20 Chloride & T.D.S.



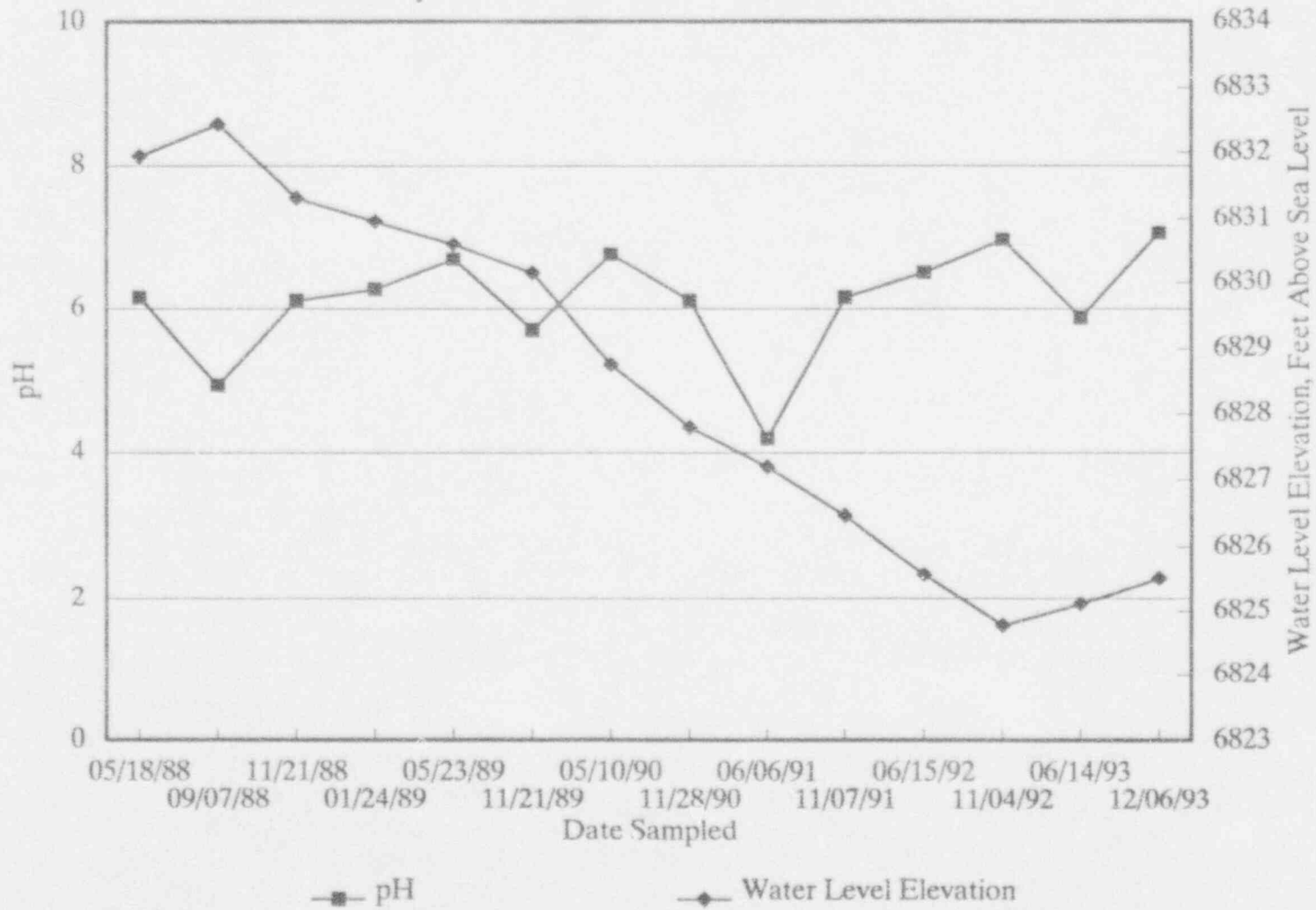
M.W. 27 Chloride & T.D.S.



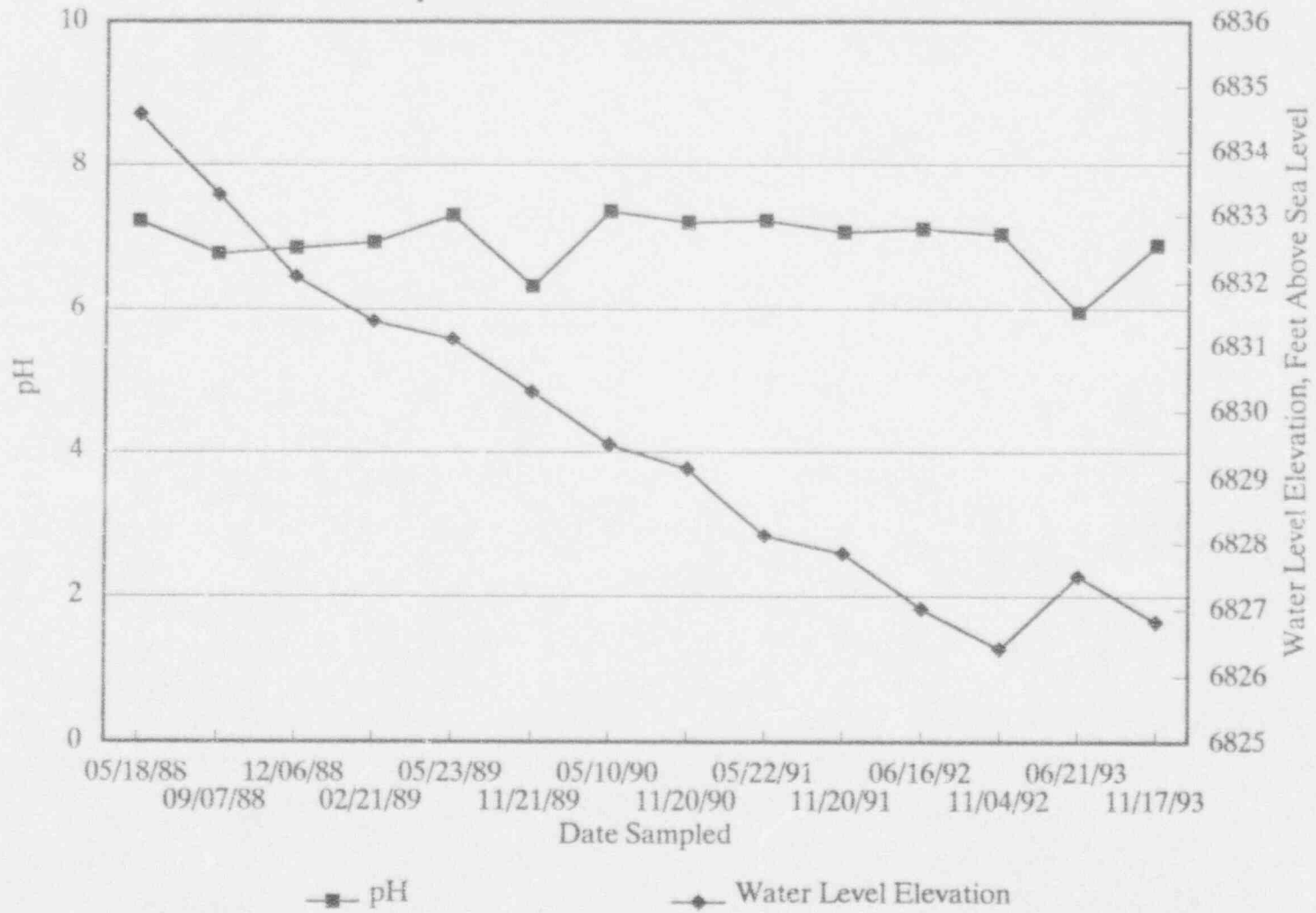
M.W. 19 pH & Water Level Elevation



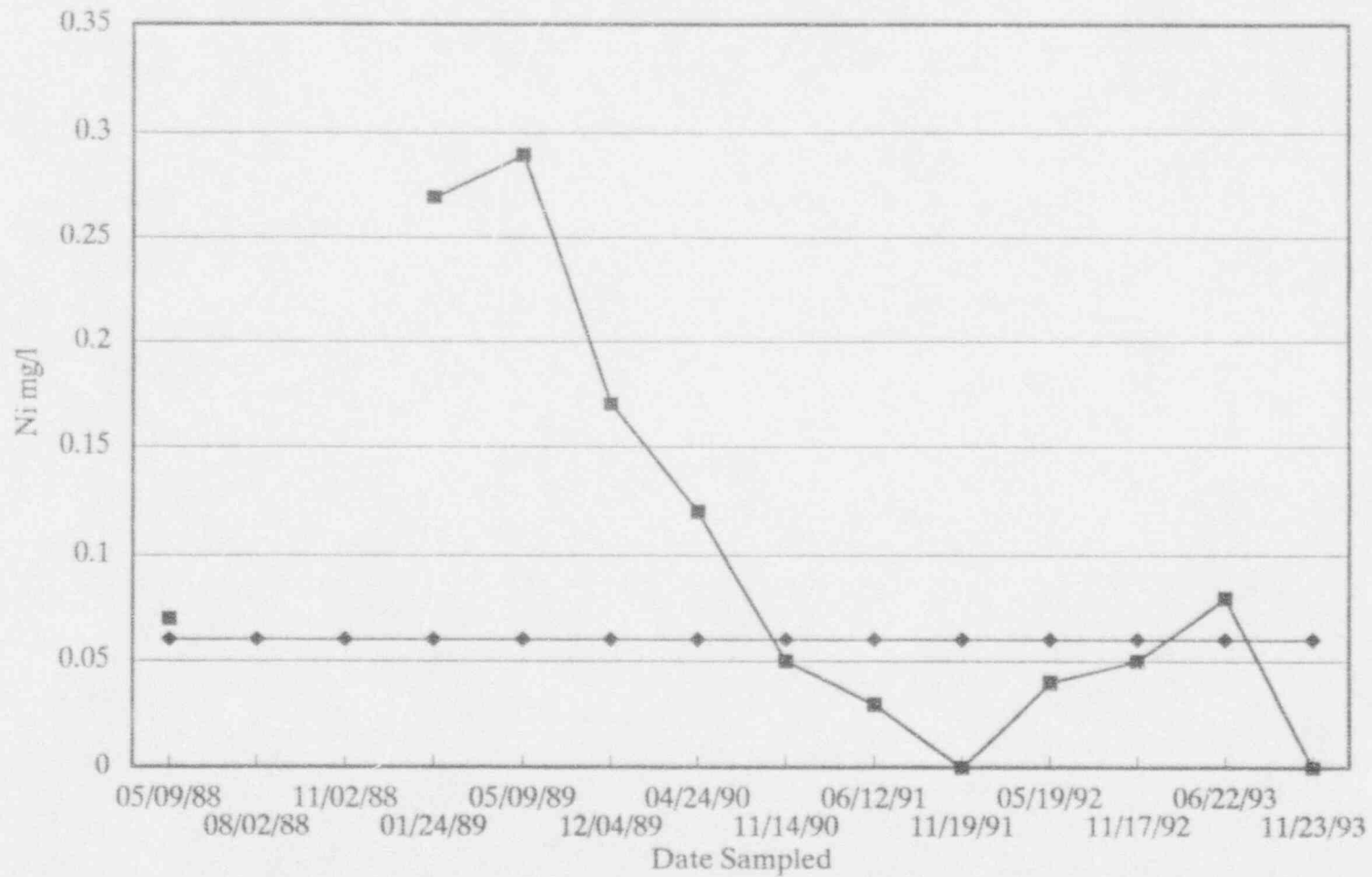
M.W. 20 pH & Water Level Elevation



M.W. 27 pH & Water Level Elevation



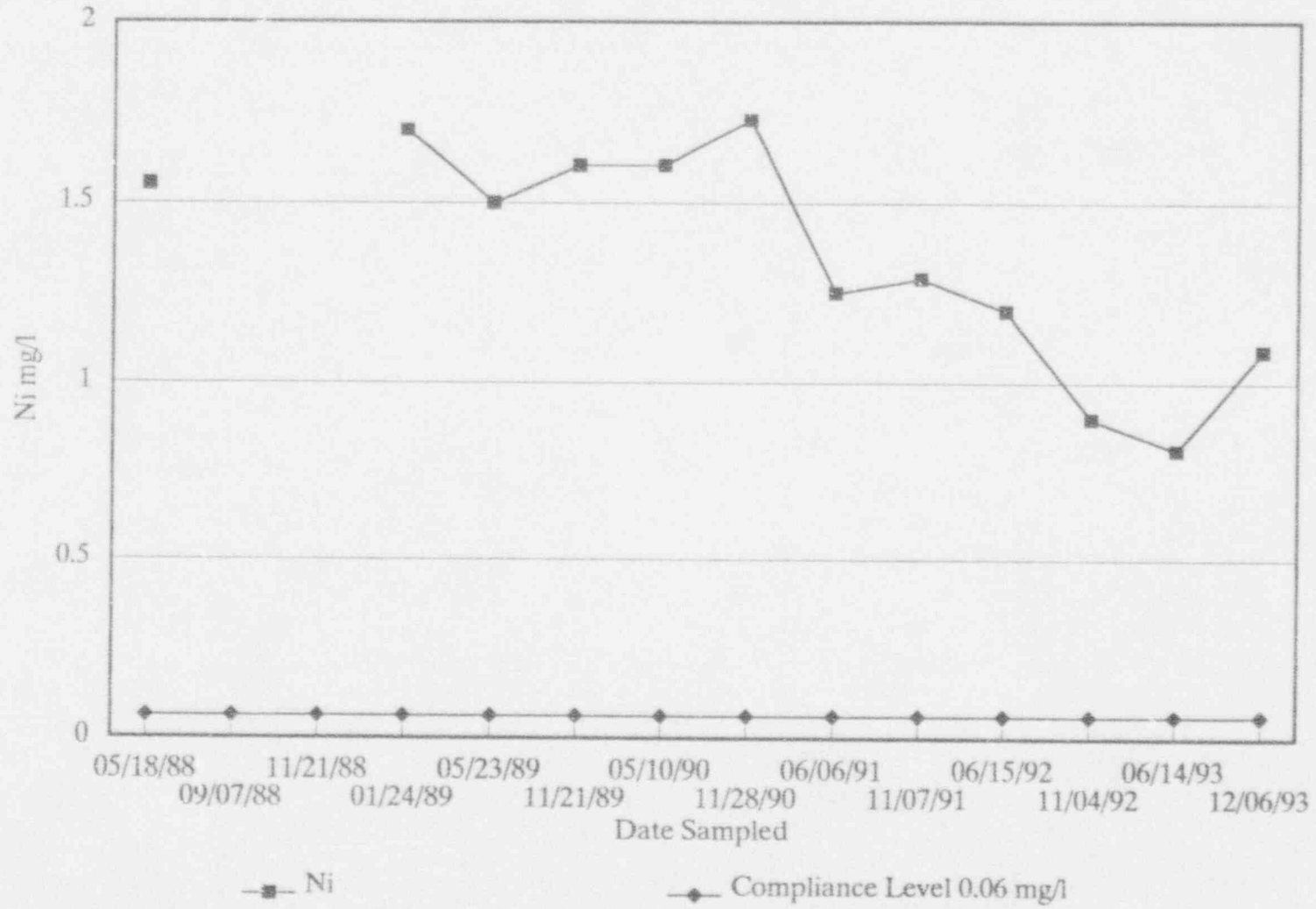
M.W. 19 Nickel



■ Ni

◆ Compliance Level .06 mg/l

M.W. 20 Nickel



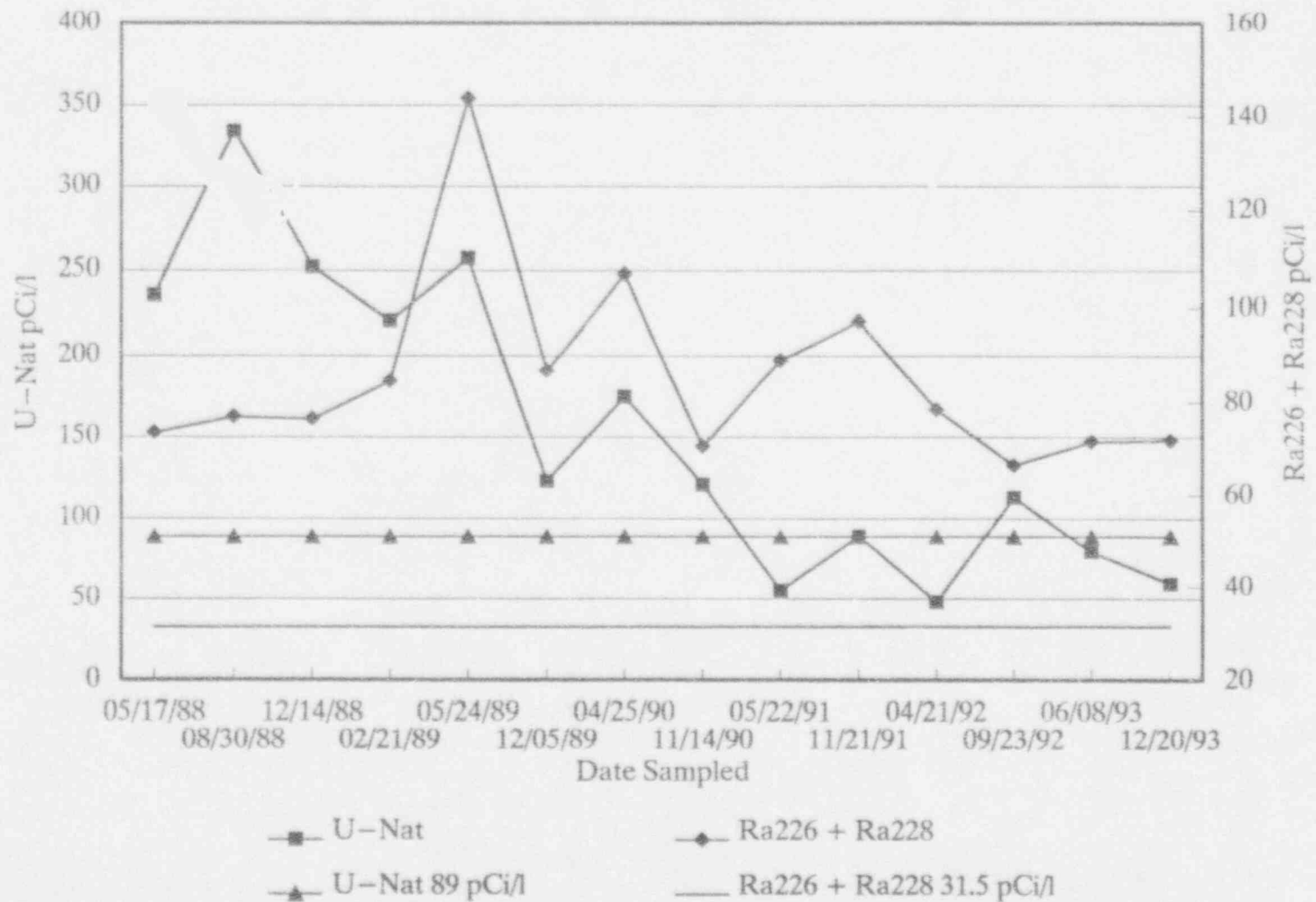
GROUND WATER ANALYSES FOR D. W. 3

Date Sampled	04/21/92	09/23/92	06/08/93	12/20/93
UNat pCi/l	48.00	113.00	79.40	59.20
UNat % M.P.C.	0.16	0.38	0.26	0.20
Ra226 pCi/l	62.90	56.00	61.60	61.40
Ra226 Error +/-	2.90	1.20	2.50	2.40
Ra226 % M.P.C.	209.67	186.67	205.33	204.67
Ra228 pCi/l	15.60	10.30	9.80	10.40
Ra228 Error +/-	0.60	0.80	0.90	0.50
Ra228 % M.P.C.	52.00	34.33	32.67	34.67
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	1.90	3.40	<1.0	<1.0
Pb210 Error +/-	0.60	0.60		
Pb210 % M.P.C.	1.90	3.40		
Gross Alpha - U & Rn pCi/l	63.00	57.20	66.10	77.90
Gross Alpha Error +/-	7.90	7.60	8.10	8.80
As mg/l	<0.01	<0.01	<0.01	0.003
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	25.80	25.20	24.90	29.10
Pb mg/l	<0.01	0.03		
Mo mg/l	0.02	0.03		
Al mg/l	<0.10	0.12		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.07	0.08	0.10	0.14
Ag mg/l	<0.01	0.02		
V mg/l	<0.01	0.02		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	0.01		
Ca mg/l	584.00	710.00	666.00	646.00
Mg mg/l	104.00	108.00	106.00	104.00
Na mg/l	174.00	183.00	169.00	171.00
K mg/l	19.00	16.20		
NH3 mg/l	0.23	0.23		
NO3 mg/l	<0.10	<0.10	<0.10	<0.10
SO4 mg/l	1610.00	1812.00	1690.00	1799.00
Cl mg/l	103.00	152.00	148.00	139.00
TDS mg/l	3254.00	3425.00	3393.00	3424.00
pH	6.57	7.25	6.32	7.19
Water Elevation	6776.07	6775.64	6775.15	6774.16

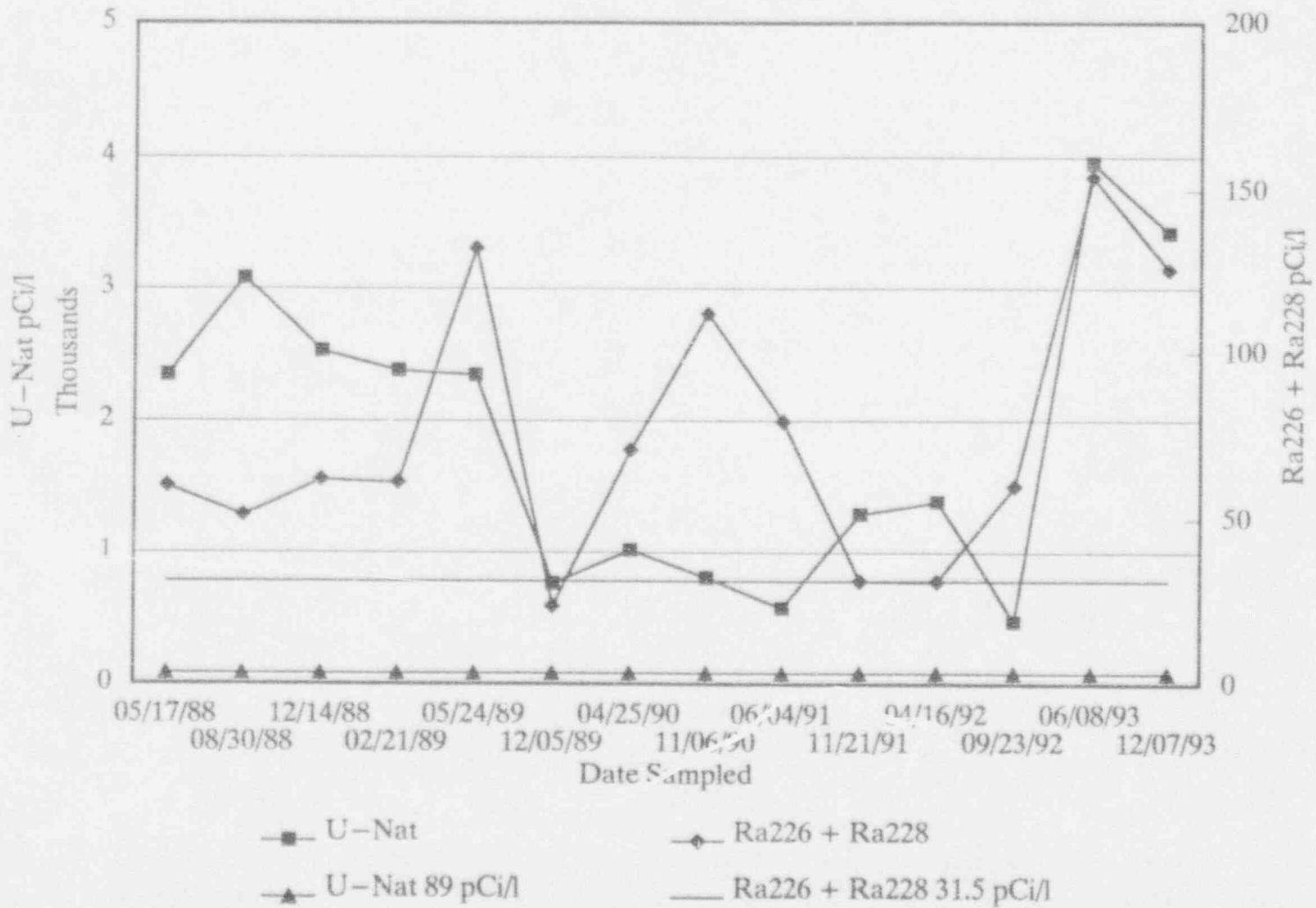
GROUND WATER ANALYSES FOR H. W. 4

Date Sampled	04/16/92	09/23/92	06/08/93	12/07/93
UNat pCi/l	1387.00	488.00	3958.00	3425.00
UNat % M.P.C.	4.62	1.63	13.19	11.42
Ra226 pCi/l	25.10	51.10	150.00	114.00
Ra226 Error +/-	1.00	2.10	3.80	3.30
Ra226 % M.P.C.	83.67	170.33	500.00	380.00
Ra228 pCi/l	6.20	9.20	4.00	11.70
Ra228 Error +/-	0.80	0.70	0.80	0.50
Ra228 % M.P.C.	20.67	30.67	13.33	39.00
Th230 pCi/l	<1.0	<1.0	163.00	63.70
Th230 Error +/-			21.10	5.20
Th230 % M.P.C.			8.15	3.19
Pb210 pCi/l	1.80	3.00	31.40	4.50
Pb210 Error +/-	1.00	0.60	1.20	1.30
Pb210 % M.P.C.	1.80	3.00	31.40	4.50
Gross Alpha - U & Rn pCi/l	25.10	52.00	315.00	195.00
Gross Alpha Error +/-	3.00	7.20	18.00	13.90
As mg/l	0.02	0.01	0.06	0.657
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	162.00	347.00	907.00	1391.00
Pb mg/l	<0.01	<0.01		
Mo mg/l	0.11	0.02		
Al mg/l	<0.10	2.86		
Be mg/l	<0.01	0.05	1.14	0.60
Ni mg/l	1.29	2.41	5.32	6.28
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	0.015	0.079		
Cr mg/l	<0.01	0.01		
Ca mg/l	595.00	647.00	608.00	498.00
Mg mg/l	132.00	156.00	182.00	160.00
Na mg/l	204.00	209.00	266.00	243.00
K mg/l	22.30	22.30		
NH3 mg/l	0.40	0.71		
NO3 mg/l	<0.10	<0.10	<0.10	0.30
SO4 mg/l	2055.00	2944.00	4393.00	5245.00
Cl mg/l	110.00	176.00	162.00	158.00
TDS mg/l	4013.00	4860.00	7487.00	8745.00
pH	6.05	7.26	2.87	3.32
Water Elevation	6856.16	6855.62	6855.11	6855.21

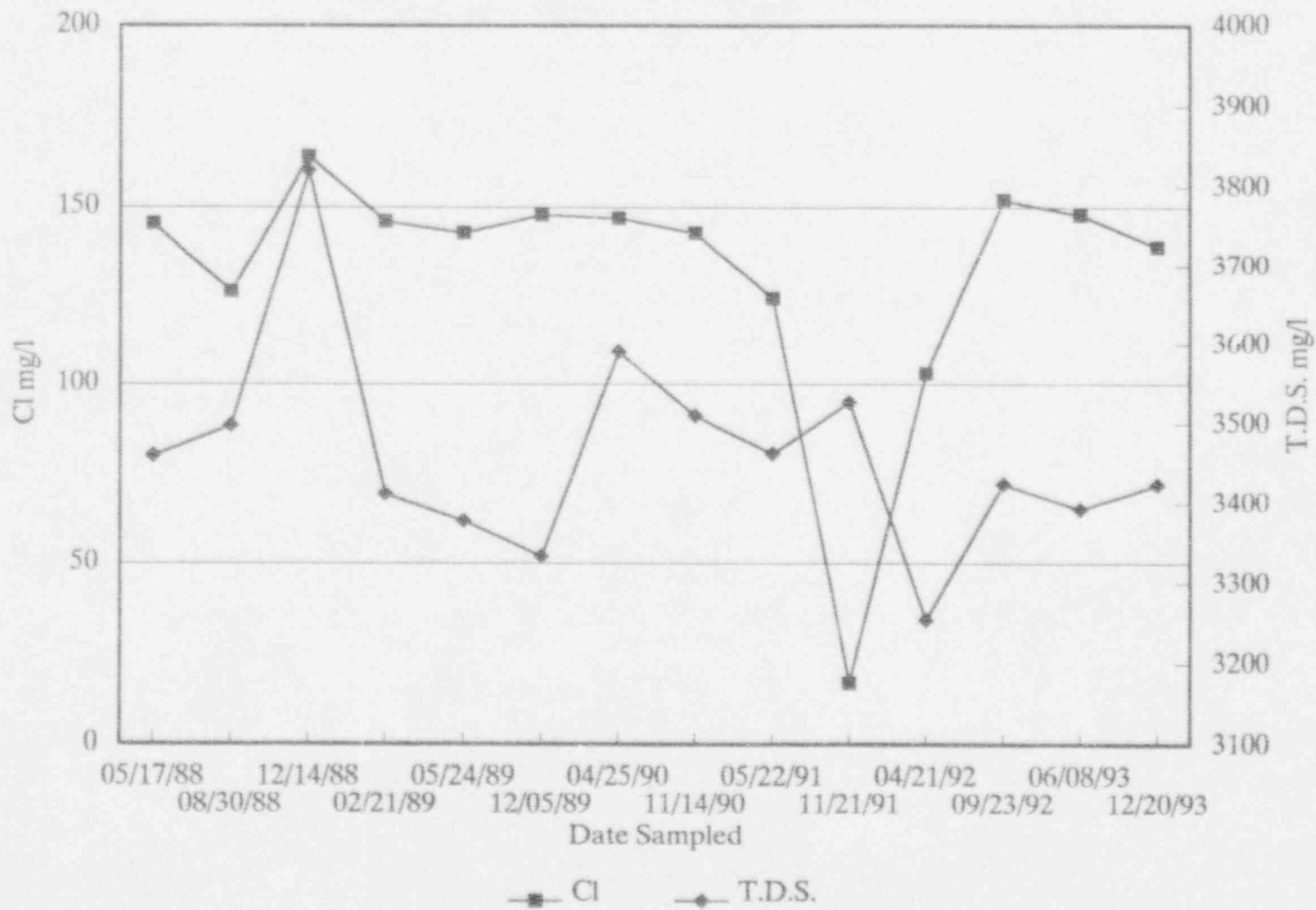
D.W. 3 U-Nat & Ra226 + Ra228



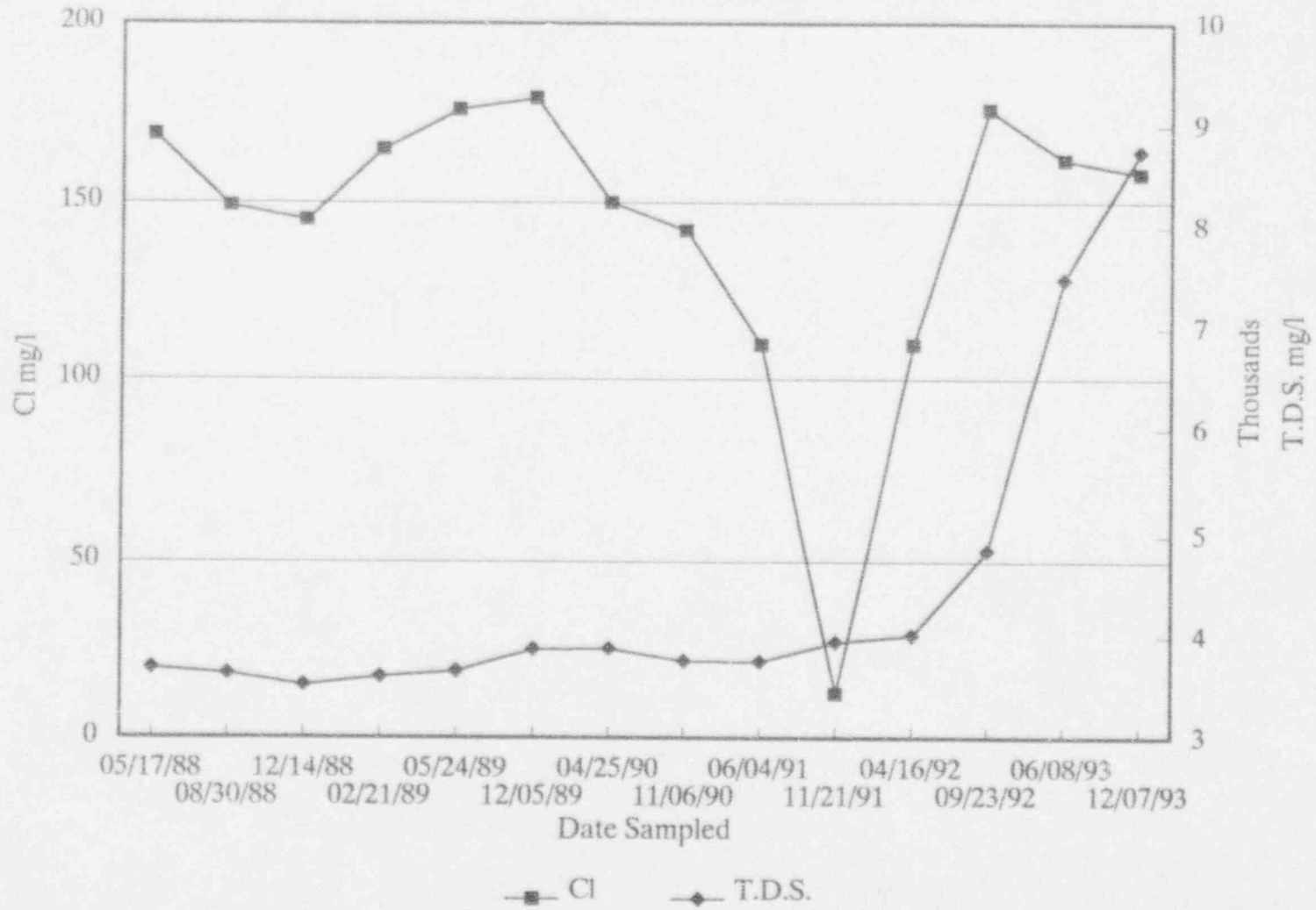
H.W. 4 U-Nat vs Ra226 + Ra228



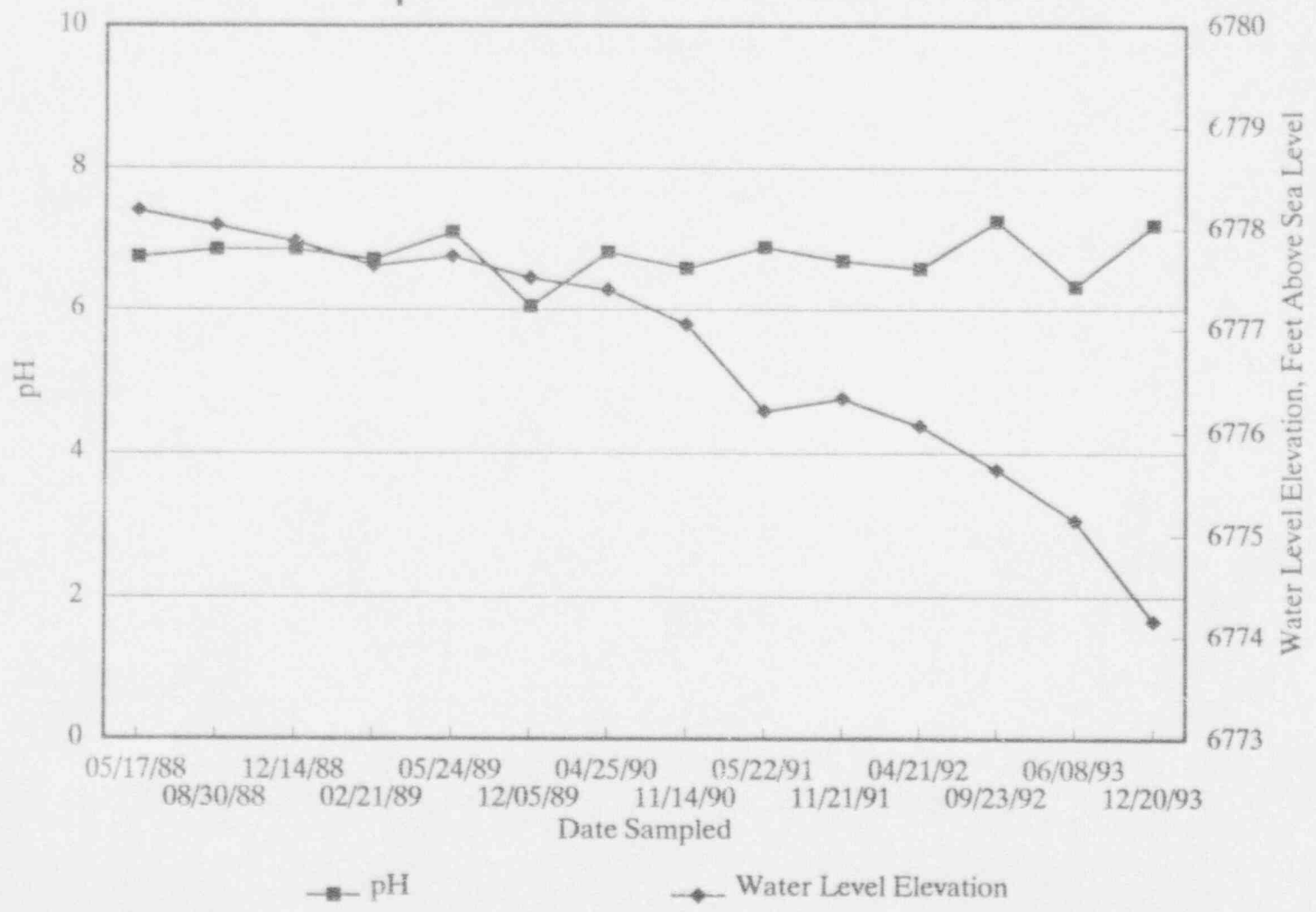
D.W. 3 Chloride & T.D.S.



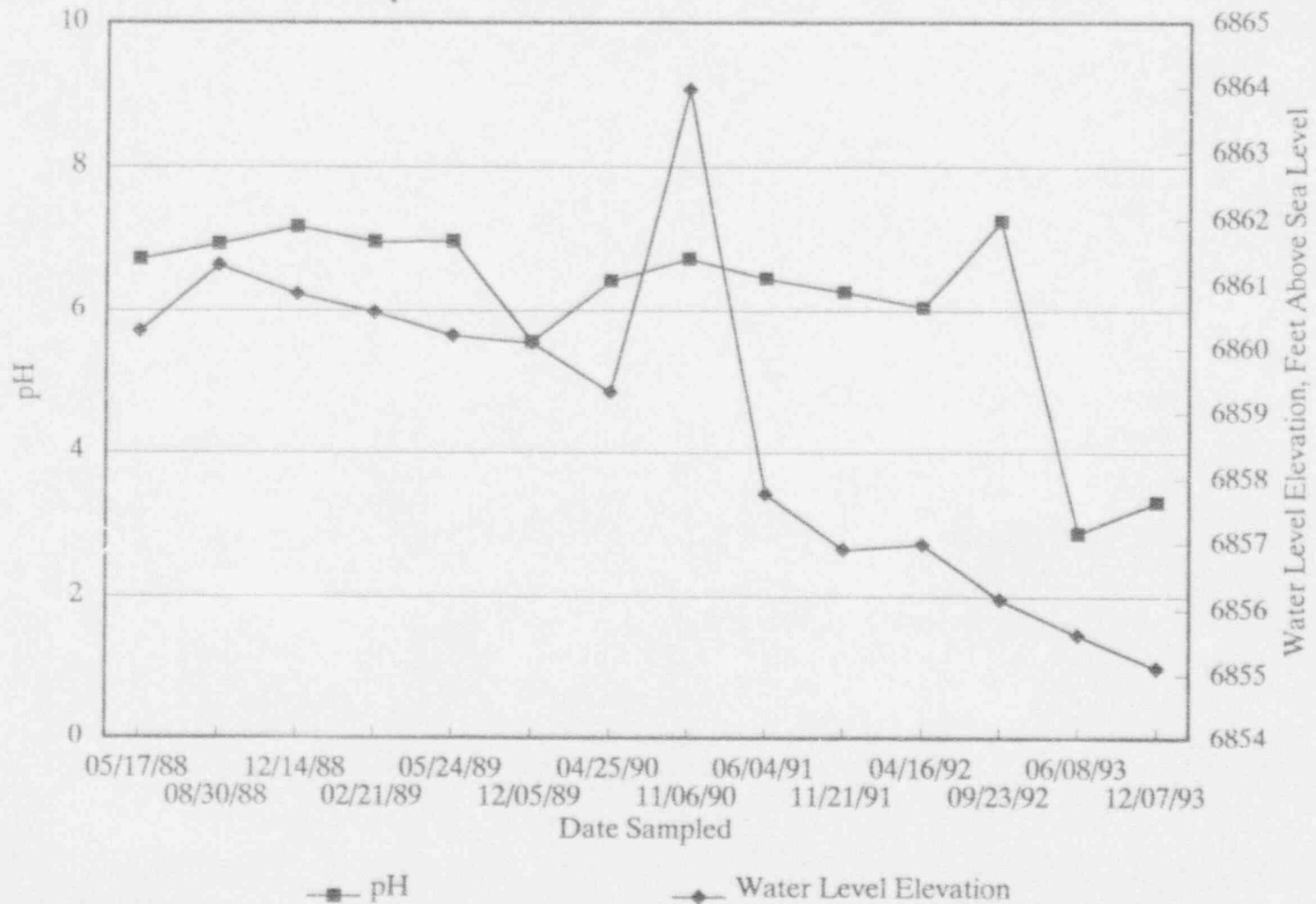
H.W. 4 Chloride vs T.D.S.



D.W. 3 pH & Water Level Elevation



H.W. 4 pH vs Water Level Elevation



GROUND WATER ANALYSES FOR M. W. 21A

Date Sampled	06/15/92	12/08/92	06/09/93	12/06/93
UNat pCi/l	7.00	4.20	3.80	7.40
UNat % M.P.C.	0.02	0.01	0.01	0.02
Ra226 pCi/l	2.80	15.10	10.10	11.30
Ra226 Error +/-	0.40	1.80	1.10	0.60
Ra226 % M.P.C.	9.33	50.33	33.67	37.67
Ra228 pCi/l	9.80	5.20	24.50	10.20
Ra228 Error +/-	0.80	0.50	2.50	0.60
Ra228 % M.P.C.	32.67	17.33	81.67	34.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	<1.0	<1.0	3.70
Pb210 Error +/-				0.90
Pb210 % M.P.C.				3.70
Gross Alpha - U & Rn pCi/l	2.90	15.60	12.10	26.60
Gross Alpha Error +/-	1.10	3.90	1.30	5.20
As mg/l	0.060	0.040	0.050	0.036
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	94.10	76.40	77.70	87.09
Pb mg/l	<0.01			
Mo mg/l	<0.01			
Al mg/l	<0.10			
Be mg/l	0.02	0.02	<0.01	
Ni mg/l	0.24	0.26	0.28	0.30
Ag mg/l	<0.01			
V mg/l	<0.01			
Cd mg/l	<0.005			
Cr mg/l	<0.01			
Ca mg/l	265.00	259.00	316.00	246.00
Mg mg/l	75.30	71.20	70.10	65.60
Na mg/l	72.50	68.20	63.80	61.80
K mg/l	13.80			
NH3 mg/l	0.68			
NO3 mg/l	<0.01	<0.10	<0.10	<0.10
SO4 mg/l	1187.00	1104.00	1226.00	1001.00
Cl mg/l	57.70	50.70	56.10	45.20
TDS mg/l	1772.00	1627.00	1686.00	1683.00
pH	6.27	6.50	6.39	6.37
Water Elevation	6793.83	6792.76	6791.99	6790.32

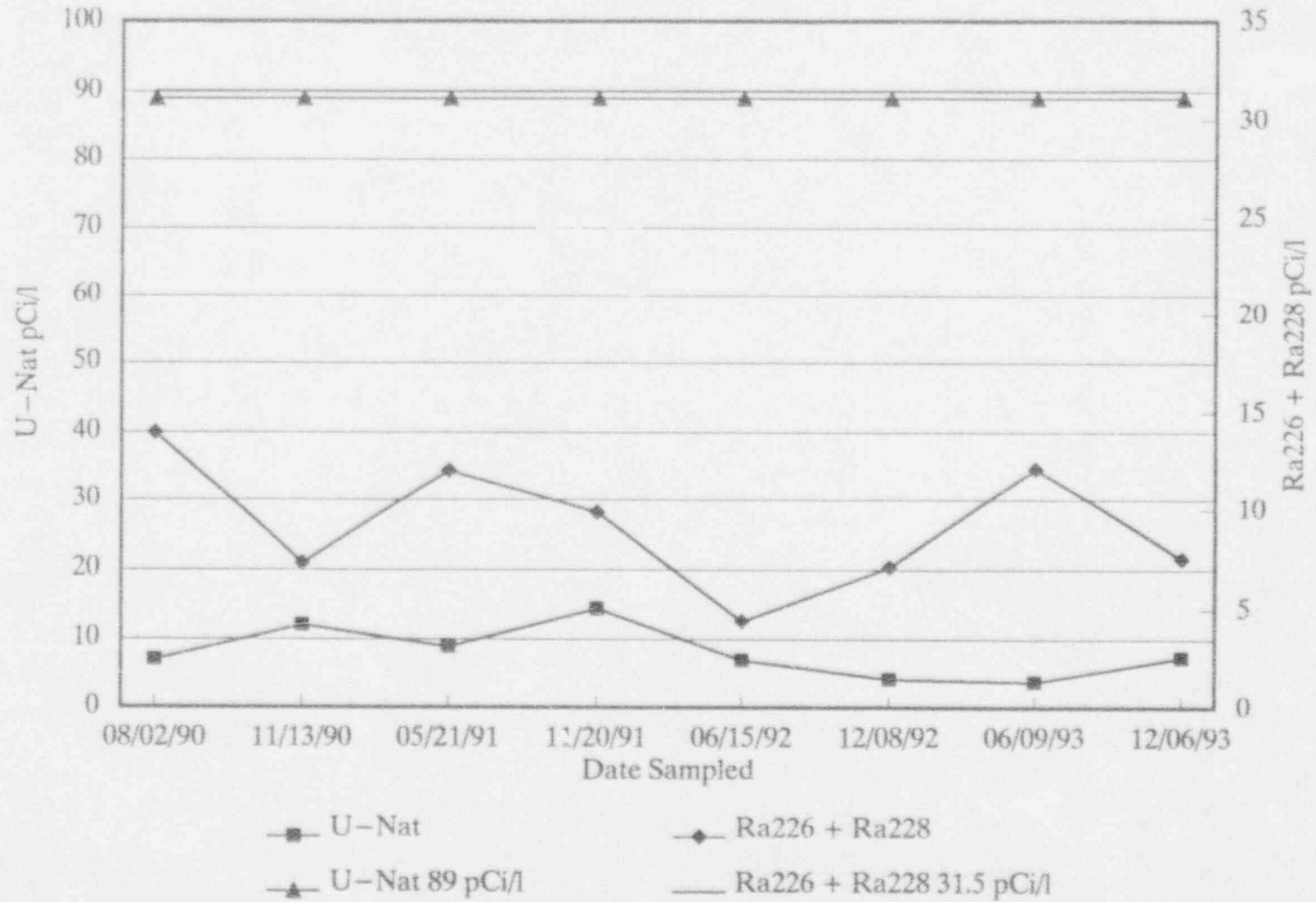
GROUND WATER ANALYSES FOR M.W. 25

Date Sampled	06/16/92	12/08/92	06/09/93	11/23/93
UNat pCi/l	13.10	11.00	19.80	8.80
UNat % M.P.C.	0.04	0.04	0.07	0.03
Ra226 pCi/l	25.90	33.30	22.70	28.90
Ra226 Error +/-	1.10	2.30	1.50	2.80
Ra226 % M.P.C.	86.33	111.00	75.67	96.33
Ra228 pCi/l	17.10	20.90	27.30	21.80
Ra228 Error +/-	1.20	0.70	2.90	2.90
Ra228 % M.P.C.	57.00	69.67	91.00	72.67
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	1.20	<1.0	<1.0	1.10
Pb210 Error +/-	0.60			0.90
Pb210 % M.P.C.	1.20			1.10
Gross Alpha - U & Rn pCi/l	26.50	33.60	25.30	61.50
Gross Alpha Error +/-	5.20	5.80	3.10	7.80
As mg/l	0.09	0.09	0.10	0.073
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	81.00	89.30	68.10	93.6
Pb mg/l	<0.01			
Mo mg/l	<0.01			
Al mg/l	<0.10			
Be mg/l	<0.01	<0.01	<0.01	<0.005
Ni mg/l	0.23	0.31	0.27	0.37
Ag mg/l	<0.01			
V mg/l	<0.01			
Cd mg/l	<0.005			
Cr mg/l	<0.01			
Ca mg/l	625.00	694.00	761.00	680.00
Mg mg/l	134.00	149.00	146.00	139.00
Na mg/l	167.00	162.00	177.00	14.60
K mg/l	21.30			
NH3 mg/l	0.47			
NO3 mg/l	<0.01	<0.10	<0.10	<0.10
SO4 mg/l	1991.00	2220.00	2304.00	2110.00
Cl mg/l	134.00	129.00	134.00	126.00
TDS mg/l	3858.00	3642.00	3810.00	3892.00
pH	6.21	6.42	6.16	6.27
Water Elevation	6748.41	6748.02	6747.42	6747.34

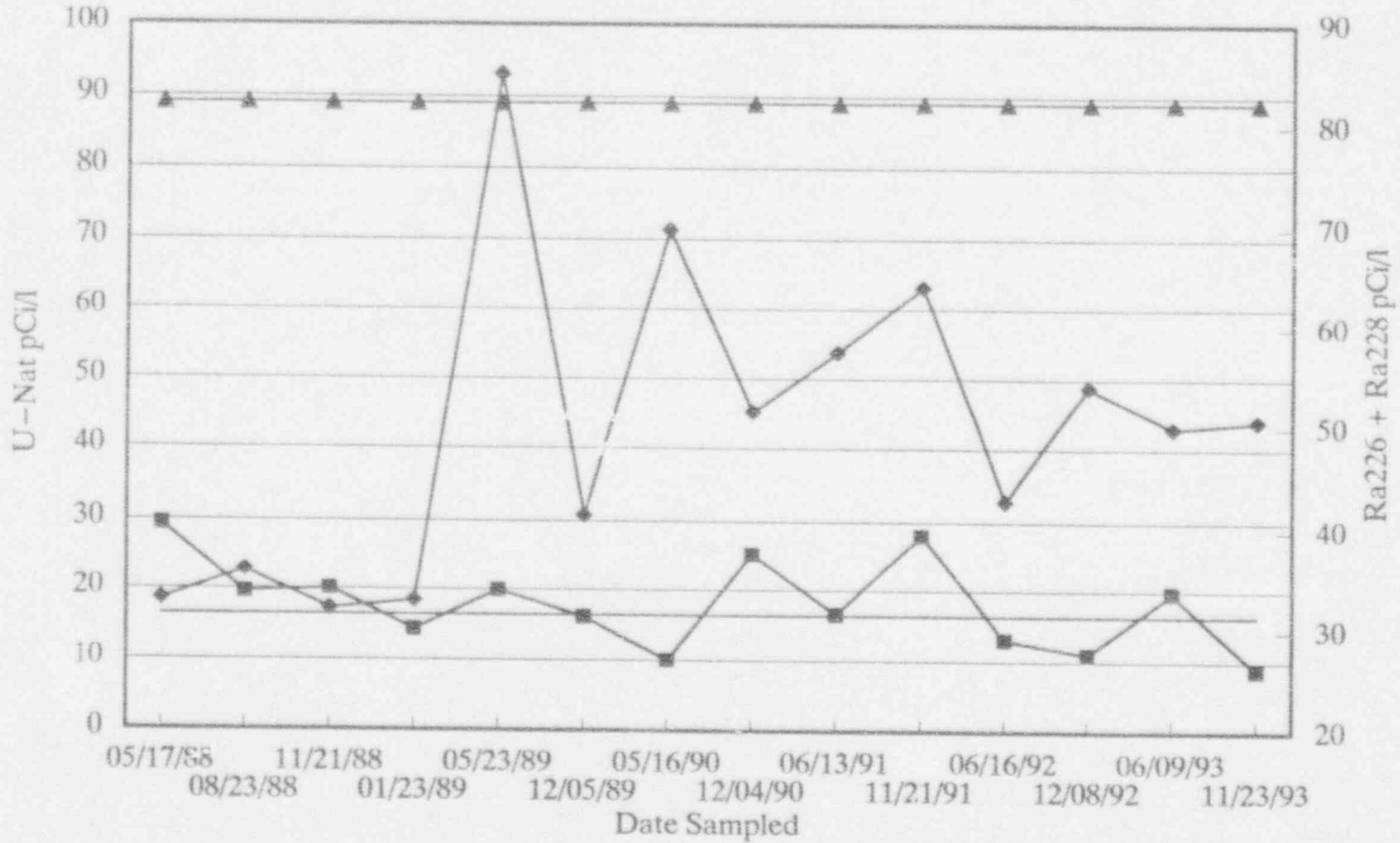
GROUND WATER ANALYSES FOR M. W. 28

Date Sampled	06/17/92	11/18/92	06/28/93	11/23/93
UNat pCi/l	2.70	<0.2	<0.2	0.70
UNat % M.P.C.	0.01			0.00
Ra226 pCi/l	5.20	1.70	6.30	7.70
Ra226 Error +/-	0.40	0.30	0.80	0.60
Ra226 % M.P.C.	17.33	5.67	21.00	25.67
Ra228 pCi/l	11.40	<1.0	9.20	4.10
Ra228 Error +/-	0.50		2.10	0.50
Ra228 % M.P.C.	38.00		30.67	13.67
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	3.60	<1.0	1.90
Pb210 Error +/-		0.50		3.70
Pb210 % M.P.C.		3.60		1.90
Gross Alpha - U & Rn pCi/l	5.60	<5.0	10.90	13.80
Gross Alpha Error +/-	2.30		3.30	3.70
As mg/l	<0.01	<0.01	<0.01	0.005
Se mg/l	<0.005	0.009	<0.005	<0.001
Fe mg/l	7.19	7.16	6.10	8.26
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	0.12	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.005
Ni mg/l	<0.01	0.03	0.02	<0.05
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	109.00	112.00	105.00	92.70
Mg mg/l	16.30	18.80	17.30	17.00
Na mg/l	63.70	64.90	65.60	57.50
K mg/l	7.33	5.80		
NH3 mg/l	0.47	0.06		
NO3 mg/l	<0.01	2.00	<0.10	<0.10
SO4 mg/l	325.00	310.00	343.00	314.00
Cl mg/l	5.60	6.00	7.30	3.80
TDS mg/l	659.00	563.00	657.00	654.00
pH	6.93	6.82	6.10	
Water Elevation	6735.67	6735.60	6735.37	6735.16

M.W. 21A U-Nat & Ra226 + Ra228

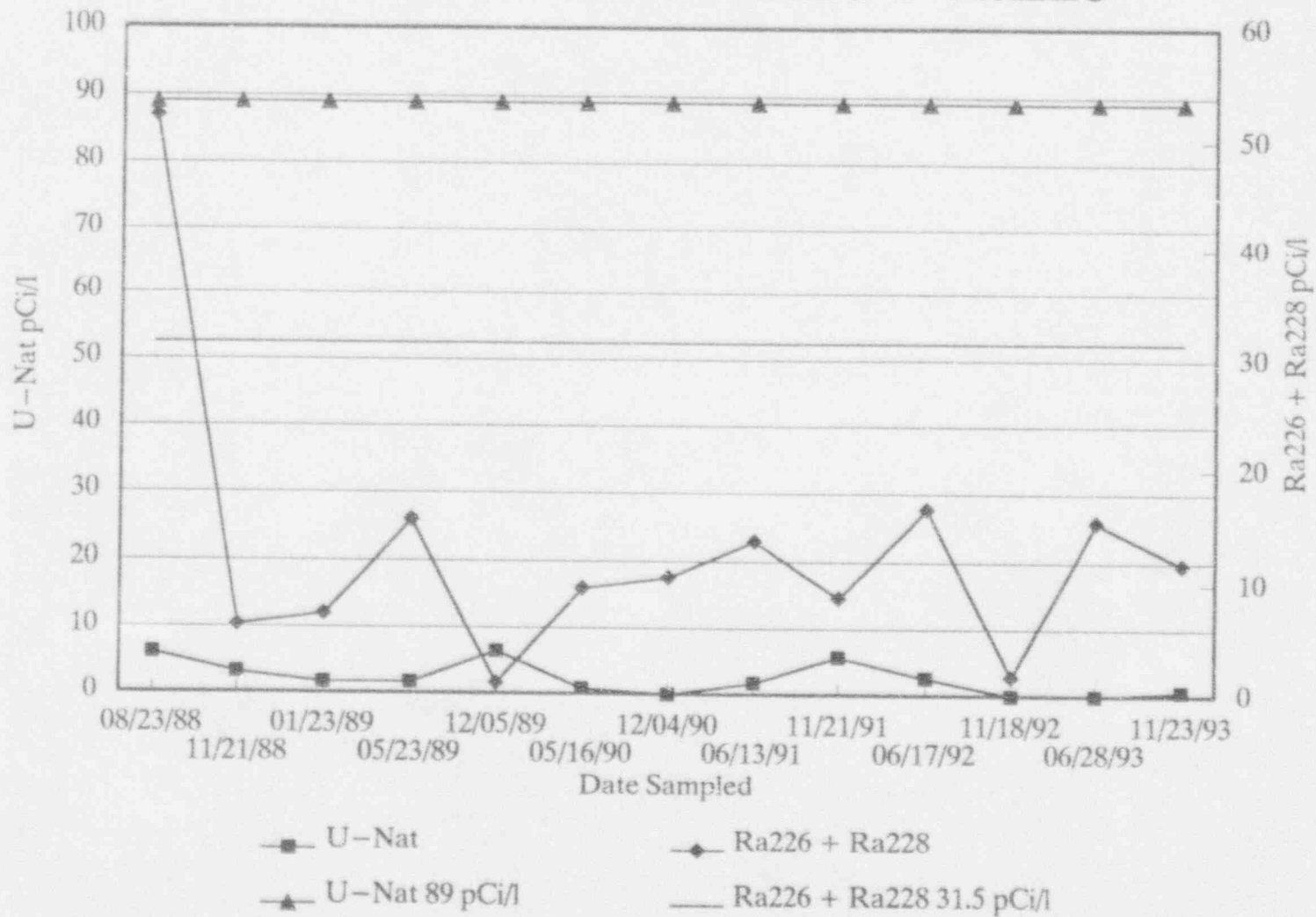


M.W. 25 U-Nat & Ra226 + Ra228

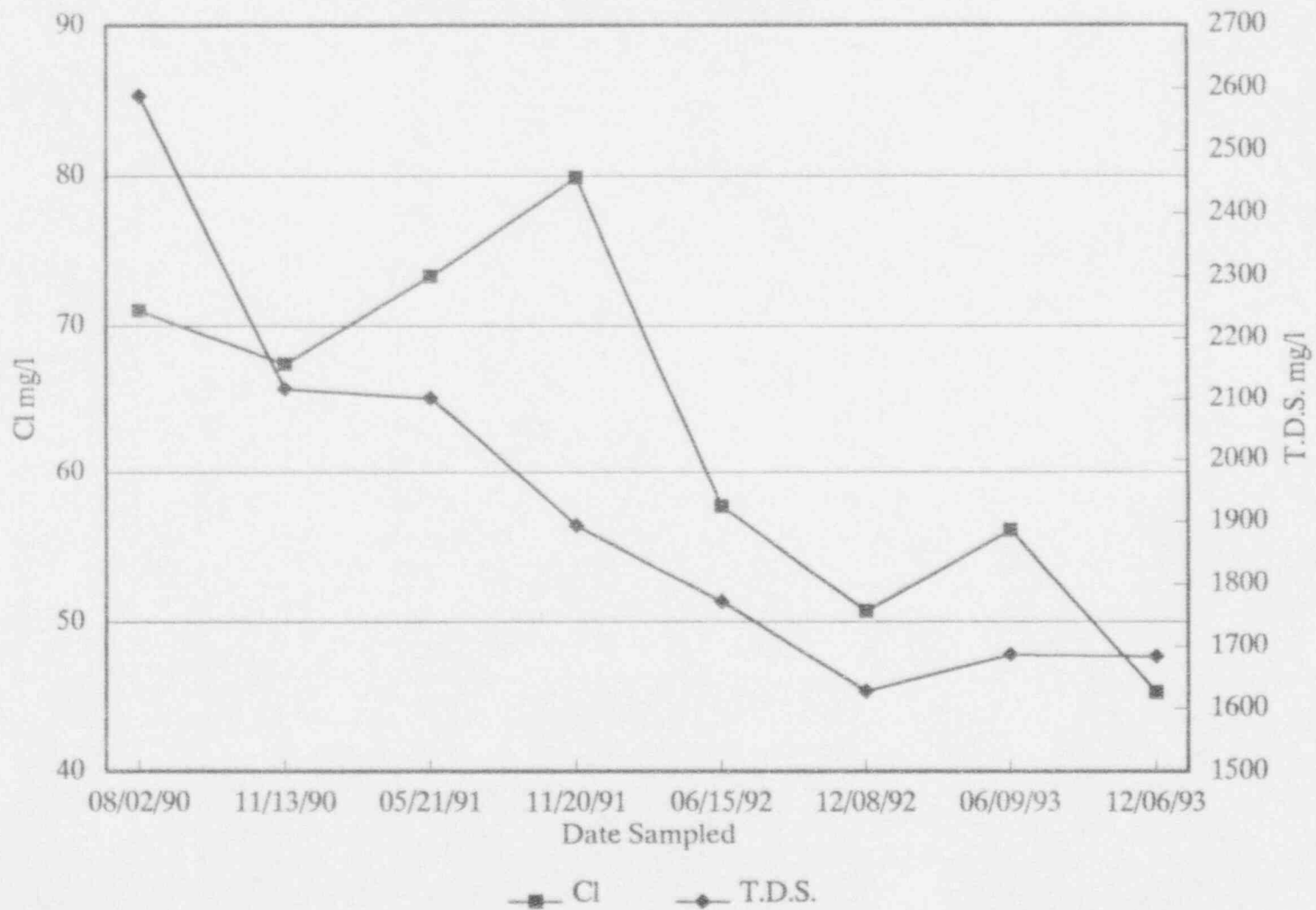


- U-Nat
- ▲ U-Nat 89 pCi/l
- ◆ Ra226 + Ra228
- Ra226 + Ra228 31.5 pCi/l

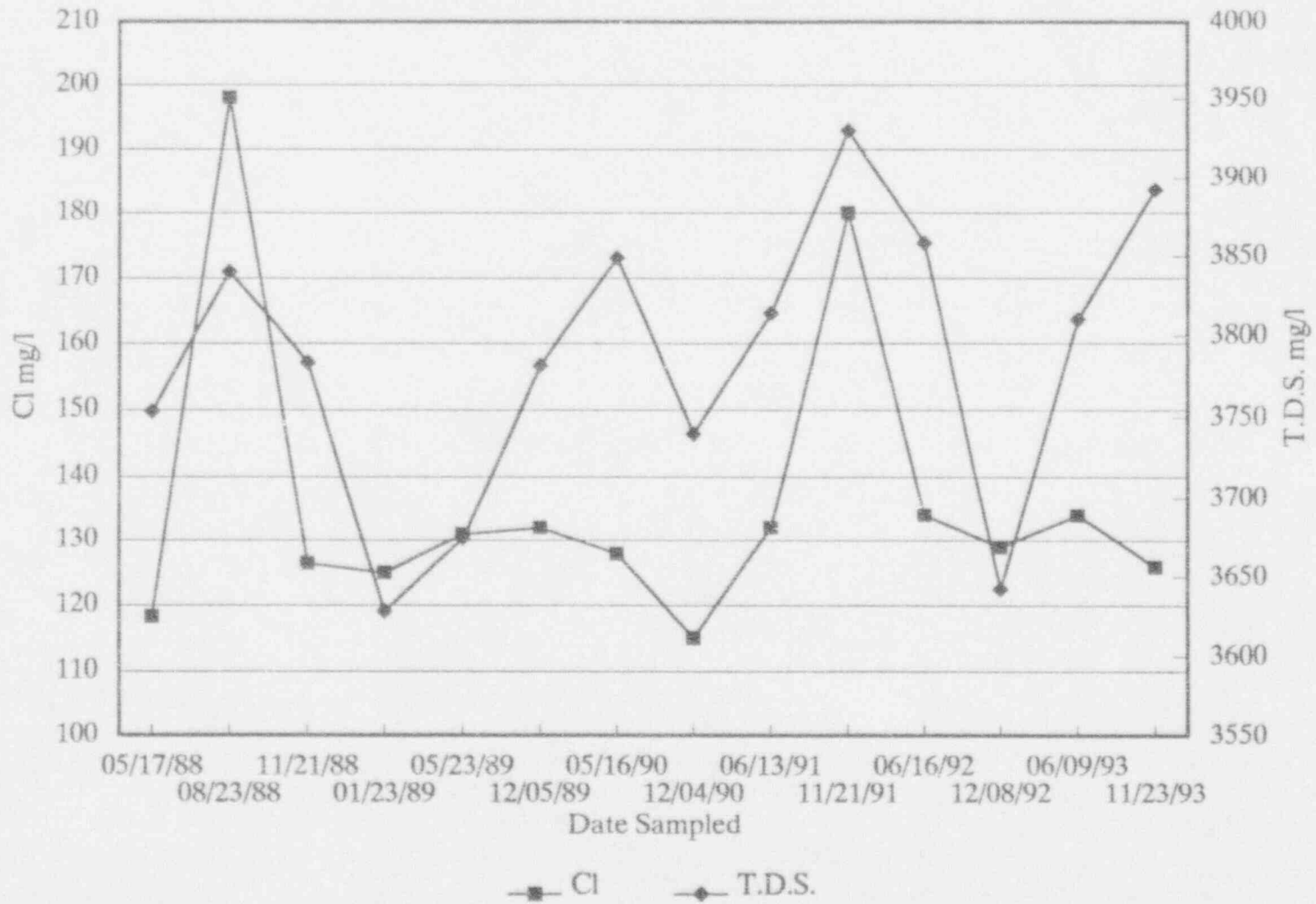
M.W. 28 U-Nat & Ra226 + Ra228



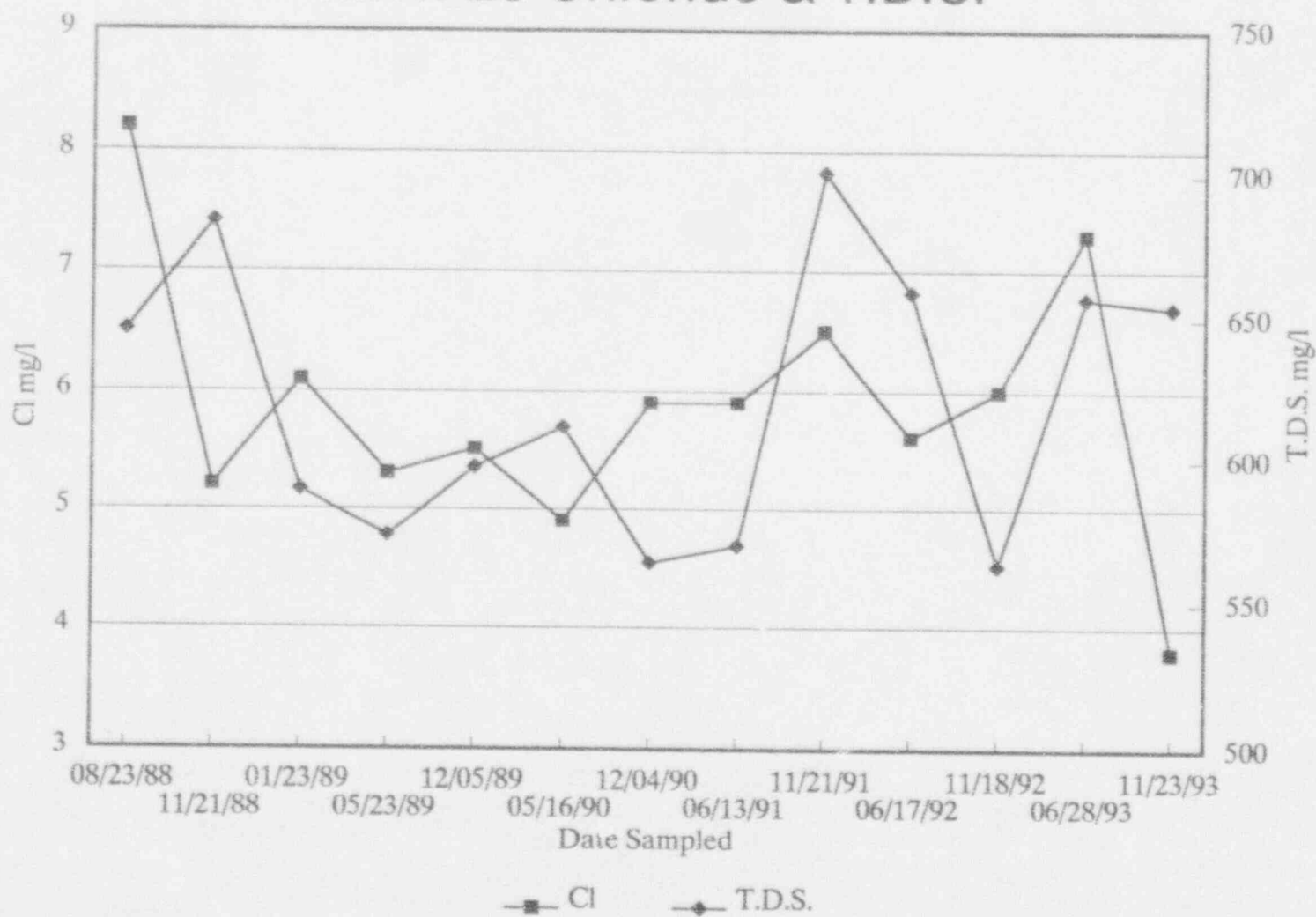
M.W. 21A Chloride & T.D.S.



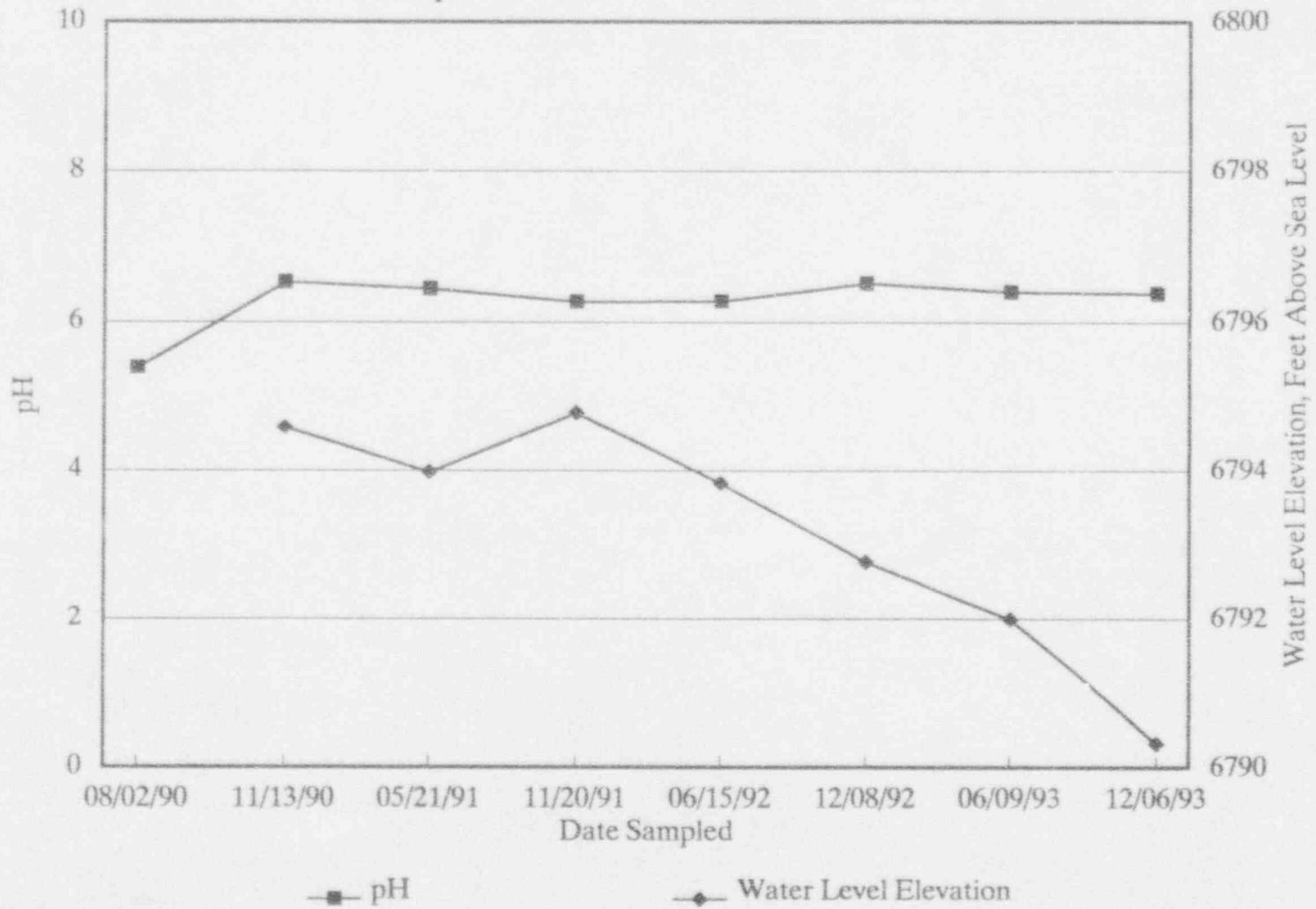
M.W. 25 Chloride & T.D.S.



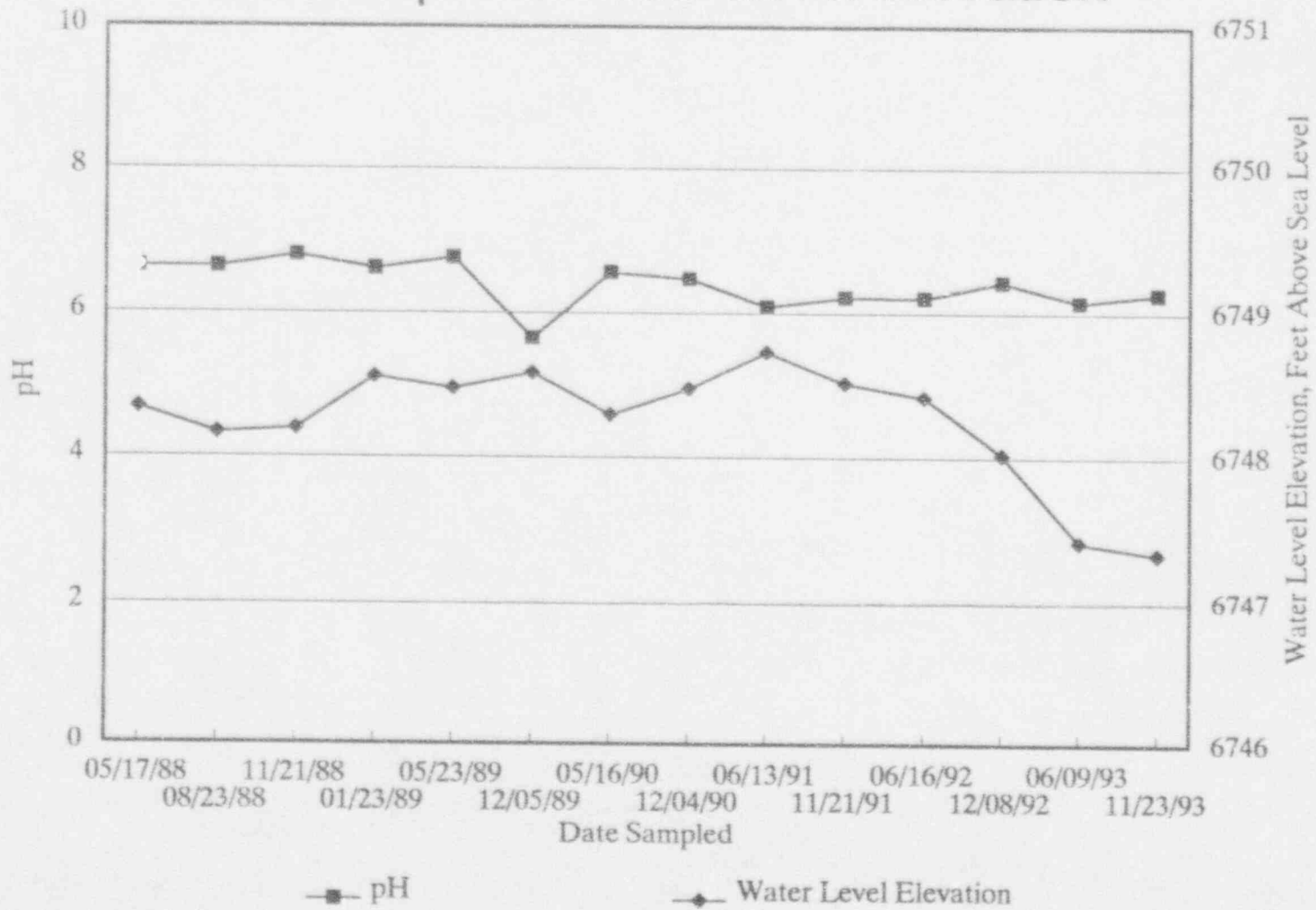
M.W. 28 Chloride & T.D.S.



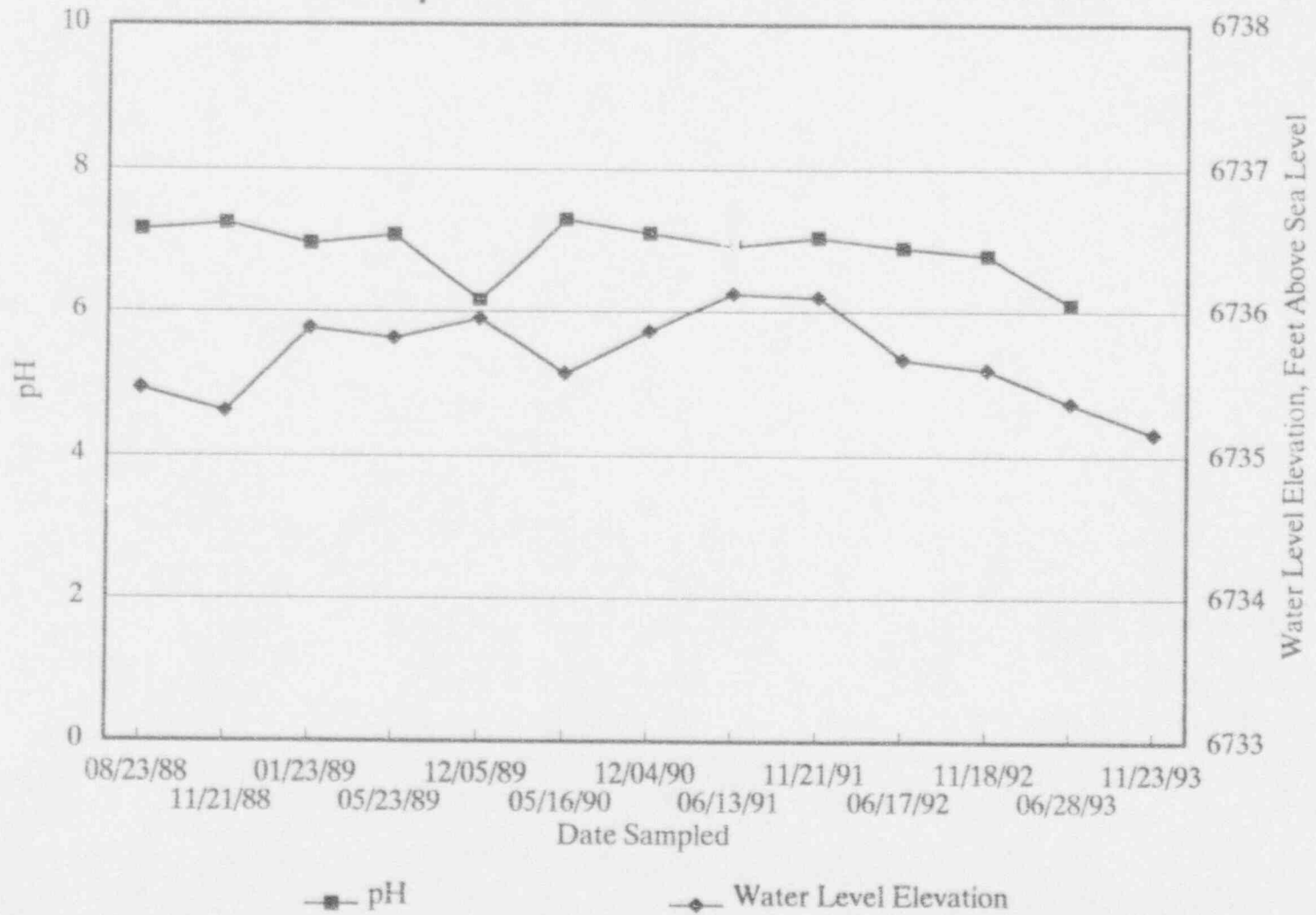
M.W. 21A pH & Water Level Elevation



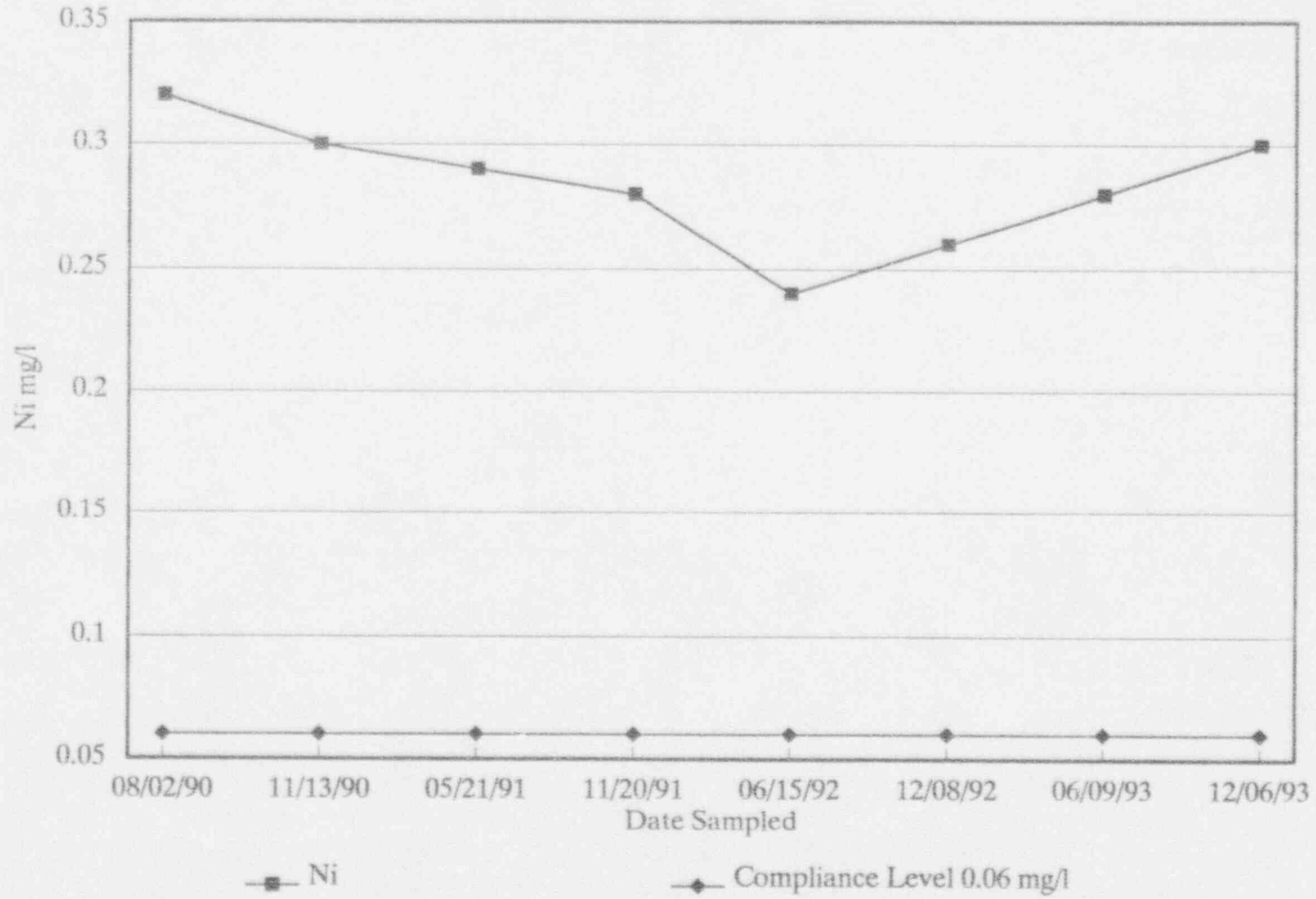
M.W. 25 pH & Water Level Elevation



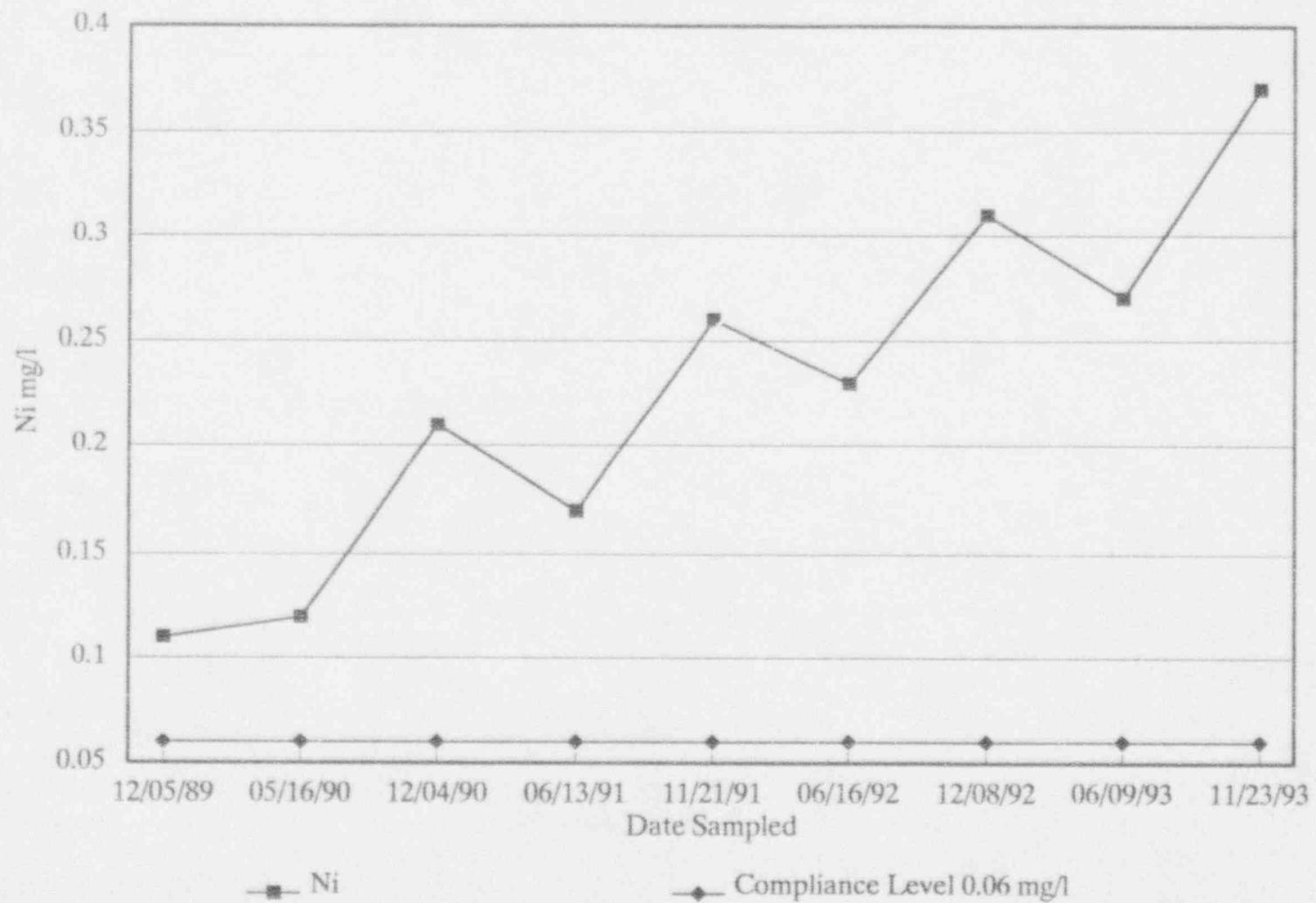
M.W. 28 pH & Water Level Elevation



M.W. 21A Nickel



M.W. 25 Nickel



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SECTION 2.1.2
COLLECTION and INJECTION WELLS

2.1.2 COLLECTION AND INJECTION WELLS
(Map NRC-DEQ-94-01 & Map NRC-DEQ-94-02)

2.1.2.1 INACTIVE TAILINGS PILE (lower Wind River
aquifer)

Eleven collection wells located in the Inactive Tailings pile area are being monitored for water quality in the lower Wind River aquifer. The wells are MWC-42, MWC-45, MWC-47, MWC-48, MWC-49, MWC-52, MWC-55, MWC-56, MWC-57, MWC-58 and MWC-59. The last five wells were drilled and completed and placed into service in August of 1993. Location of each of the eleven wells is shown on Map No. NRC-DEQ-94-01.

Each of the six wells which have been pumping for more than one year meet all compliance standards except for nickel which apparently has plateaued in each well.

The five new wells having pumped for six months show improvements in decreasing measured amounts of the monitored elements. Two wells, MWC-57 and MWC-58, have achieved compliance with well MWC-56 nearing compliance in the radionuclides but still somewhat high in nickel. The other two wells, MWC-55 and MWC-59 are showing definite improvement toward achieving compliance standards.

None of the eight injection wells were sampled during this period. Injection into wells MWI-37, MWI-38 and MWI-39 was ceased September 20, 1993. These three wells will be sampled in March, 1994.

Cleanup compliance standards for the lower Wind River aquifer with point of compliance wells MW-1 and MW-21A and background well MW-2 are: (mg/l) arsenic = 0.05; beryllium = 0.05; nickel = 0.06; selenium = 0.01. The radionuclides in pCi/l are: natural uranium = 89 pCi/l; combined radium 226 and 228 = 31.5; thorium 230 = 6.6; lead 210 = 5 and gross alpha = 146 pCi/l.

GROUND WATER ANALYSES FOR M.W.C. 42

Date Sampled	06/17/92	11/16/92	06/10/93	12/02/93
UNat pCi/l	17.00	4.80	8.12	5.40
UNat % M.P.C.	0.06	0.02	0.03	0.02
Ra226 pCi/l	13.80	5.30	18.00	24.40
Ra226 Error +/-	0.60	0.50	1.10	1.90
Ra226 % M.P.C.	46.00	17.67	60.00	81.33
Ra228 pCi/l	8.00	9.00	12.80	9.00
Ra228 Error +/-	0.70	0.40	0.50	0.50
Ra228 % M.P.C.	26.67	30.00	42.67	30.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	6.00	<1.0	4.60
Pb210 Error +/-		0.60		1.10
Pb210 % M.P.C.		6.00		4.60
Gross Alpha - U & Rn pCi/l	13.90	5.50	21.50	37.90
Gross Alpha Error +/-	3.80	2.30	4.60	6.20
As mg/l	<0.01	0.01	0.02	0.01
Se mg/l	<0.005	0.007	<0.005	<0.001
Fe mg/l	5.63	10.50	11.50	11.00
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	<0.10	<0.10	0.18	<0.10
Be mg/l	<0.01	<0.01	<0.01	<0.005
Ni mg/l	0.08	0.13	0.09	0.07
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	175.00	299.00	301.00	283.00
Mg mg/l	36.90	48.60	42.20	42.70
Na mg/l	59.90	59.90	58.10	59.00
K mg/l	12.20	12.30		
NH4 mg/l				
NH3 mg/l	6.54	3.87		
NO3 mg/l	<0.01	0.22	<0.10	<0.10
SO4 mg/l	589.00	717.00	742.00	723.00
Cl mg/l	18.70	26.60	28.00	28.40
TDS mg/l	1137.00	1313.00	1375.00	1386.00
pH	6.50	6.63	6.89	6.99
Water Elevation	6773.05	6786.71		

GROUND WATER ANALYSES FOR M.W.C. 45

Date Sampled	05/05/92	11/11/92	01/13/93	12/02/93
UNat pCi/l	16.20	45.20	24.30	22.30
UNat % M.P.C.	0.05	0.15	0.08	0.07
Ra226 pCi/l	13.80	2.30	23.50	27.00
Ra226 Error +/-	0.80	0.40	1.80	2.00
Ra226 % M.P.C.	46.00	7.67	78.33	90.00
Ra228 pCi/l	1.20	<1.0	6.70	7.90
Ra228 Error +/-	0.50		3.20	0.50
Ra228 % M.P.C.	4.00		22.33	26.33
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	3.40	1.30	<1.0
Pb210 Error +/-		0.80	0.80	
Pb210 % M.P.C.		3.40	1.30	
Gross Alpha - U & Rn pCi/l	15.40	<5.0	23.90	38.80
Gross Alpha Error +/-	3.90		4.90	6.20
As mg/l	0.007	<0.01	<0.01	<0.001
Se mg/l	<0.001	0.011	0.010	<0.001
Fe mg/l	2.11	0.87	2.20	22.70
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.10	0.02		
Al mg/l	0.12	0.10	<0.10	0.28
Be mg/l	<0.01	<0.01	<0.01	<0.005
Ni mg/l	0.38	0.11	0.10	0.31
Ag mg/l	<0.01	0.02		
V mg/l	<0.10	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.05	<0.01		
Ca mg/l	243.00	86.00	198.00	313.00
Mg mg/l	78.60	31.30	41.40	88.00
Na mg/l	521.00	377.00	113.00	97.10
K mg/l	12.80	6.80		
NH4 mg/l				
NH3 mg/l	28.50	10.70		
NO3 mg/l	<0.10	<0.10	<0.10	0.58
SO4 mg/l	1841.00	797.00	593.00	1038.00
Cl mg/l	334.00	197.00	63.00	101.00
TDS mg/l	3223.00	1513.00	1155.00	1992.00
pH	6.27	6.92	6.59	6.67
Water Elevation	6890.53		6804.49	6817.23

GROUND WATER ANALYSES FOR M.W.C. 47

Date Sampled	06/17/92	09/22/92	11/16/92	12/02/93
UNat pCi/l	26.60	4.06	33.70	<0.2
UNat % M.P.C.	0.09	0.01	0.11	0.00
Ra226 pCi/l	14.00	12.90	4.20	19.00
Ra226 Error +/-	0.60	1.00	0.40	1.60
Ra226 % M.P.C.	46.67	43.00	14.00	63.33
Ra228 pCi/l	14.20	9.00	12.90	8.50
Ra228 Error +/-	0.80	0.50	0.50	0.60
Ra228 % M.P.C.	47.33	30.00	43.00	28.33
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	4.20	2.40	1.70	2.30
Pb210 Error +/-		0.90	0.50	1.00
Pb210 % M.P.C.	4.20	2.40	1.70	2.30
Gross Alpha - U & Rn pCi/l	14.90	13.50	<5.0	31.70
Gross Alpha Error +/-	3.90	3.70		5.60
As mg/l	<0.01	<0.01	0.010	0.008
Se mg/l	<0.005	<0.005	0.010	<0.001
Fe mg/l	18.70	8.40	7.60	10.70
Pb mg/l	<0.01		<0.01	
Mo mg/l	0.03		<0.01	
Al mg/l	<0.10	<0.10	<0.10	0.10
Be mg/l	<0.01	<0.01	<0.01	<0.005
Ni mg/l	0.03	0.06	0.07	0.07
Ag mg/l	<0.01		<0.01	
V mg/l	<0.01		<0.01	
Cd mg/l	<0.005		<0.005	
Cr mg/l	<0.01		<0.01	
Ca mg/l	259.00	254.00	206.00	211.00
Mg mg/l	54.00	43.40	42.40	42.30
Na mg/l	43.90	41.60	57.70	41.90
K mg/l	13.90		12.00	
NH3 mg/l	0.35		1.43	
NO3 mg/l	<0.01	<0.10	<0.10	<0.10
SO4 mg/l	872.00	667.00	671.00	594.00
Cl mg/l	34.80	33.50	26.30	26.30
TDS mg/l	1518.00	1165.00	1105.00	1088.00
pH	6.77	6.90	6.68	7.36
Water Elevation	6779.50			

GROUND WATER ANALYSES FOR M. W. C. 48

Date Sampled	06/17/92	11/16/92	06/10/93	12/02/93
UNat pCi/l	7.50	9.80	4.06	6.10
UNat % M.P.C.	0.03	0.03	0.01	0.02
Ra226 pCi/l	4.30	2.20	7.40	11.20
Ra226 Error +/-	0.40	0.30	1.00	0.60
Ra226 % M.P.C.	14.33	7.33	24.67	37.33
Ra228 pCi/l	5.10	6.80	4.60	2.60
Ra228 Error +/-	0.70	0.50	0.90	0.60
Ra228 % M.P.C.	17.00	22.67	15.33	8.67
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	14.10	2.00	1.90	4.60
Pb210 Error +/-	0.80	0.50	0.90	1.10
Pb210 % M.P.C.	14.10	2.00	1.90	4.60
Gross Alpha - U & Rn pCi/l	4.90	<5.0	7.90	15.10
Gross Alpha Error +/-	2.20		2.80	3.90
As mg/l	<0.01	<0.01	0.01	0.009
Se mg/l	<0.005	0.006	<0.005	<0.001
Fe mg/l	1.45	2.30	2.01	5.40
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	<0.10	<0.10	<0.10	<0.10
Be mg/l	<0.01	<0.01	<0.01	<0.005
Ni mg/l	<0.01	0.01	0.01	0.09
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	0.01		
Cd mg/l	<0.005	<0.01		
Cr mg/l	<0.01	<0.01		
Ca mg/l	109.40	159.00	159.00	178.00
Mg mg/l	22.90	29.40	27.00	31.30
Na mg/l	34.20	34.70	57.20	40.20
K mg/l	9.84	9.30		
NH3 mg/l	0.16	0.07		
NO3 mg/l	<0.01	<0.10	0.10	0.21
SO4 mg/l	304.00	380.00	410.00	442.00
Cl mg/l	10.50	18.00	29.10	26.80
TDS mg/l	718.00	709.00	820.00	904.00
pH	7.01	6.70	7.20	7.10
Water Elevation	6780.69	6800.90	N/A	N/A

GROUND WATER ANALYSES FOR M. W. C. 49

Date Sampled	06/17/92	11/16/92	06/10/93	12/02/93
UNat pCi/l	288.00	6.50	16.25	16.90
UNat % M.P.C.	0.96	0.02	0.05	0.06
Ra226 pCi/l	11.00	4.40	14.00	16.20
Ra226 Error +/-	0.60	0.40	1.00	0.70
Ra226 % M.P.C.	36.67	14.67	46.67	54.00
Ra228 pCi/l	10.50	4.00	6.70	6.90
Ra228 Error +/-	0.80	0.40	0.60	0.40
Ra228 % M.P.C.	35.00	13.33	22.33	23.00
Th230 pCi/l	<1.0	<1.0	135.00	<1.0
Th230 Error +/-			7.50	
Th230 % M.P.C.			6.75	
Pb210 pCi/l	<1.0	2.40	3.00	1.90
Pb210 Error +/-		0.50	0.90	1.80
Pb210 % M.P.C.		2.40	3.00	1.90
Gross Alpha - U & Rn pCi/l	11.70	<5.0	150.00	26.50
Gross Alpha Error +/-	3.40		12.20	5.20
As mg/l	<0.01	0.010	0.01	0.010
Se mg/l	<0.005	0.006	<0.005	0.001
Fe mg/l	5.73	9.10	12.80	18.20
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.04		
Al mg/l	<0.10	<0.10	<0.10	0.12
Be mg/l	<0.01	<0.01	<0.01	<0.005
Ni mg/l	<0.01	0.04	0.07	0.10
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	150.20	259.00	223.00	192.00
Mg mg/l	33.80	49.10	39.60	40.70
Na mg/l	51.80	44.40	50.90	56.30
K mg/l	12.15	12.00		
NH3 mg/l	0.71	0.07		
NO3 mg/l	<0.01	<0.10	0.30	0.51
SO4 mg/l	465.00	722.00	619.00	600.00
Cl mg/l	13.90	30.60	20.30	21.00
TDS mg/l	961.00	1241.00	1080.00	1103.00
pH	6.93	6.56	6.83	6.93
Water Elevation	904.04	n/a	n/a	n/a

GROUND WATER ANALYSES FOR M.W.C. 52

Date Sampled	06/17/92	11/16/92	06/10/93	12/02/93
UNat pCi/l	288.00	4.50	18.28	<0.2
UNat % M.P.C.	0.96	0.02	0.06	0.00
Ra226 pCi/l	12.00	3.05	17.20	19.70
Ra226 Error +/-	0.60	0.50	1.10	0.80
Ra226 % M.P.C.	40.00	10.17	57.33	65.67
Ra228 pCi/l	8.40	4.20	6.50	6.90
Ra228 Error +/-	0.90	0.80	0.60	0.40
Ra228 % M.P.C.	28.00	14.00	21.67	23.00
Th230 pCi/l	<1.0	<1.0	10.20	<1.0
Th230 Error +/-			0.50	
Th230 % M.P.C.			0.51	
Pb210 pCi/l	<1.0	4.40	1.60	5.10
Pb210 Error +/-		0.60	0.90	1.10
Pb210 % M.P.C.		4.40	1.60	5.10
Gross Alpha - U & Rn pCi/l	13.00	<5.0	29.40	30.00
Gross Alpha Error +/-	3.50		5.40	5.50
As mg/l	<0.01	<0.01	<0.01	<0.005
Se mg/l	<0.005	0.006	<0.005	<0.001
Fe mg/l	5.00	5.50	9.03	8.40
Pb mg/l	0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	<0.10	<0.10	<0.10	<0.10
Be mg/l	<0.01	<0.01	<0.01	<0.005
Ni mg/l	<0.01	<0.01	0.02	<0.05
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	159.00	200.00	274.00	226.00
Mg mg/l	37.00	37.40	46.30	43.70
Na mg/l	34.70	32.30	36.70	38.30
K mg/l	10.30	9.60		
NH4 mg/l				
NH3 mg/l	0.00	0.07		
NO3 mg/l	<0.01	<0.01	<0.10	<0.10
SO4 mg/l	451.00	536.00	621.00	590.00
Cl mg/l	13.00	20.10	34.10	33.10
TDS mg/l	950.00	957.00	1180.00	1201.00
pH	7.09	6.80	6.97	7.73
Water Elevation	6603.65	6805.59	n/a	n/a

GROUND WATER ANALYSES FOR M.W.C. 55

Date Sampled	05/03/93	12/02/93
UNat pCi/l	1566.00	1537.00
UNat % M.P.C.	5.22	5.12
Ra226 pCi/l	32.50	53.40
Ra226 Error +/-	1.60	2.30
Ra226 % M.P.C.	108.33	178.00
Ra228 pCi/l	29.30	46.60
Ra228 Error +/-	3.60	4.60
Ra228 % M.P.C.	97.67	155.33
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.		
Pb210 pCi/l	9.60	25.70
Pb210 Error +/-	2.20	1.40
Pb210 % M.P.C.	9.60	25.70
Gross Alpha - U & Rn pCi/l	35.60	123.20
Gross Alpha Error +/-	3.30	11.10
As mg/l	<0.01	<0.001
Se mg/l	0.028	0.011
Fe mg/l	39.10	72.50
Pb mg/l		
Mo mg/l		
Al mg/l		94.80
Be mg/l	0.06	0.12
Ni mg/l	5.61	5.61
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	465.00	504.00
Mg mg/l	286.00	358.00
Na mg/l	263.00	301.00
K mg/l		
NH4 mg/l		
NH3 mg/l		
NO3 mg/l	1.90	3.72
SO4 mg/l	4573.00	4174.00
Cl mg/l	202.00	196.00
TDS mg/l	6673.00	6568.00
pH	4.40	4.37
Water Elevation	6811.70	6800.54

GROUND WATER ANALYSES FOR M.W.C. 56

Date Sampled	06/03/93	12/07/93
UNat pCi/l	121.90	98.80
UNat % M.P.C.	0.41	0.33
Ra226 pCi/l	17.50	20.00
Ra226 Error +/-	1.00	1.60
Ra226 % M.P.C.	58.33	66.67
Ra228 pCi/l	14.80	13.70
Ra228 Error +/-	1.60	1.00
Ra228 % M.P.C.	49.33	45.67
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.		
Pb210 pCi/l	<1.0	89.70
Pb210 Error +/-		7.00
Pb210 % M.P.C.	0.00	89.70
Gross Alpha - U & Rn pCi/l	18.40	40.50
Gross Alpha Error +/-	4.30	6.40
As mg/l	0.770	0.796
Se mg/l	<0.005	<0.001
Fe mg/l	230.00	164.00
Pb mg/l		
Mo mg/l		
Al mg/l	2.05	
Be mg/l	0.06	0.068
Ni mg/l	1.44	1.05
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	478.00	327.00
Mg mg/l	138.00	92.10
Na mg/l	90.80	75.40
K mg/l		
NH4 mg/l		
NH3 mg/l		
NO3 mg/l	<0.10	0.10
SO4 mg/l	2373.00	1549.00
Cl mg/l	32.20	33.10
TDS mg/l	3369.00	2585.00
pH	4.48	6.35
Water Elevation	6802.31	

GROUND WATER ANALYSES FOR M.W.C. 57

Date Sampled	06/02/93	12/07/93
UNat pCi/l	124.60	6.80
UNat % M.P.C.	0.42	0.02
Ra226 pCi/l	19.00	18.50
Ra226 Error +/-	0.60	1.60
Ra226 % M.P.C.	63.33	61.67
Ra228 pCi/l	12.60	1.60
Ra228 Error +/-	0.40	0.30
Ra228 % M.P.C.	42.00	5.33
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.		
Pb210 pCi/l	<1.0	<1.0
Pb210 Error +/-		
Pb210 % M.P.C.	0.00	
Gross Alpha - U & Rn pCi/l	20.30	20.90
Gross Alpha Error +/-	4.50	4.60
As mg/l	0.010	0.011
Se mg/l	<0.005	<0.001
Fe mg/l	18.40	10.63
Pb mg/l		
Mo mg/l		
Al mg/l	0.15	
Be mg/l	<0.01	<0.005
Ni mg/l	0.11	<0.05
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	337.00	232.00
Mg mg/l	58.30	43.20
Na mg/l	39.40	41.70
K mg/l		
SiO2 mg/l	17.60	
NH3 mg/l		
NO3 mg/l	<0.10	<0.10
SO4 mg/l	1111.00	676.00
Cl mg/l	13.20	9.20
TDS mg/l	1535.00	1149.00
pH	6.99	6.75
Water Elevation	6802.29	

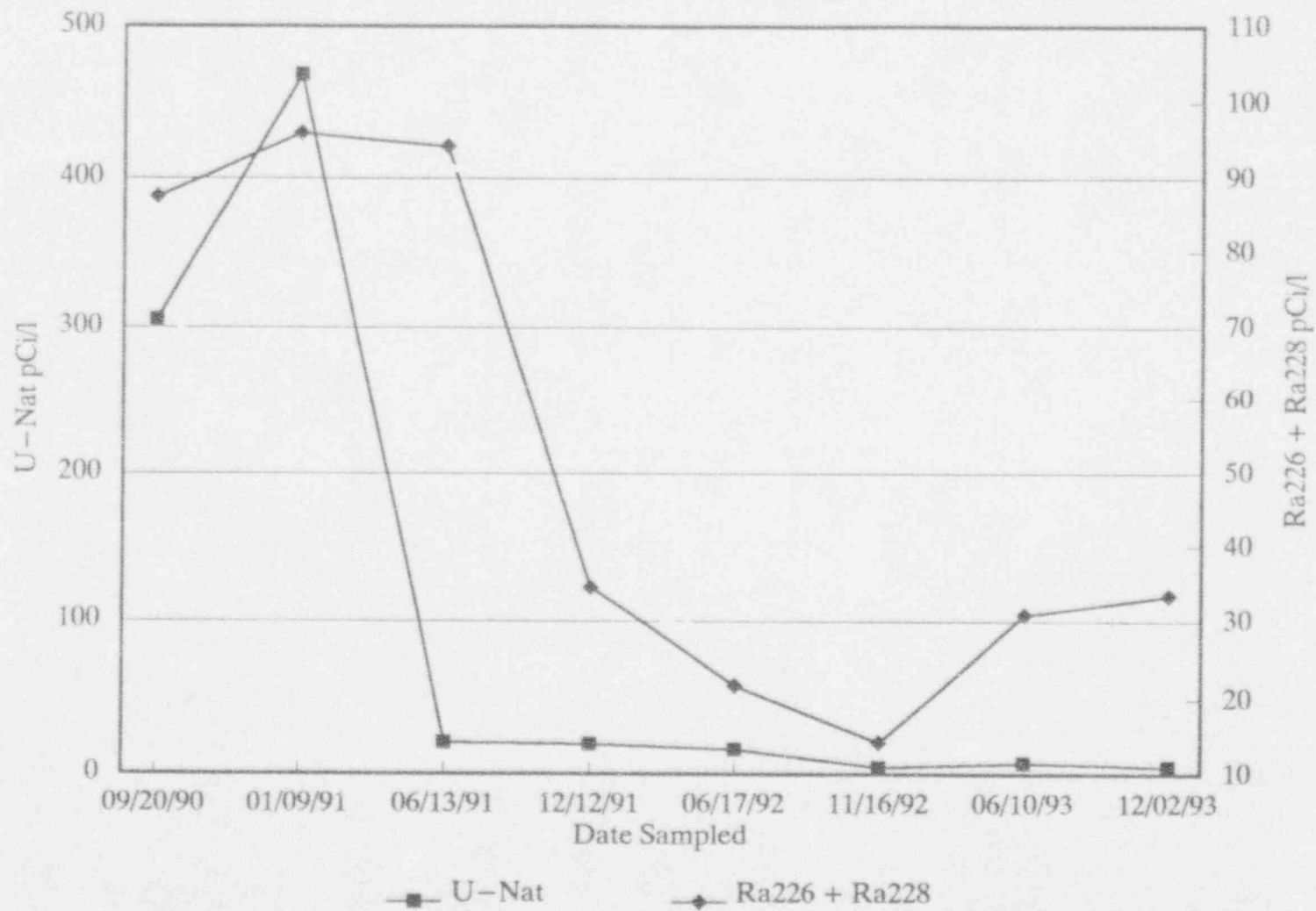
GROUND WATER ANALYSES FOR M.W.C. 58

Date Sampled	06/02/93	12/07/93
UNat pCi/l	12.20	4.10
UNat % M.P.C.	0.04	0.01
Ra226 pCi/l	27.30	35.70
Ra226 Error +/-	0.70	2.20
Ra226 % M.P.C.	91.00	119.00
Ra228 pCi/l	11.20	4.20
Ra228 Error +/-	0.40	0.30
Ra228 % M.P.C.	37.33	14.00
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.		
Pb210 pCi/l	2.50	<1.0
Pb210 Error +/-	0.60	
Pb210 % M.P.C.	2.50	
Gross Alpha - U & Rn pCi/l	28.10	41.90
Gross Alpha Error +/-	5.30	6.50
As mg/l	0.010	0.012
Se mg/l	<0.005	<0.001
Fe mg/l	27.50	24.51
Pb mg/l		
Mo mg/l		
Al mg/l	0.16	
Be mg/l	<0.01	<0.005
Ni mg/l	0.08	<0.05
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	273.00	299.00
Mg mg/l	51.80	46.90
Na mg/l	48.20	57.10
K mg/l		
SiO2 mg/l	11.70	
NH3 mg/l		
NO3 mg/l	<0.10	<0.10
SO4 mg/l	1048.00	992.00
Cl mg/l	20.40	23.00
TDS mg/l	1444.00	1658.00
pH	6.90	6.83
Water Elevation	6800.89	

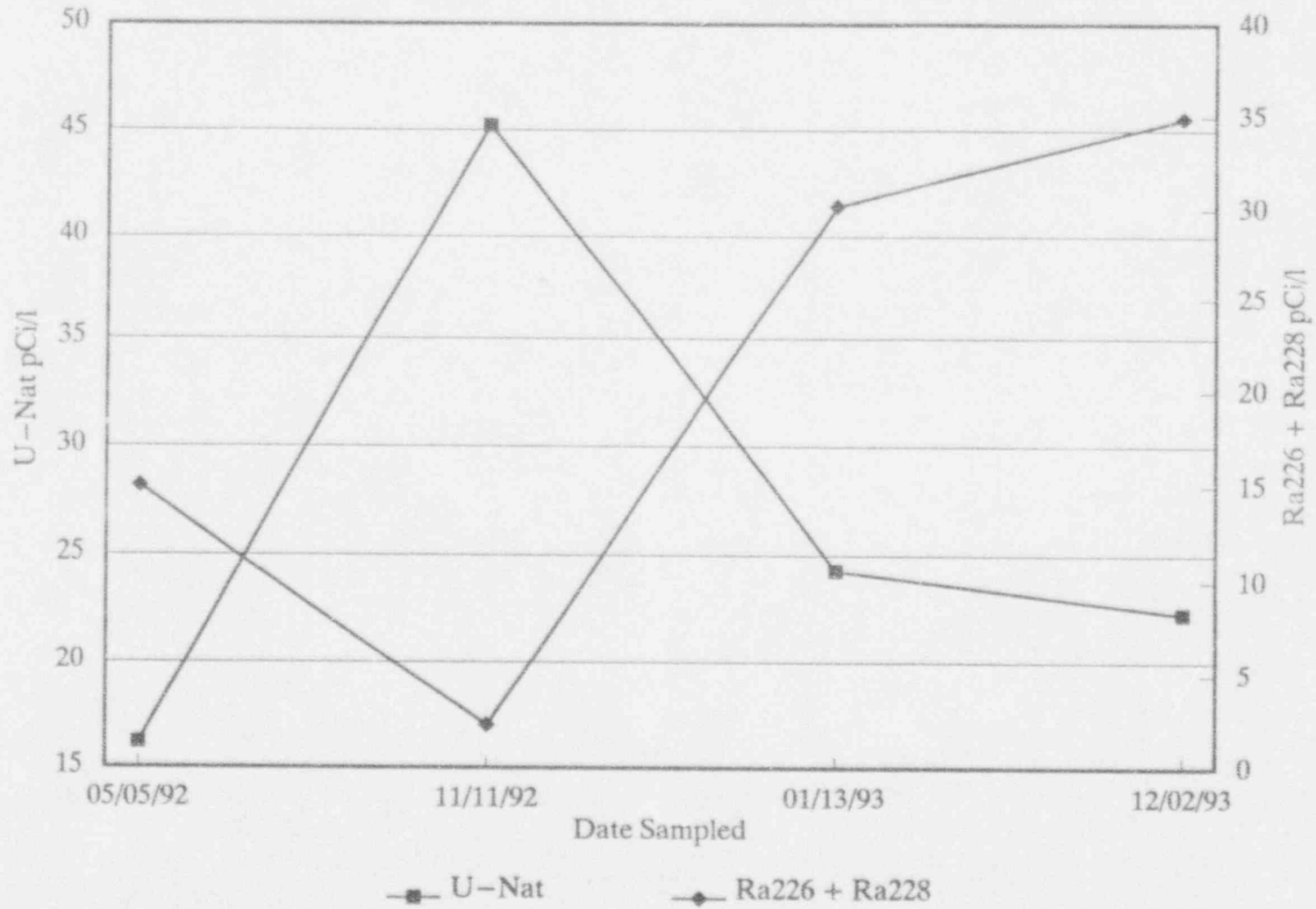
GROUND WATER ANALYSES FOR M.W.C. 59

Date Sampled	06/01/93	12/02/93
UNat pCi/l	153.00	132.00
UNat % M.P.C.	0.51	0.44
Ra226 pCi/l	38.00	52.20
Ra226 Error +/-	1.40	2.30
Ra226 % M.P.C.	126.67	174.00
Ra228 pCi/l	53.80	43.50
Ra228 Error +/-	4.20	4.80
Ra228 % M.P.C.	179.33	145.00
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.		
Pb210 pCi/l	6.40	4.00
Pb210 Error +/-	0.60	1.00
Pb210 % M.P.C.	6.40	4.00
Gross Alpha - U & Rn pCi/l	41.40	117.60
Gross Alpha Error +/-	3.50	10.80
As mg/l	<0.01	<0.001
Se mg/l	<0.005	<0.001
Fe mg/l	177.00	199.00
Pb mg/l		
Mo mg/l		
Al mg/l		19.90
Be mg/l	0.13	0.12
Ni mg/l	1.62	2.43
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	489.00	432.00
Mg mg/l	209.00	230.00
Na mg/l	216.00	180.00
K mg/l		
SiO2 mg/l		
NH3 mg/l		
NO3 mg/l	<0.10	<0.10
SO4 mg/l	2864.00	2747.00
Cl mg/l	122.00	110.00
TDS mg/l	4401.00	4459.00
pH	4.49	5.01
Wat. Elevation	6802.64	

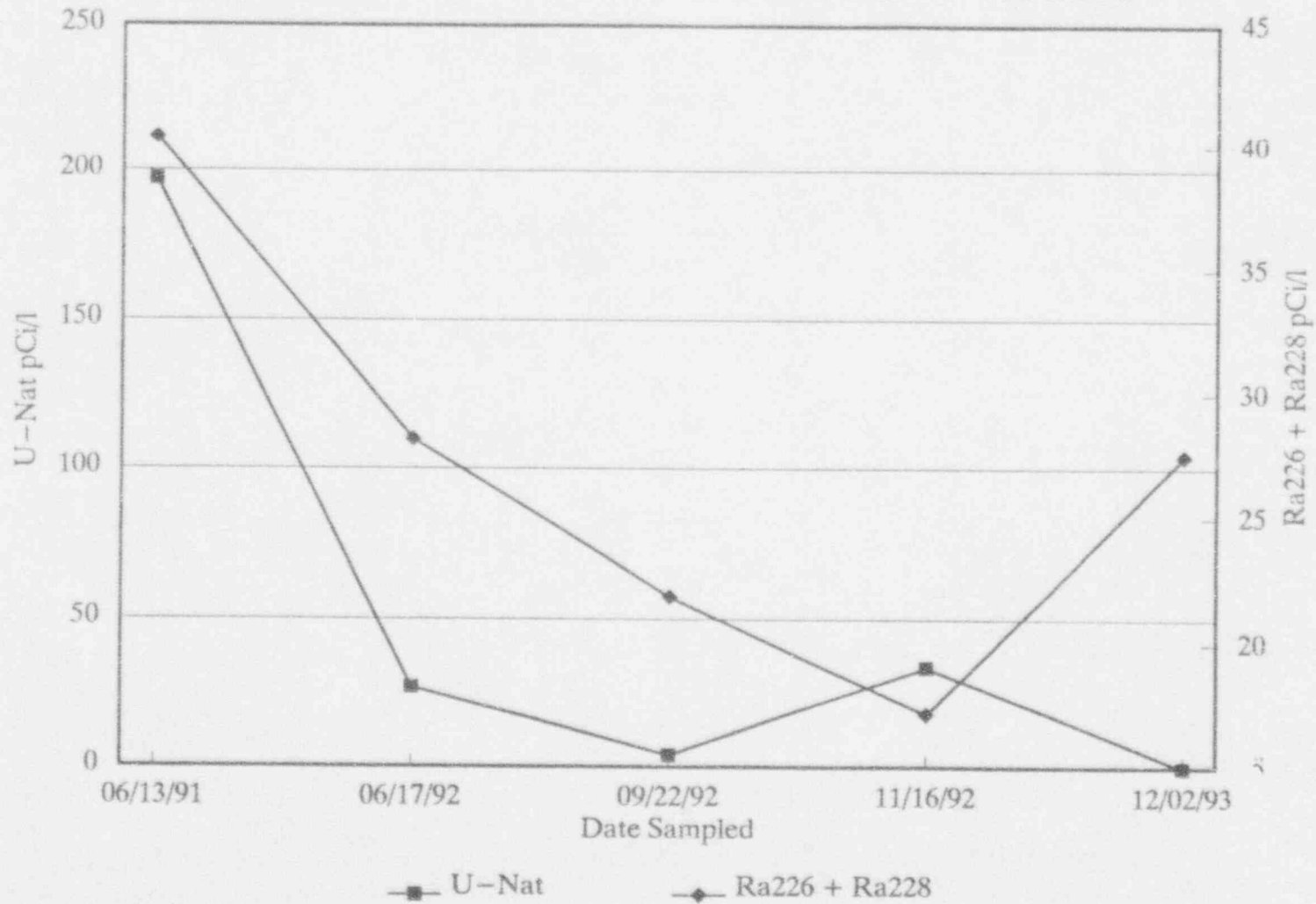
M.W.C. 42 U-Nat & Ra226 + Ra228



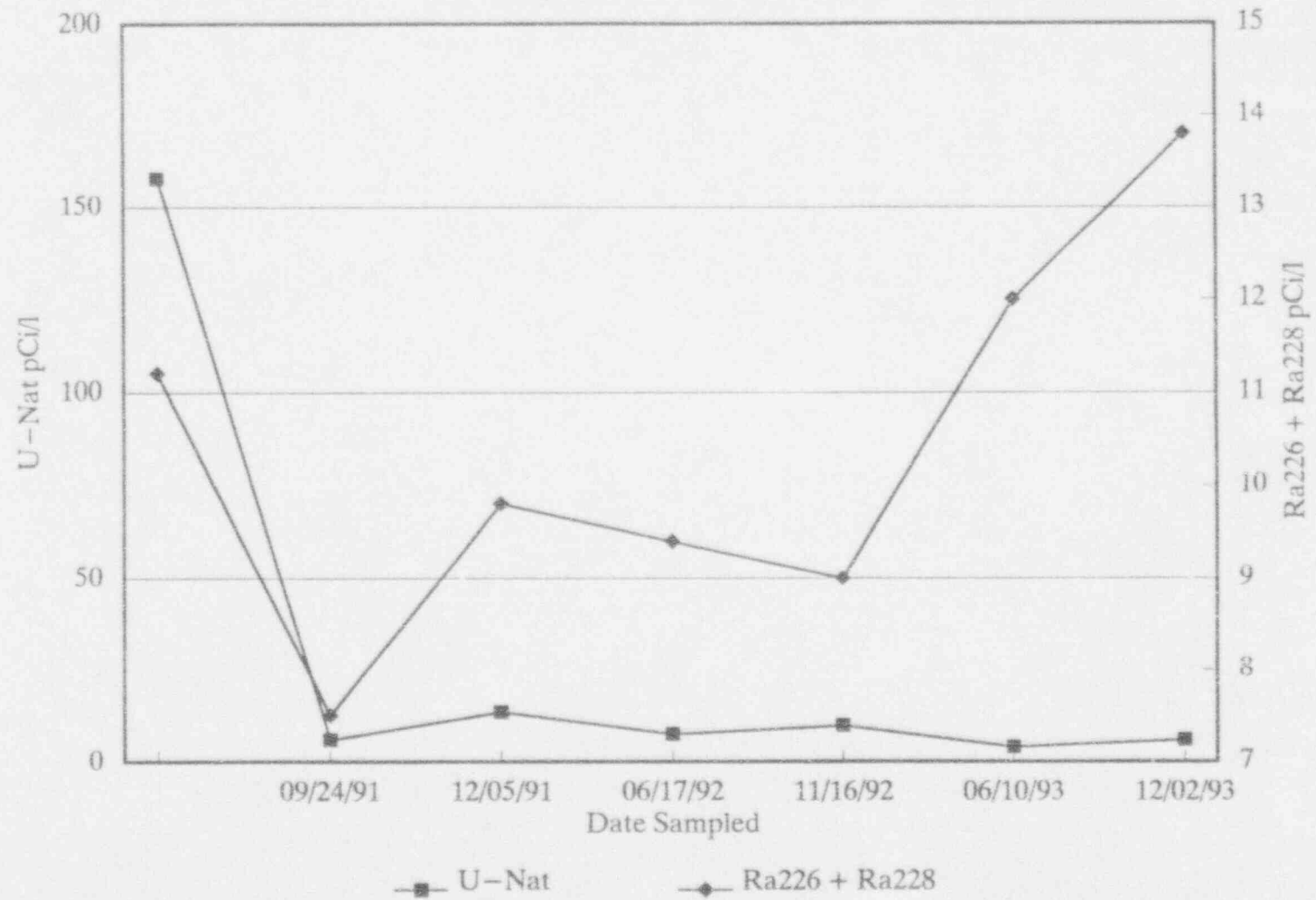
M.W.C. 45 U-Nat & Ra226 + Ra228



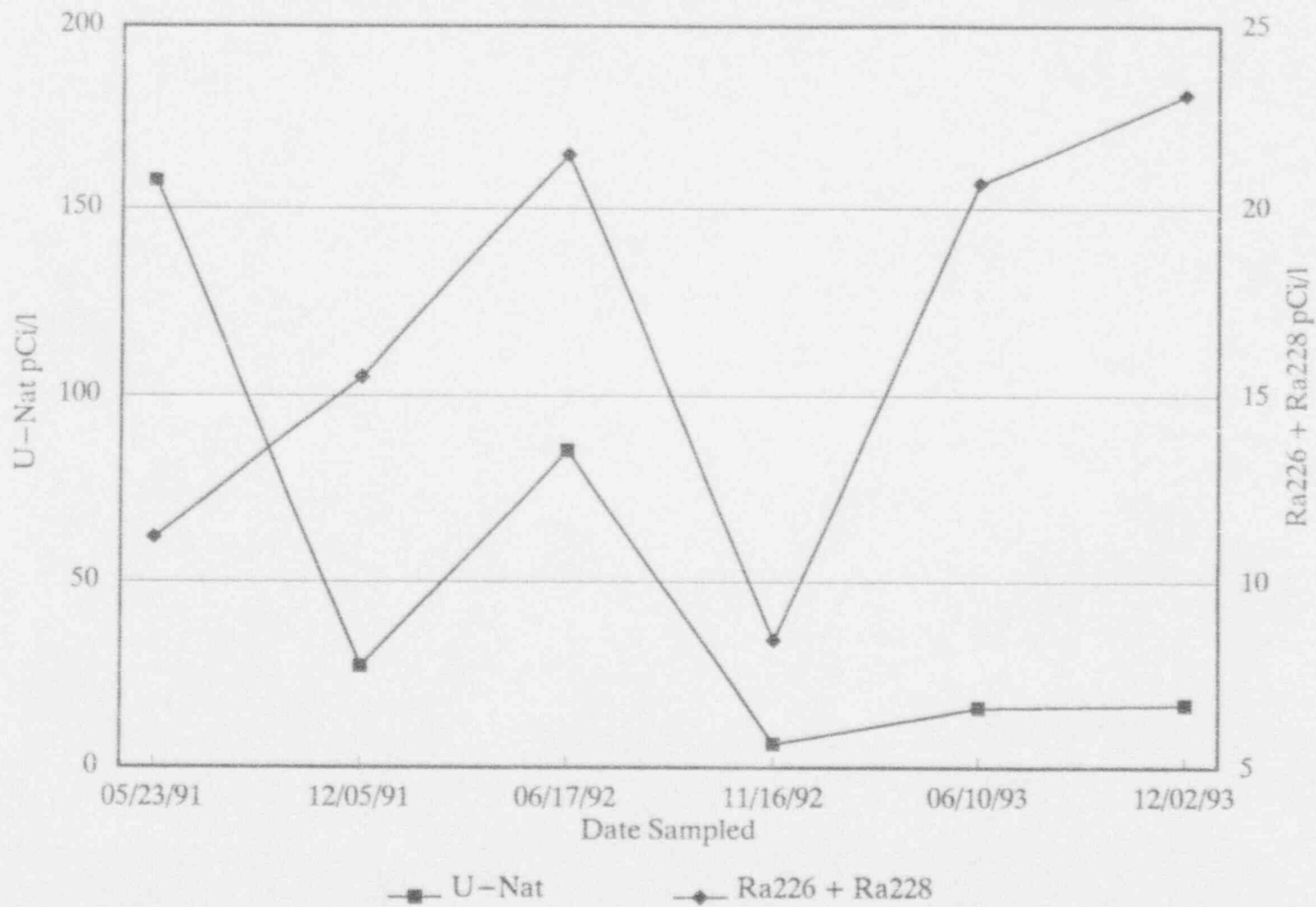
M.W.C. 47 U-Nat & Ra226 + Ra228



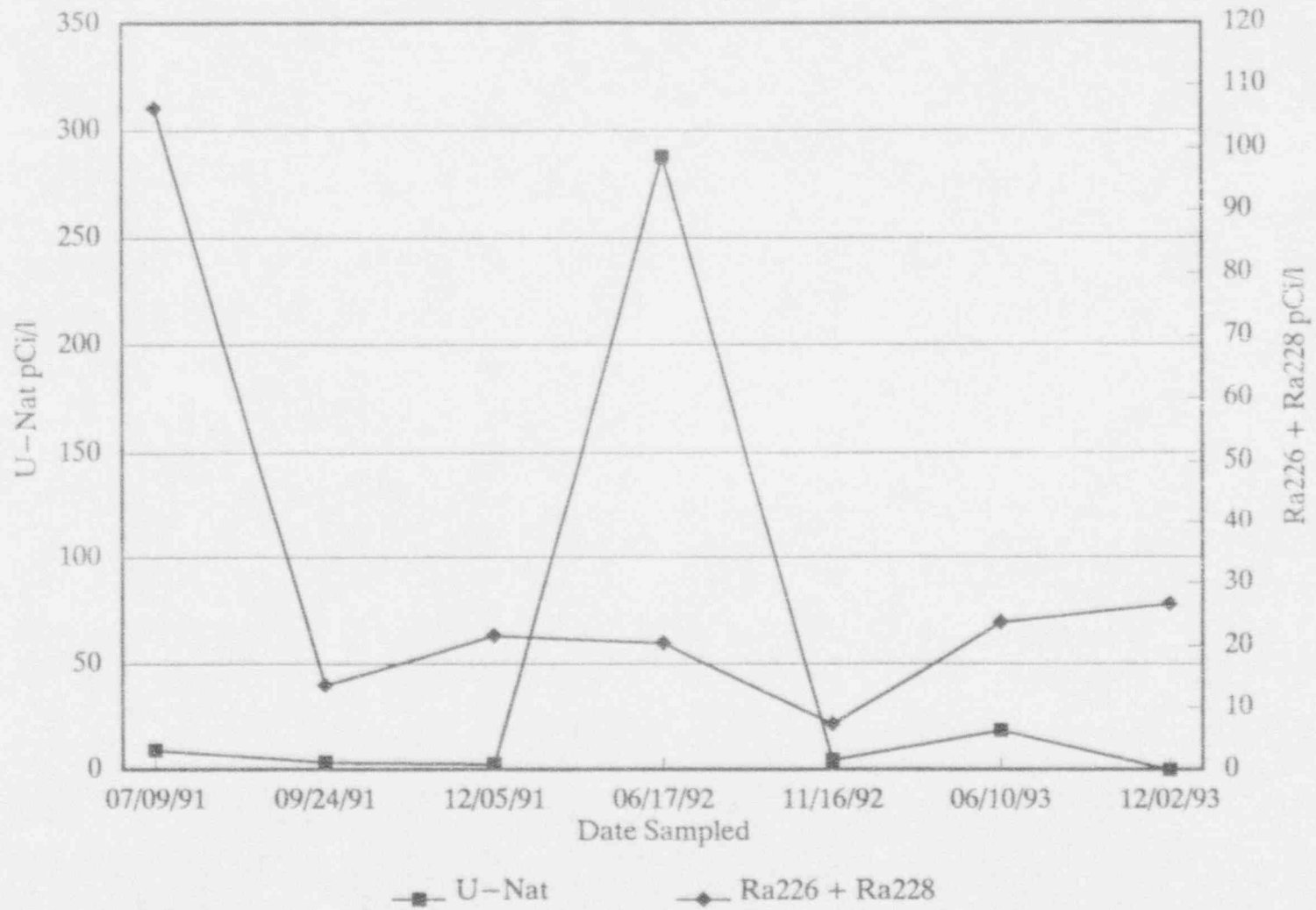
M.W.C. 48 U-Nat & Ra226 + Ra228



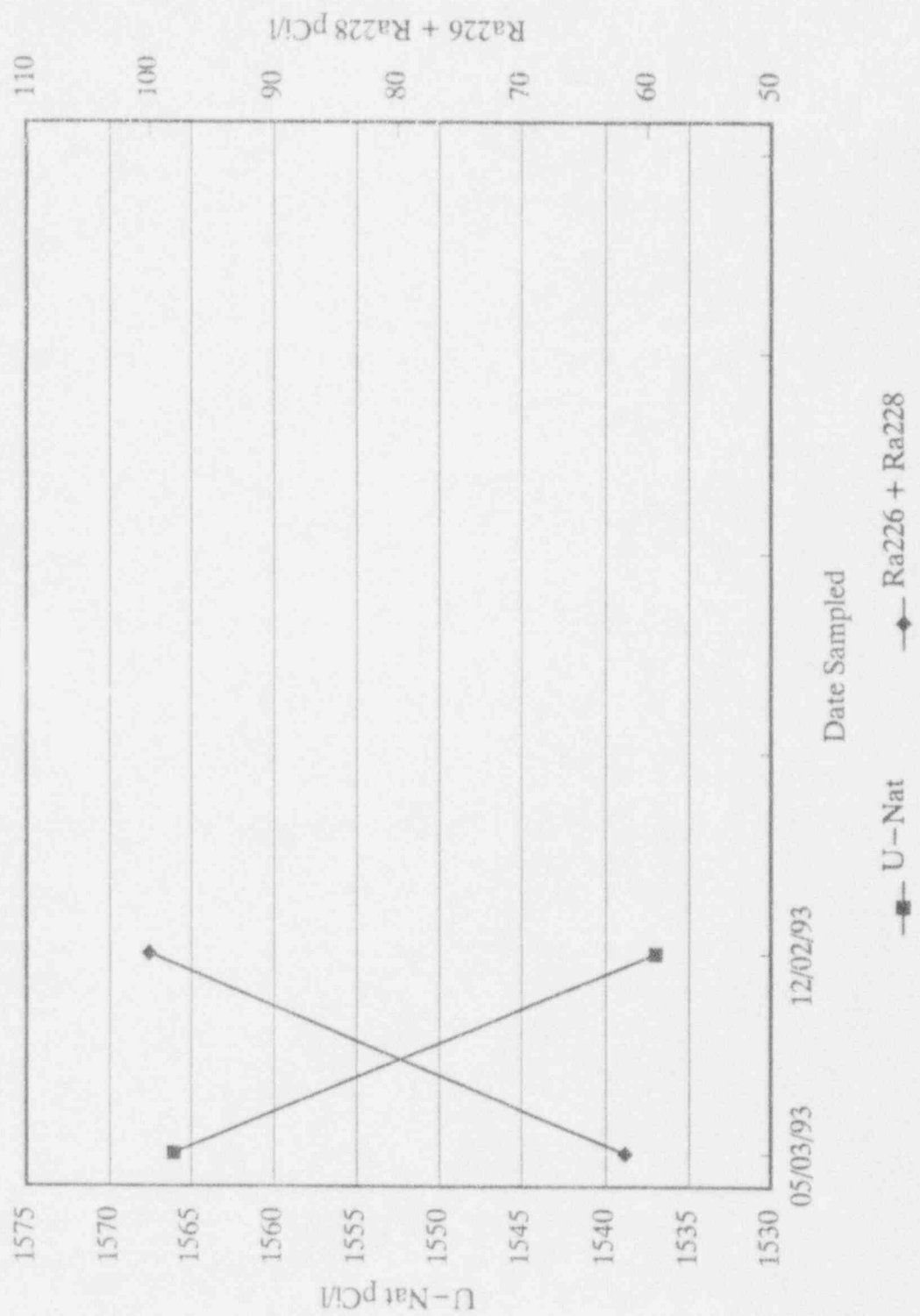
M.W.C. 49 U-Nat & Ra226 + Ra228



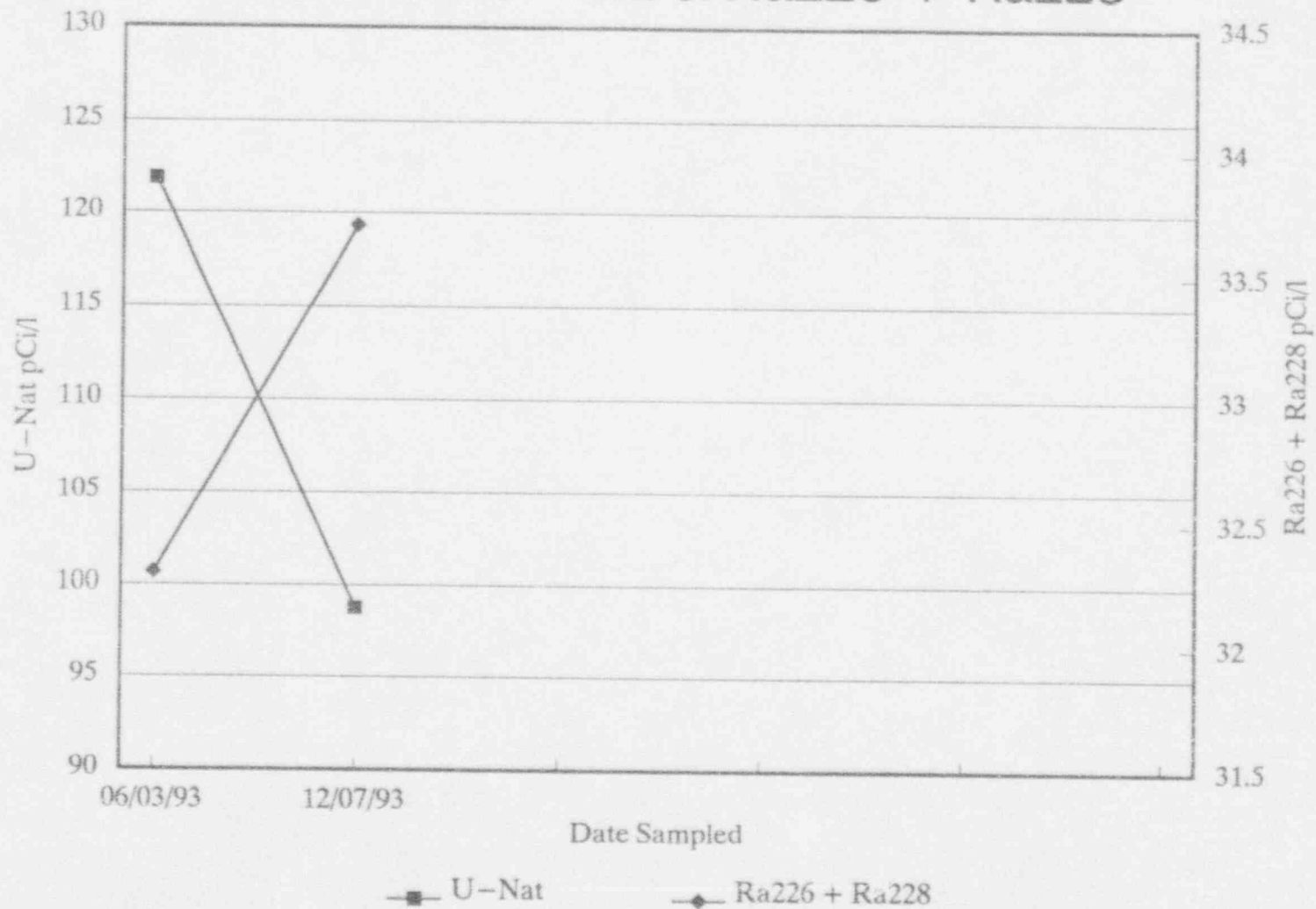
M.W.C. 52 U-Nat & Ra226 + Ra228



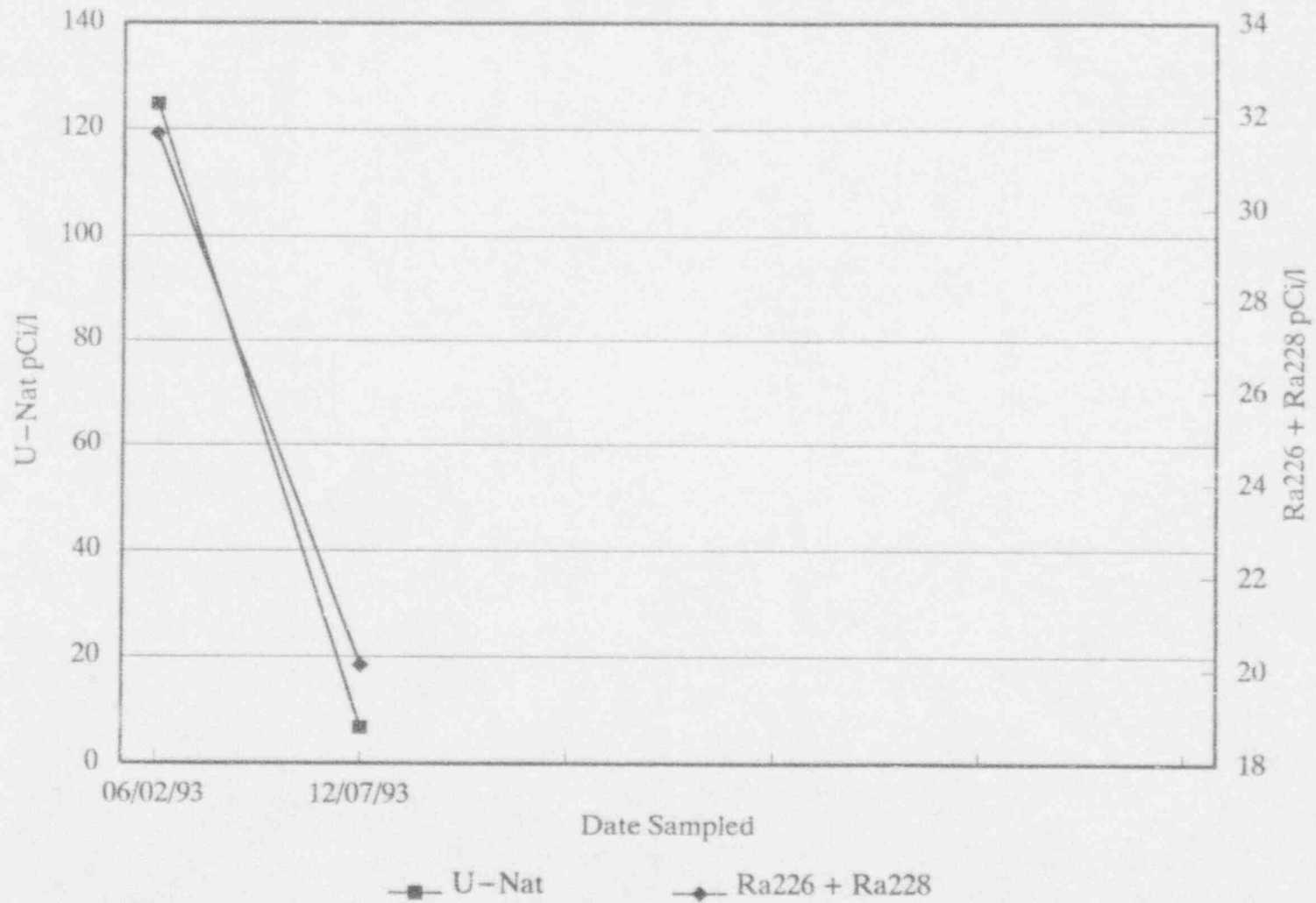
M.W.C. 55 U-Nat & Ra226 + Ra228



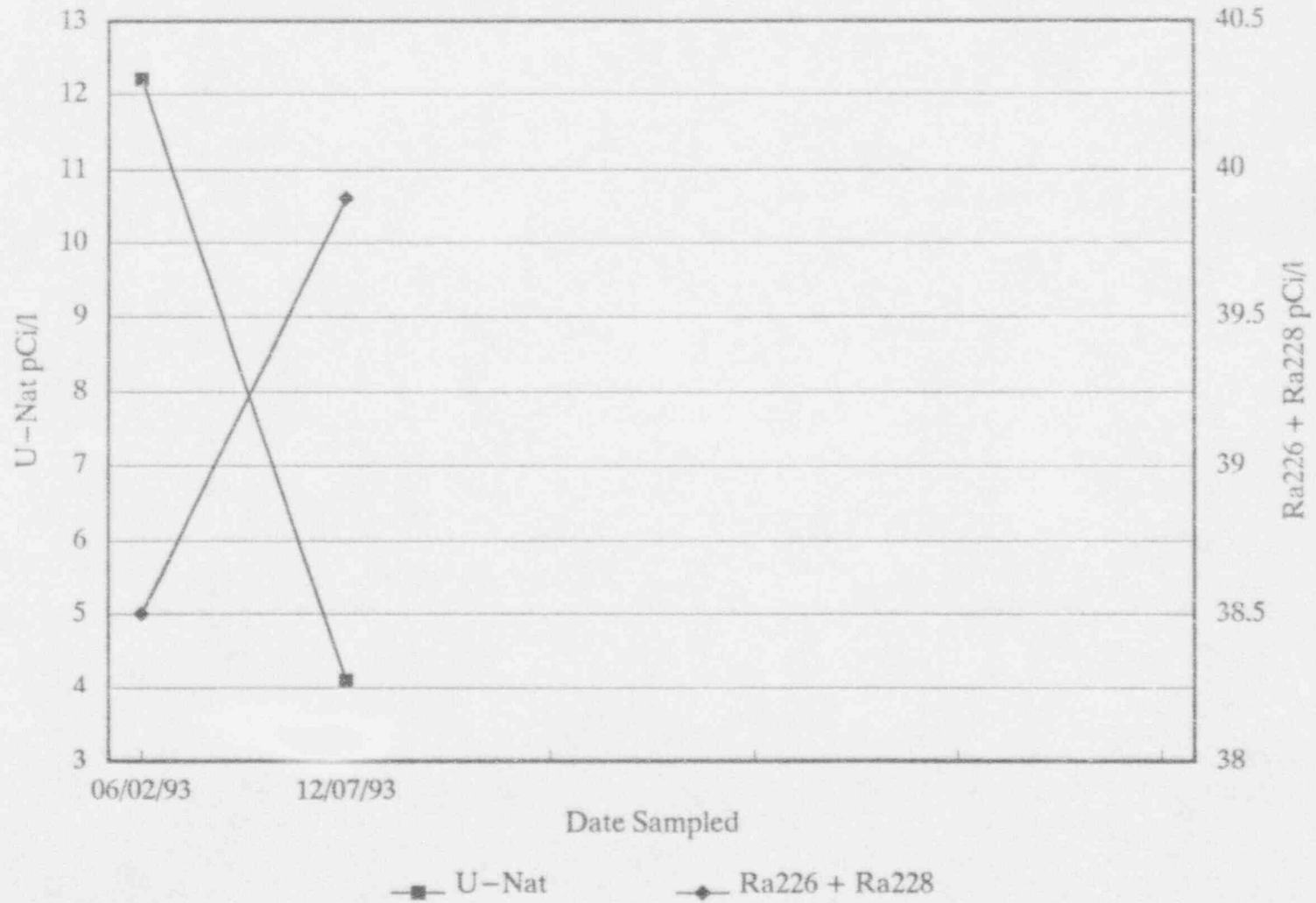
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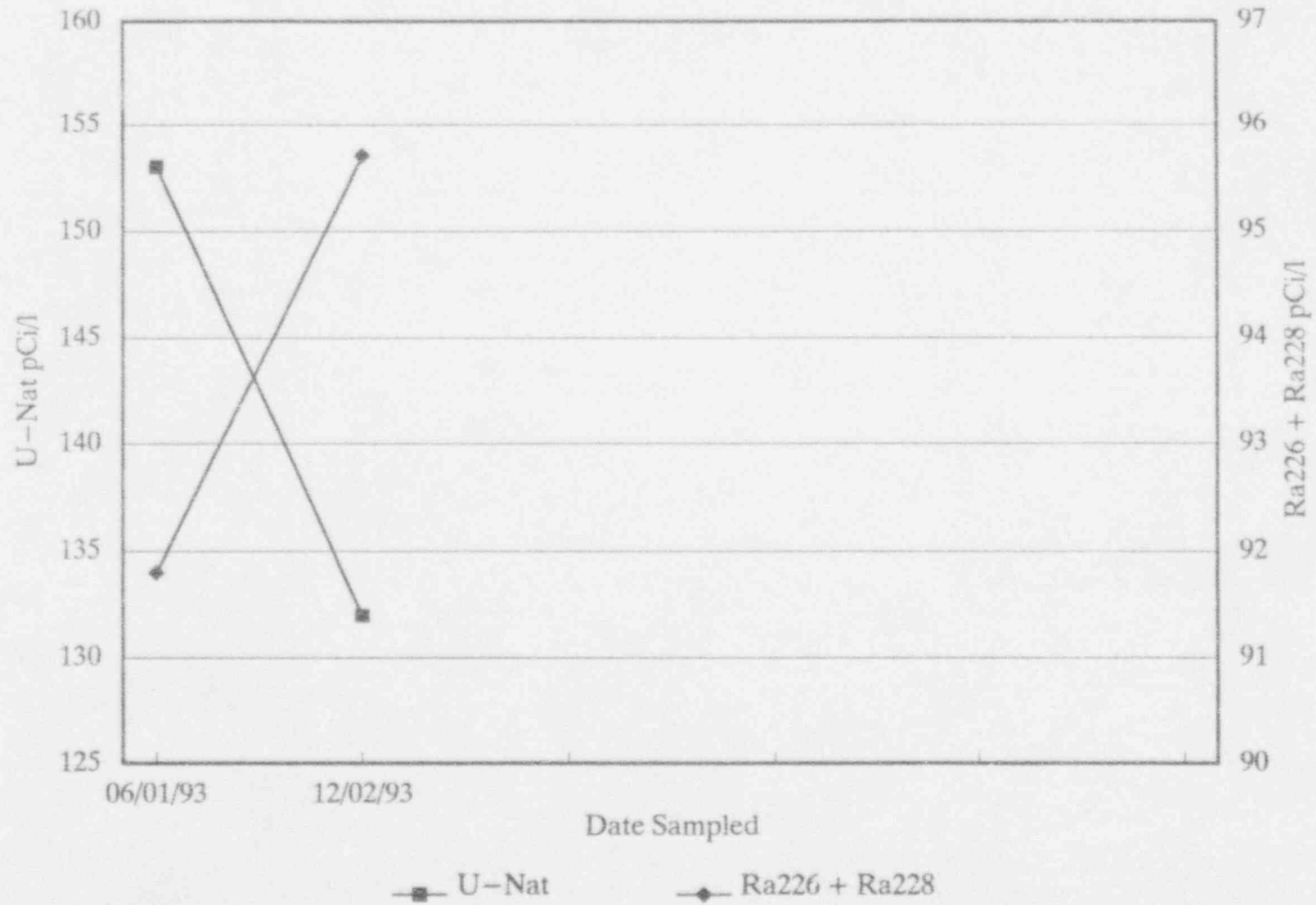
M.W.C. 57 U-Nat & Ra226 + Ra228



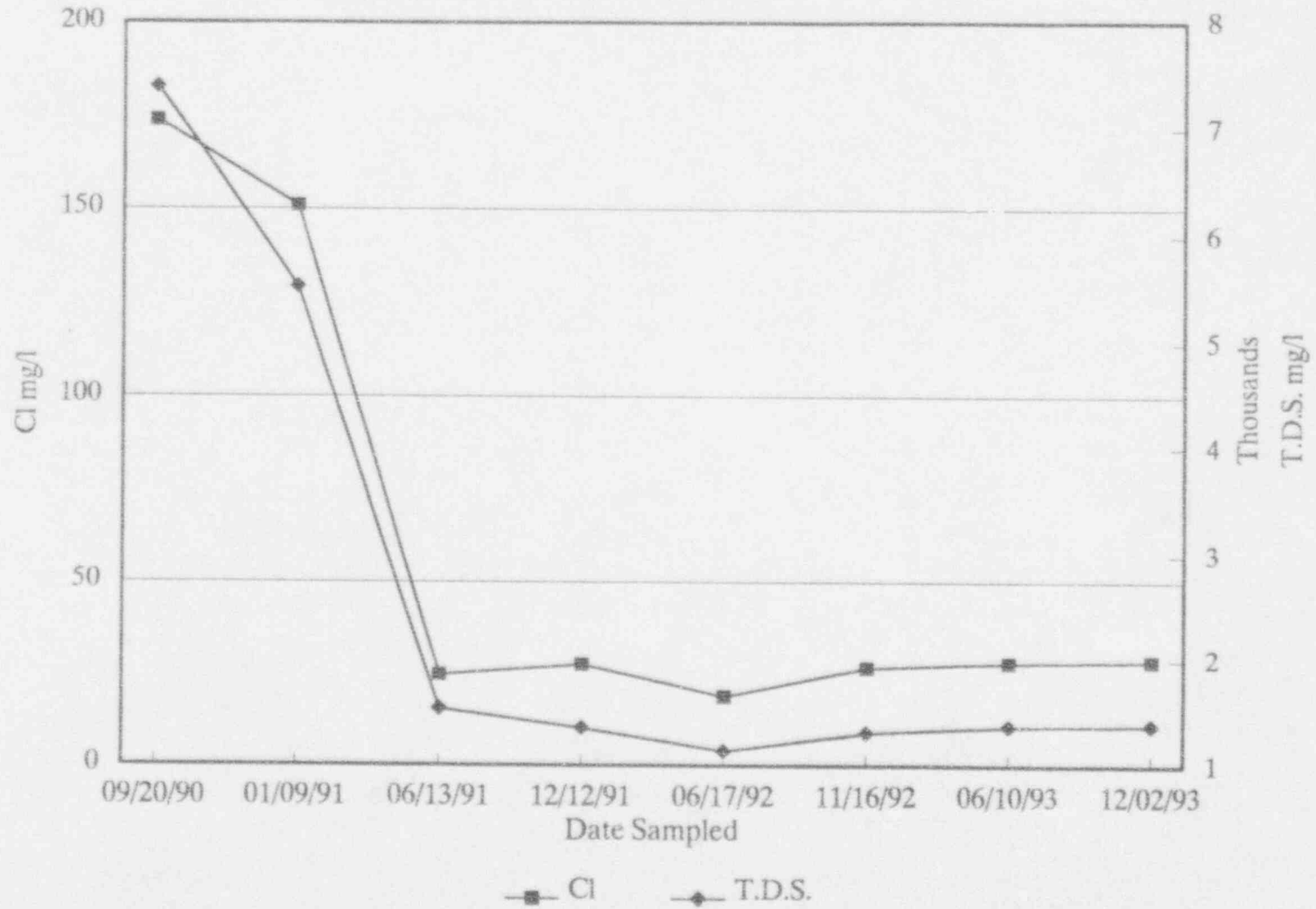
M.W.C. 58 U-Nat & Ra226 + Ra228



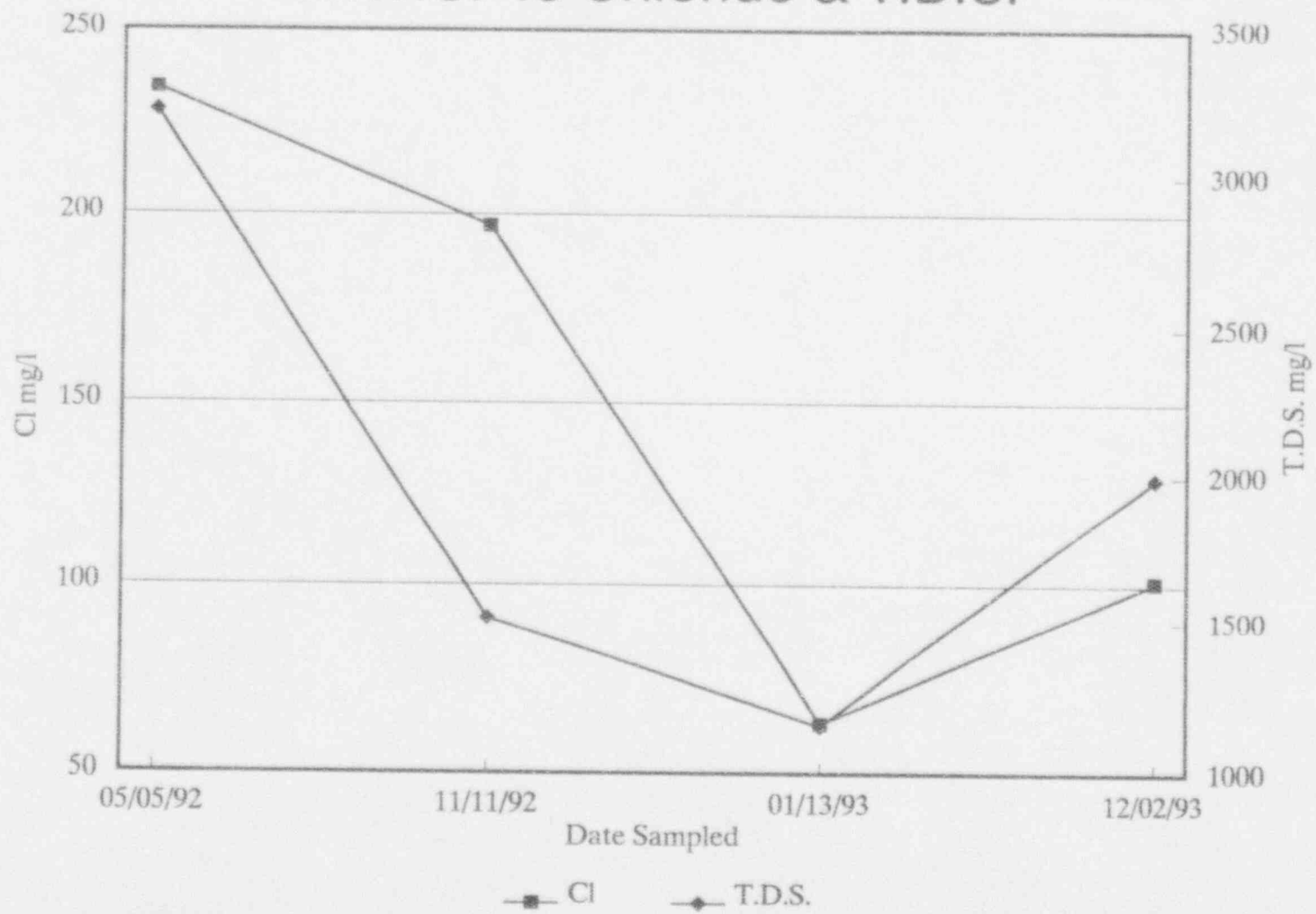
M.W.C. 59 U-Nat & Ra226 + Ra228



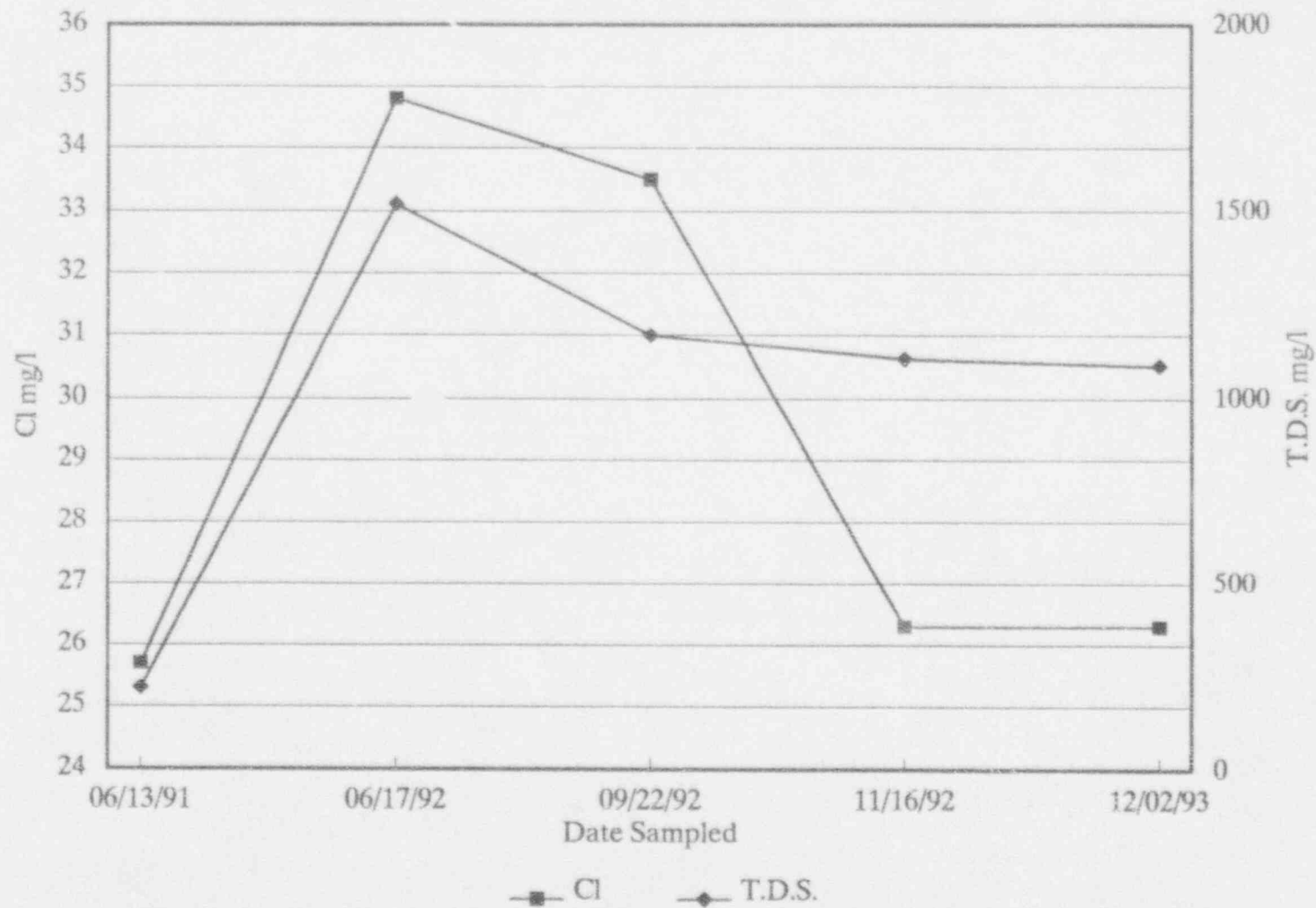
M.W.C. 42 Chloride & T.D.S.



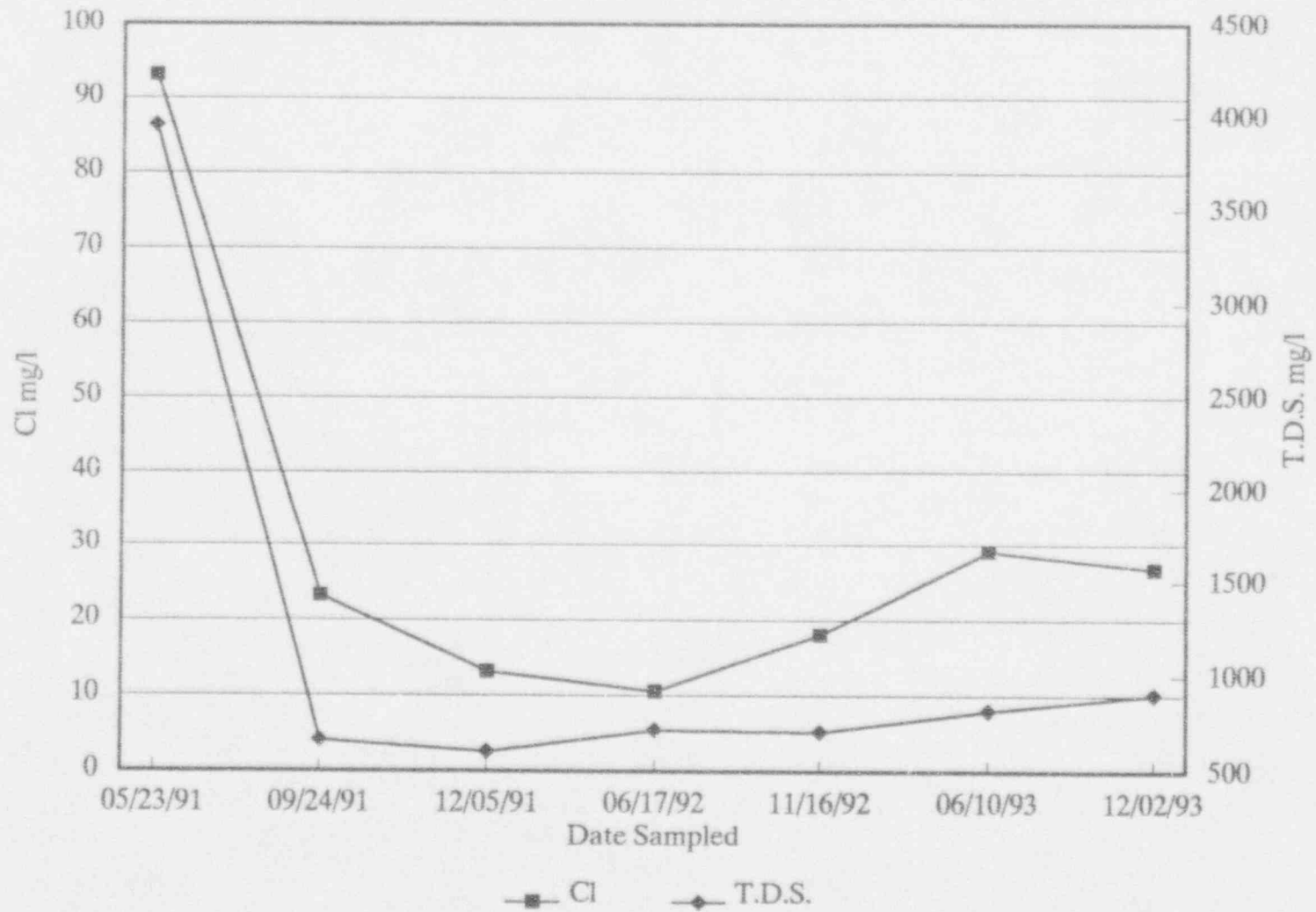
M.W.C. 45 Chloride & T.D.S.



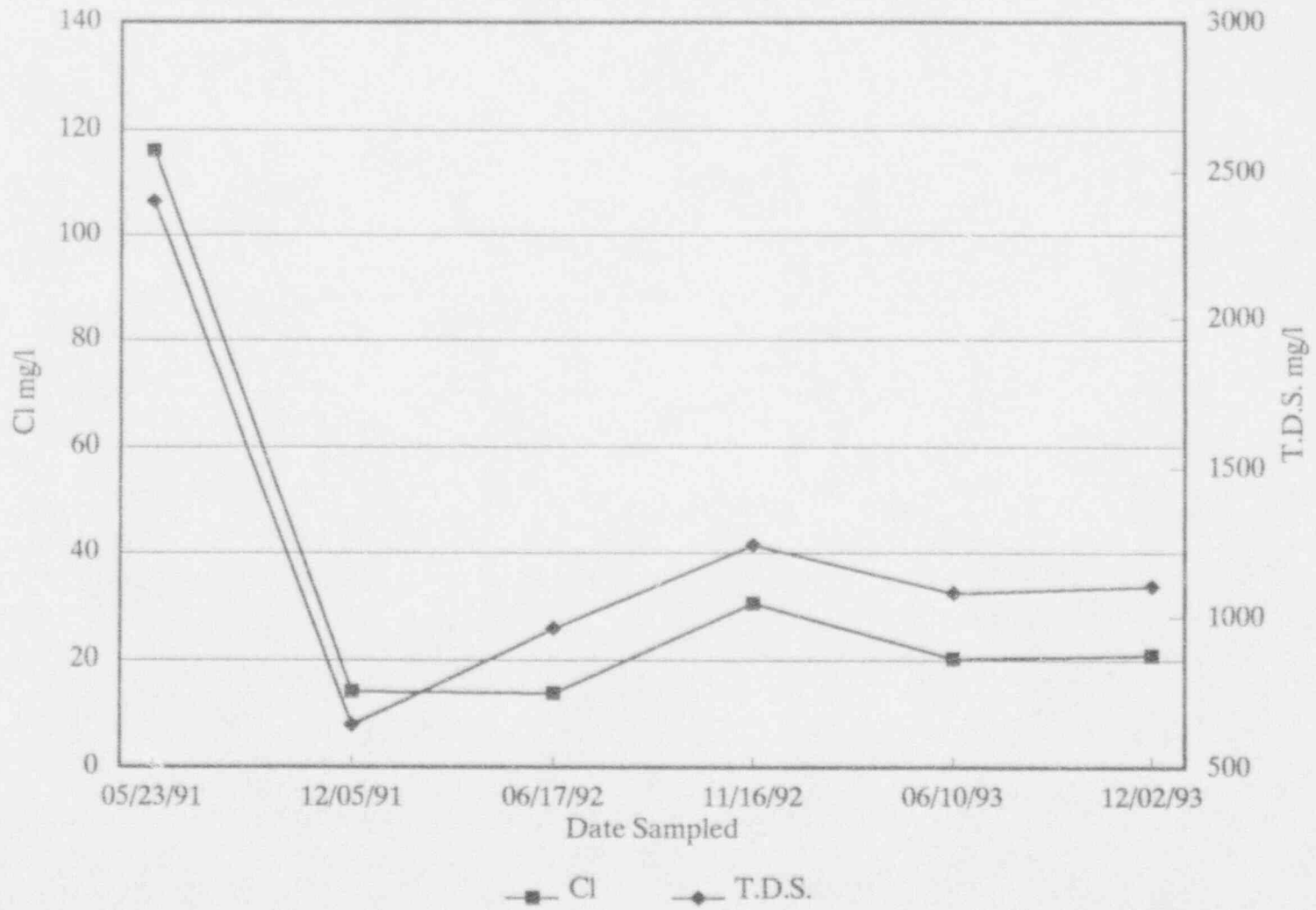
M.W.C. 47 Chloride & T.D.S.



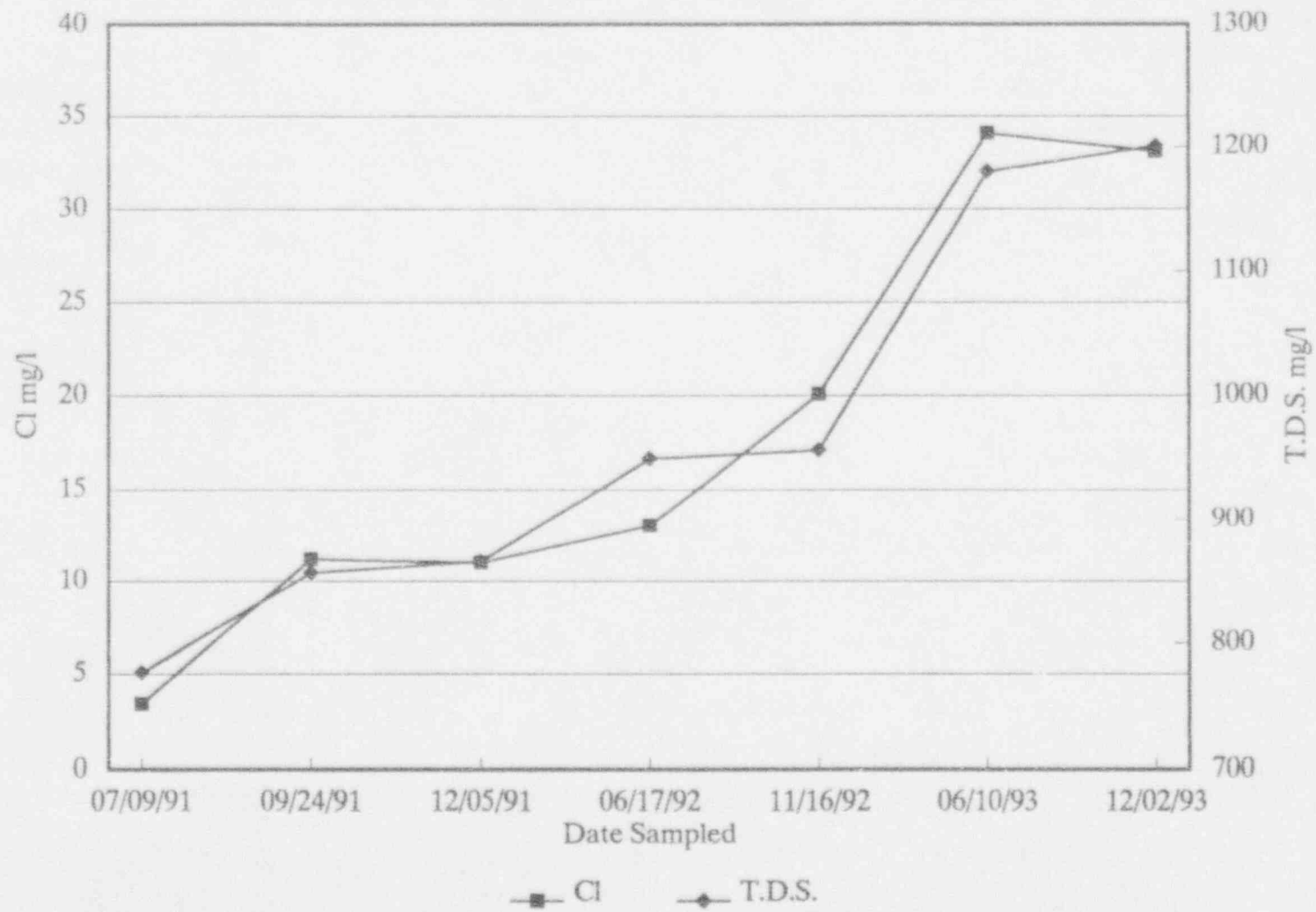
M.W.C. 48 Chloride & T.D.S.



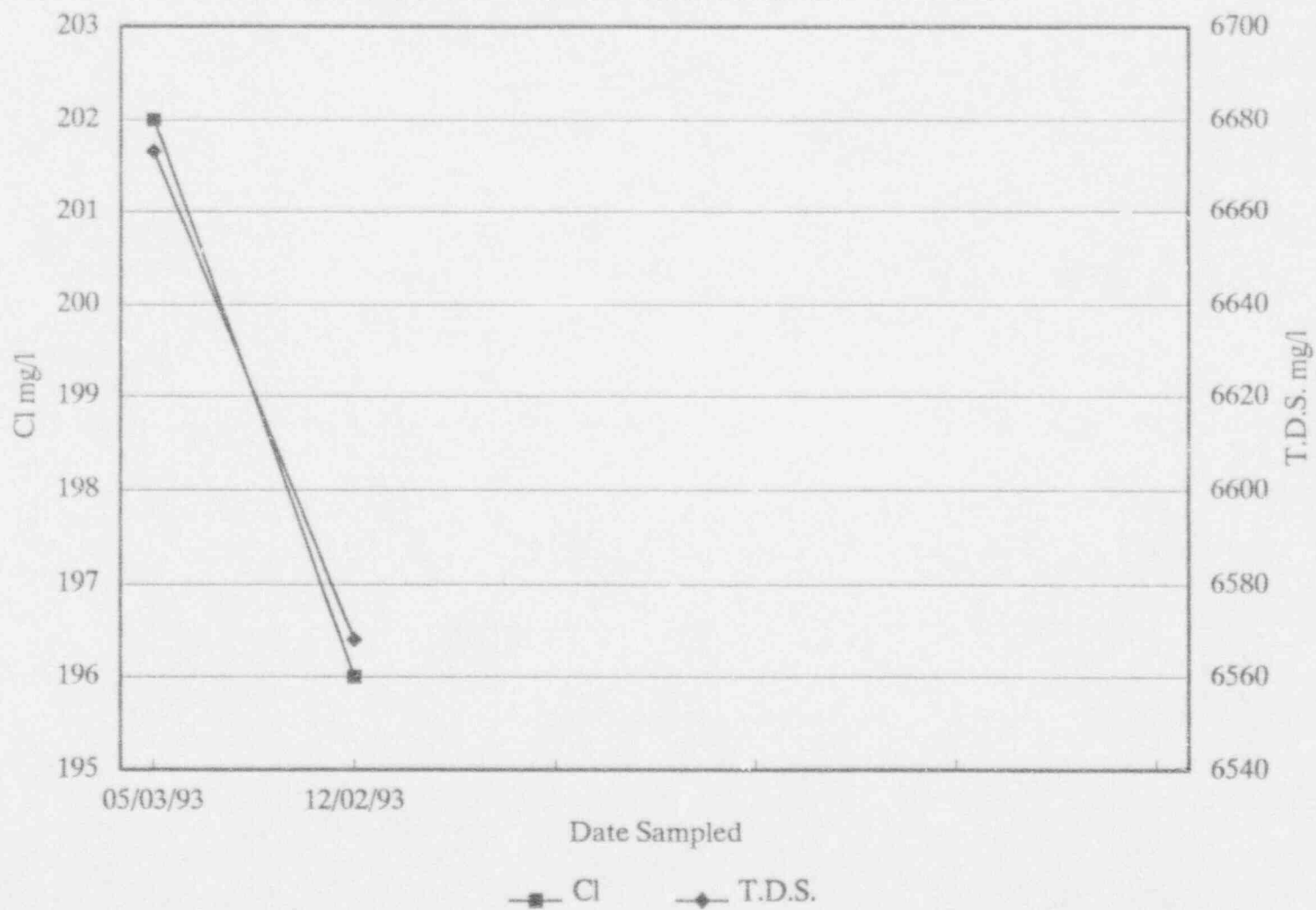
M.W.C. 49 Chloride & T.D.S.



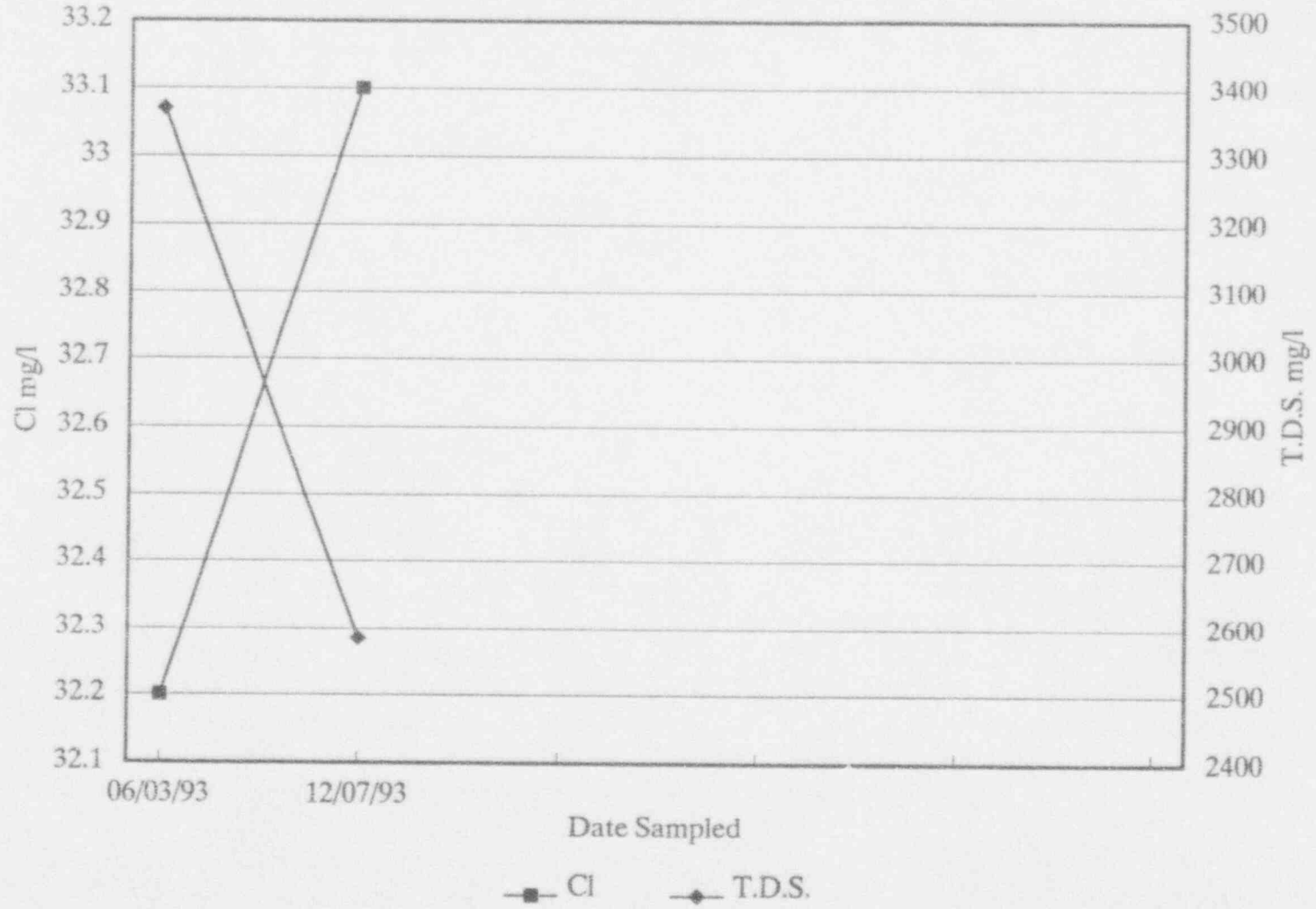
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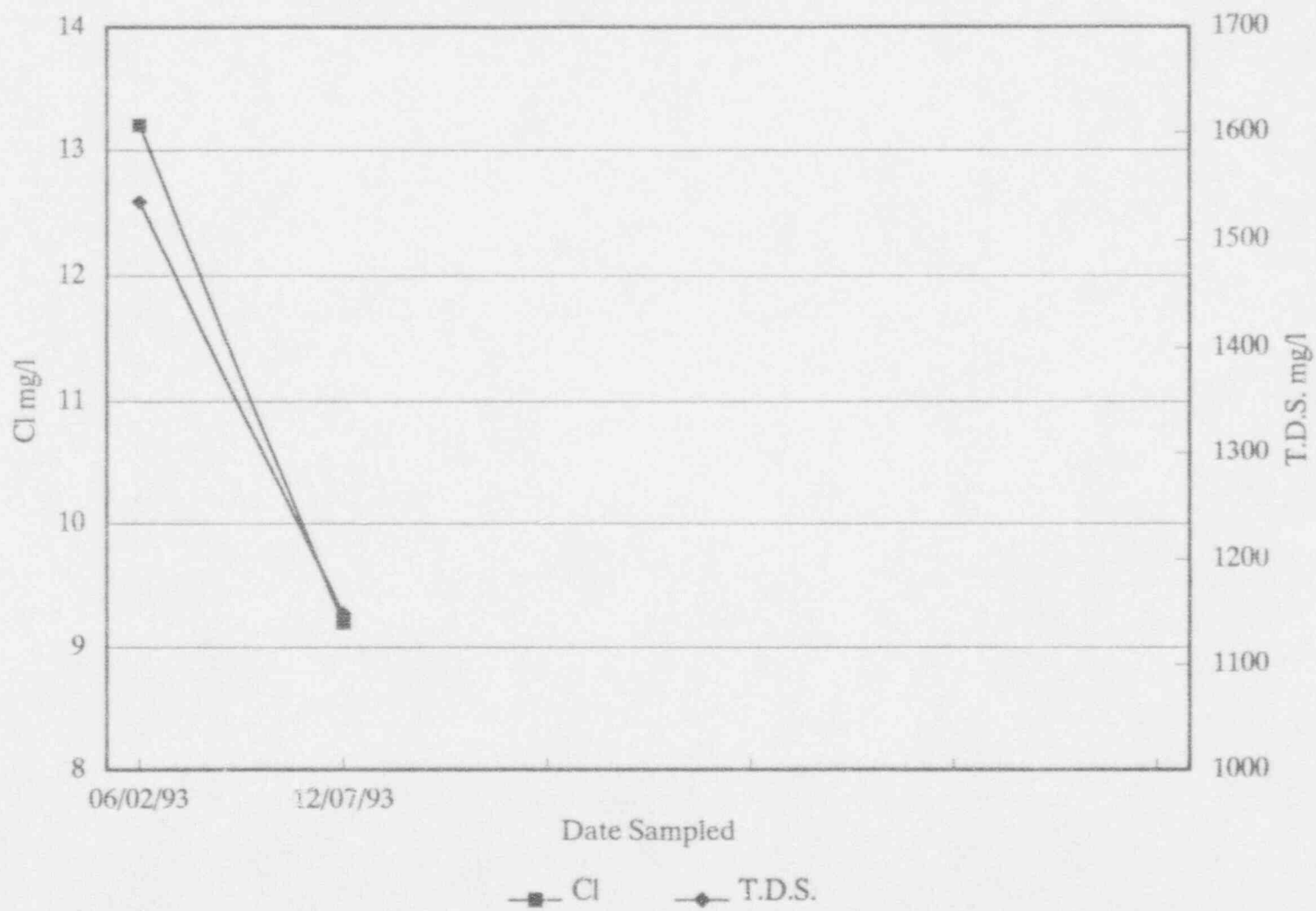
M.W.C. 55 Chloride & T.D.S.



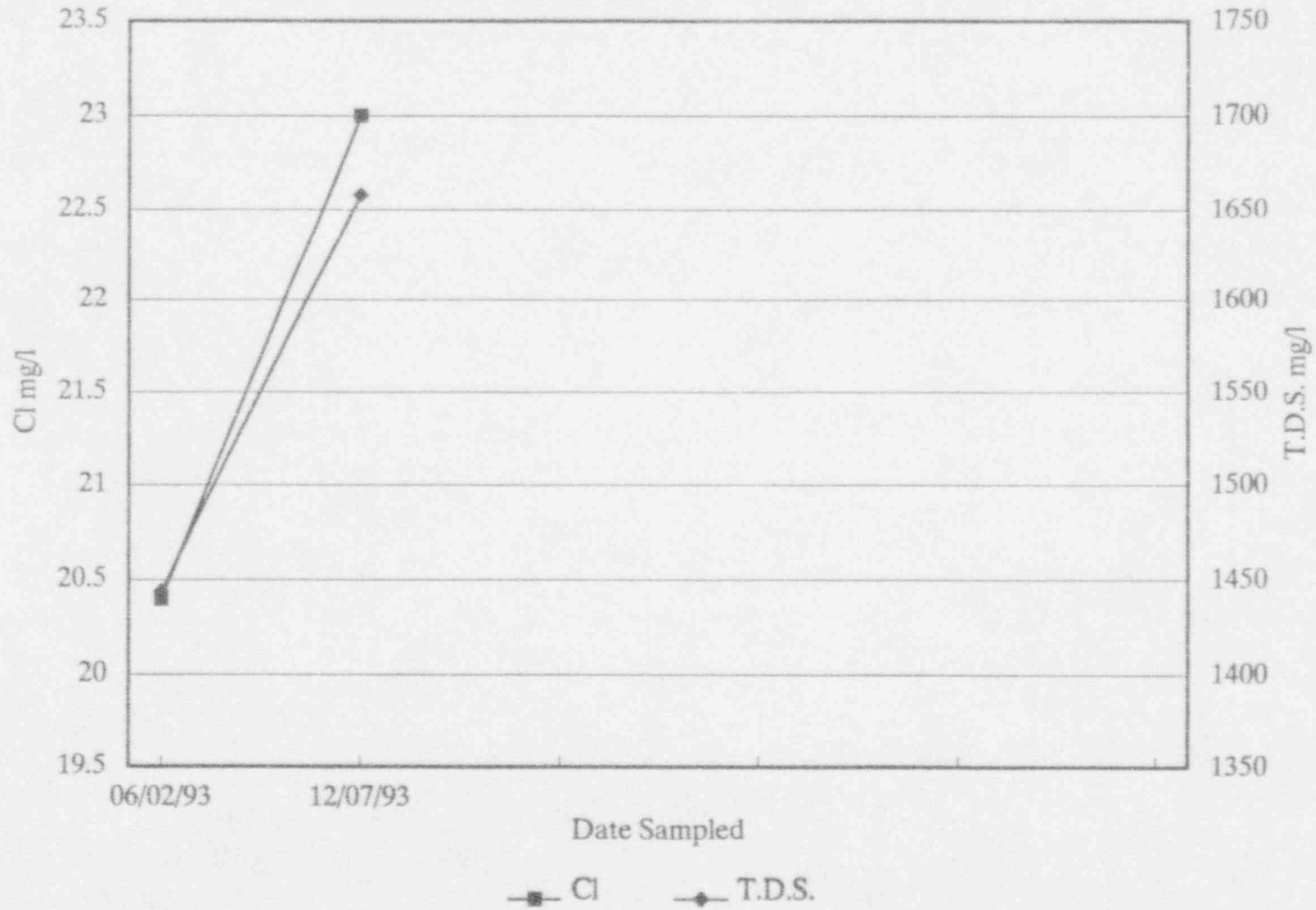
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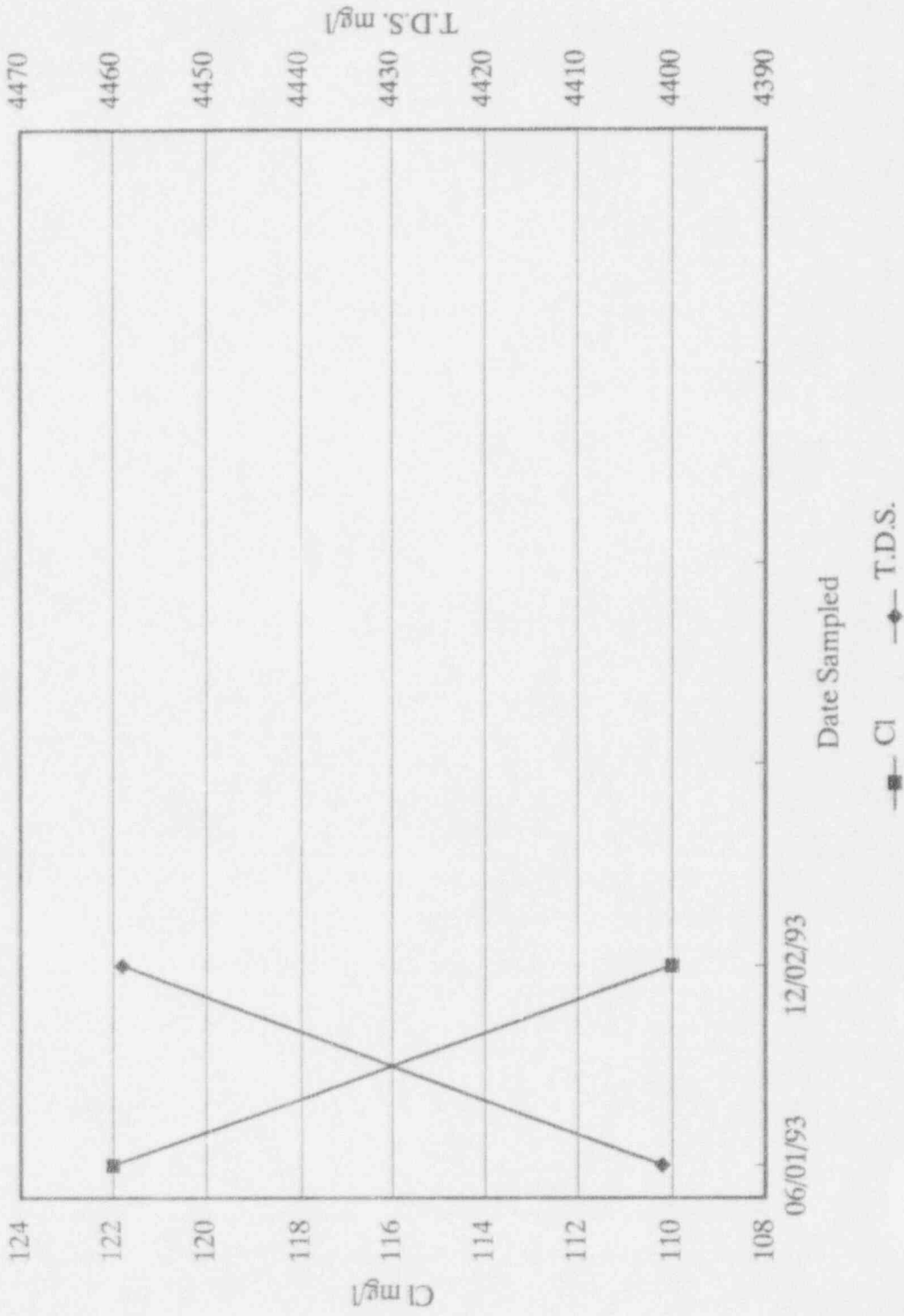
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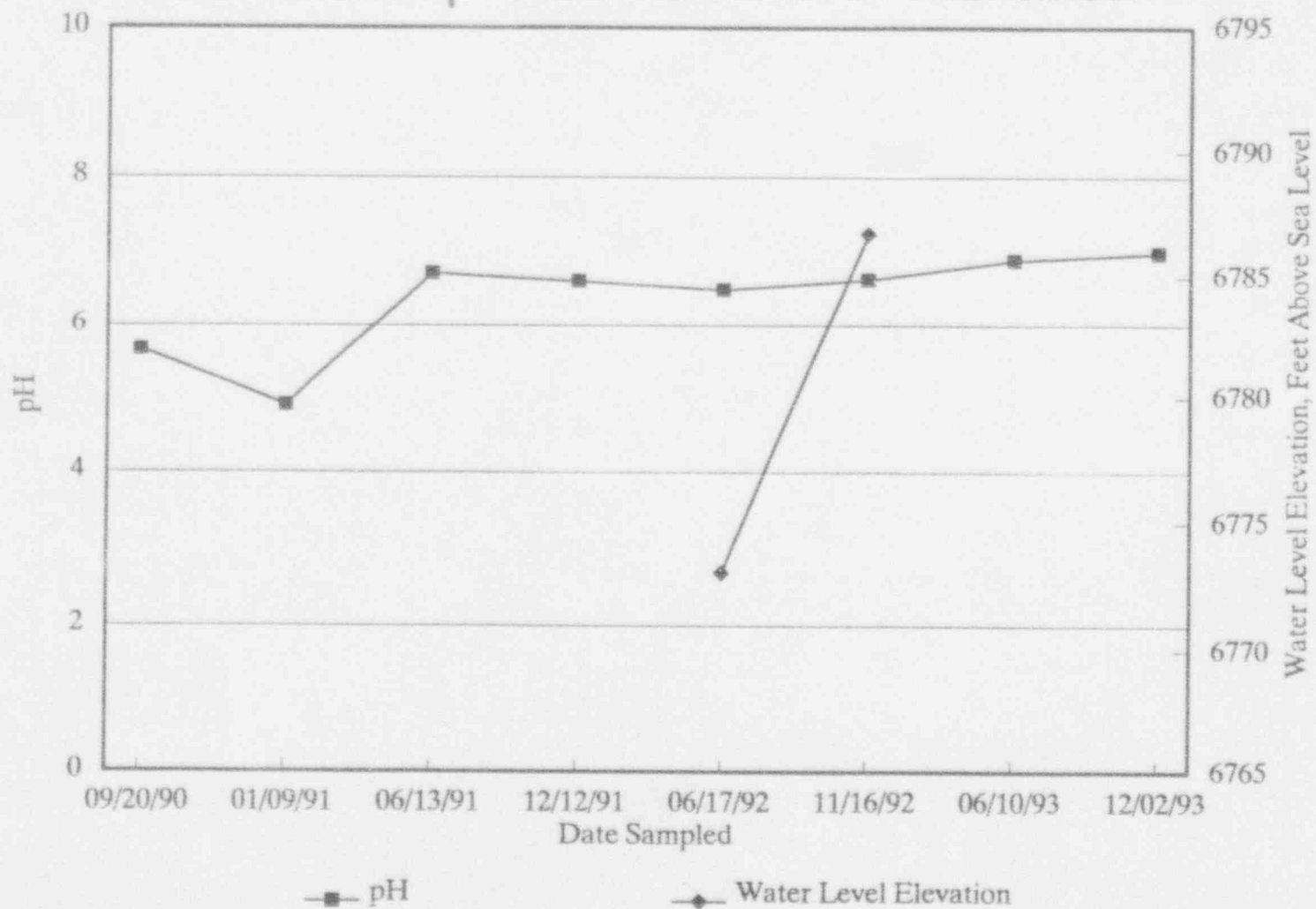
M.W.C. 58 Chloride & T.D.S.



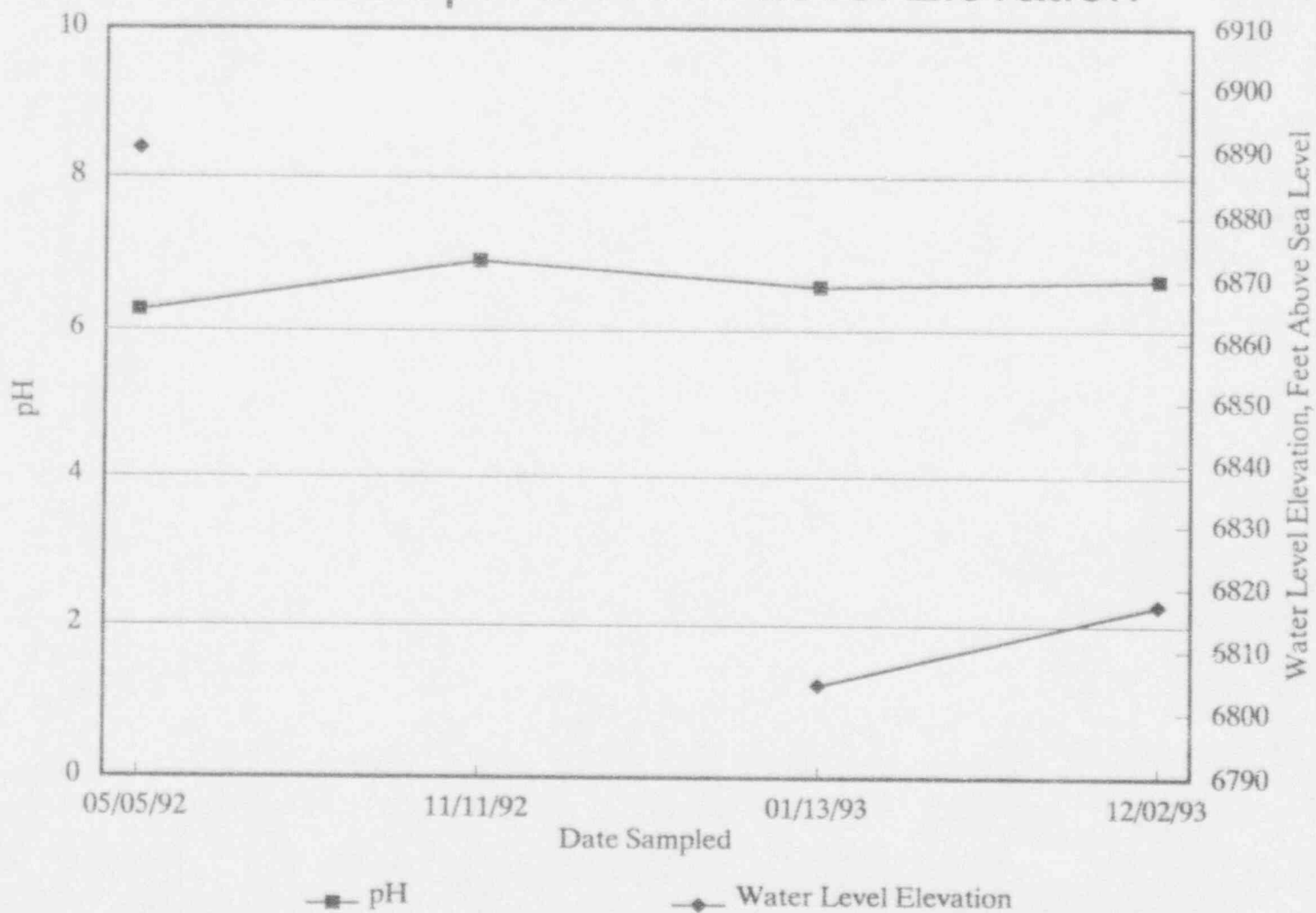
M.W.C. 59 Chloride & T.D.S.



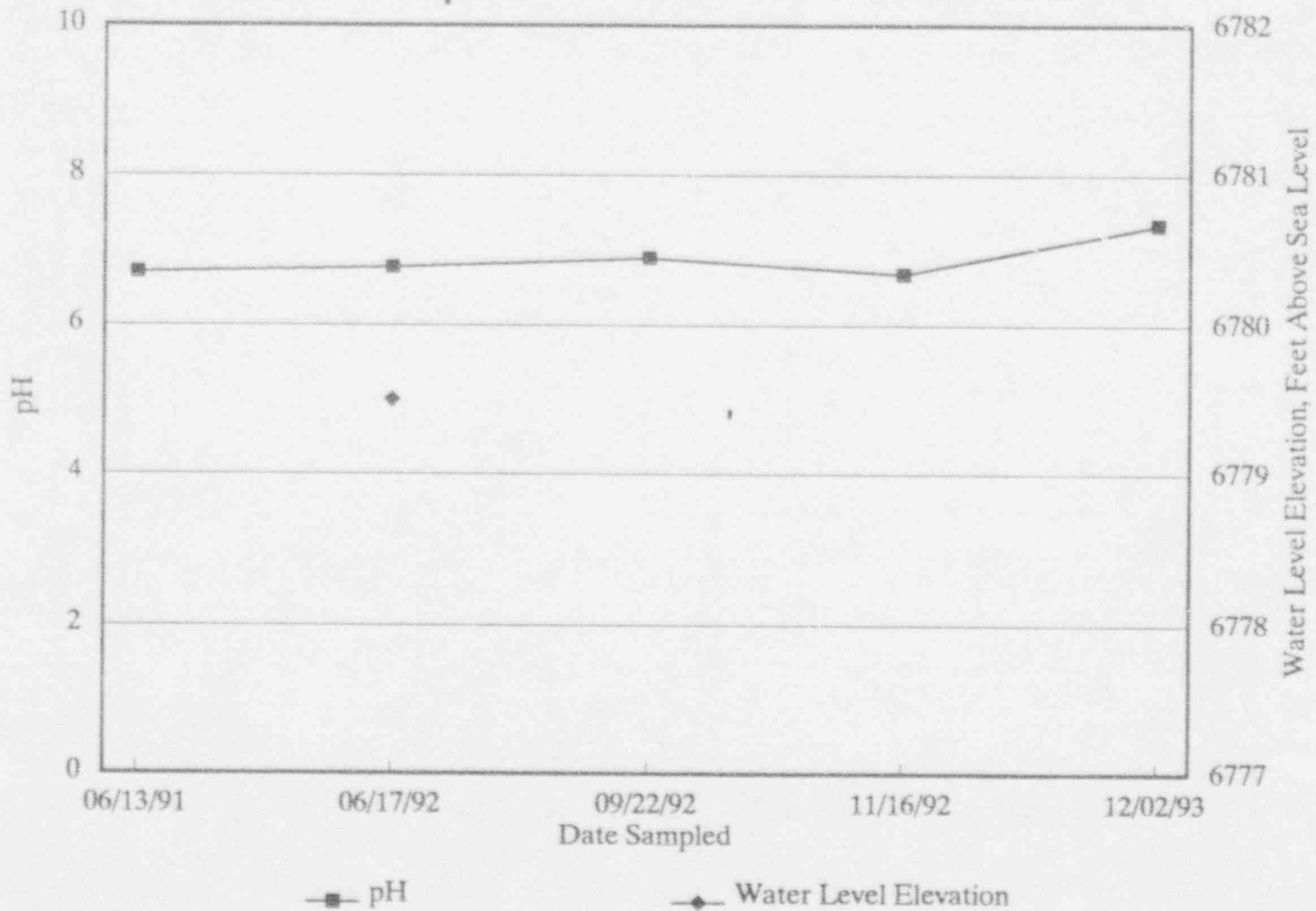
M.W.C. 42 pH & Water Level Elevation



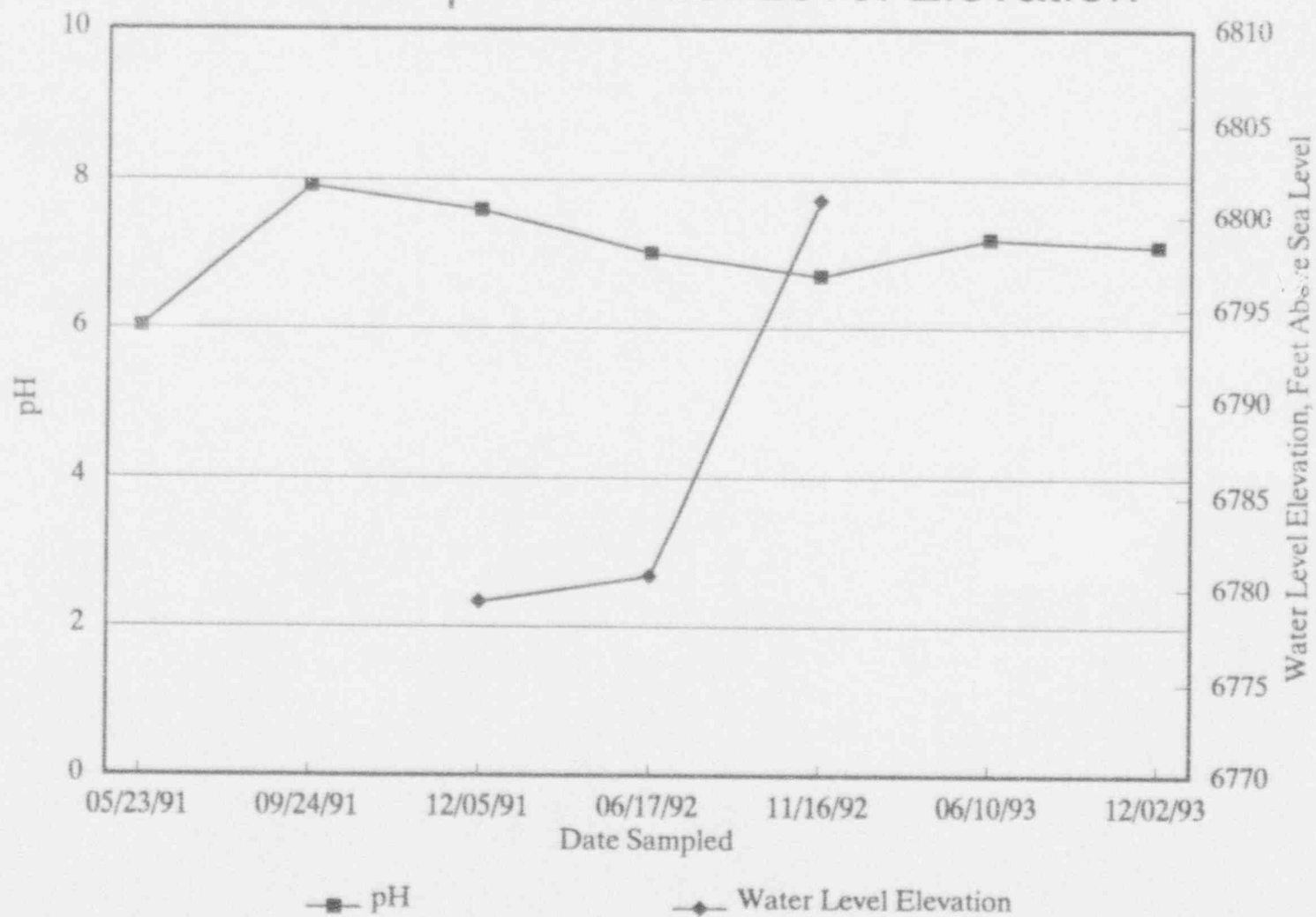
M.W.C. 45 pH & Water Level Elevation



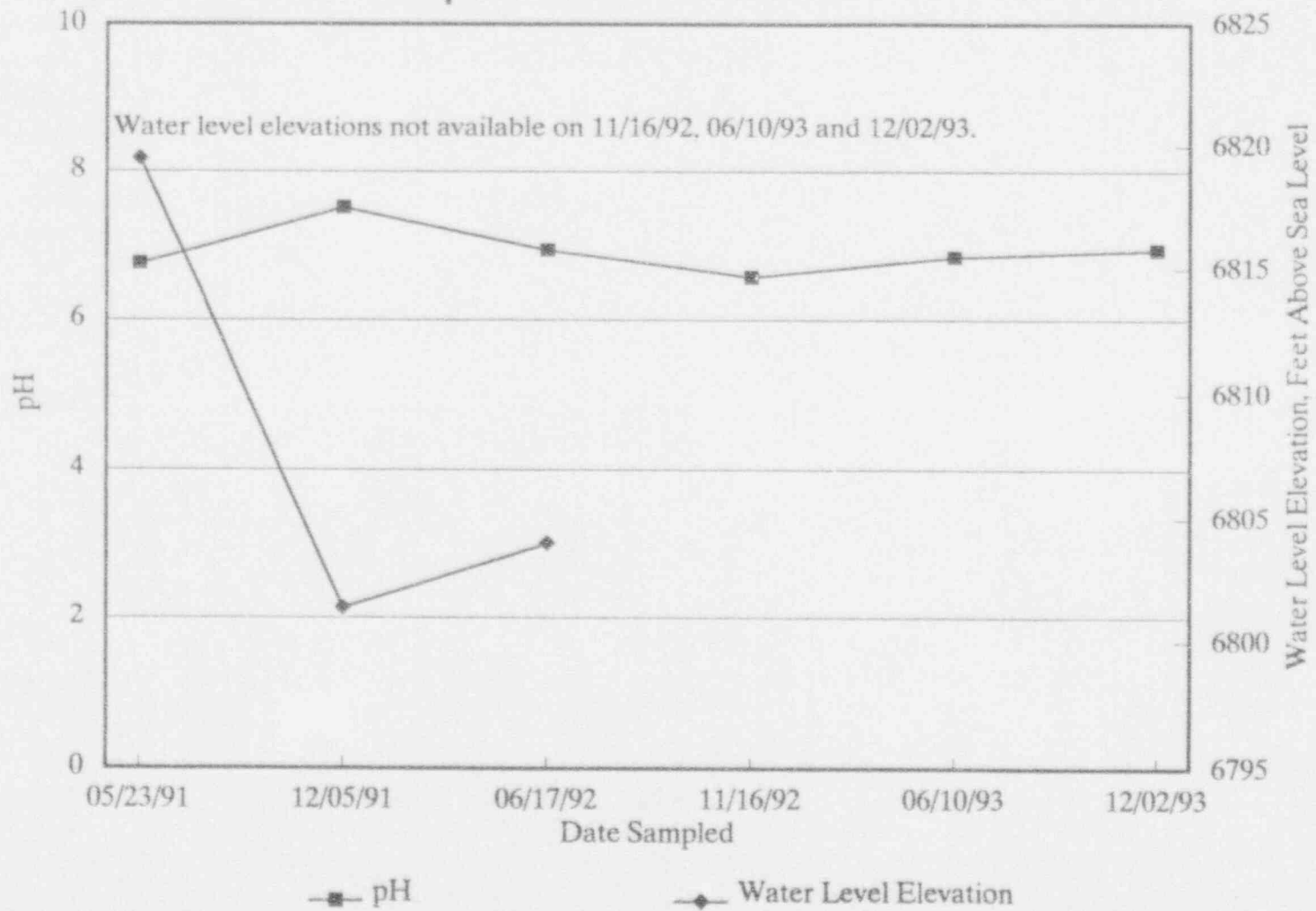
M.W.C. 47 pH & Water Level Elevation



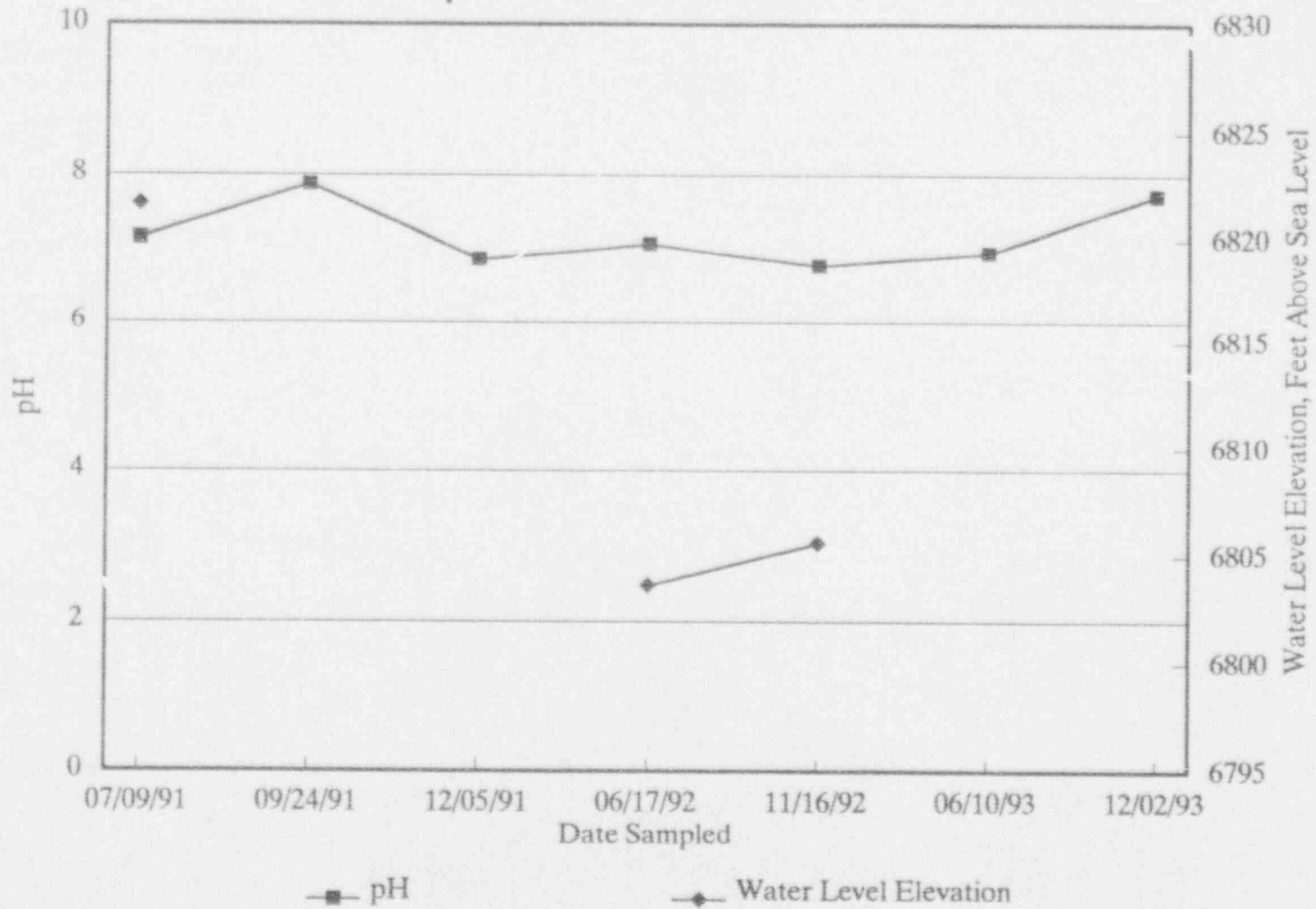
M.W.C. 48 pH & Water Level Elevation



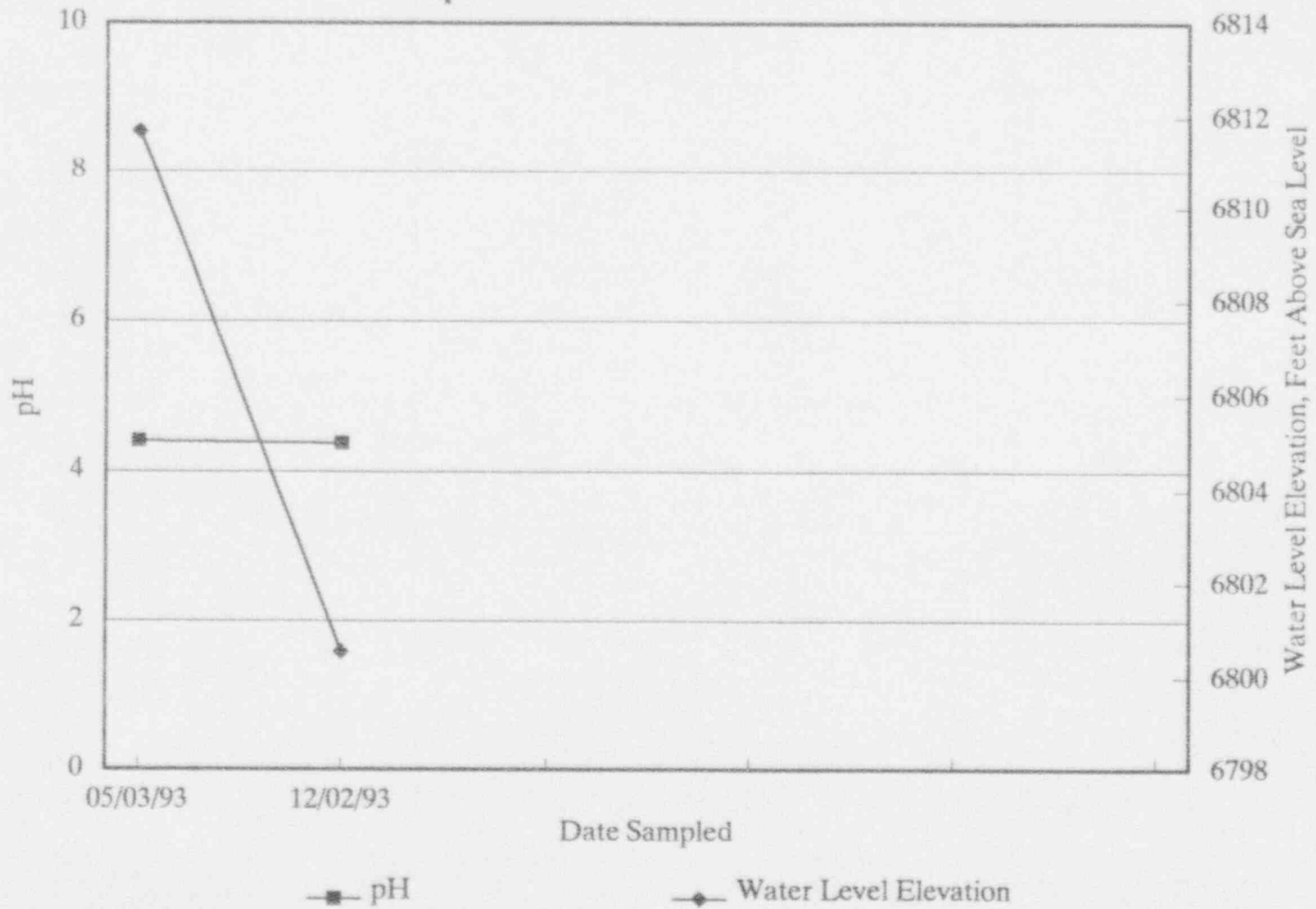
M.W.C. 49 pH & Water Level Elevation



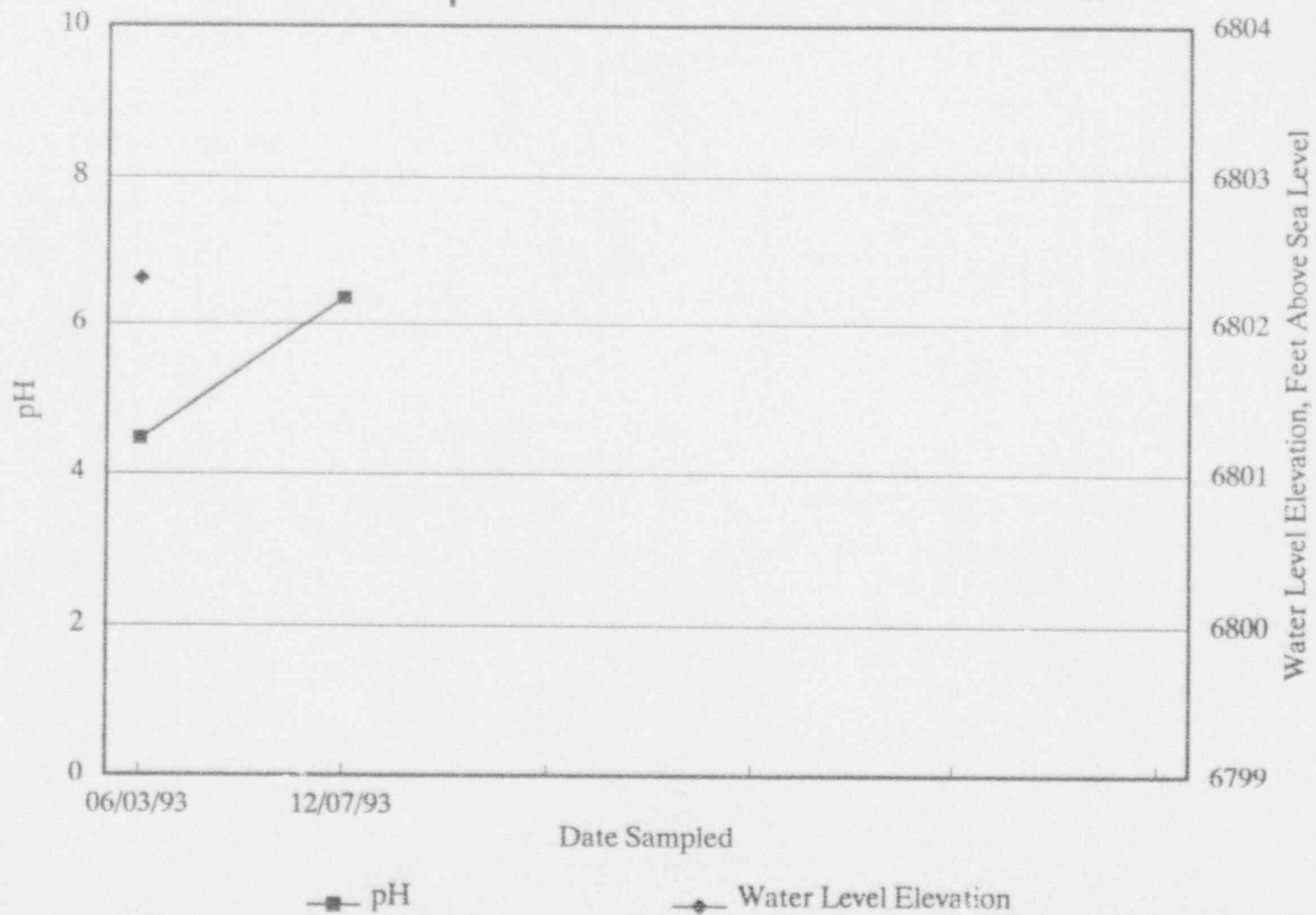
M.W.C. 52 pH & Water Level Elevation



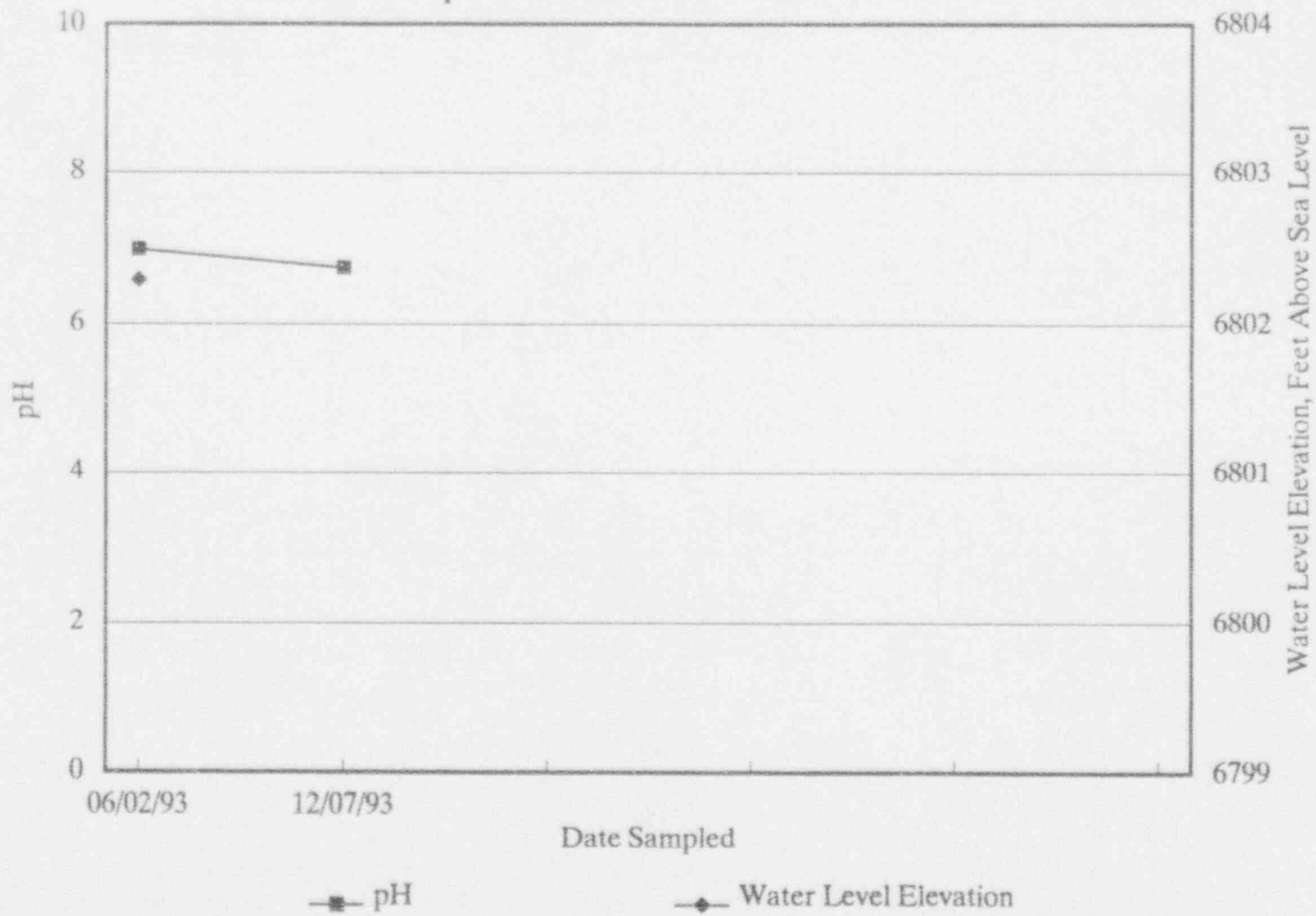
M.W.C. 55 pH & Water Level Elevation



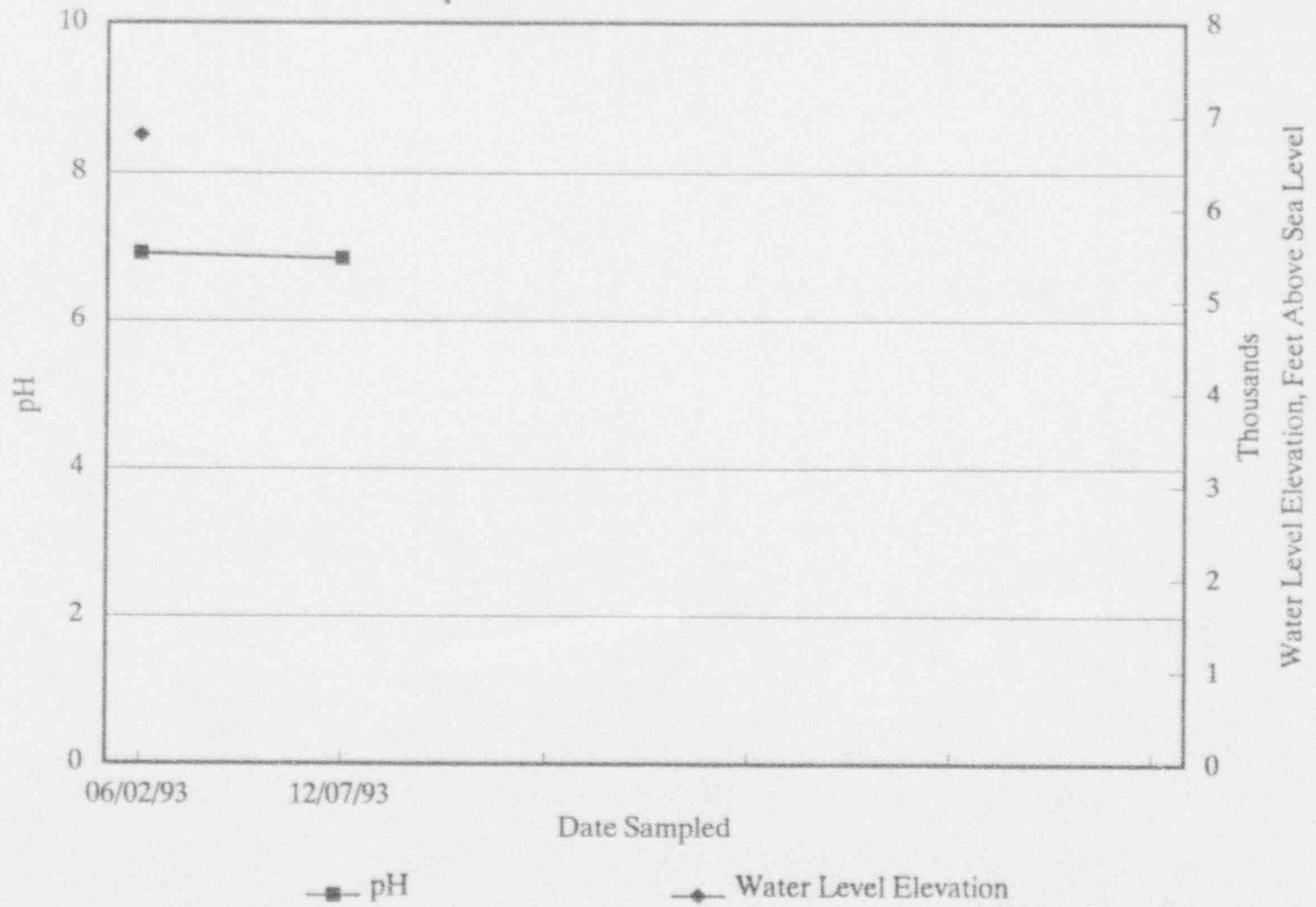
M.W.C. 56 pH & Water Level Elevation



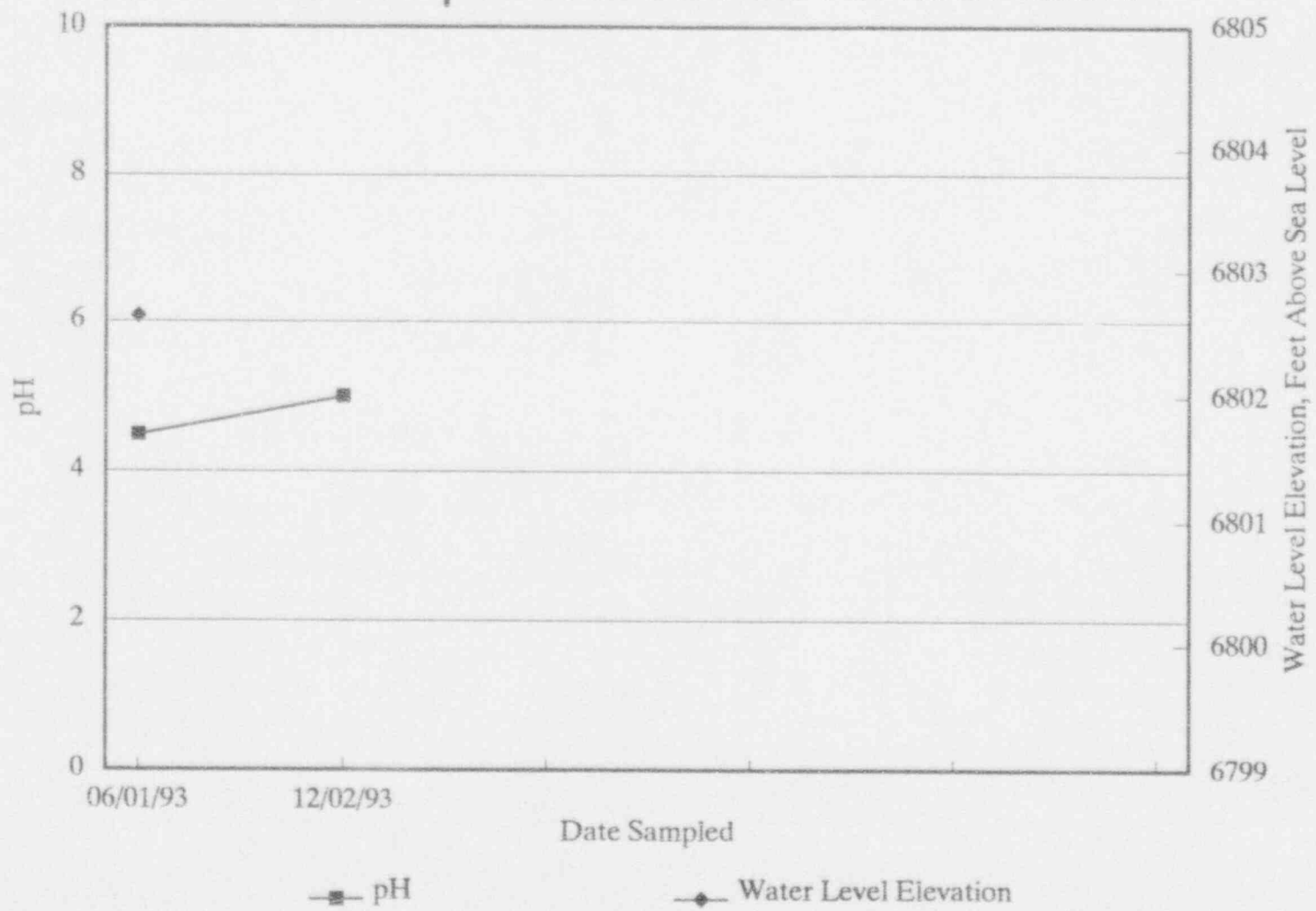
M.W.C. 57 pH & Water Level Elevation



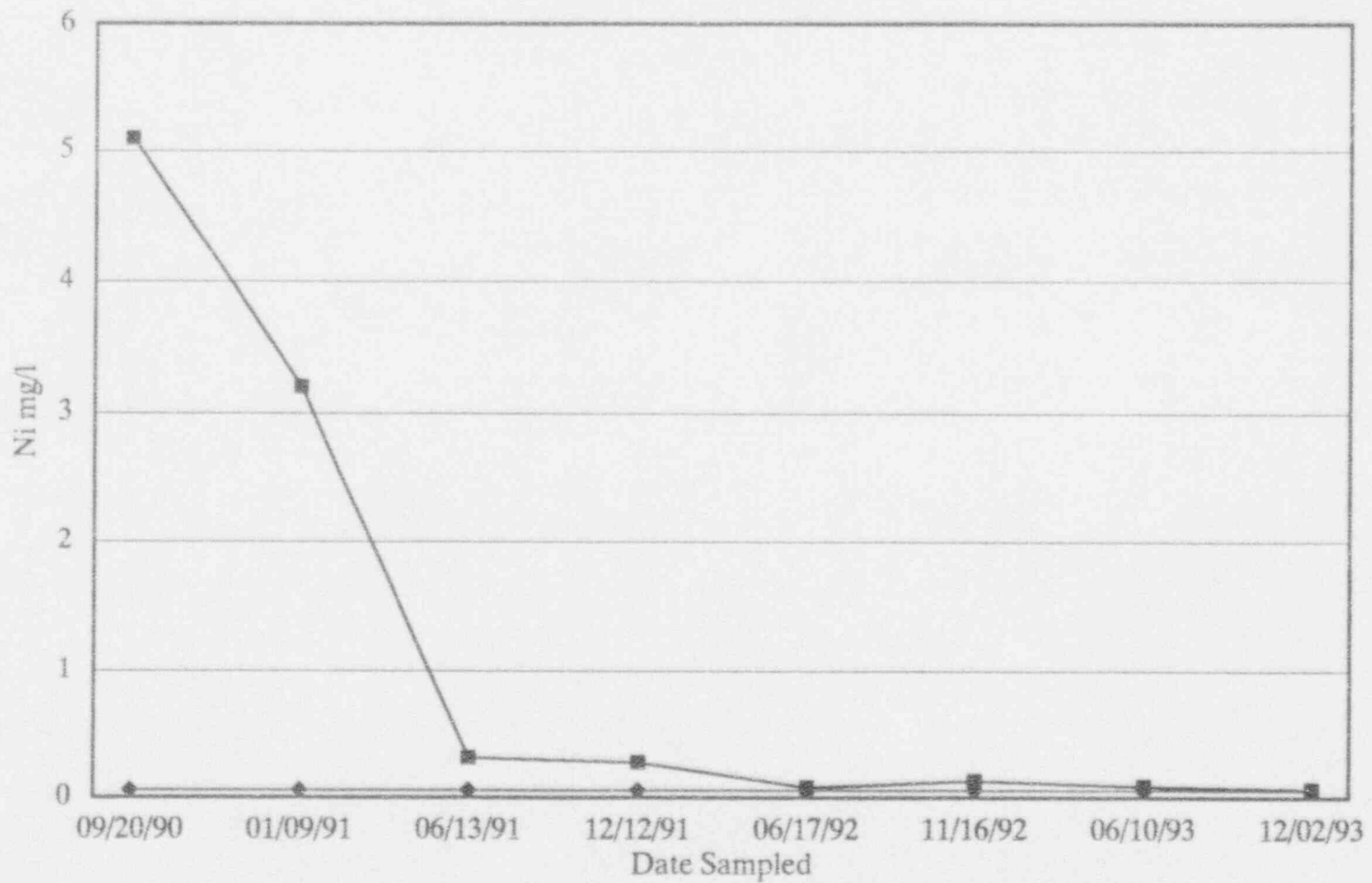
M.W.C. 58 pH & Water Level Elevation



M.W.C. 59 pH & Water Level Elevation



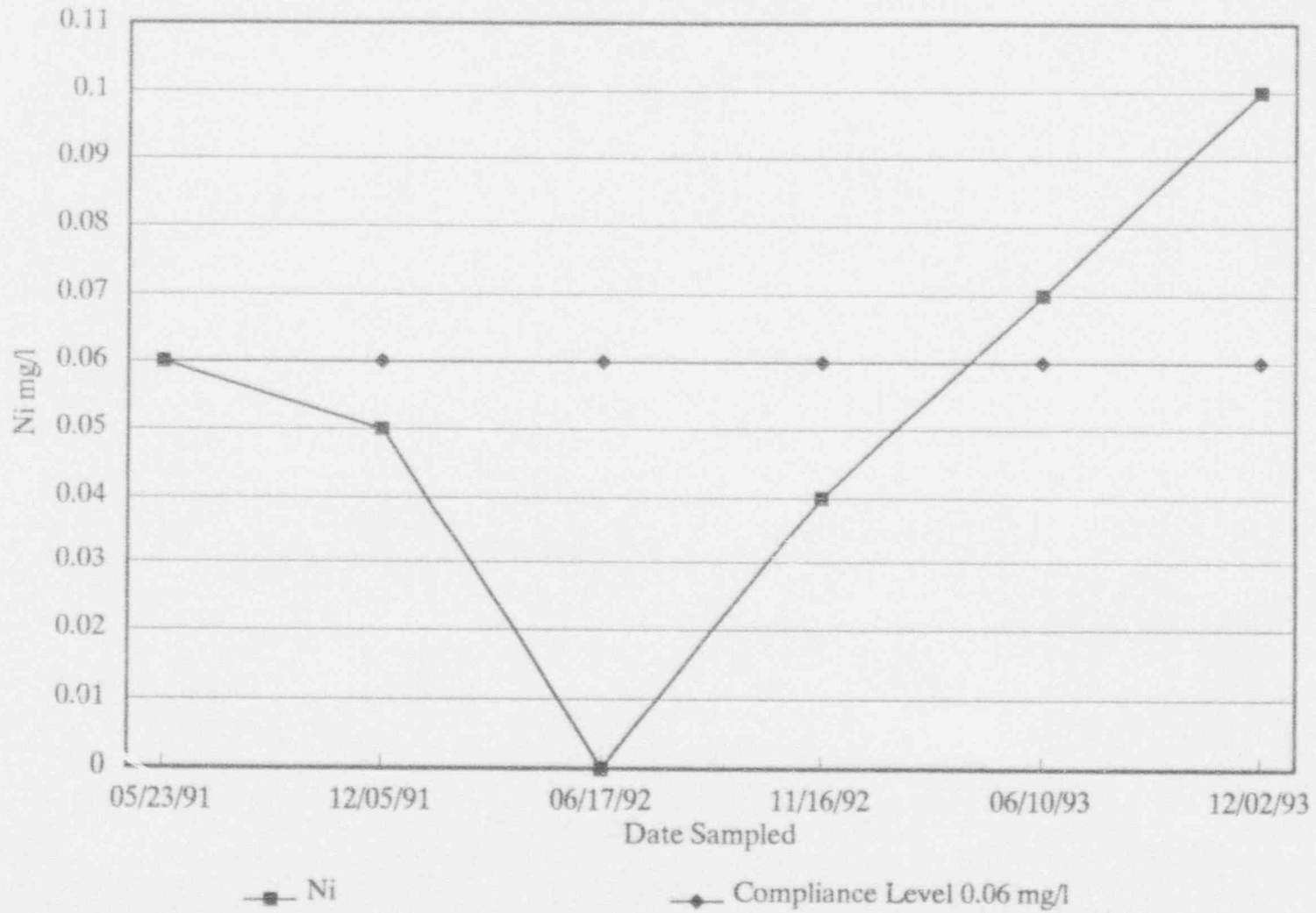
M.W.C. 42 Nickel



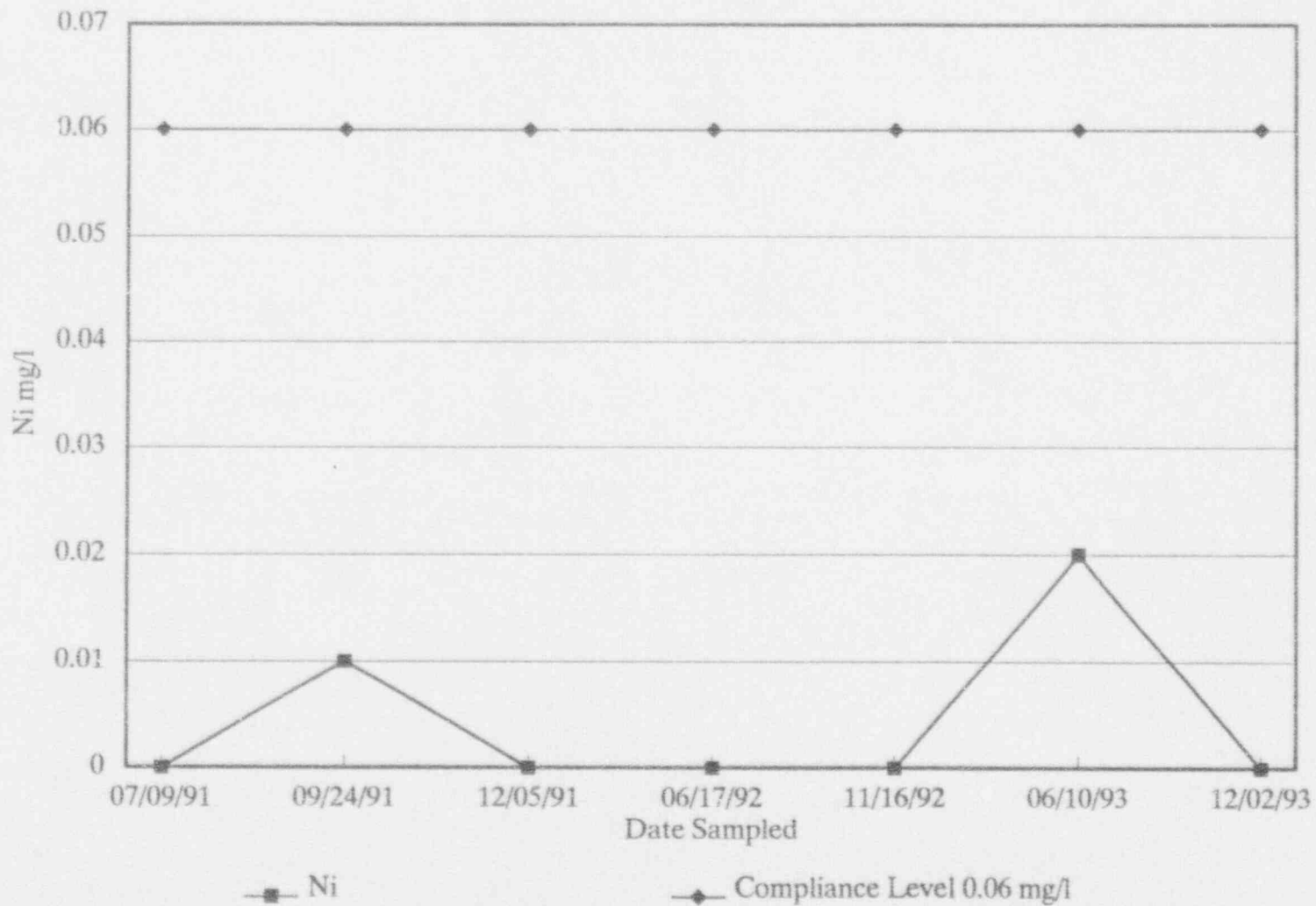
—■— Ni

—◆— Compliance Level 0.06 mg/l

M.W.C. 49 Nickel



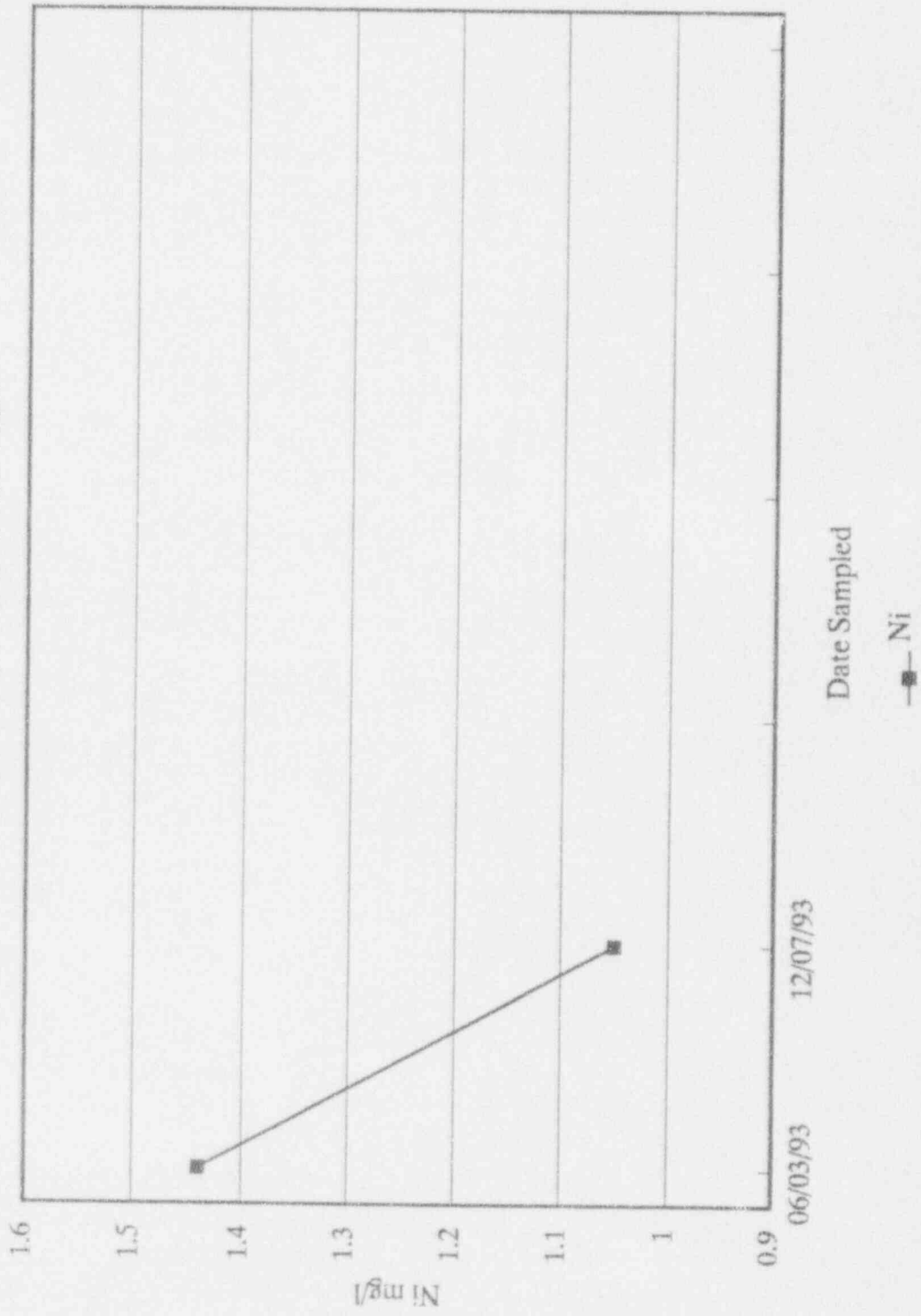
M.W.C. 52 Nickel



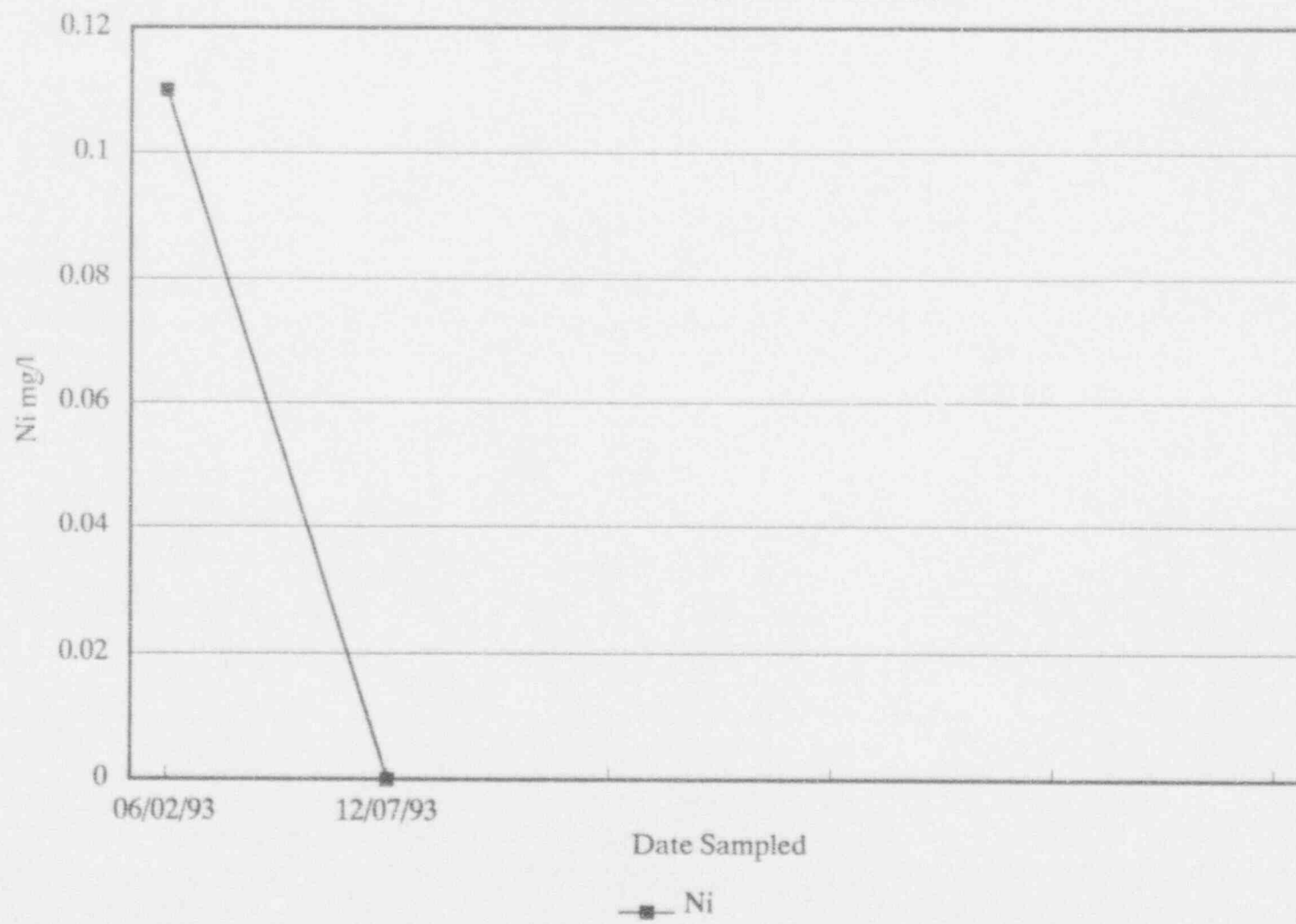
M.W.C. 55 Nickel



M.W.C. 56 Nickel



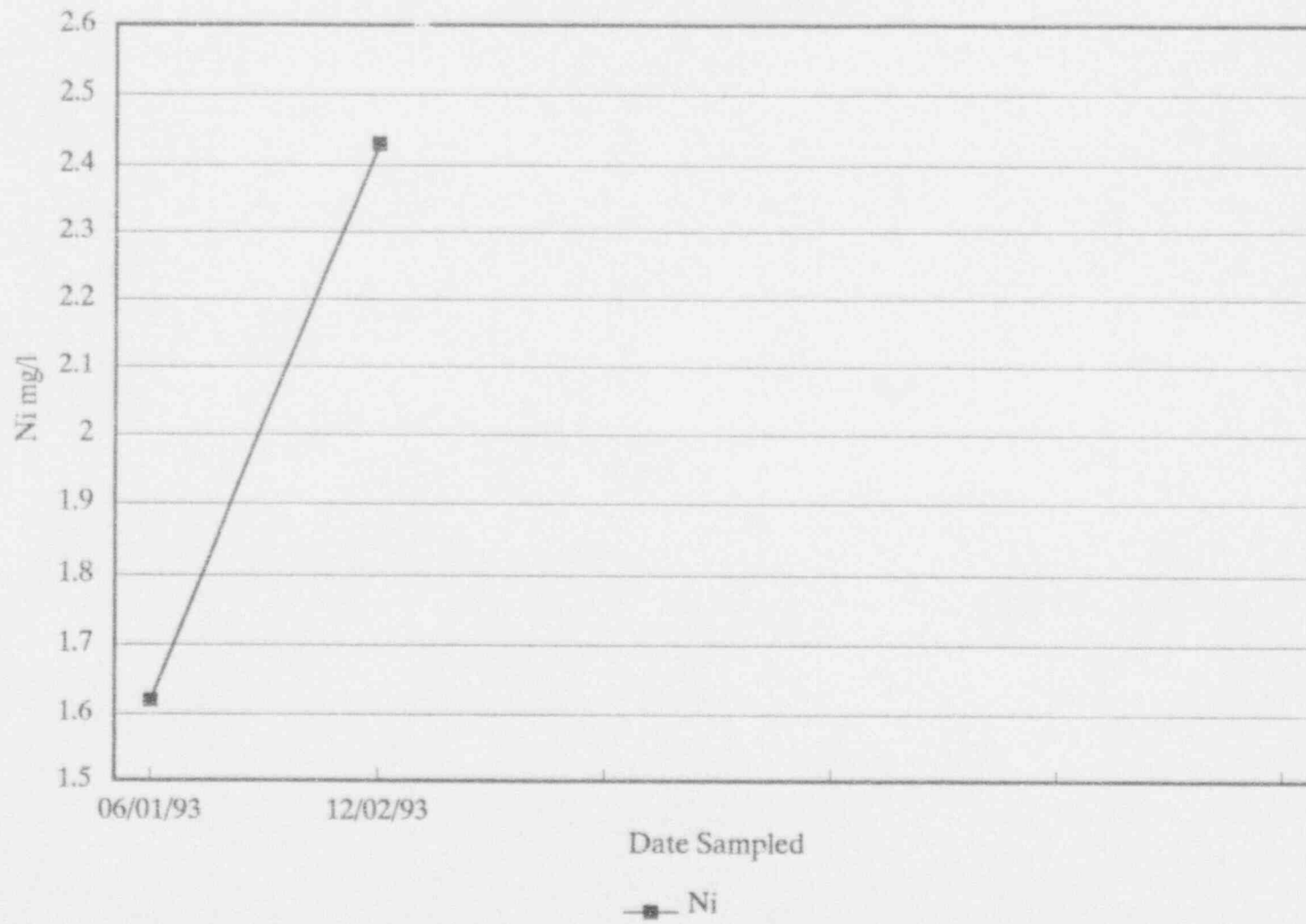
M.W.C. 57 Nickel



M.W.C. 58 Nickel



M.W.C. 59 Nickel



2.1.2.2 A-9 TAILINGS PILE (upper Wind River aquifer)

Six collection wells located in the A-9 tailings pile area (map no. NRC-DEQ-94-02) are MW-24, MW-32, MWC-60, MWC-61, MWC-62 and DW-4. DW-4 is being pumped from the lower Wind River aquifer in this area and is serving to dilute the groundwater being pumped from the upper Wind River aquifer through the other five wells.

The groundwater in each of the five wells are beginning to show improvement in the monitored elements toward achieving the compliance standards.

Cleanup compliance standards for the upper Wind River aquifer with point of compliance wells GW-7 and GW-8 and background in well LA-2 are: (mg/l) arsenic = 0.05; beryllium = 0.01; nickel = 0.04; selenium = 0.01. The radionuclides in pCi/l are: natural uranium = 199; combined radium 226, 228 = 24.9; thorium 230 = 4.8; lead 210 = 4.6 and gross alpha = 17.8 pCi/l.

GROUND WATER ANALYSES FOR M.W. 24

Date Sampled	10/09/91	04/21/92	10/29/92	11/18/93
UNat pCi/l	223.00	79.20	105.00	41.90
UNat % M.P.C.	0.74	0.26	0.35	0.14
Ra226 pCi/l	91.00	47.80	79.40	90.90
Ra226 Error +/-	4.40	2.50	3.50	3.30
Ra226 % M.P.C.	303.33	159.33	264.67	303.00
Ra228 pCi/l	13.50	14.10	12.20	13.40
Ra228 Error +/-	0.50	0.70	0.90	2.50
Ra228 % M.P.C.	45.00	47.00	40.67	44.67
Th230 pCi/l	<0.2	<1.0	<0.20	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	1.90	<1.0	13.90	5.10
Pb210 Error +/-	1.10		5.90	0.60
Pb210 % M.P.C.	1.90		13.90	5.10
Gross Alpha pCi/l	90.00	48.00	80.40	121.40
Gross Alpha Error +/-	9.50	6.90	8.90	11.00
As mg/l	0.02	0.01	<0.01	0.018
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	176.00	11.80	175.00	194.00
Pb mg/l	<0.01	<0.01	<0.01	
Mo mg/l	<0.01	<0.01	0.01	
Al mg/l	30.00	<0.10	<0.10	<0.10
Be mg/l	0.08	0.09	0.09	0.09
Ni mg/l	1.32	1.68	1.57	2.26
Ag mg/l	<0.01	<0.01	<0.01	
V mg/l	0.01	<0.01	<0.01	
Cd mg/l	0.017	<0.005	<0.005	
Cr mg/l	<0.01	<0.01	<0.01	
Ca mg/l	465.00	661.00	626.00	630.00
Mg mg/l	104.00	188.00	124.00	134.00
Na mg/l	79.50	81.60	74.00	78.80
K mg/l	14.20	22.50	20.40	
NH3 mg/l	<0.05	0.86	1.69	
NO3 mg/l	<0.01	<0.10	<0.10	<0.10
SO4 mg/l	2008.00	1981.00	2076.00	2227.00
Cl mg/l	96.90	151.00	152.00	147.00
TDS mg/l	3217.00	3526.00	3721.00	3826.00
pH	6.24	5.99	6.44	6.23
Water Elevation	6771.97	6770.41	6768.31	6769.94

GROUND WATER ANALYSES FOR M.W. 32

Date Sampled	04/21/92	10/29/92	06/24/93	11/18/93
UNat pCi/l	5.40	131.00	34.10	7.70
UNat % M.P.C.	0.02	0.44	0.11	0.03
Ra226 pCi/l	30.50	121.00	34.50	41.00
Ra226 Error +/-	2.10	4.40	1.80	2.20
Ra226 % M.P.C.	101.67	403.33	115.00	136.67
Ra228 pCi/l	5.40	17.50	9.30	3.10
Ra228 Error +/-	0.60	1.00	1.50	0.70
Ra228 % M.P.C.	18.00	58.33	31.00	10.33
Th230 pCi/l	<1.0	<0.20	1.10	<1.0
Th230 Error +/-			0.10	
Th230 % M.P.C.			0.06	
Pb210 pCi/l	<1.0	3.80	<1.0	1.60
Pb210 Error +/-		0.90		0.60
Pb210 % M.P.C.		3.80		1.60
Gross Alpha - U & Rn pCi/l	33.00	121.00	40.30	45.60
Gross Alpha Error +/-	5.70	11.00	6.30	6.80
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	2.48	74.80	28.20	31.90
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.03		
Al mg/l	<0.10	<0.10	<0.10	<0.10
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.20	0.10	0.21	0.21
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	384.00	593.00	467.00	395.00
Mg mg/l	54.50	86.10	74.40	50.90
Na mg/l	31.00	52.90	37.30	30.10
K mg/l	14.30	21.60		
NH3 mg/l	0.64	1.75		
NO3 mg/l	<0.10	20.10	<0.01	<0.10
SO4 mg/l	845.00	1375.00	1209.00	950.00
Cl mg/l	58.20	175.00	89.00	68.60
TDS mg/l	1757.00	3009.00	1990.00	1861.00
pH	6.56	6.86	5.97	6.75
Water Level Elevation	6783.37	6799.39	6792.03	6793.13

GROUND WATER ANALYSES FOR M.W.C. 60

Date Sampled	06/07/93	11/18/93
UNat pCi/l	548.00	96.80
UNat % M.P.C.	1.83	0.32
Ra226 pCi/l	34.30	124.50
Ra226 Error +/-	1.90	5.00
Ra226 % M.P.C.	114.33	415.00
Ra228 pCi/l	20.80	12.70
Ra228 Error +/-	1.90	1.40
Ra228 % M.P.C.	69.33	42.33
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.		
Pb210 pCi/l	3.60	2.80
Pb210 Error +/-	0.50	0.60
Pb210 % M.P.C.	3.60	2.80
Gross Alpha - U & Rn pCi/l	37.90	143.50
Gross Alpha Error +/-	6.90	11.90
As mg/l	0.080	0.034
Se mg/l	<0.005	<0.001
Fe mg/l	18.80	49.00
Pb mg/l		
Mo mg/l		
Al mg/l	0.23	<0.10
Be mg/l	<0.01	<0.01
Ni mg/l	0.29	0.48
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	545.00	685.00
Mg mg/l	33.70	49.40
Na mg/l	36.20	99.40
K mg/l	10.70	
SiO2 mg/l	34.50	32.10
NH3 mg/l		
NO3 mg/l	<0.10	0.11
SO4 mg/l	1364.00	2023.00
Cl mg/l	32.60	144.00
TDS mg/l	2200.00	3311.00
pH	6.94	6.31
Water Elevation	6795.31	

GROUND WATER ANALYSES FOR M.W.C. 61

Date Sampled	06/14/93	11/18/93
UNat pCi/l	1243.00	1618.20
UNat % M.P.C.	4.14	5.39
Ra226 pCi/l	243.00	353.00
Ra226 Error +/-	4.70	6.50
Ra226 % M.P.C.	810.00	1176.67
Ra228 pCi/l	47.30	54.50
Ra228 Error +/-	1.90	4.30
Ra228 % M.P.C.	157.67	181.67
Th230 pCi/l	3.80	<1.0
Th230 Error +/-	0.30	
Th230 % M.P.C.	0.19	
Pb210 pCi/l	6.00	14.80
Pb210 Error +/-	1.00	0.70
Pb210 % M.P.C.	6.00	14.80
Gross Alpha - U & Rn pCi/l	247.00	434.60
Gross Alpha Error +/-	15.70	20.80
As mg/l	0.010	0.002
Se mg/l	<0.005	<0.001
Fe mg/l	1056.00	1345.00
Pb mg/l		
Mo mg/l		
Al mg/l	180.00	205.00
Be mg/l	0.86	1.50
Ni mg/l	6.98	11.55
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	597.00	431.00
Mg mg/l	328.00	363.00
Na mg/l	226.00	226.00
K mg/l		
SiO2 mg/l	35.00	31.40
NH3 mg/l		
NO3 mg/l	<0.10	0.11
SO4 mg/l	6636.00	7972.00
Cl mg/l	280.00	244.00
TDS mg/l	10270.00	11726.00
pH	4.28	4.54
Water Elevation	6792.42	

GROUND WATER ANALYSES FOR M.W.C. 62

Date Sampled	06/07/93	11/18/93
UNat pCi/l	152.00	76.30
UNat % M.P.C.	0.51	0.25
Ra226 pCi/l	29.90	52.20
Ra226 Error +/-	1.70	2.50
Ra226 % M.P.C.	99.67	174.00
Ra228 pCi/l	7.90	4.80
Ra228 Error +/-	0.50	0.90
Ra228 % M.P.C.	26.33	16.00
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.	0.00	
Pb210 pCi/l	1.80	3.10
Pb210 Error +/-	0.50	0.60
Pb210 % M.P.C.	1.80	3.10
Gross Alpha - U & Rn pCi/l	33.90	59.30
Gross Alpha Error +/-	5.80	7.70
As mg/l	0.100	0.066
Se mg/l	<0.005	<0.001
Fe mg/l	19.20	22.30
Pb mg/l		
Mo mg/l		
Al mg/l	0.19	0.11
Be mg/l	<0.01	<0.01
Ni mg/l	0.19	0.22
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	50.70	574.00
Mg mg/l	17.60	47.90
Na mg/l	11.80	15.50
K mg/l		
SiO2 mg/l	30.90	37.10
NH3 mg/l		
NO3 mg/l	<0.10	0.11
SO4 mg/l	1409.00	1418.00
Cl mg/l	35.90	23.90
TDS mg/l	2111.00	2189.00
pH	6.97	6.76
Water Elevation	n/a	n/a

GROUND WATER ANALYSES FOR M.W.I. 63

Date Sampled	06/14/93
UNat pCi/l	1466.00
UNat % M.P.C.	4.89
Ra226 pCi/l	38.80
Ra226 Error +/-	2.00
Ra226 % M.P.C.	129.33
Ra228 pCi/l	10.70
Ra228 Error +/-	0.60
Ra228 % M.P.C.	35.67
Th230 pCi/l	1.10
Th230 Error +/-	0.10
Th230 % M.P.C.	0.06
Pb210 pCi/l	1.70
Pb210 Error +/-	0.90
Pb210 % M.P.C.	1.70
Gross Alpha - U & Rn pCi/l	45.20
Gross Alpha Error +/-	6.70
As mg/l	0.030
Se mg/l	0.011
Fe mg/l	26.70
Pb mg/l	
Mo mg/l	
Al mg/l	24.00
Be mg/l	0.05
Ni mg/l	0.55
Ag mg/l	
V mg/l	
Cd mg/l	
Cr mg/l	
Ca mg/l	489.00
Mg mg/l	82.80
Na mg/l	113.00
K mg/l	
SiO2 mg/l	75.50
NH3 mg/l	
NO3 mg/l	<0.10
SO4 mg/l	1793.00
Cl mg/l	82.40
TDS mg/l	2856.00
pH	4.42
Water Elevation	6828.99

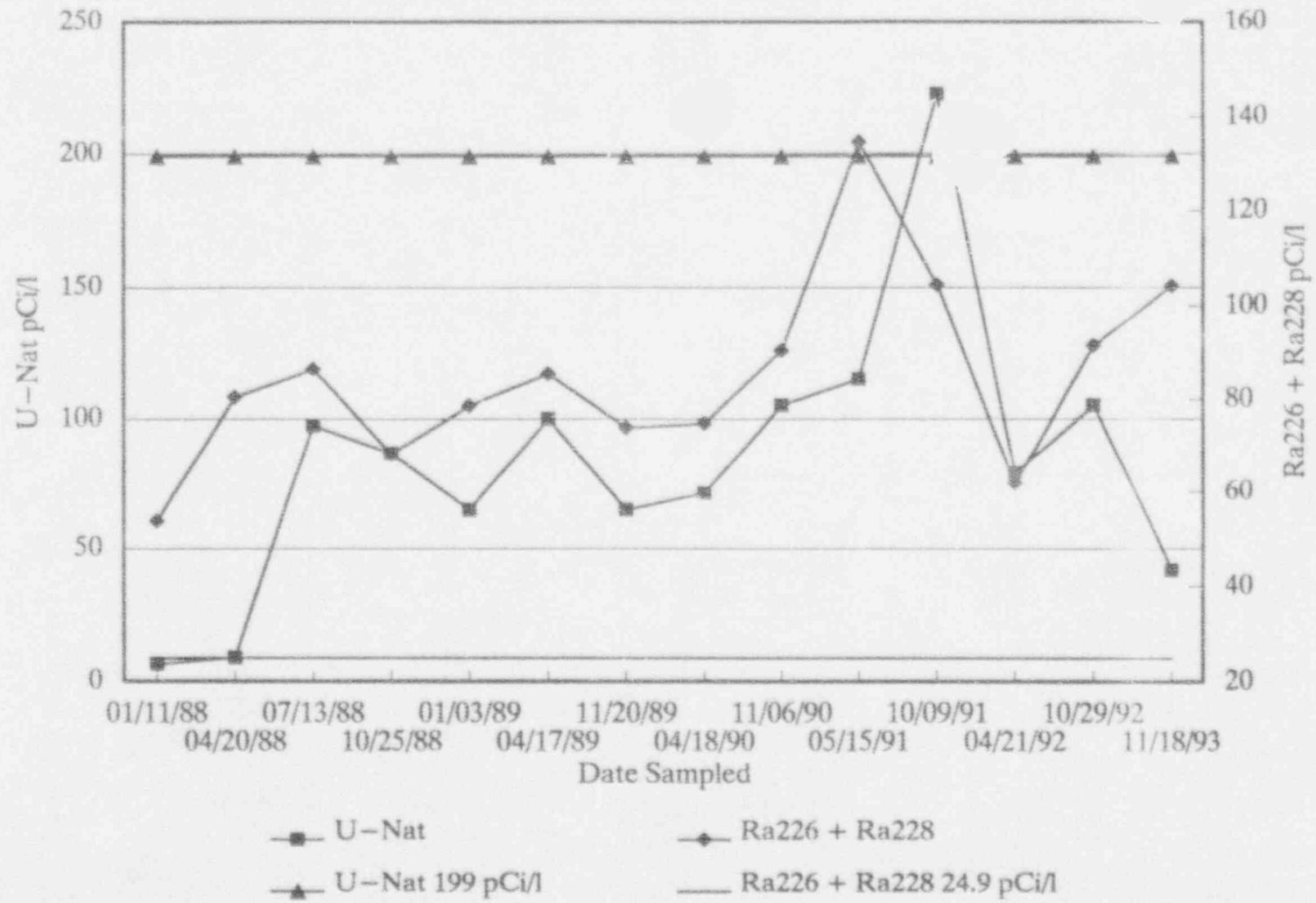
GROUND WATER ANALYSES FOR M.W.I. 64

Date Sampled	06/07/93
UNat pCi/l	345.00
UNat % M.P.C.	1.15
Ra226 pCi/l	75.20
Ra226 Error +/-	2.70
Ra226 % M.P.C.	250.67
Ra228 pCi/l	3.30
Ra228 Error +/-	0.50
Ra228 % M.P.C.	11.00
Th230 pCi/l	<1.0
Th230 Error +/-	
Th230 % M.P.C.	0.00
Pb210 pCi/l	2.20
Pb210 Error +/-	0.50
Pb210 % M.P.C.	2.20
Gross Alpha -- U & Rn pCi/l	76.80
Gross Alpha Error +/-	8.90
As mg/l	0.020
Se mg/l	<0.005
Fe mg/l	204.00
Pb mg/l	
Mo mg/l	
Al mg/l	16.90
Be mg/l	1.26
Ni mg/l	8.72
Ag mg/l	
V mg/l	
Cd mg/l	
Cr mg/l	
Ca mg/l	489.00
Mg mg/l	609.00
Na mg/l	346.00
K mg/l	46.20
SiO2 mg/l	53.00
NH3 mg/l	
NO3 mg/l	<0.10
SO4 mg/l	4655.00
Cl mg/l	225.00
TDS mg/l	7456.00
pH	5.59
Water Elevation	6796.78

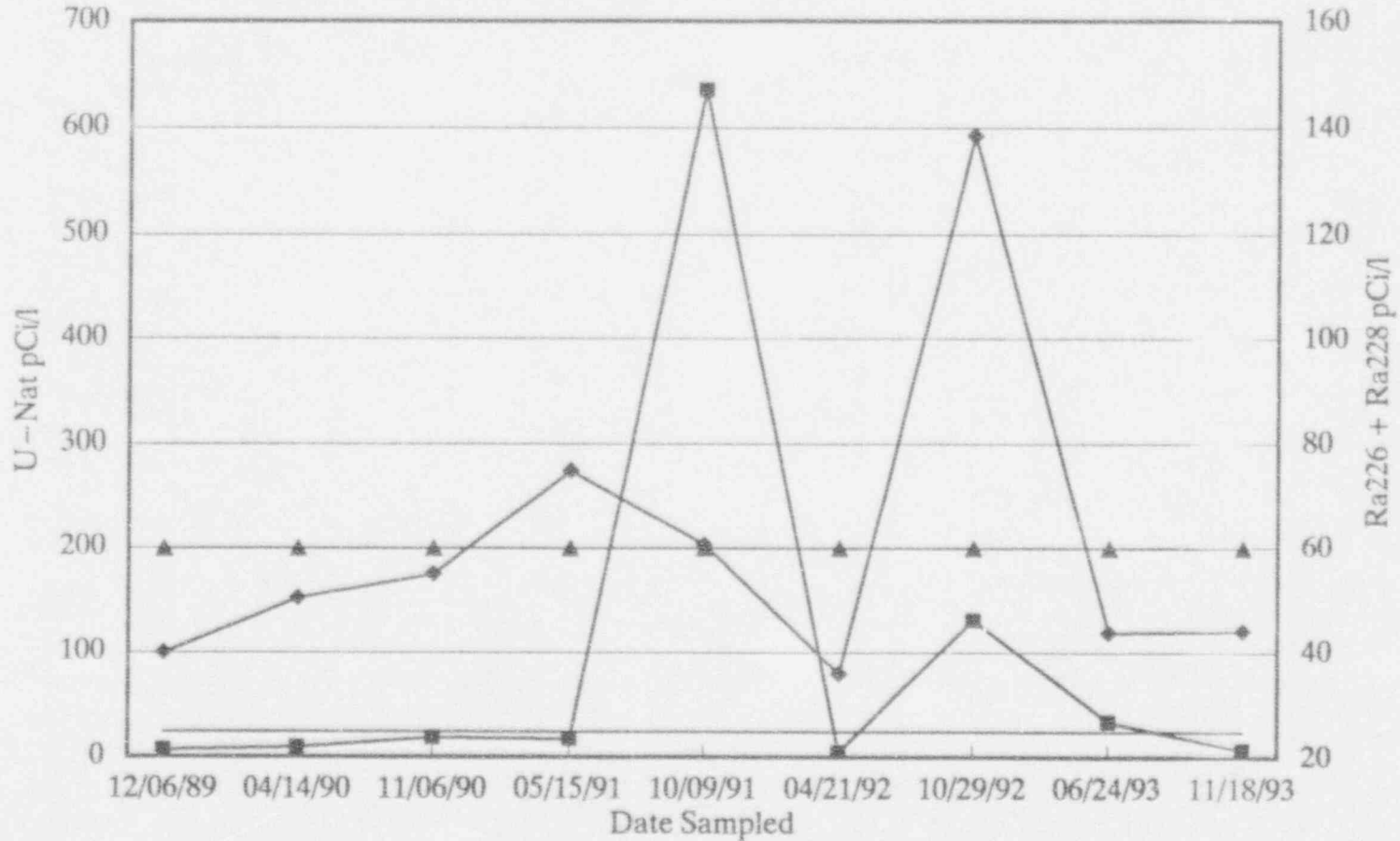
GROUND WATER ANALYSES FOR M.W.I. 65

Date Sampled	06/07/93
UNat pCi/l	13703.00
UNat % M.P.C.	45.68
Ra226 pCi/l	164.00
Ra226 Error +/-	5.10
Ra226 % M.P.C.	546.67
Ra228 pCi/l	12.70
Ra228 Error +/-	0.90
Ra228 % M.P.C.	42.33
Th230 pCi/l	1.00
Th230 Error +/-	0.10
Th230 % M.P.C.	0.05
Pb210 pCi/l	27.90
Pb210 Error +/-	1.20
Pb210 % M.P.C.	27.90
Gross Alpha - U & Rn pCi/l	171.00
Gross Alpha Error +/-	13.10
As mg/l	<0.01
Se mg/l	0.056
Fe mg/l	526.00
Pb mg/l	
Mo mg/l	
Al mg/l	103.00
Be mg/l	0.21
Ni mg/l	4.11
Ag mg/l	
V mg/l	
Cd mg/l	
Cr mg/l	
Ca mg/l	569.00
Mg mg/l	364.00
Na mg/l	368.00
K mg/l	38.00
SiO2 mg/l	50.60
NH3 mg/l	
NO3 mg/l	0.60
SO4 mg/l	4531.00
Cl mg/l	145.00
TDS mg/l	9112.00
pH	4.31
Water Elevation	6889.36

M.W. 24 U-Nat & Ra226 + Ra228

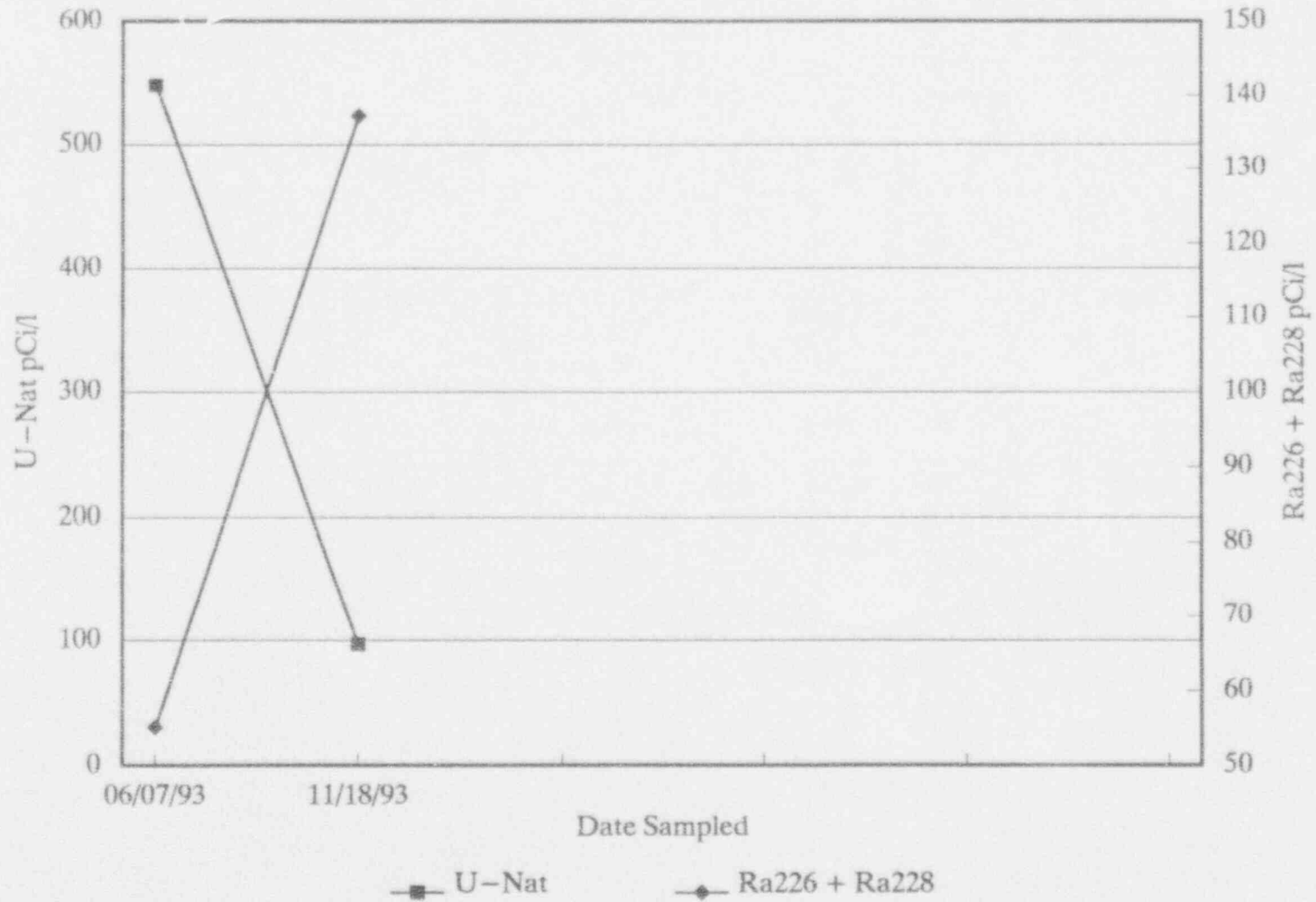


M.W. 32 U-Nat & Ra226 + Ra228

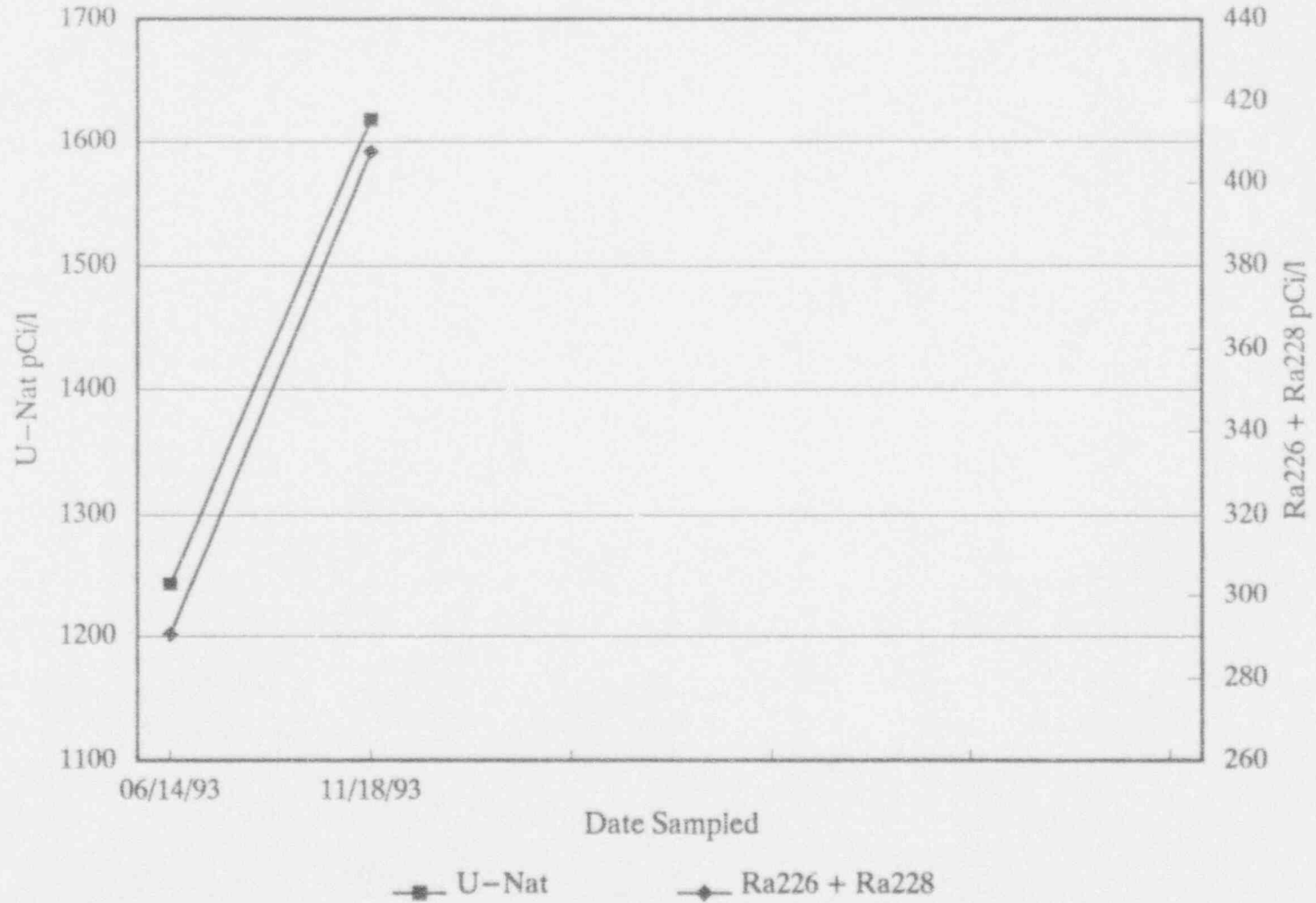


- U-Nat
- ▲ U-Nat 199 pCi/l
- ◆ Ra226 + Ra228
- Ra226 + Ra228 24.9 pCi/l

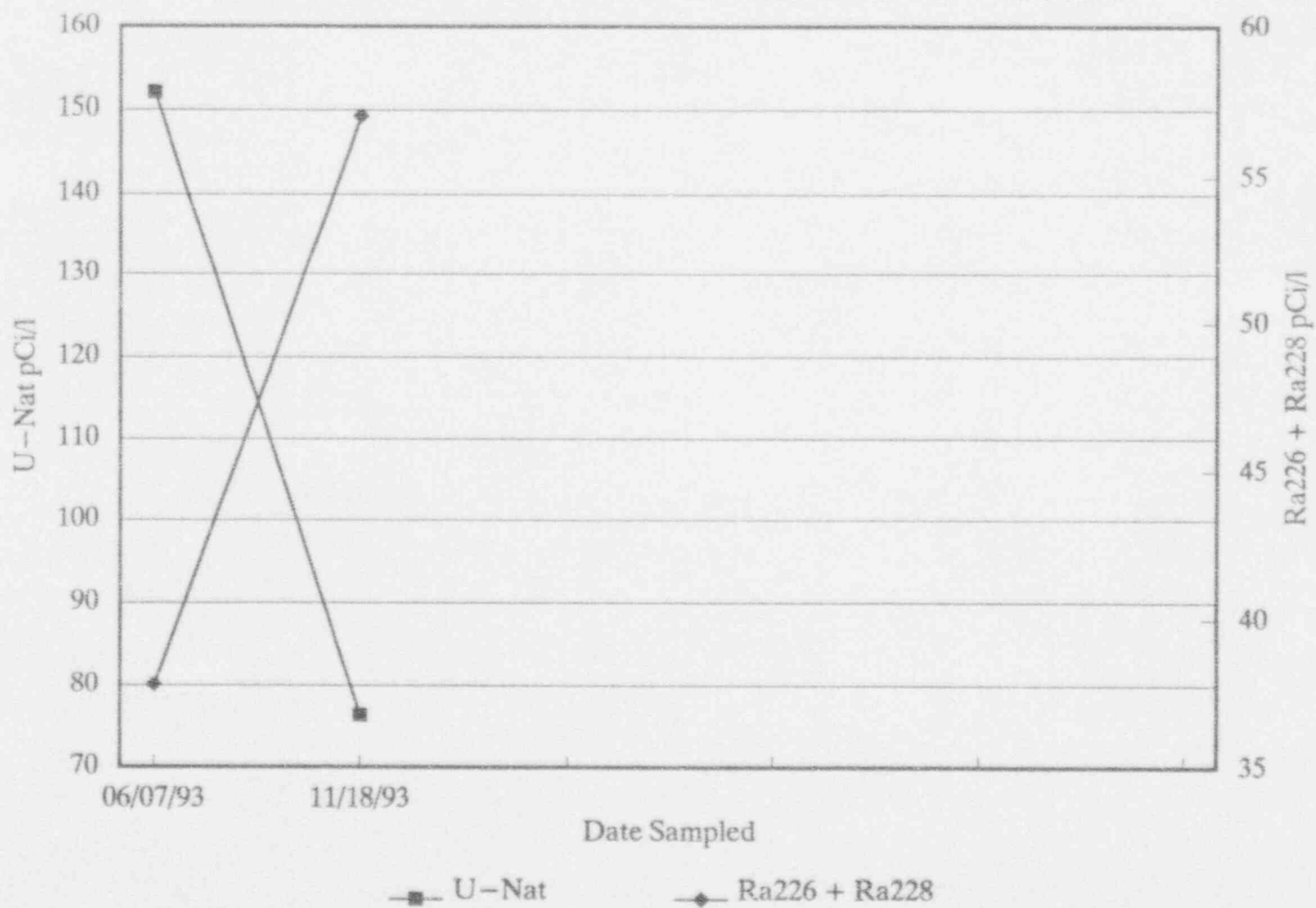
M.W.C. 60 U-Nat & Ra226 + Ra228



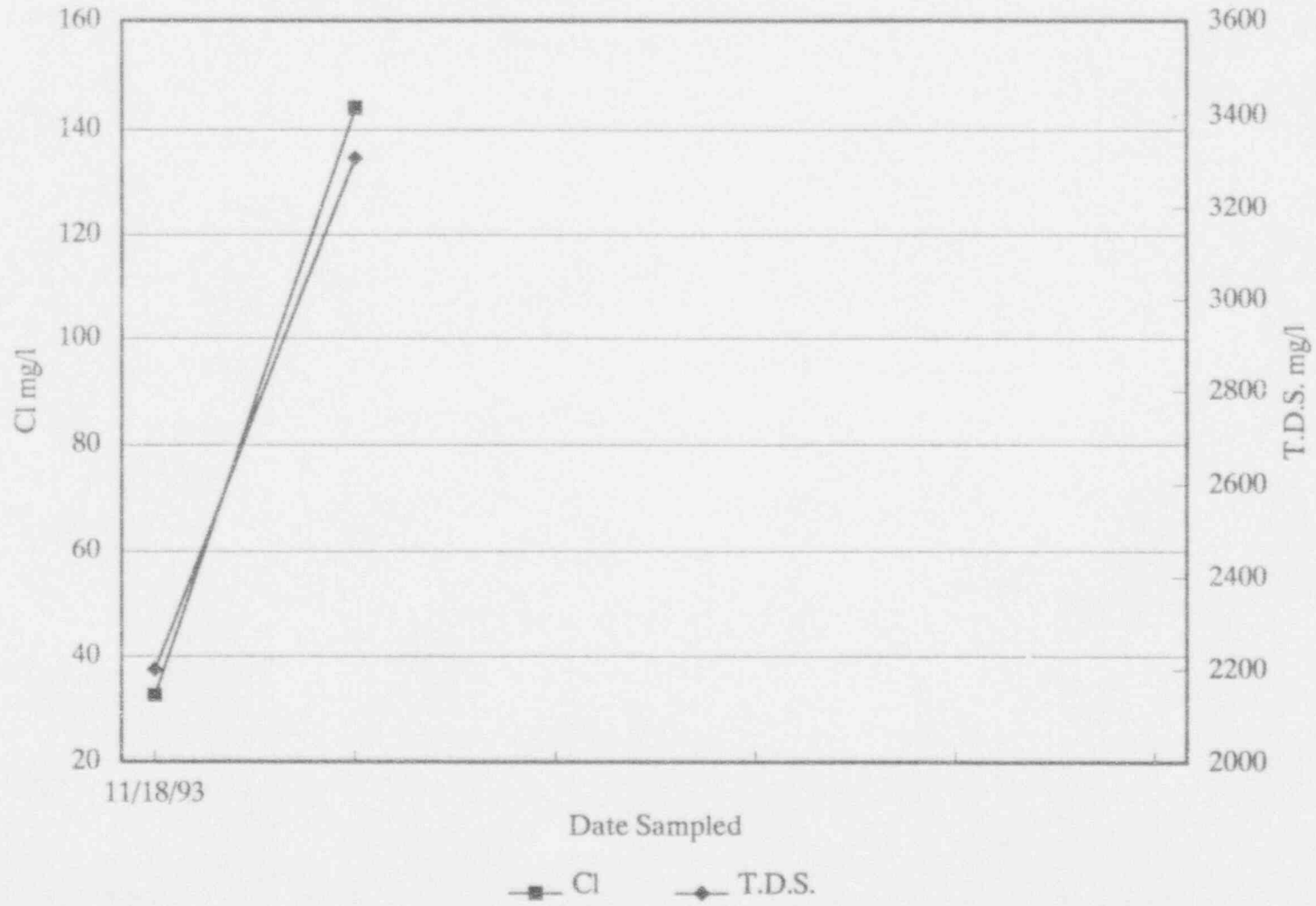
M.W.C. 61 U-Nat & Ra226 + Ra228



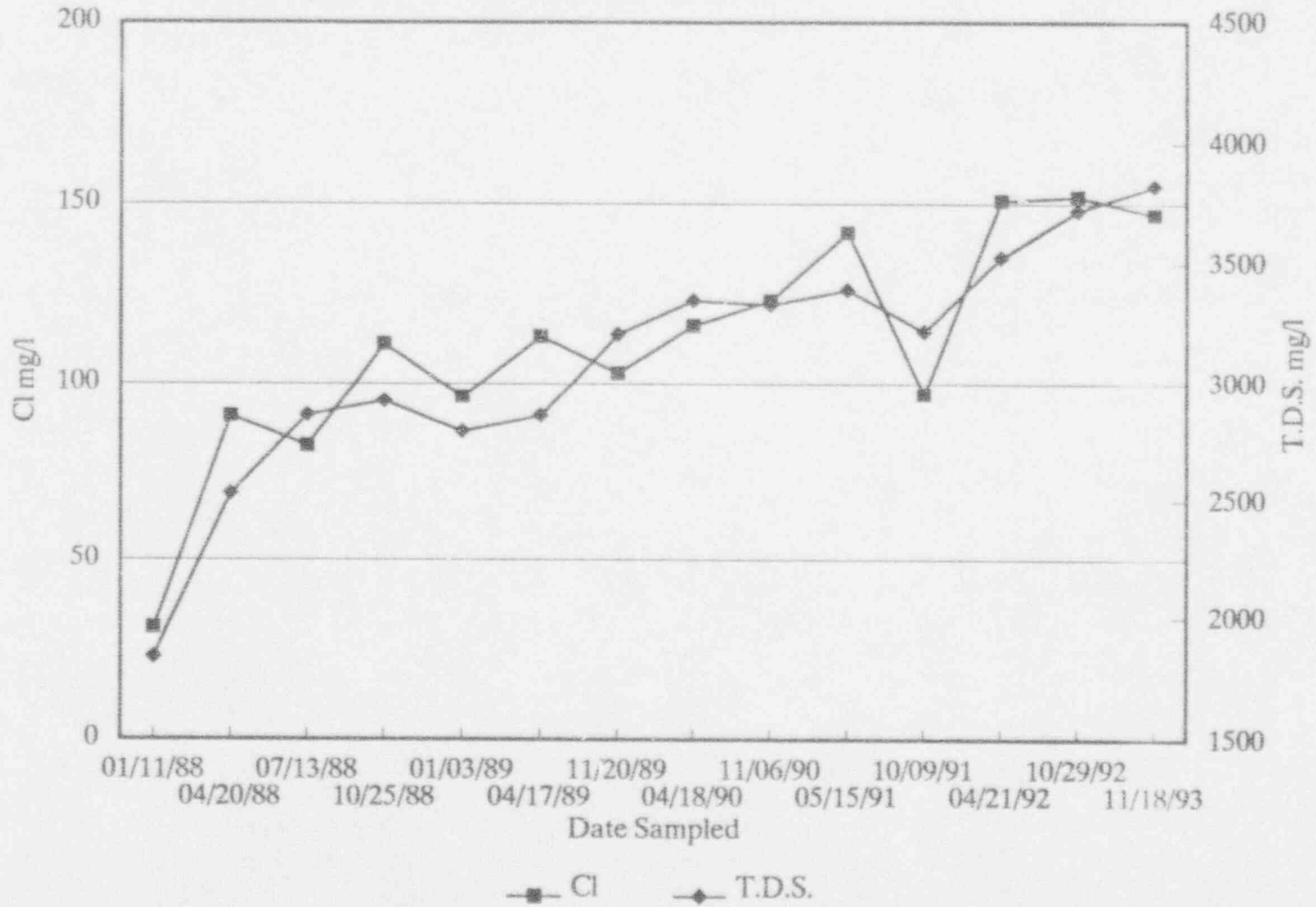
M.W.C. 62 U-Nat & Ra226 + Ra228



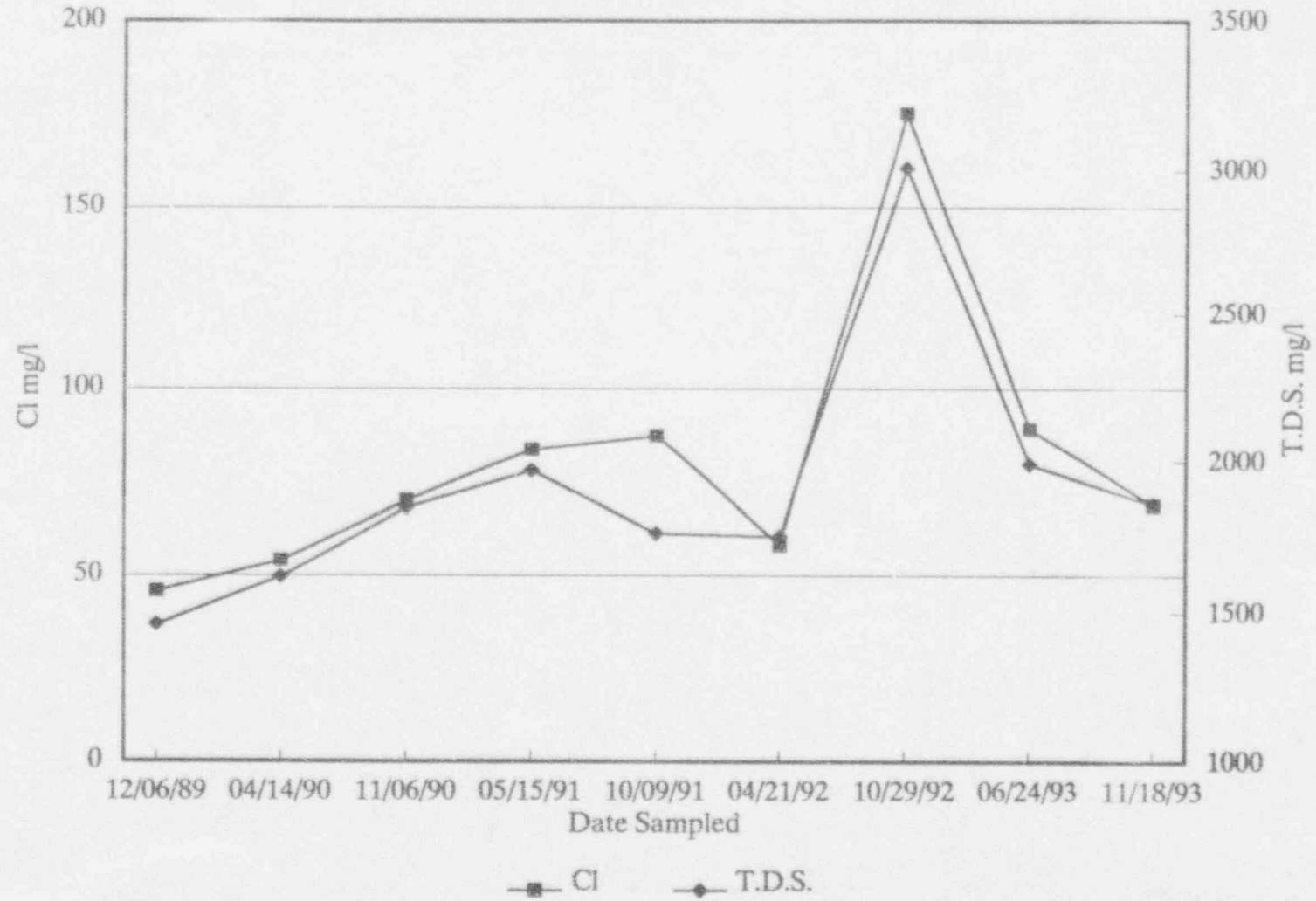
M.W.C. 60 Chloride & T.D.S.



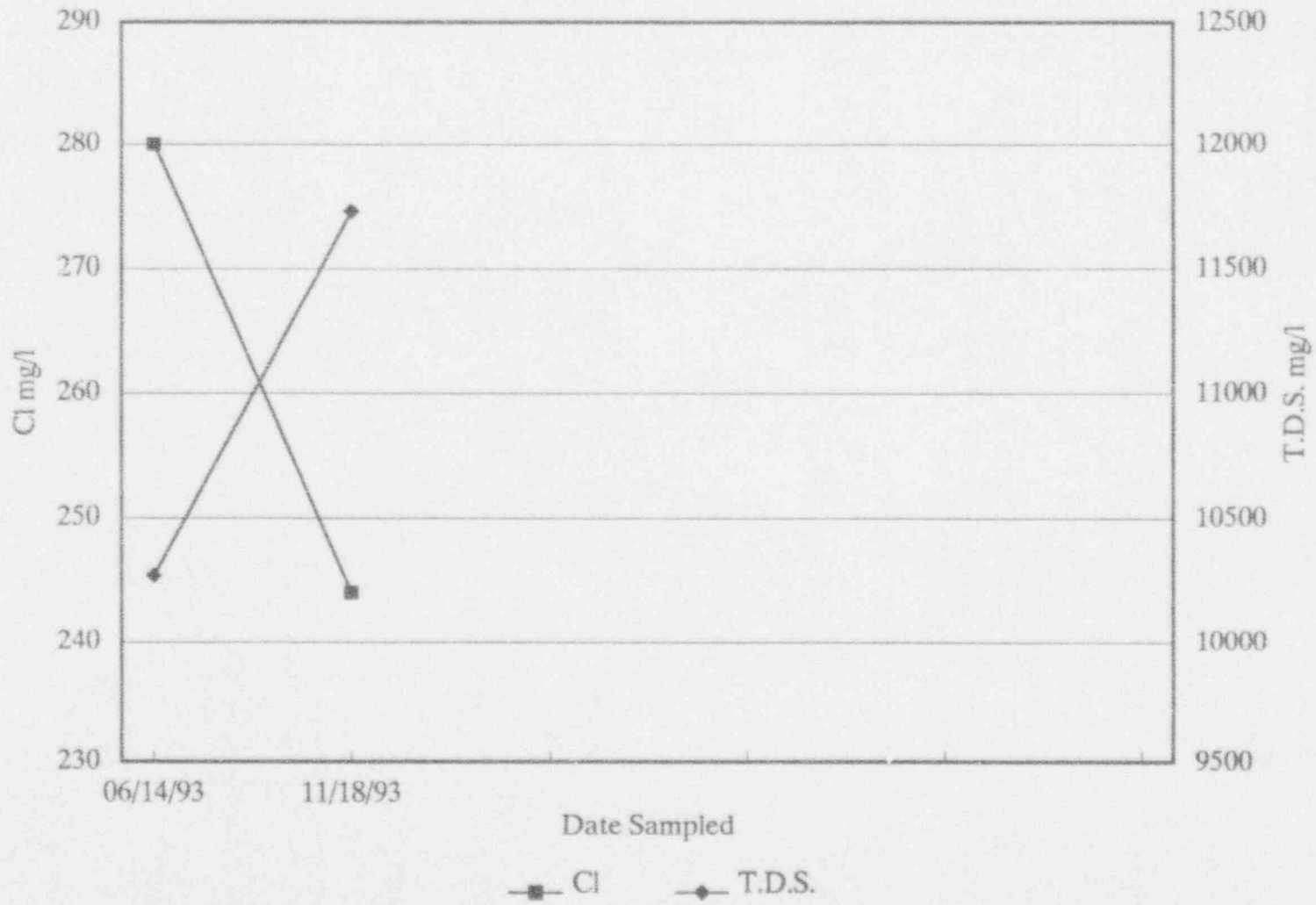
M.W. 24 Chloride & T.D.S.



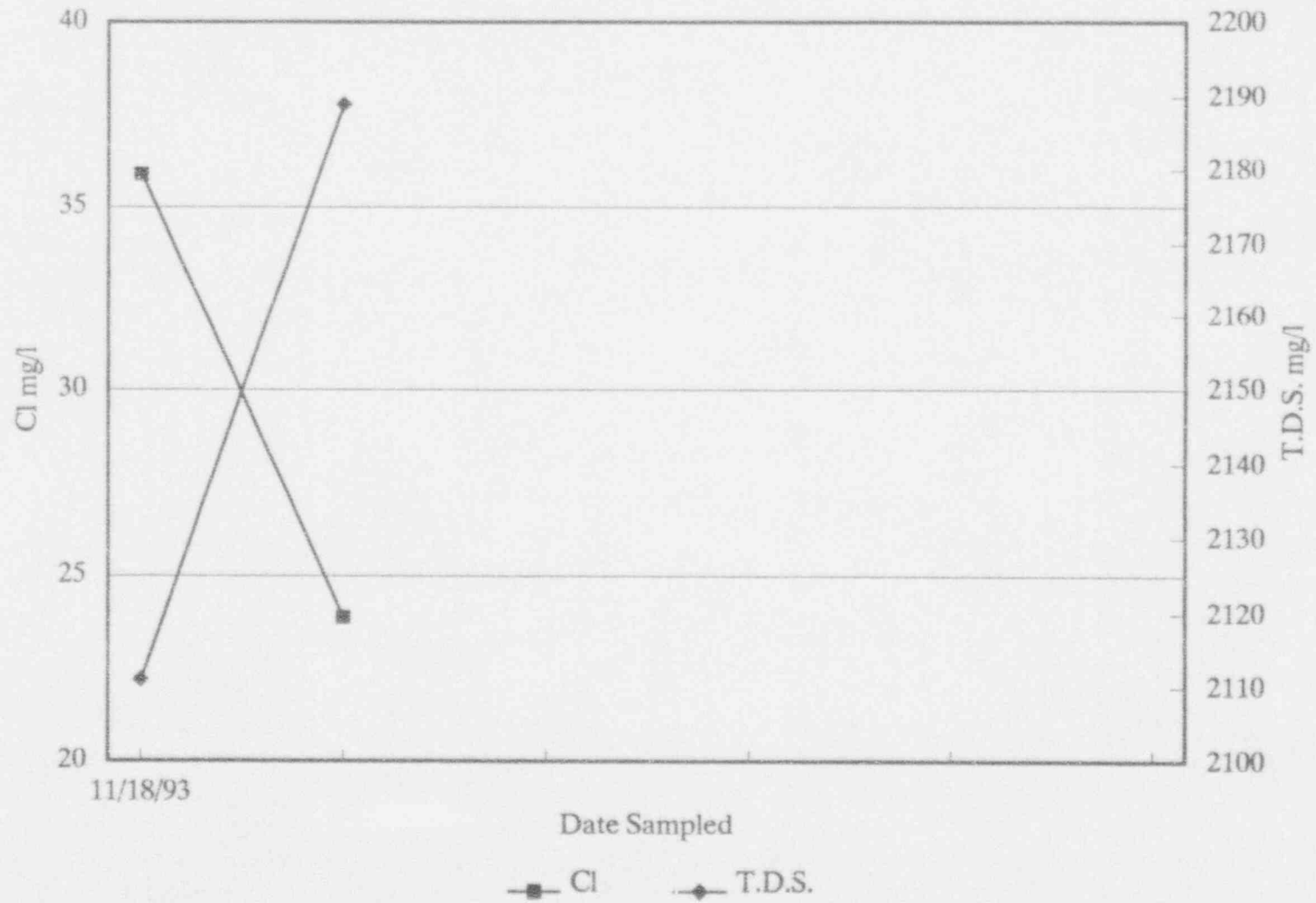
M.W. 32 Chloride & T.D.S.



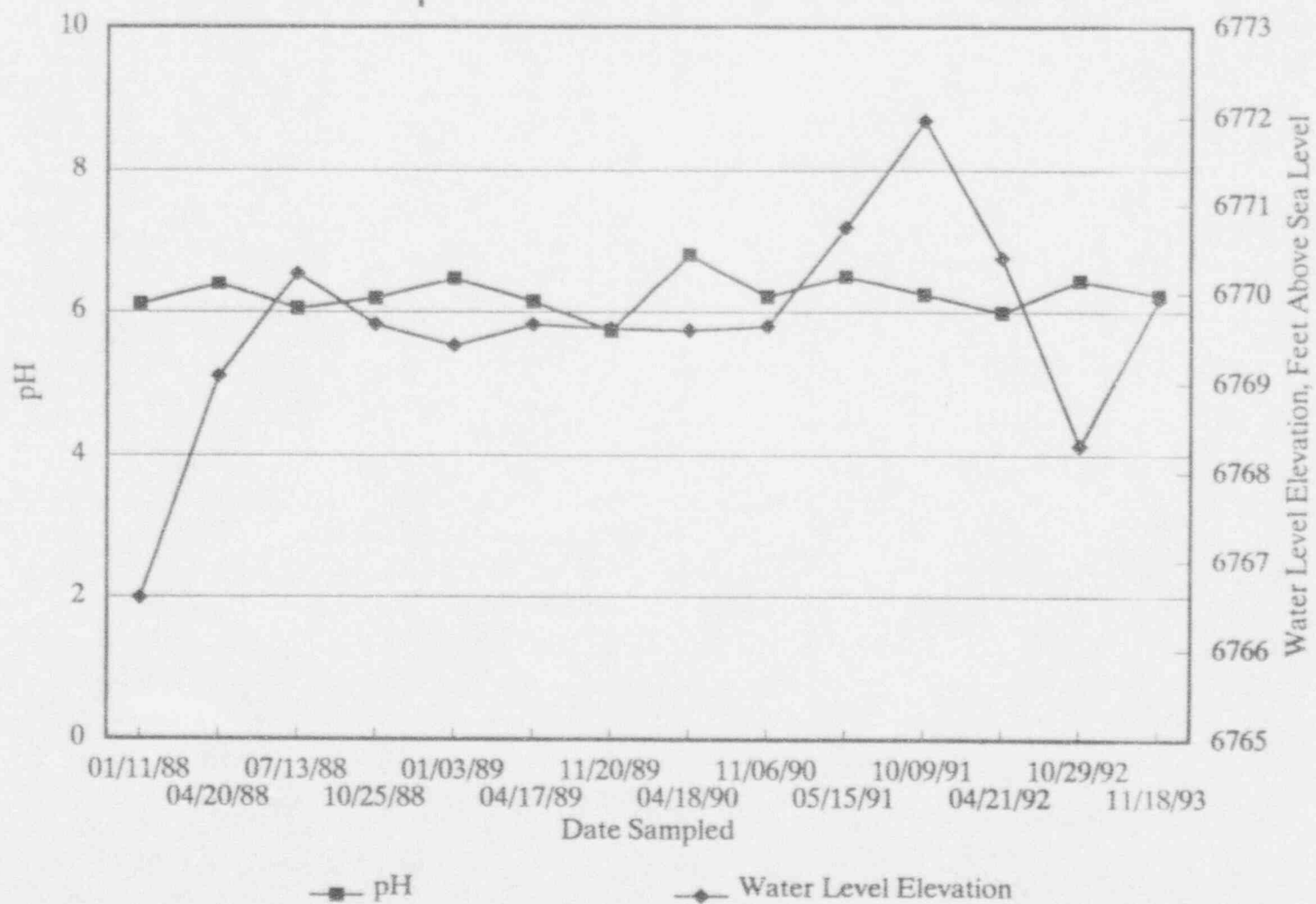
M.W.C. 61 Chloride & T.D.S.



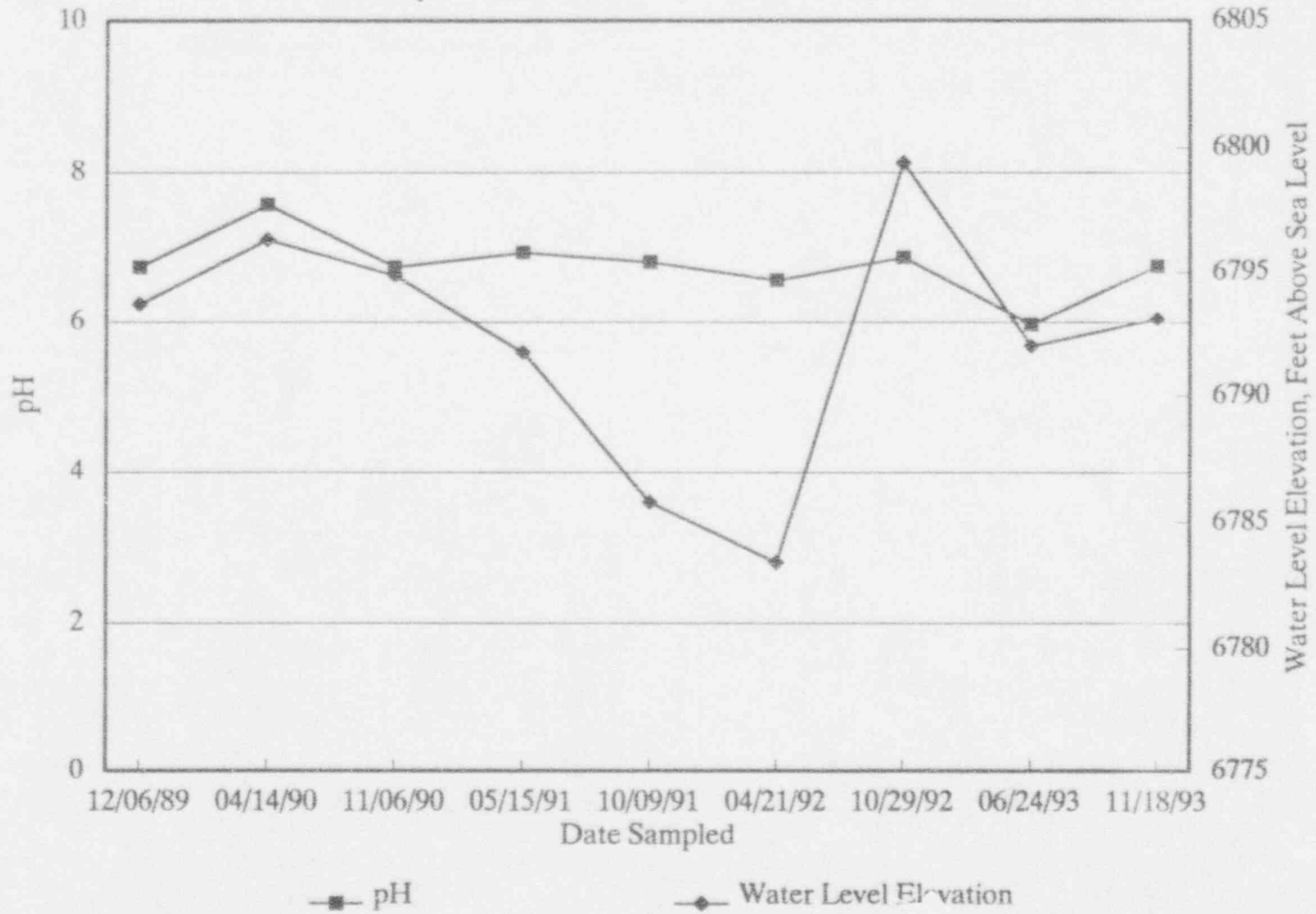
M.W.C. 62 Chloride & T.D.S.



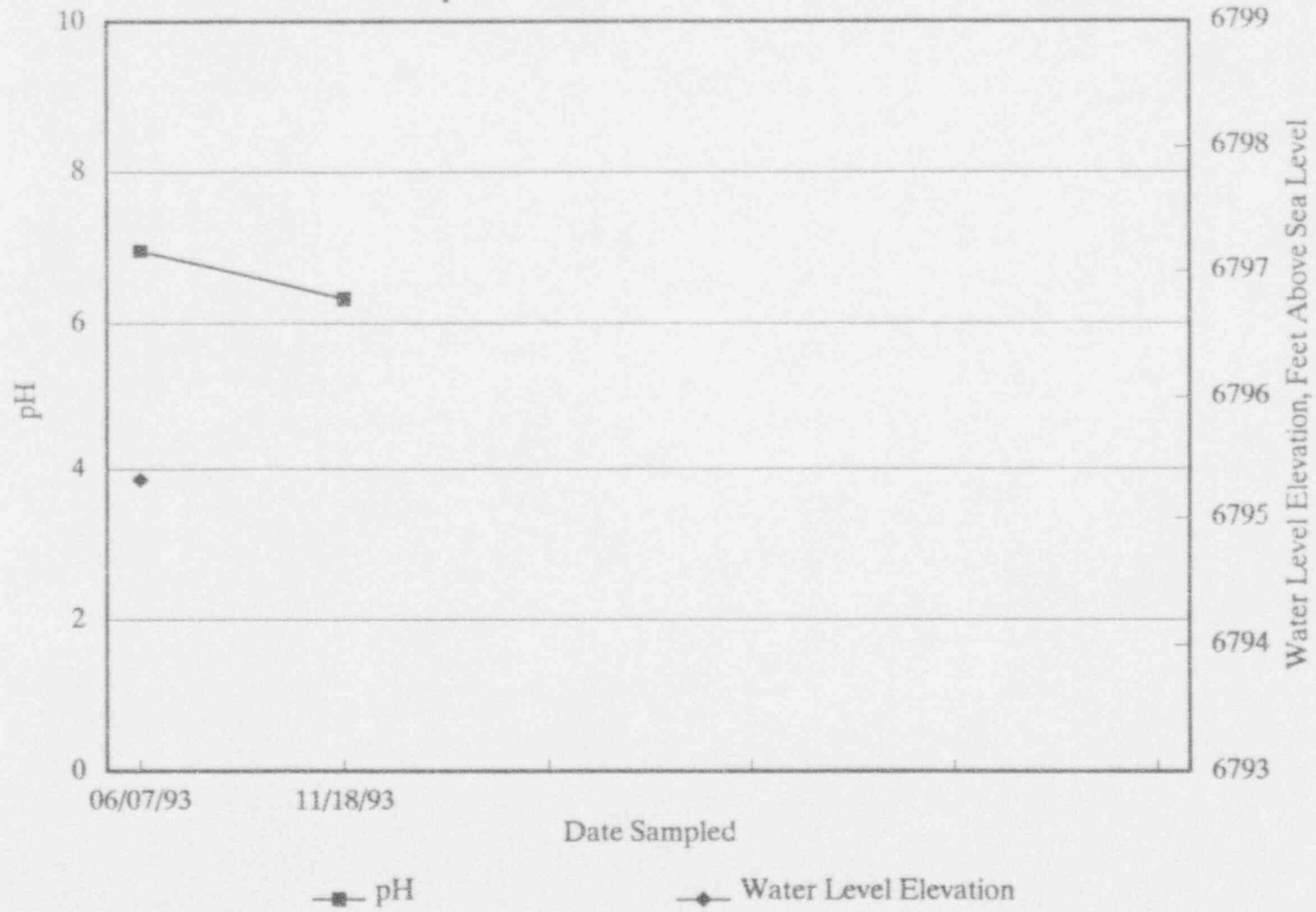
M.W. 24 pH & Water Level Elevation



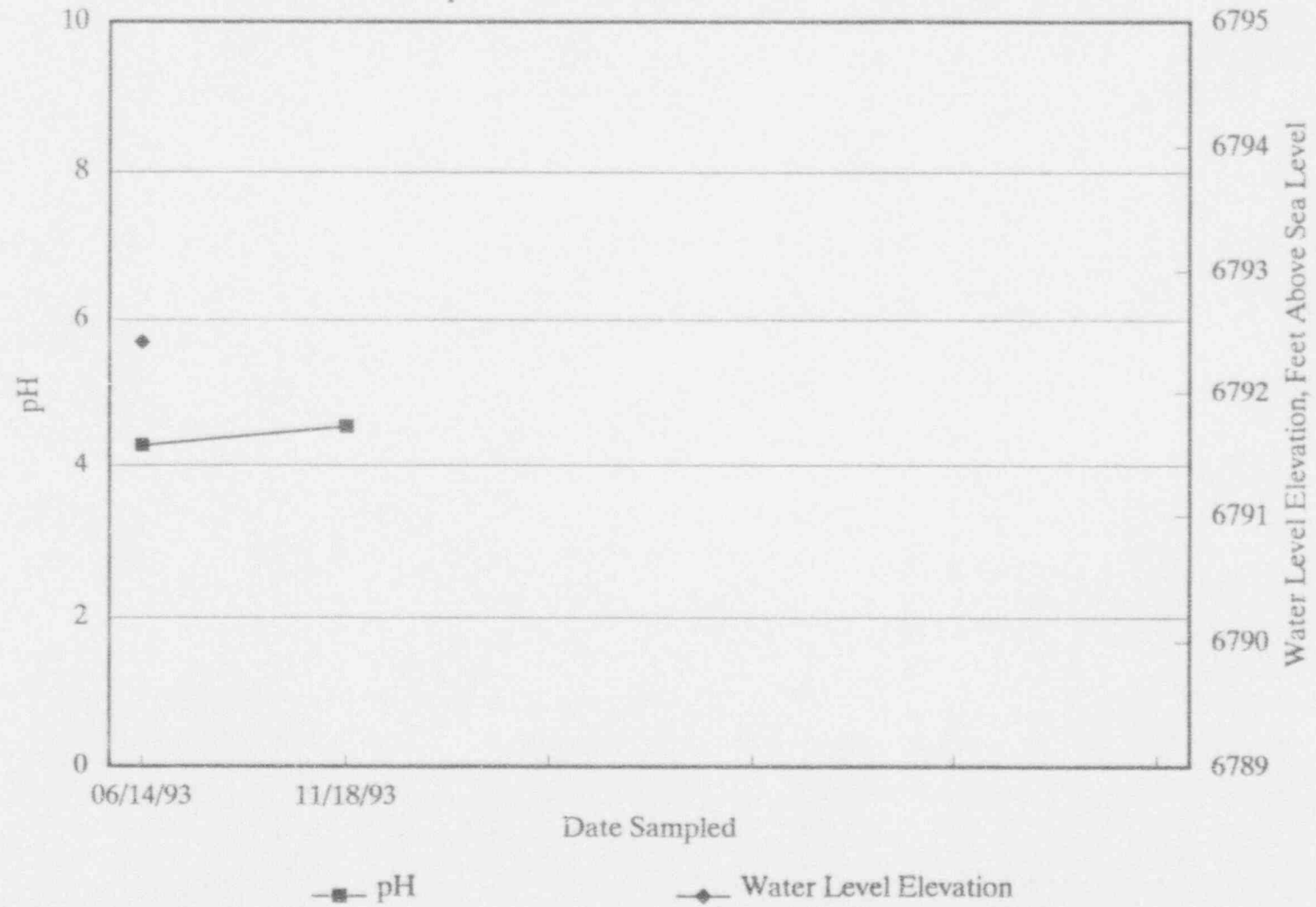
M.W. 32 pH & Water Level Elevation



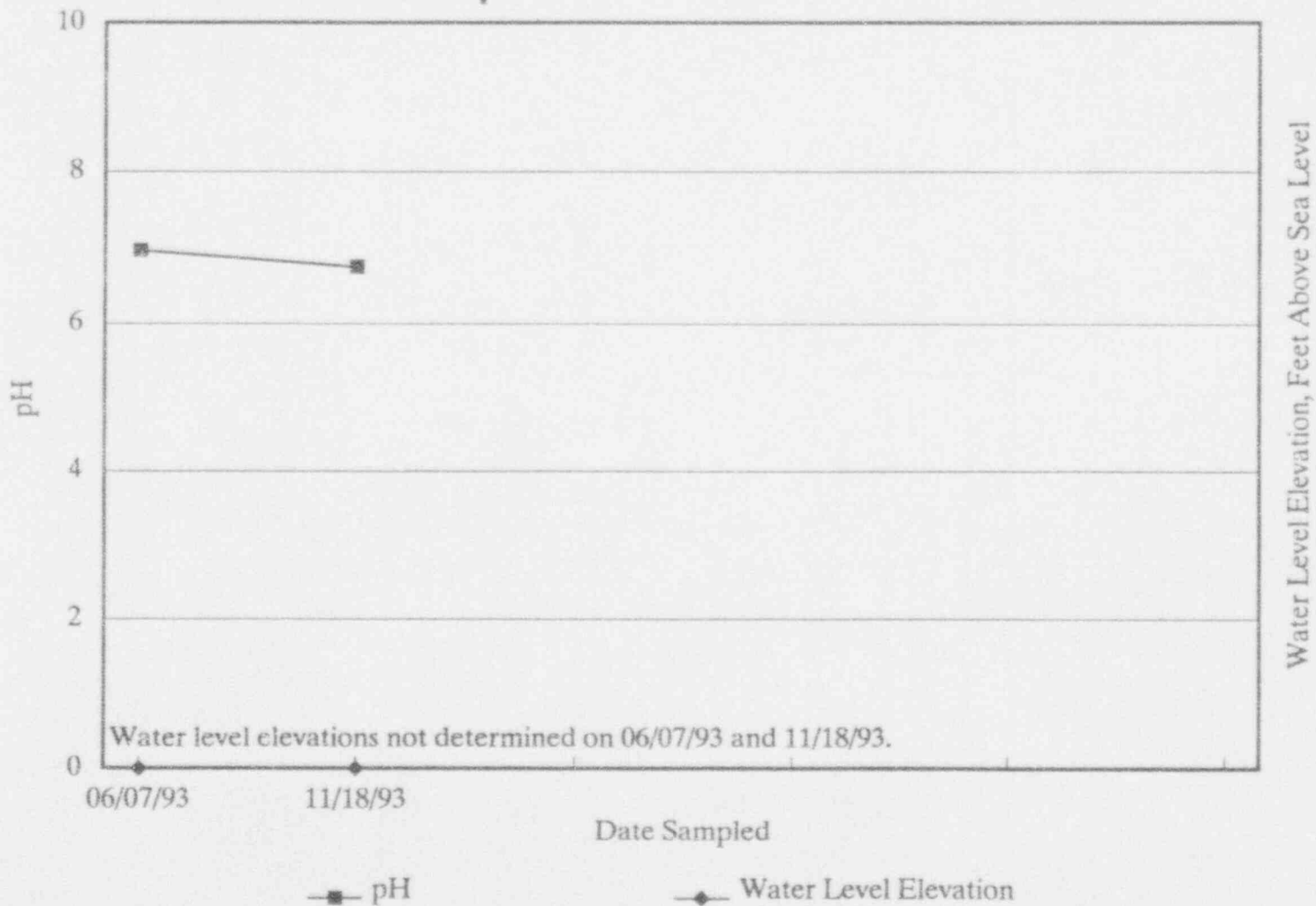
M.W.C. 60 pH & Water Level Elevation



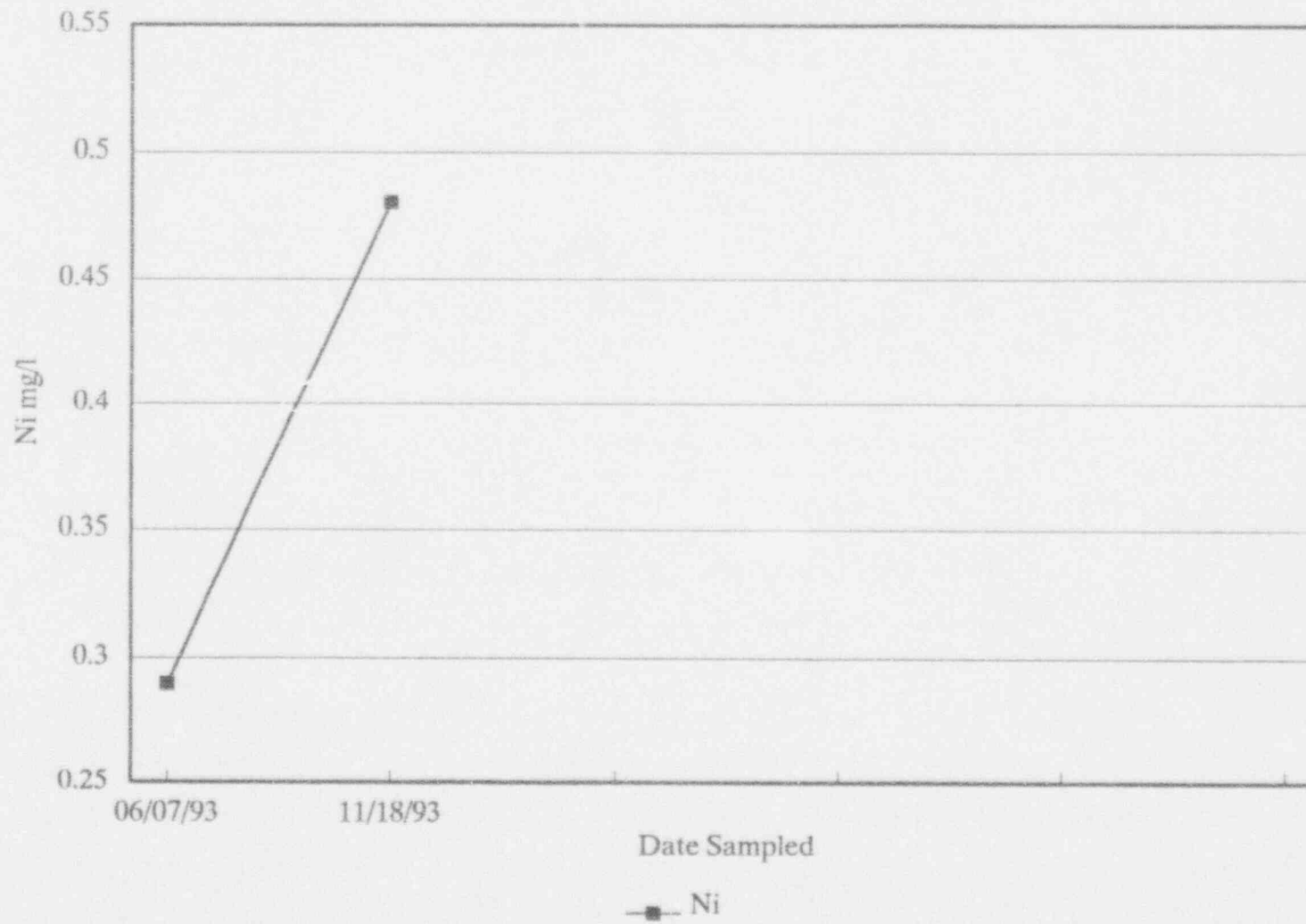
M.W.C. 61 pH & Water Level Elevation



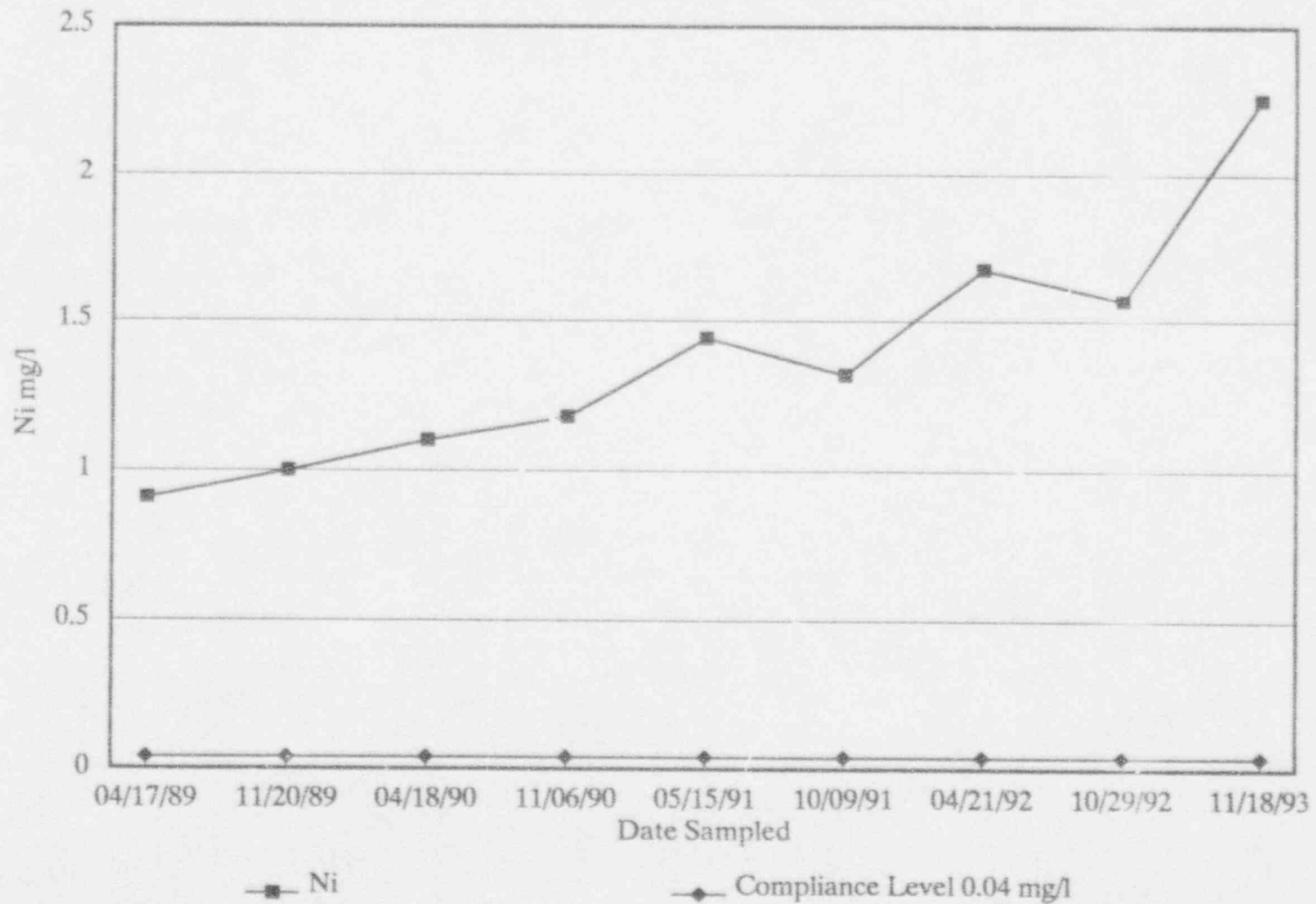
M.W.C. 62 pH & Water Level Elevation



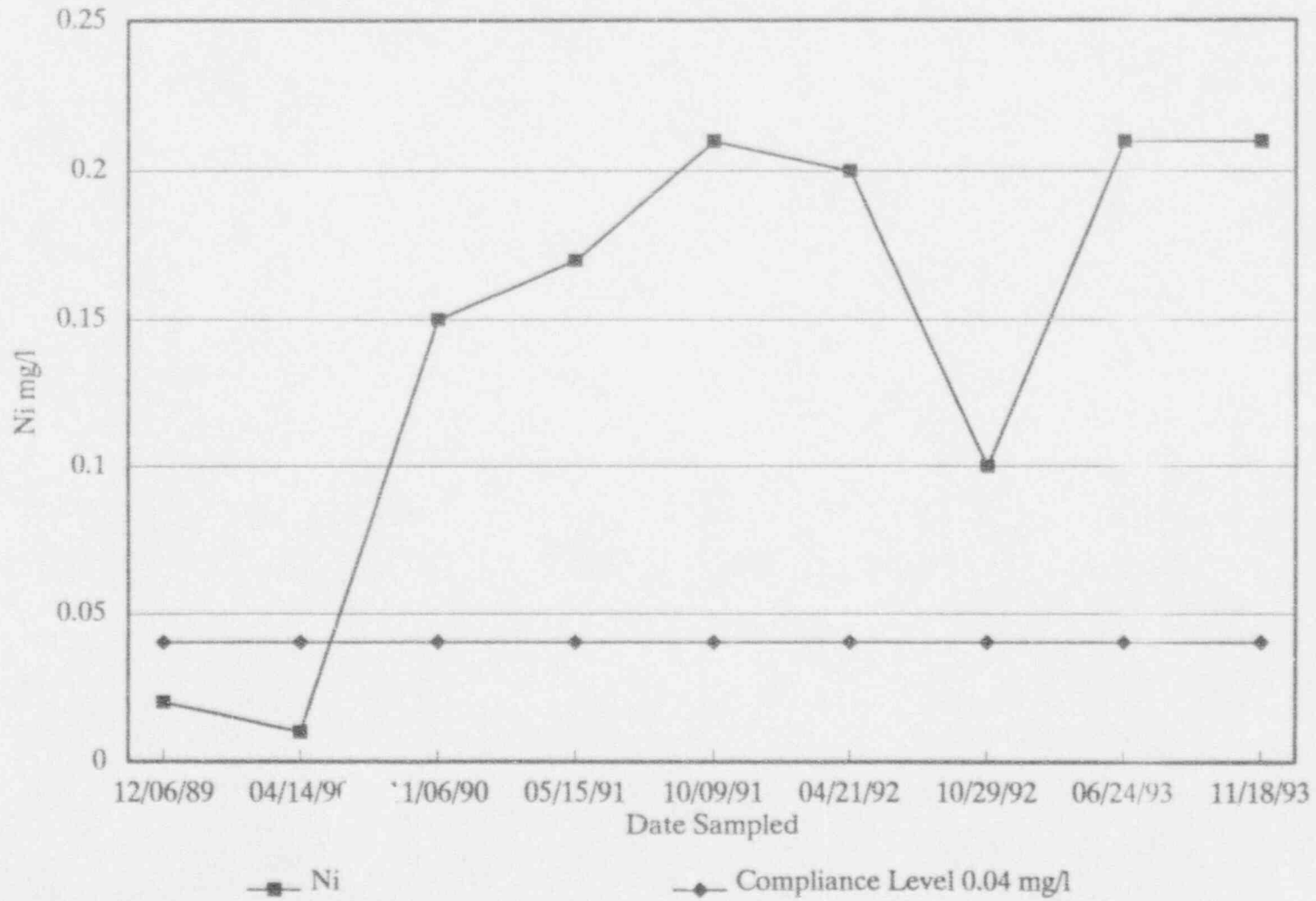
M.W.C. 60 Nickel



M.W. 24 Nickel



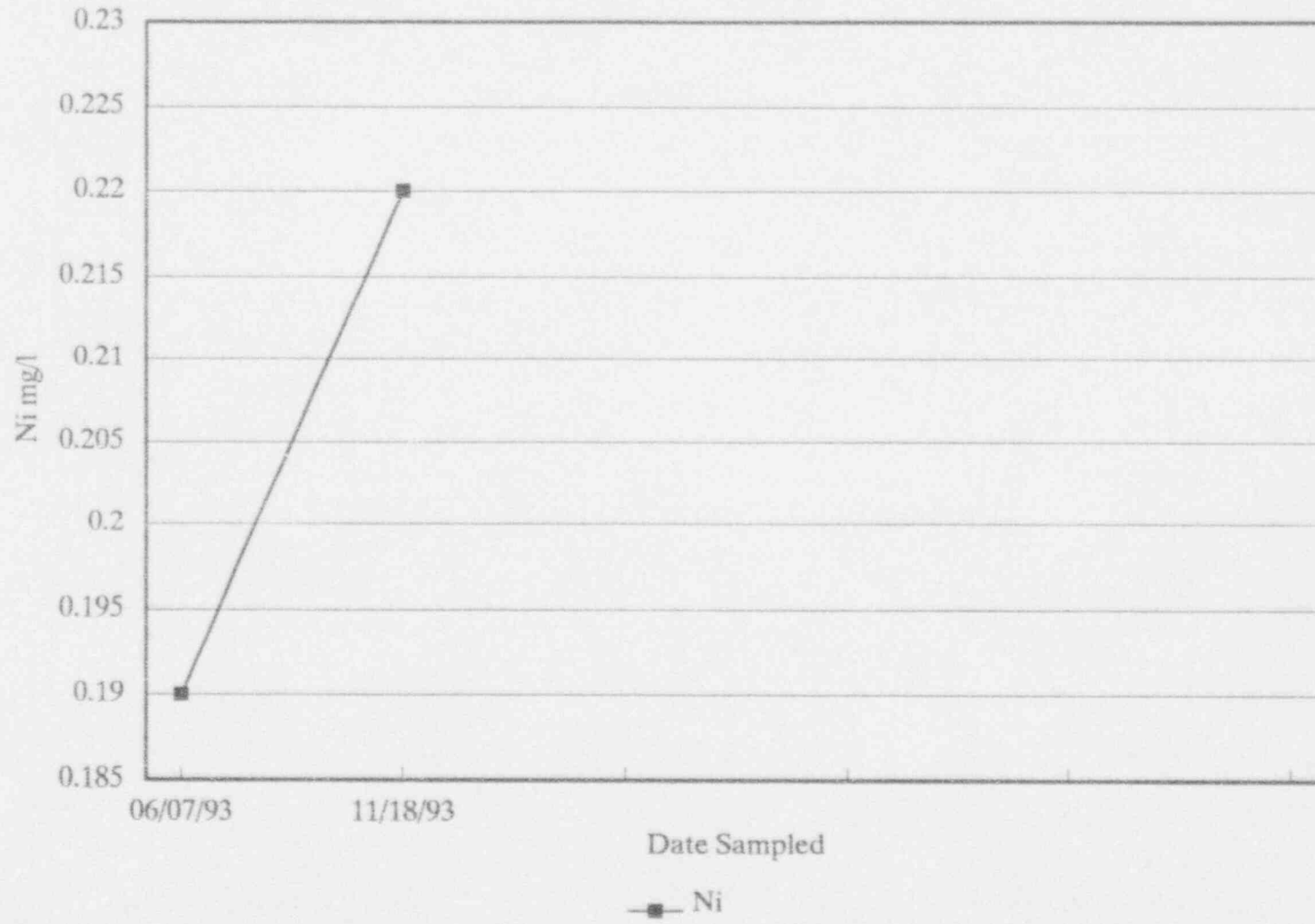
M.W. 32 Nickel



M.W.C. 61 Nickel



M.W.C. 62 Nickel



SECTION 2.2.1
A-9 TAILINGS AREA

2.2.1 A-9 TAILINGS AREA (upper Wind River aquifer)
Map No. NRC-DEQ-94-02

Monitoring of the upper Wind River aquifer groundwater quality in and around the A-9 below-grade tailings area was continued in the second half of 1993. Location of the 23 wells and potentiometric contours are shown on map no. NRC-DEQ-94-02. Two sectors are compared, showing some continuing improvement in the groundwater quality.

The first sector encompasses wells in the immediate vicinity of the trough developed by the A-9 pumpback system and wells to the east of the tailings impoundment. These 13 wells are LA-2 (background well for the upper Wind River aquifer), PW-1, PW-2, PW-3, PW-4, GW-1, GW-2, GW-4, GW-5, GW-6, compliance wells GW-7 and GW-8, RW-2 and PW-7. All of the wells are still variable by increasing or decreasing in each of the monitored elements but are generally in an improving groundwater quality. This sector's wells are in closest proximity to the tailings and are the slowest to achieving compliance standards.

The second sector encompasses wells along a margin perimeter south, west and northwest of the A-9 through. The groundwater quality being monitored in eight wells: HW-2, HW-3, EPW-1, EPW-2, EPW-3, MW-30, PW-5 and PW-6. All are continuing to show improving trends. The radionuclides are still showing fluctuations and nickel continues to remain above compliance standards.

Monitor wells MW-6 and MW-10 are located north of the A-9 area, south of the Inactive Tailings and within the Heap Leach area. Both wells produce water from the upper Wind River aquifer. MW-6 meets compliance standards for all monitored elements except Ra226. MW-10 is continuing improvement toward reaching the compliance standards.

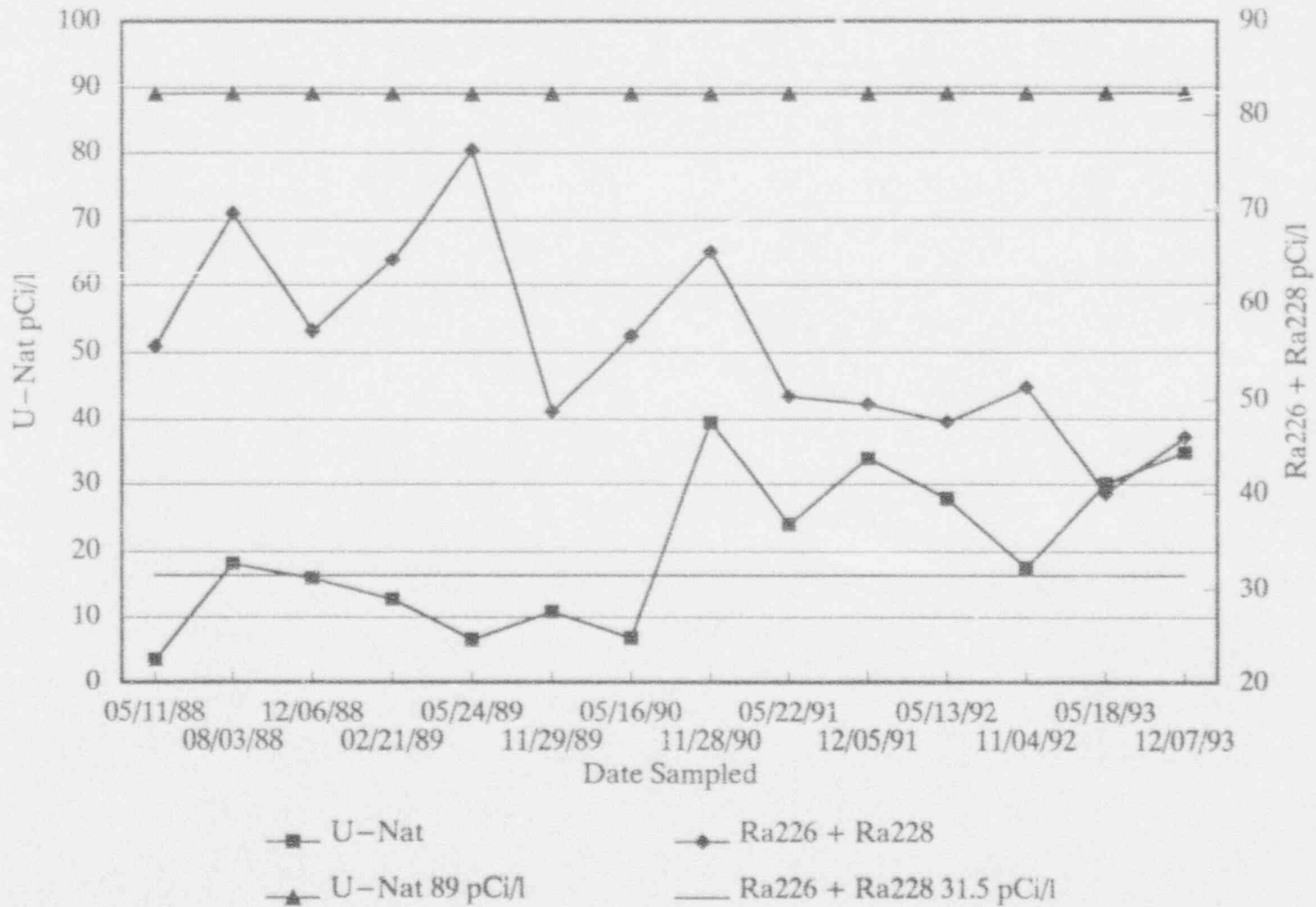
GROUND WATER ANALYSES FOR M. W. 6

Date Sampled	05/13/92	11/04/92	05/18/93	12/07/93
UNat pCi/l	27.80	17.60	30.00	34.80
UNat % M.P.C.	0.09	0.06	0.10	0.12
Ra226 pCi/l	36.60	41.80	28.60	37.60
Ra226 Error +/-	1.00	2.40	0.80	1.90
Ra226 % M.P.C.	122.00	139.33	95.33	125.33
Ra228 pCi/l	11.10	9.60	11.40	8.40
Ra228 Error +/-	0.70	0.70	0.60	0.90
Ra228 % M.P.C.	37.00	32.00	38.00	28.00
Th230 pCi/l	<0.2	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	2.60	2.90	2.90
Pb210 Error +/-		0.90	0.70	0.90
Pb210 % M.P.C.		2.60	2.90	2.90
Gross Alpha - U & Rn pCi/l	36.90	43.60	29.70	50.20
Gross Alpha Error +/-	6.10	6.60	3.10	7.10
As mg/l	0.015	<0.01	<0.01	0.006
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	26.79	27.00	24.60	25.89
Pb mg/l	<0.01	<0.01		
Mo mg/l	0.26	0.26		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	<0.01	0.02	<0.01	<0.01
Ag mg/l	<0.01	0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	0.03		
Ca mg/l	732.00	721.00	781.00	735.00
Mg mg/l	118.00	115.00	116.00	101.00
Na mg/l	71.10	75.80	78.80	73.60
K mg/l	19.50	20.10		
NH3 mg/l	0.33	<0.05	<0.05	
NO3 mg/l	<0.10	<0.10	<0.10	<0.10
SO4 mg/l	1876.00	1867.00	1936.00	1830.00
Cl mg/l	167.00	180.00	107.00	180.00
TDS mg/l	3646.00	3504.00	3657.00	3630.00
pH	6.63	7.00	6.46	6.95
Water Elevation	6865.46	6865.20	6864.61	6864.56

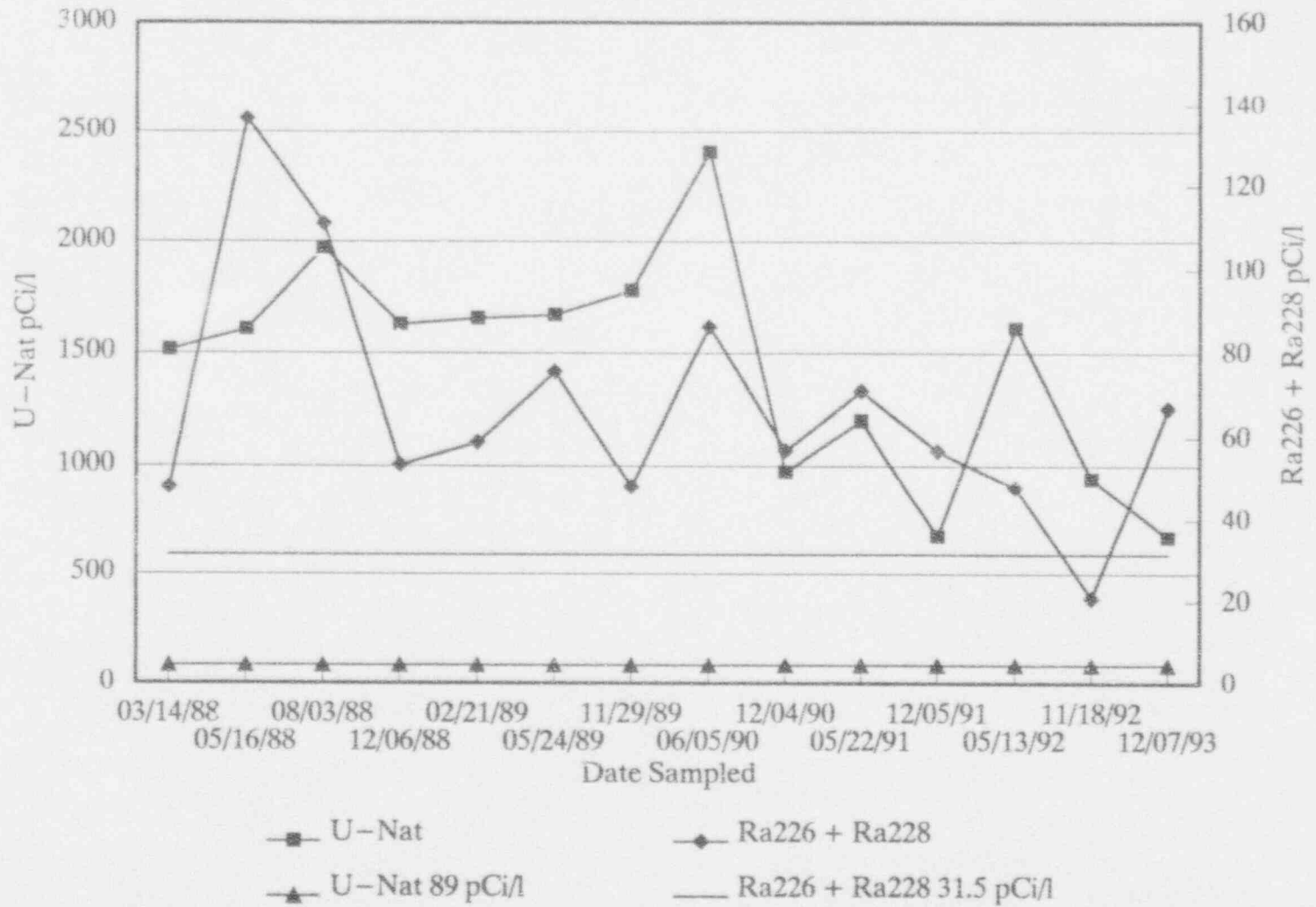
GROUND WATER ANALYSES FOR M. W. 10

Date Sampled	12/05/91	05/13/92	11/18/92	12/07/93
UNat pCi/l	677.00	1615.00	941.00	672.00
UNat % M.P.C.	2.26	5.38	3.14	2.24
Ra226 pCi/l	42.80	34.30	10.90	52.50
Ra226 Error +/-	1.40	1.80	0.70	2.30
Ra226 % M.P.C.	142.67	114.33	36.33	175.00
Ra228 pCi/l	14.10	13.70	10.00	14.50
Ra228 Error +/-	0.80	0.70	0.50	3.70
Ra228 % M.P.C.	47.00	45.67	33.33	48.33
Th230 pCi/l	<1.0	<0.2	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	4.10	<1.0	3.70	6.20
Pb210 Error +/-	1.10		0.50	1.00
Pb210 % M.P.C.	4.10		3.70	6.20
Gross Alpha - U & Rn pCi/l	44.00	35.00	11.40	74.20
Gross Alpha Error +/-	6.60	5.90	3.40	8.60
As mg/l	0.01	0.019	0.02	0.014
Se mg/l	<0.005	<0.005	0.009	<0.001
Fe mg/l	2.70	3.24	2.46	3.45
Pb mg/l	<0.01	<0.01	<0.01	
Mo mg/l	0.04	<0.01	<0.01	
Al mg/l	0.11	0.10	0.11	
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.38	0.21	0.26	0.39
Ag mg/l	<0.01	<0.01	<0.01	
V mg/l	<0.01	<0.01	<0.01	
Cd mg/l	<0.005	<0.005	<0.005	
Cr mg/l	<0.01	<0.01	<0.01	
Ca mg/l	550.00	594.00	598.00	573.00
Mg mg/l	89.50	90.80	84.10	69.10
Na mg/l	268.00	258.00	339.00	347.00
K mg/l	14.00	14.20	14.40	
NH3 mg/l	0.20	0.23	0.10	
NO3 mg/l	0.01	<0.10	<0.10	<0.10
SO4 mg/l	1734.00	1816.00	1928.00	2147.00
Cl mg/l	144.00	128.00	126.00	133.00
TDS mg/l	3588.00	3381.00	3357.00	3602.00
pH	6.45	6.17	6.19	6.08
Water Elevation	6888.03	6887.13	6886.12	6877.94

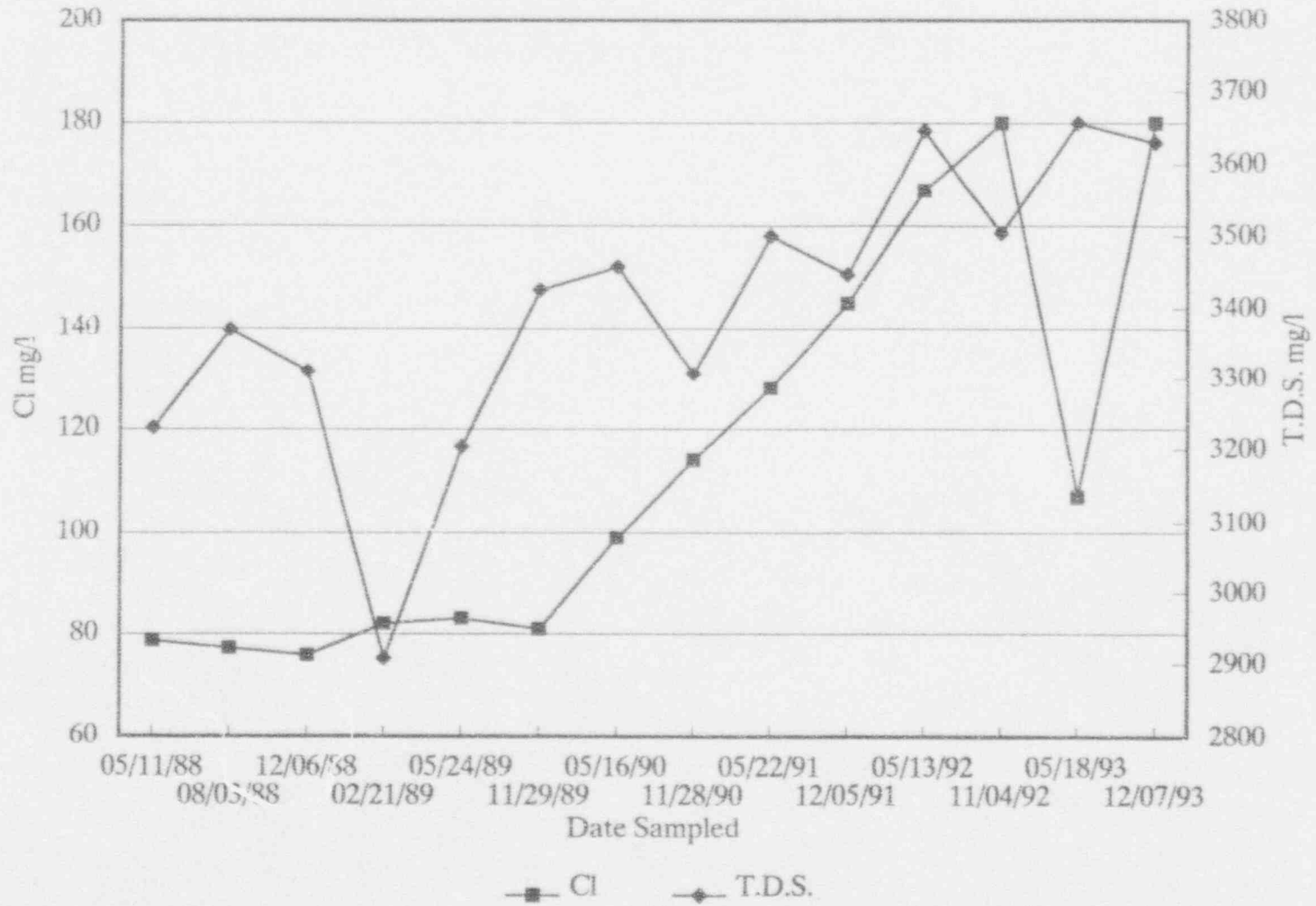
M.W. 6 U-Nat & Ra226 + Ra228



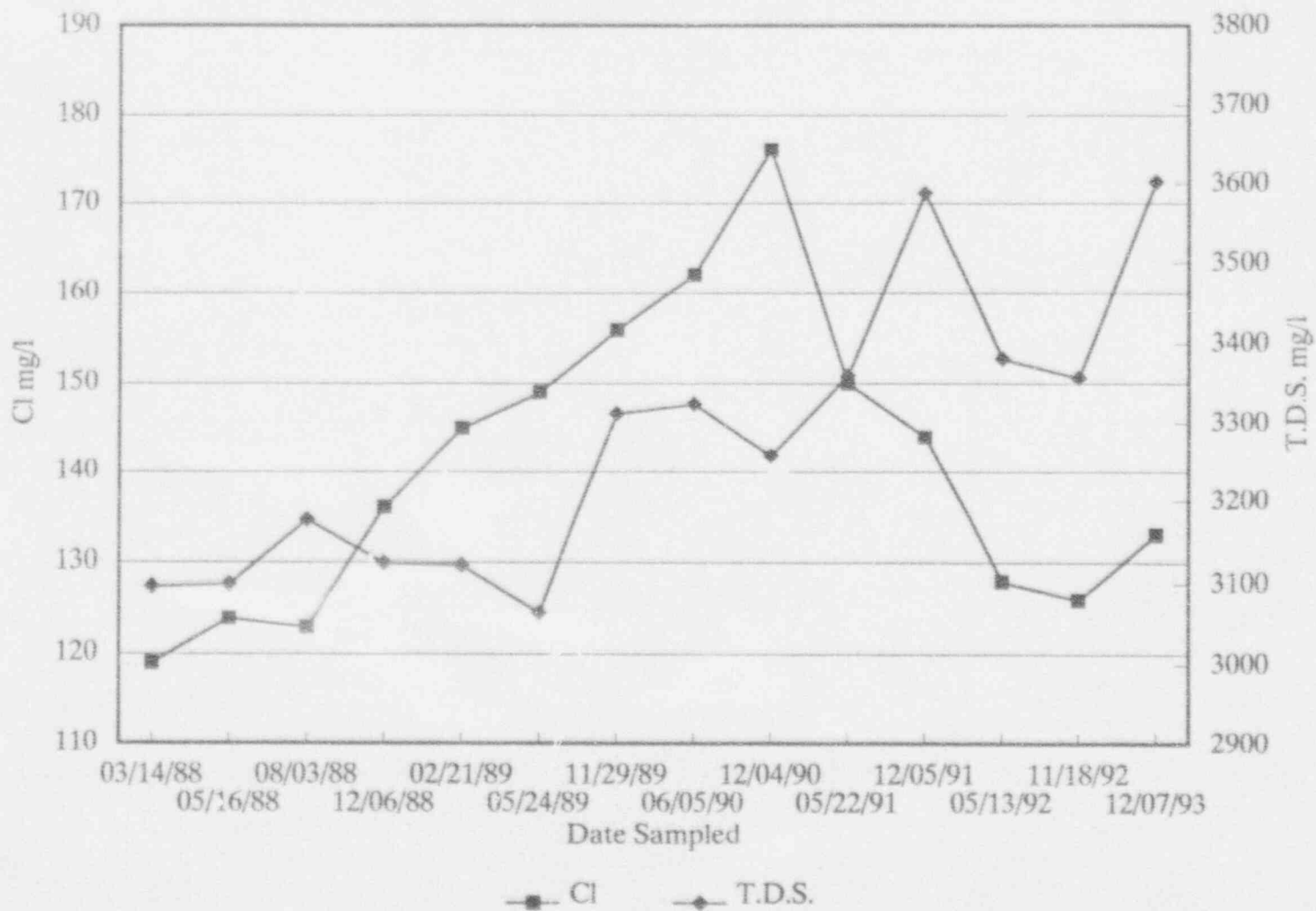
M.W. 10 U-Nat & Ra226 + Ra228



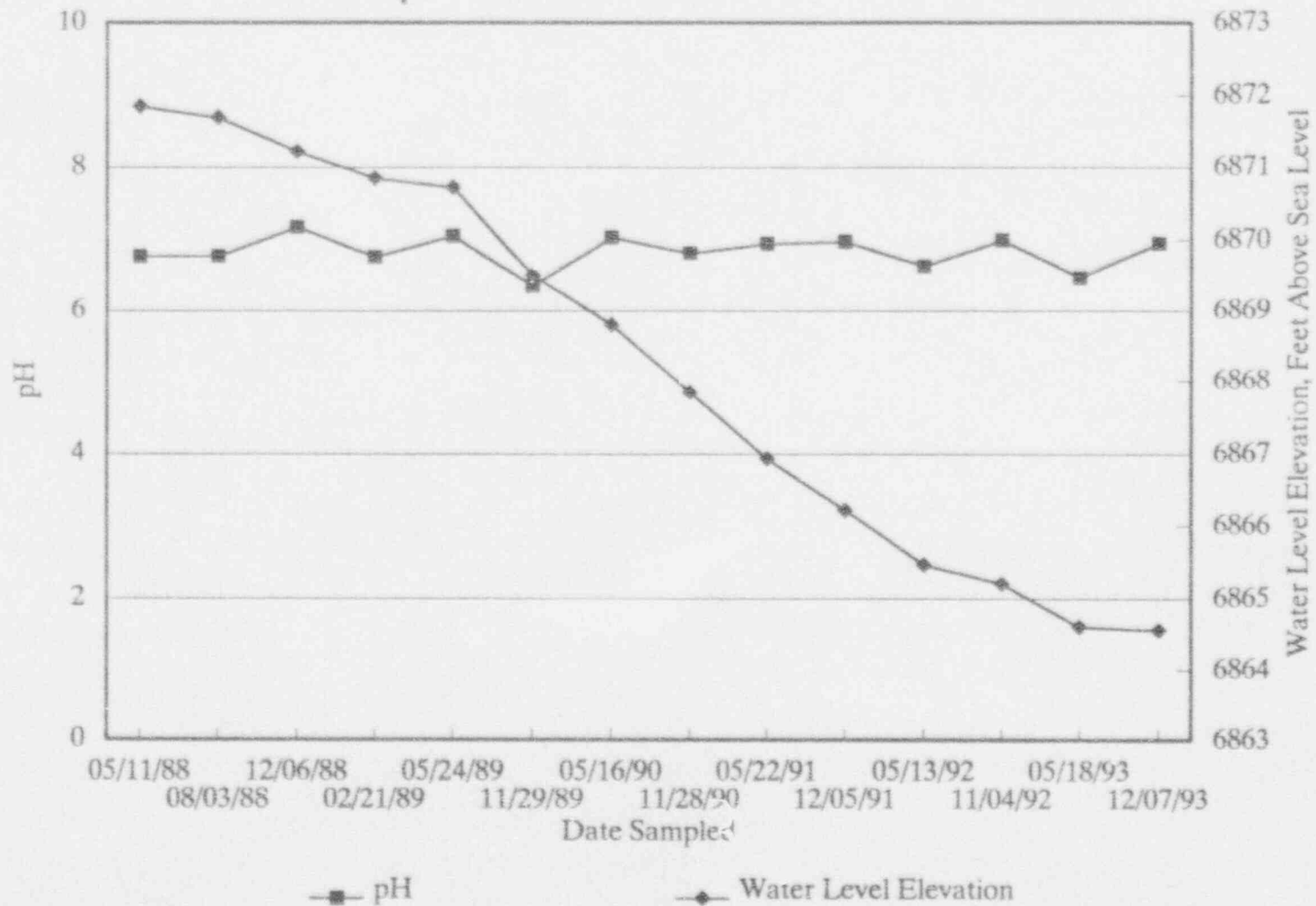
M.W. 6 Chloride & T.D.S.



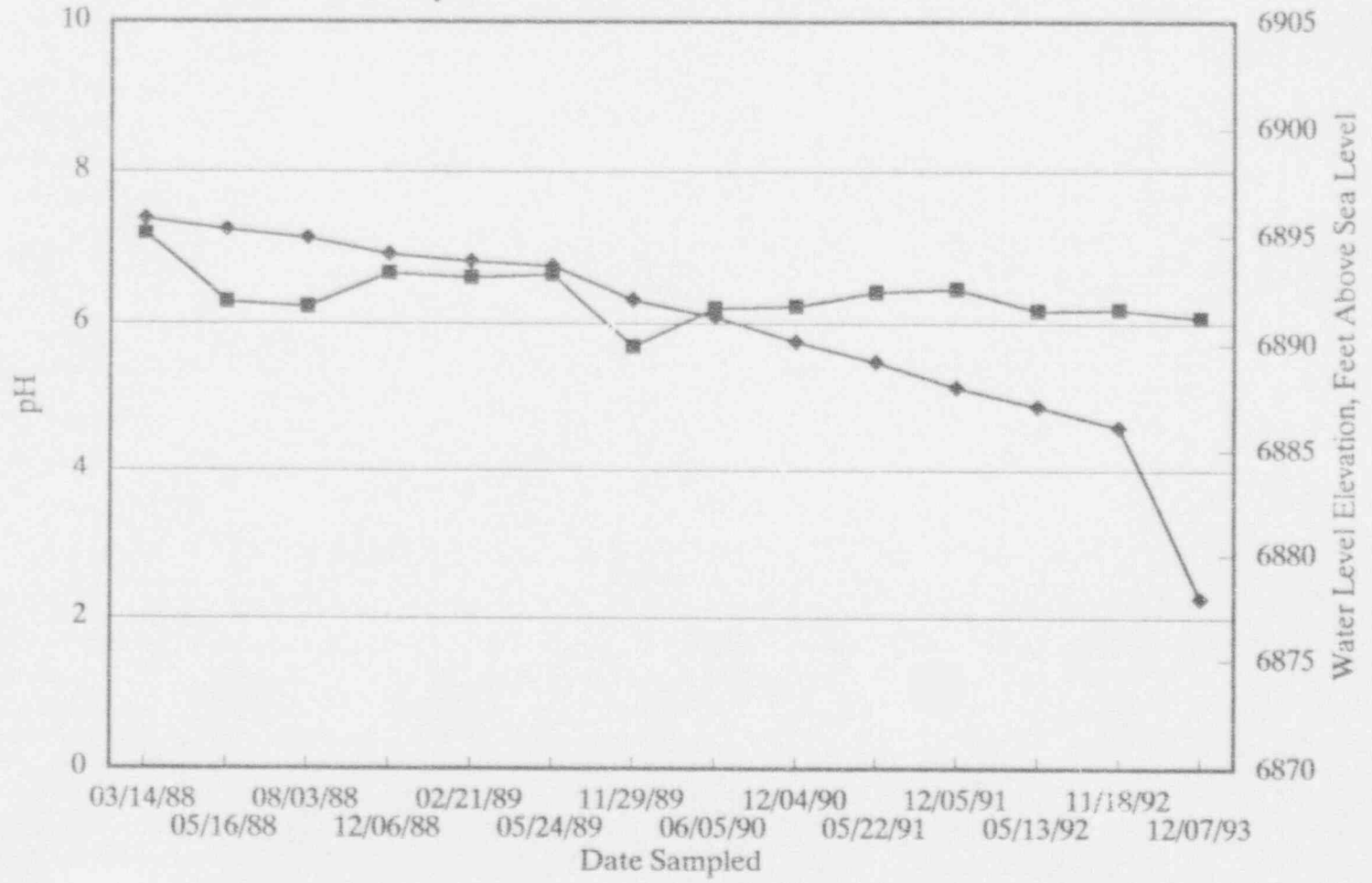
M.W. 10 Chloride & T.D.S.



M.W. 6 pH & Water Level Elevation



M.W. 10 pH & Water Level Elevation

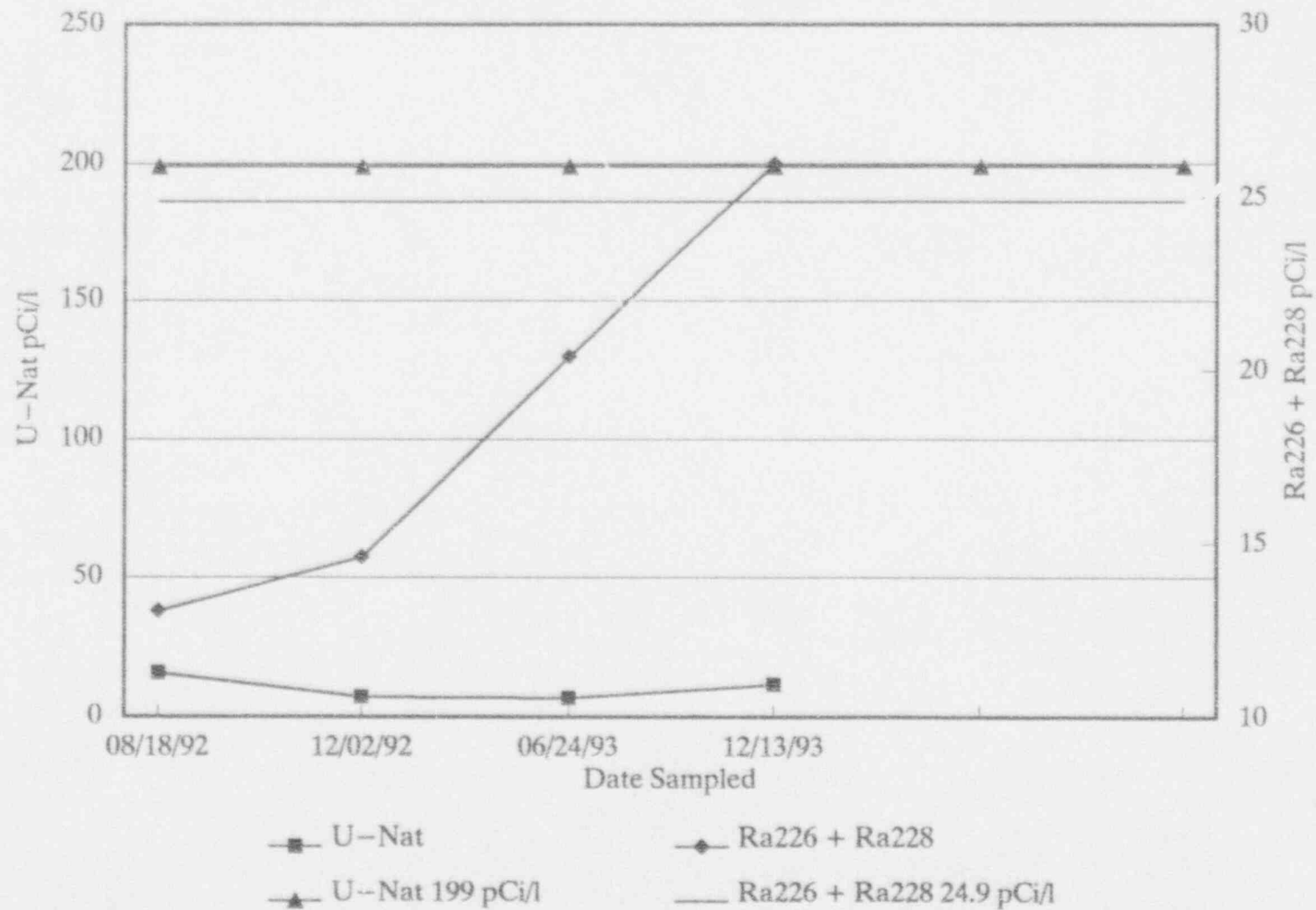


pH
 Water Level Elevation

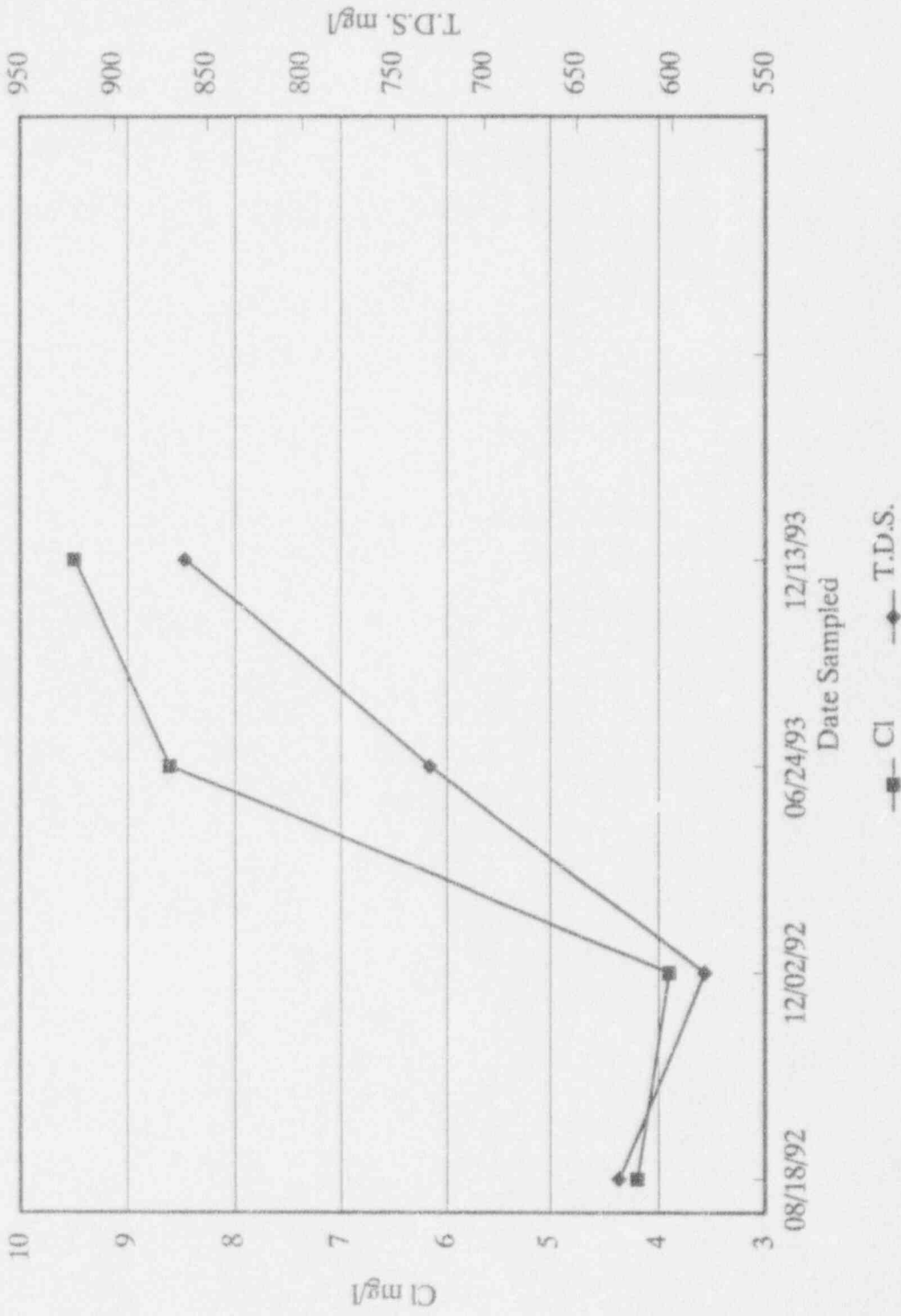
GROUNDWATER ANALYSES FOR D.W. 4

Date Sampled	08/18/92	12/02/92	06/24/93	12/13/93
UNat pCi/l	15.60	7.30	6.90	11.60
UNat % M.P.C.	0.05	0.02	0.02	0.04
Ra226 pCi/l	13.00	10.30	12.30	20.90
Ra226 Error +/-	0.90	0.60	1.10	1.60
Ra226 % M.P.C.	43.33	34.33	41.00	69.67
Ra228 pCi/l	<1.0	4.30	8.10	5.10
Ra228 Error +/-		0.40	1.50	0.30
Ra228 % M.P.C.		14.33	27.00	17.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	2.60	<1.0	<1.0
Pb210 Error +/-		0.90		
Pb210 % M.P.C.		2.60		
Gross Alpha - U & Rn pCi/l	13.50	10.50	17.50	28.50
Gross Alpha Error +/-	1.90	3.20	4.20	5.30
As mg/l	<0.01	0.01	<0.01	0.010
Se mg/l	<0.005	0.014	<0.005	<0.001
Fe mg/l	1.72	4.15	4.70	7.41
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.01		
Al mg/l	<0.10	<0.10	<0.10	
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.02	0.02	<0.01	<0.01
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	132.00	125.00	171.00	162.00
Mg mg/l	21.40	21.80	25.00	27.80
Na mg/l	24.10	29.80	19.00	21.40
K mg/l	11.70	9.10		
NH3 mg/l	<0.05	<0.05		
NO3 mg/l	<0.10	<0.10	<0.01	<0.10
SO4 mg/l	336.00	363.00	394.00	422.00
Cl mg/l	4.20	3.90	8.60	9.50
TDS mg/l	628.00	582.00	731.00	862.00
pH	6.43	6.40	6.29	7.23
Water Elevation	n/a	n/a	n/a	n/a

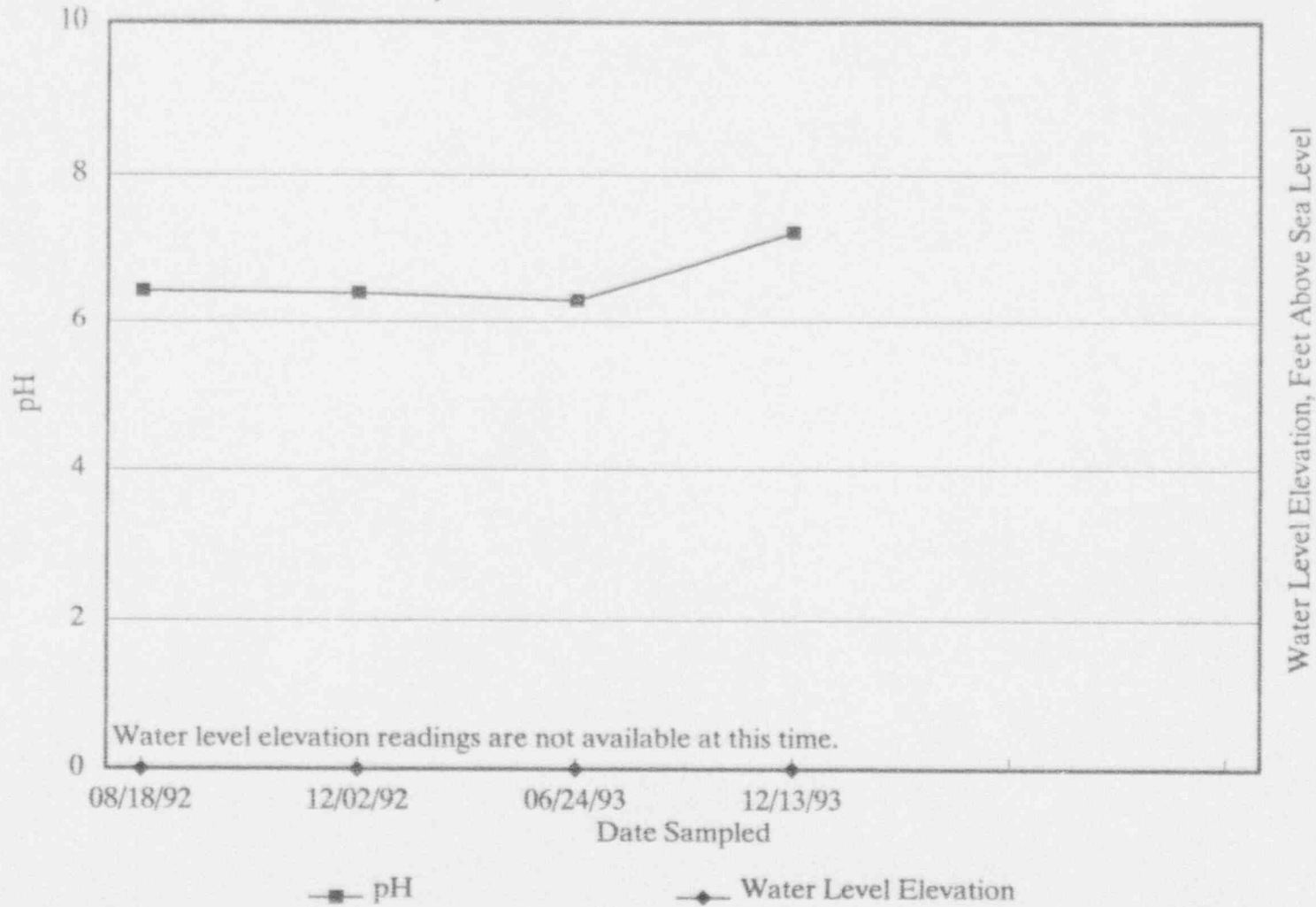
D.W. 4 U-Nat & Ra226 + Ra228



D.W. 4 Chloride & T.D.S.



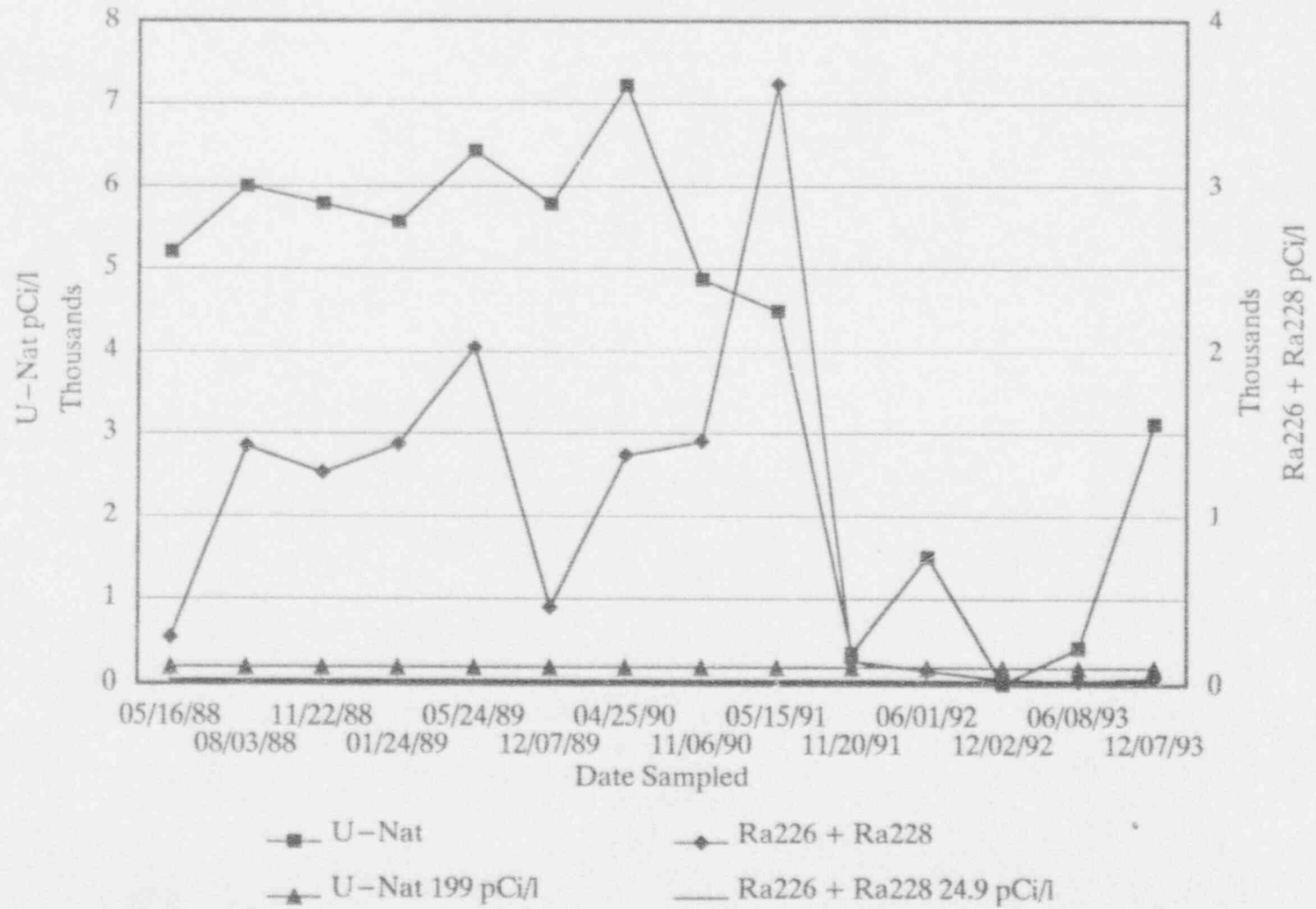
D.W. 4 pH & Water Level Elevation



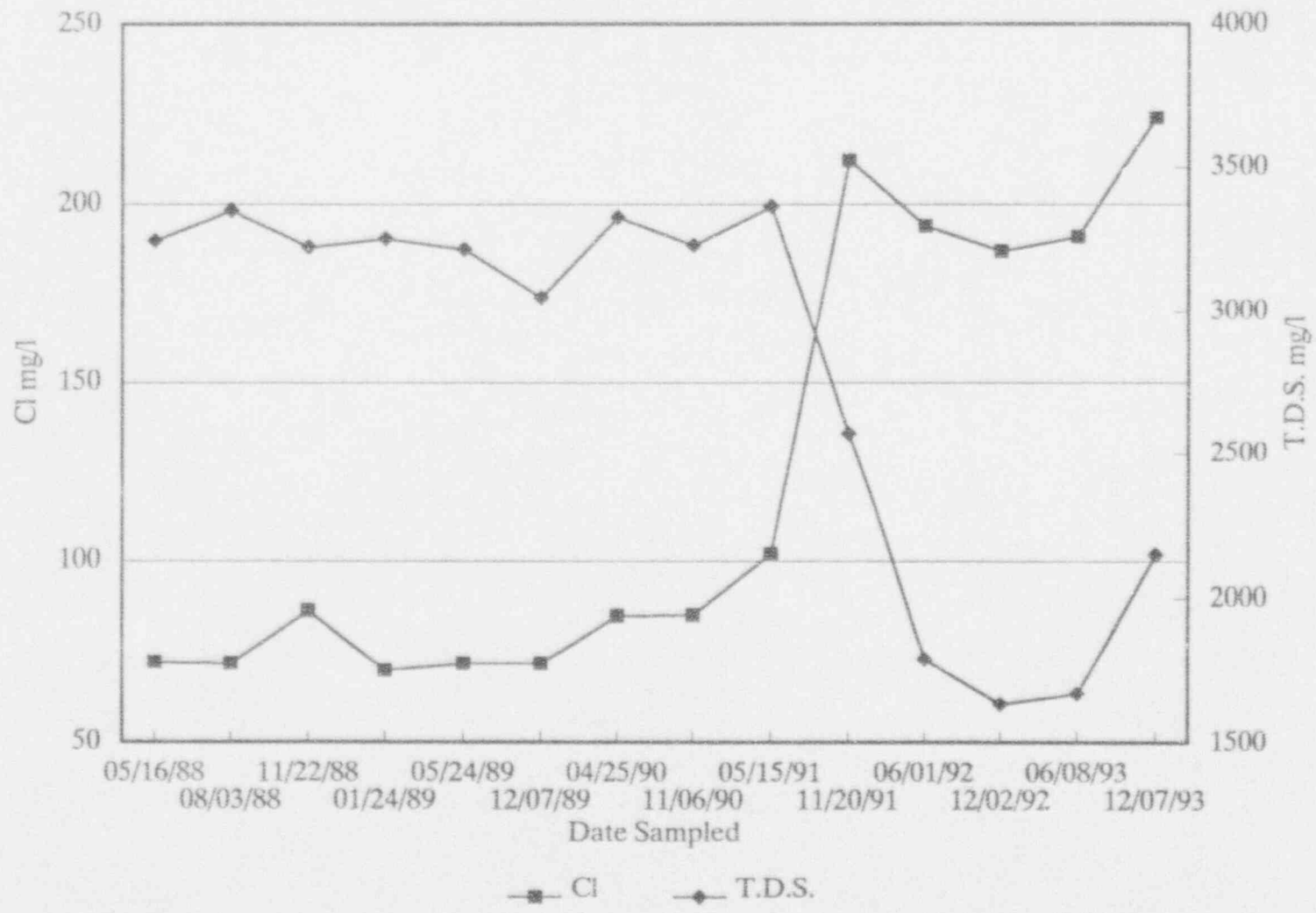
GROUND WATER ANALYSES FOR M. W. 7

Date Sampled	06/01/92	12/02/92	06/08/93	12/07/93
UNat pCi/l	1505.00	16.40	427.00	3114.00
UNat % M.P.C.	5.02	0.05	1.42	10.38
Ra226 pCi/l	80.30	31.70	21.60	41.30
Ra226 Error +/-	2.60	3.20	1.60	2.10
Ra226 % M.P.C.	267.67	105.67	72.00	137.67
Ra228 pCi/l	2.50	2.40	3.50	<1.0
Ra228 Error +/-	0.60	0.60	0.70	
Ra228 % M.P.C.	8.33	8.00	11.67	
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	3.60	<1.0	6.60	20.60
Pb210 Error +/-	0.70		0.50	4.20
Pb210 % M.P.C.	3.60		6.60	20.60
Gross Alpha - U & Rn pCi/l	82.90	31.50	23.30	42.30
Gross Alpha Error +/-	9.10	5.60	4.80	6.50
As mg/l	<0.01	<0.01	0.03	0.056
Se mg/l	0.012	0.013	<0.005	<0.001
Fe mg/l	11.30	0.40	2.10	24.06
Pb mg/l	<0.01			
Mo mg/l	0.03			
Al mg/l	0.41			
Be mg/l	0.03	<0.01	<0.01	<0.01
Ni mg/l	0.14	0.08	0.04	0.09
Ag mg/l	<0.01			
V mg/l	<0.01			
Cd mg/l	<0.005			
Cr mg/l	<0.01			
Ca mg/l	160.00	44.00	81.90	178.00
Mg mg/l	20.80	15.00	12.80	33.50
Na mg/l	350.00	473.00	414.00	467.00
K mg/l	7.84			
NH3 mg/l	2.80			
NO3 mg/l	<0.10	0.83	0.20	<0.10
SO4 mg/l	948.00	891.00	841.00	1097.00
Cl mg/l	194.00	187.00	191.00	224.00
TDS mg/l	1794.00	1634.00	1672.00	2148.00
pH	6.10	6.46	6.10	6.80
Water Elevation	6840.94	6897.59	6874.28	6846.01

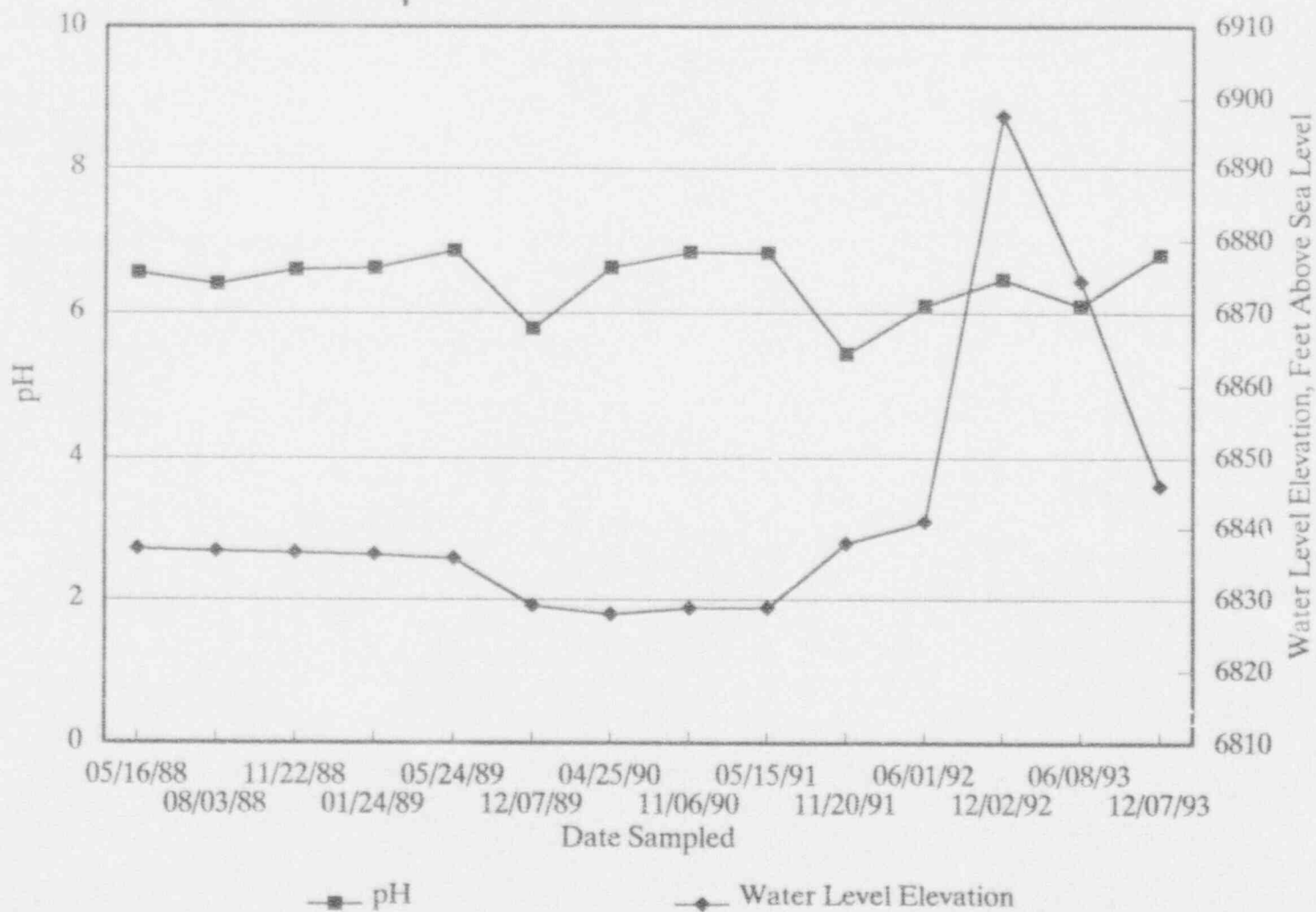
M.W. 7 U-Nat & Ra226 + Ra228



M.W. 7 Chloride & T.D.S.



M.W. 7 pH & Water Level Elevation



GROUND WATER ANALYSES FOR LA 2

Date Sampled	06/15/92	11/04/92	05/18/93	11/17/93
UNat pCi/l	105.00	244.00	80.70	101.40
UNat % M.P.C.	0.35	0.81	0.27	0.34
Ra226 pCi/l	10.40	14.20	10.60	10.70
Ra226 Error +/-	0.70	0.80	0.50	1.10
Ra226 % M.P.C.	34.67	47.33	35.33	35.67
Ra228 pCi/l	3.30	6.60	10.20	5.90
Ra228 Error +/-	0.80	0.60	0.50	0.50
Ra228 % M.P.C.	11.00	22.00	34.00	19.67
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	<1.0	1.50	<1.0
Pb210 Error +/-			0.70	
Pb210 % M.P.C.			1.50	
Gross Alpha pCi/l	10.80	14.90	12.30	19.50
Gross Alpha Error +/-	3.30	3.90	2.30	4.40
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	5.34	3.85	3.28	4.94
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.01		
Al mg/l	<0.10	0.13		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	<0.01	0.02	0.01	0.03
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	318.00	313.00	330.00	305.00
Mg mg/l	67.80	74.20	64.20	60.00
Na mg/l	60.40	55.40	59.10	52.70
K mg/l	18.00	18.10		
NH3 mg/l	0.31	0.17	<0.05	
NO3 mg/l	<0.01	<0.10	<0.10	0.19
SO4 mg/l	869.00	896.00	839.00	834.00
Cl mg/l	25.40	27.80	22.80	23.40
TDS mg/l	1618.00	1685.00	1667.00	1361.00
pH	6.83	6.94	6.74	7.04
Water Elevation	6895.39	6895.97	6897.58	6898.86

GROUND WATER ANALYSES FOR P. W. 1

Date Sampled	04/21/92	12/09/92	06/09/93	12/07/93
UNat pCi/l	10.00	39.90	62.20	94.80
UNat % M.P.C.	0.03	0.13	0.21	0.32
Ra226 pCi/l	20.90	26.10	24.10	26.40
Ra226 Error +/-	1.70	2.10	1.60	1.60
Ra226 % M.P.C.	69.67	87.00	80.33	88.00
Ra228 pCi/l	6.00	16.30	1.60	8.30
Ra228 Error +/-	0.50	0.80	0.90	0.40
Ra228 % M.P.C.	20.00	54.33	5.33	27.67
Th230 pCi/l	<1.0	<1.0	1.90	<1.0
Th230 Error +/-			0.20	
Th230 % M.P.C.			0.10	
Pb210 pCi/l	<1.0	1.80	1.70	1.40
Pb210 Error +/-		0.70	0.50	0.90
Pb210 % M.P.C.		1.80	1.70	1.40
Gross Alpha - U & Rn pCi/l	22.00	26.40	28.00	38.80
Gross Alpha Error +/-	4.70	5.10	2.00	6.20
As mg/l	<0.01	<0.01	<0.01	0.009
Se mg/l	<0.005	0.01	<0.005	<0.001
Fe mg/l	77.00	77.60	102.00	102.00
Pb mg/l	<0.01			
Mo mg/l	<0.01			
Al mg/l	<0.10			
Be mg/l	0.02	0.02	0.03	0.02
Ni mg/l	1.21	1.35	1.77	1.62
Ag mg/l	<0.01			
V mg/l	<0.01			
Cd mg/l	<0.005			
Cr mg/l	<0.01			
Ca mg/l	539.00	551.00	501.00	536.00
Mg mg/l	80.00	81.00	82.00	66.30
Na mg/l	67.30	63.90	58.00	55.20
K mg/l	14.20			
NH3 mg/l	0.47			
NO3 mg/l	<0.10	0.19	<0.10	<0.10
SO4 mg/l	1551.00	1836.00	1731.00	1805.00
Cl mg/l	55.50	55.40	62.70	49.40
TDS mg/l	2941.00	2903.00	2950.00	3063.00
pH	5.64	6.05	5.65	6.03
Water Elevation	6820.89	6820.96	6820.75	6821.29

GROUND WATER ANALYSES FOR P. W. 2

Date Sampled	06/02/92	12/08/92	06/09/93	12/07/93
UNat pCi/l	933.00	531.00	840.00	1129.00
UNat % M.P.C.	3.11	1.77	2.80	3.76
Ra226 pCi/l	23.80	42.70	36.20	42.50
Ra226 Error +/-	0.80	2.70	2.50	2.10
Ra226 % M.P.C.	79.33	142.33	120.67	141.67
Ra228 pCi/l	3.80	10.70	9.30	9.30
Ra228 Error +/-	0.80	0.50	0.80	0.50
Ra228 % M.P.C.	12.67	35.67	31.00	31.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	4.90	<1.0	<1.0	4.80
Pb210 Error +/-	0.70			1.00
Pb210 % M.P.C.	4.90			4.80
Gross Alpha -- U & Rn pCi/l	25.10	44.10	37.00	56.40
Gross Alpha Error +/-	5.00	6.60	2.60	7.50
As mg/l	0.02	0.02	0.02	0.009
Se mg/l	<0.005	0.009	<0.005	0.004
Fe mg/l	28.51	26.00	32.10	28.69
Pb mg/l	<0.01			
Mo mg/l	<0.01			
Al mg/l	0.12			
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.44	0.54	0.50	0.48
Ag mg/l	<0.01			
V mg/l	<0.01			
Cd mg/l	<0.005			
Cr mg/l	<0.01			
Ca mg/l	653.00	638.00	661.00	639.00
Mg mg/l	54.20	48.70	48.00	40.50
Na mg/l	29.00	27.50	35.70	37.80
K mg/l	18.60			
NH3 mg/l	0.20			
NO3 mg/l	<0.10	<0.10	<0.10	<0.10
SO4 mg/l	1369.00	1383.00	1401.00	1427.00
Cl mg/l	103.00	99.70	109.00	107.00
TDS mg/l	2654.00	2560.00	2805.00	2890.00
pH	6.53	6.72	6.11	6.55
Water Elevation	6805.64	6805.23	6804.15	6804.34

GROUND WATER ANALYSES FOR P.W. 3

Date Sampled	05/12/92	10/20/92	06/15/93	12/13/93
UNat pCi/l	287.00	243.00	235.00	216.90
UNat % M.P.C.	0.96	0.81	0.78	0.72
Ra226 pCi/l	16.10	7.70	15.50	107.00
Ra226 Error +/-	1.00	0.50	1.20	5.30
Ra226 % M.P.C.	53.67	25.67	51.67	356.67
Ra228 pCi/l	4.10	8.40	9.60	7.10
Ra228 Error +/-	1.10	2.80	2.30	0.50
Ra228 % M.P.C.	13.67	28.00	32.00	23.67
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	<1.0	<1.0	1.90
Pb210 Error +/-				0.90
Pb210 % M.P.C.				1.90
Gross Alpha - U & Rn pCi/l	16.50	8.00	20.00	118.00
Gross Alpha Error +/-	4.10	2.80	4.50	10.90
As mg/l	0.07	0.01	0.05	0.054
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	48.30	52.30	40.50	40.44
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.01		
Al mg/l	0.13	0.49		
Be mg/l	<0.01	0.01	<0.01	<0.01
Ni mg/l	0.43	0.48	0.49	0.42
Ag mg/l	<0.01	0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	355.00	366.00	373.00	343.00
Mg mg/l	44.30	39.00	39.20	37.80
Na mg/l	14.60	13.90	15.50	14.10
K mg/l	9.74	10.30		
NH3 mg/l	0.59	0.19		
NO3 mg/l	<0.10	<0.10	<0.01	<0.10
SO4 mg/l	978.00	956.00	1047.00	882.00
Cl mg/l	18.40	22.70	22.50	17.00
TDS mg/l	1630.00	1484.00	1622.00	1597.00
pH	6.46	6.68	5.88	6.72
WATER ELEVATION	6798.19	6797.94	6796.10	6797.52

GROUND WATER ANALYSES FOR P.W. 4

Date Sampled	05/20/92	10/20/92	06/15/93	12/13/93
UNat pCi/l	289.00	291.00	227.00	99.40
UNat % M.P.C.	0.96	0.97	0.76	0.33
Ra226 pCi/l	43.40	33.60	82.80	102.00
Ra226 Error +/-	2.60	1.10	3.60	3.50
Ra226 % M.P.C.	144.67	112.00	276.00	340.00
Ra228 pCi/l	13.80	2.00	13.30	<1.0
Ra228 Error +/-	0.80	0.60	4.40	
Ra228 % M.P.C.	46.00	6.67	44.33	
Th230 pCi/l	<1.0	35.60	<1.0	<1.0
Th230 Error +/-		5.90		
Th230 % M.P.C.		1.78		
Pb210 pCi/l	1.20	<1.0	6.20	5.10
Pb210 Error +/-	0.60		1.00	1.00
Pb210 % M.P.C.	1.20		6.20	5.10
Gross Alpha - U & Rn pCi/l	42.80	70.00	89.30	103.00
Gross Alpha Error +/-	6.50	8.40	9.50	10.00
As mg/l	0.06	0.02	0.10	0.05
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	46.80	58.10	66.00	42.98
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	2.30	2.83		
Be mg/l	0.02	0.02	0.02	0.01
Ni mg/l	0.50	0.59	0.75	0.50
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	239.00	282.00	279.00	244.00
Mg mg/l	44.30	43.50	39.80	36.70
Na mg/l	39.50	30.20	35.10	30.70
K mg/l	16.80	13.20		
NH3 mg/l	0.23	0.08		
NO3 mg/l	0.15	<0.10	<0.01	<0.10
SO4 mg/l	821.00	972.00	1043.00	792.00
Cl mg/l	44.30	50.80	54.50	48.90
TDS mg/l	1446.00	1387.00	1559.00	1427.00
pH	5.23	5.40	5.02	5.65
Water Elevation	6797.03	6795.21	6792.93	6795.78

GROUND WATER ANALYSES FOR G. W. 1

Date Sampled	06/01/92	12/08/92	06/28/93	12/14/93
UNat pCi/l	107.00	77.90	63.90	72.20
UNat % M.P.C.	0.36	0.26	0.21	0.24
Ra226 pCi/l	30.90	27.50	22.60	37.80
Ra226 Error +/-	2.20	0.80	1.40	2.20
Ra226 % M.P.C.	103.00	91.67	75.33	126.00
Ra228 pCi/l	10.60	3.50	6.00	3.70
Ra228 Error +/-	0.50	0.40	2.30	0.30
Ra228 % M.P.C.	35.33	11.67	20.00	12.33
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	1.30	4.20	<1.0	<1.0
Pb210 Error +/-	0.70	0.90		
Pb210 % M.P.C.	1.30	4.20		
Gross Alpha - U & m pCi/l	31.50	28.50	25.60	43.30
Gross Alpha Error +/-	5.60	5.30	5.10	6.60
As mg/l	0.25	0.24	0.22	0.347
Se mg/l	<0.005	0.029	<0.005	<0.001
Fe mg/l	20.80	23.50	22.10	24.18
Pb mg/l	<0.01			
Mo mg/l	0.18			
Al mg/l	<0.10			
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	1.23	0.29	0.41	0.41
Ag mg/l	<0.01			
V mg/l	<0.01			
Cd mg/l	0.008			
Cr mg/l	<0.01			
Ca mg/l	551.00	552.00	601.00	524.00
Mg mg/l	75.40	67.80	79.70	66.60
Na mg/l	22.30	24.10	28.90	24.30
K mg/l	13.30			
NH3 mg/l	0.35			
NO3 mg/l	<0.10	<0.10	<0.10	<0.10
SO4 mg/l	1504.00	1579.00	1513.00	1384.00
Cl mg/l	29.00	26.90	26.10	20.50
TDS mg/l	2611.00	2532.00	2623.00	2391.00
pH	6.63	6.67	6.16	7.17
Water Elevation	6810.27	6810.25	6810.03	6810.49

GROUND WATER ANALYSES FOR G. W. 2

Date Sampled	06/01/92	12/08/92	06/28/93	12/14/93
UNat pCi/l	344.00	37.70	78.70	72.70
UNat % M.P.C.	1.15	0.13	0.26	0.24
Ra226 pCi/l	26.20	34.60	29.40	42.50
Ra226 Error +/-	2.10	1.80	1.60	2.30
Ra226 % M.P.C.	87.33	115.33	98.00	141.67
Ra228 pCi/l	3.50	2.70	7.10	3.10
Ra228 Error +/-	0.40	0.50	2.60	0.30
Ra228 % M.P.C.	11.67	9.00	23.67	10.33
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	1.30	<1.0	<1.0	1.30
Pb210 Error +/-	0.70			0.90
Pb210 % M.P.C.	1.30			1.30
Gross Alpha- U & Rn pCi/l	26.50	35.20	36.50	47.10
Gross Alpha Error +/-	5.10	5.90	6.10	6.90
As mg/l	0.21	0.33	0.22	0.171
Se mg/l	<0.005	0.028	<0.005	<0.001
Fe mg/l	4.81	18.90	11.40	16.72
Pb mg/l	<0.01			
Mo mg/l	0.10			
Al mg/l	<0.10			
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	3.22	1.04	1.92	1.01
Ag mg/l	<0.01			
V mg/l	<0.01			
Cd mg/l	<0.005			
Cr mg/l	<0.01			
Ca mg/l	461.00	471.00	541.00	519.00
Mg mg/l	48.90	45.00	48.40	45.00
Na mg/l	13.30	12.50	16.00	12.60
K mg/l	17.10			
NH3 mg/l	0.25			
NO3 mg/l	<0.10	<0.10	<0.10	<0.10
SO4 mg/l	1162.00	1204.00	1265.00	1274.00
Cl mg/l	17.10	17.00	19.10	20.00
TDS mg/l	2043.00	2118.00	2272.00	2237.00
pH	6.68	6.79	6.36	7.29
Water Elevation	6799.66	6799.04	6797.55	6798.78

GROUND WATER ANALYSES FOR G. W. 4

Date Sampled	05/13/92	10/29/92	06/15/93	12/06/93
UNat pCi/l	93.40	110.00	97.70	63.00
UNat % M.P.C.	0.31	0.37	0.33	0.21
Ra226 pCi/l	3.60	29.20	37.20	31.00
Ra226 Error +/-	1.90	1.20	1.80	1.20
Ra226 % M.P.C.	12.00	97.33	124.00	103.33
Ra228 pCi/l	7.10	4.50	7.70	1.90
Ra228 Error +/-	0.70	0.80	1.80	1.20
Ra228 % M.P.C.	23.67	15.00	25.67	6.33
Th230 pCi/l	<0.2	<0.2	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	1.10	2.00	1.70
Pb210 Error +/-		0.90	0.90	0.90
Pb210 % M.P.C.		1.10	2.00	1.70
Gross Alpha - U & Rn pCi/l	33.10	4.90	41.00	33.80
Gross Alpha Error +/-	5.80	2.20	6.40	5.80
As mg/l	<0.10	<0.01	<0.01	<0.001
Se mg/l	<0.005	0.005	<0.005	<0.001
Fe mg/l	14.40	8.54	10.30	17.10
Pb mg/l	<0.01	<0.01		
Mo mg/l	0.02	<0.01		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	
Ni mg/l	0.03	0.01	0.01	0.06
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	389.00	379.00	395.00	354.00
Mg mg/l	62.70	51.90	51.70	46.90
Na mg/l	27.90	27.20	30.90	26.80
K mg/l	11.70	14.20		
NH3 mg/l	0.52	0.38		
NO3 mg/l	<0.10	<0.10	<0.01	<0.10
SO4 mg/l	924.00	849.00	921.00	812.00
Cl mg/l	57.20	55.40	51.90	48.40
TDS mg/l	1832.00	1216.00	1716.00	1694.00
pH	6.50	7.16	6.02	6.75
Water Elevation	6797.67	6796.24	6794.32	6794.25

GROUND WATER ANALYSES FOR G. W. 5

Date Sampled	06/01/92	12/08/92	06/28/93	12/14/93
UNat pCi/l	1866.00	1022.00	886.00	917.00
UNat % M.P.C.	6.22	3.41	2.95	3.06
Ra226 pCi/l	7.50	5.30	4.50	4.20
Ra226 Error +/-	0.60	0.40	0.70	0.40
Ra226 % M.P.C.	25.00	17.67	15.00	14.00
Ra228 pCi/l	2.80	7.20	1.50	<1.0
Ra228 Error +/-	0.50	0.40	0.80	
Ra228 % M.P.C.	9.33	24.00	5.00	
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	16.00	<1.0	2.10	<1.0
Pb210 Error +/-	0.90		0.70	
Pb210 % M.P.C.	16.00		2.10	
Gross Alpha - U & Rn pCi/l	7.90	5.70	<5.0	6.70
Gross Alpha Error +/-	2.80	2.40		2.60
As mg/l	<0.01	<0.01	<0.01	0.004
Se mg/l	0.02	0.057	0.013	0.006
Fe mg/l	0.28	1.64	0.25	0.07
Pb mg/l	<0.01			
Mo mg/l	<0.01			
Al mg/l	<0.10			
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.02	0.07	0.02	0.03
Ag mg/l	<0.01			
V mg/l	<0.01			
Cd mg/l	<0.005			
Cr mg/l	<0.01			
Ca mg/l	548.00	596.00	573.00	534.00
Mg mg/l	105.00	91.40	75.90	73.10
Na mg/l	182.00	205.00	186.00	164.00
K mg/l	26.90			
NH3 mg/l	0.28			
NO3 mg/l	<0.10	<0.10	<0.10	<0.10
SO4 mg/l	1358.00	1381.00	1253.00	1128.00
Cl mg/l	467.00	478.00	379.00	371.00
TDS mg/l	3292.00	3168.00	2975.00	2904.00
pH	6.85	6.88	6.14	7.12
Water Elevation	6807.51	6807.38	6804.95	6804.98

GROUND WATER ANALYSES FOR G. W. 6

Date Sampled	06/01/92	12/09/92	06/23/93	12/14/93
UNat pCi/l	17.90	32.80	22.50	11.80
UNat % M.P.C.	0.06	0.11	0.08	0.04
Ra226 pCi/l	16.00	24.80	17.10	23.00
Ra226 Error +/-	0.90	2.60	1.20	1.70
Ra226 % M.P.C.	53.33	82.67	57.00	76.67
Ra228 pCi/l	6.90	10.60	<1.0	1.50
Ra228 Error +/-	0.60	0.60		0.50
Ra228 % M.P.C.	23.00	35.33		5.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	3.20	3.60	<1.0	1.60
Pb210 Error +/-	0.70	0.70		0.90
Pb210 % M.P.C.	3.20	3.60		1.60
Gross Alpha - U & Rn pCi/l	15.80	25.50	18.10	25.20
Gross Alpha Error +/-	3.90	5.10	4.30	5.00
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	<0.005	0.02	<0.005	<0.001
Fe mg/l	0.94	0.37	0.59	1.02
Pb mg/l	<0.01			
Mo mg/l	0.03			
Al mg/l	<0.10			
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	<0.01	0.02	0.02	<0.01
Ag mg/l	<0.01			
V mg/l	<0.01			
Cd mg/l	<0.005			
Cr mg/l	<0.01			
Ca mg/l	255.00	246.00	269.00	259.00
Mg mg/l	51.60	49.80	58.80	46.90
Na mg/l	63.70	70.30	67.10	59.80
K mg/l	16.70			
NH3 mg/l	0.25			
NO3 mg/l	<0.10	<0.10	<0.01	<0.10
SO4 mg/l	653.00	664.00	781.00	700.00
Cl mg/l	39.10	43.00	49.50	49.70
TDS mg/l	1306.00	1319.00	1469.00	1423.00
pH	6.83	6.88	6.13	7.19
Water Elevation	6808.97	6806.75	6806.92	6806.54

GROUND WATER ANALYSES FOR G.W. 7

Date Sampled	05/12/92	10/20/92	06/15/93	12/13/93
UNat pCi/l	2003.00	1051.00	2373.00	2572.00
UNat % M.P.C.	6.68	3.50	7.91	8.57
Ra226 pCi/l	105.00	69.20	117.00	75.60
Ra226 Error +/-	3.60	2.90	3.30	3.10
Ra226 % M.P.C.	350.00	230.67	390.00	252.00
Ra228 pCi/l	7.10	2.00	6.00	<1.0
Ra228 Error +/-	0.90	0.50	1.90	
Ra228 % M.P.C.	23.67	6.67	20.00	
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	7.00	5.80	7.90	6.00
Pb210 Error +/-	0.70	0.80	1.00	1.00
Pb210 % M.P.C.	7.00	5.80	7.90	6.00
Gross Alpha - U & Rn pCi/l	109.00	70.00	126.00	76.60
Gross Alpha Error +/-	10.50	8.40	11.20	8.70
As mg/l	0.02	<0.01	0.02	0.024
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	21.50	19.90	20.70	38.48
Pb mg/l	<0.01	<0.01		
Mo mg/l	0.01	0.02		
Al mg/l	0.20	0.84		
Be mg/l	0.02	0.03	0.03	0.01
Ni mg/l	0.41	0.44	0.55	0.45
Ag mg/l	<0.01	0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	271.00	288.00	289.00	239.00
Mg mg/l	50.20	49.10	46.70	35.80
Na mg/l	20.80	52.00	27.40	16.40
K mg/l	11.40	13.20		
NH3 mg/l	<0.05	0.25		
NO3 mg/l	<0.10	<0.10	<0.01	<0.10
SO4 mg/l	852.00	877.00	950.00	741.00
Cl mg/l	91.50	114.00	66.80	23.70
TDS mg/l	1380.00	1476.00	1099.00	1320.00
pH	5.86	5.71	5.35	6.08
Water Elevation	6797.23	6795.48	6793.05	6797.15

GROUND WATER ANALYSES FOR G. W. 8

Date Sampled	05/12/92	10/20/92	06/15/93	12/13/93
UNat pCi/l	1486.00	2812.00	1901.00	2826.00
UNat % M.P.C.	4.95	9.37	6.34	9.42
Ra226 pCi/l	77.10	46.80	84.60	120.00
Ra226 Error +/-	3.10	2.50	2.80	4.00
Ra226 % M.P.C.	257.00	156.00	282.00	400.00
Ra228 pCi/l	2.20	<1.0	4.10	4.50
Ra228 Error +/-	0.90		2.00	0.50
Ra228 % M.P.C.	7.33		13.67	15.00
Th230 pCi/l	24.90	46.90	6.00	2.80
Th230 Error +/-	2.00	0.90	0.50	0.30
Th230 % M.P.C.	1.25	2.35	0.30	0.14
Pb210 pCi/l	<1.0	14.80	12.50	11.30
Pb210 Error +/-		0.90	1.10	1.10
Pb210 % M.P.C.		14.80	12.50	11.30
Gross Alpha - U & Rn pCi/l	78.40	94.00	87.00	129.00
Gross Alpha Error +/-	8.90	9.70	9.30	11.40
As mg/l	0.02	<0.01	0.01	0.015
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	47.30	57.90	46.70	52.19
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	4.18	7.82		
Be mg/l	0.03	0.04	0.04	0.02
Ni mg/l	0.69	0.85	0.76	0.68
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	0.007	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	231.00	257.00	251.00	201.00
Mg mg/l	44.20	46.00	39.40	36.20
Na mg/l	17.20	18.80	19.20	16.90
K mg/l	11.70	13.00		
NH3 mg/l	<0.05	0.08		
NO3 mg/l	<0.10	1.37	<0.01	<0.10
SO4 mg/l	846.00	1010.00	954.00	735.00
Cl mg/l	3.10	26.70	31.30	31.60
TDS mg/l	1402.00	1354.00	1412.00	1316.00
pH	5.03	4.95	4.79	5.07
Water Elevation	6796.51	6795.18	6792.74	6796.39

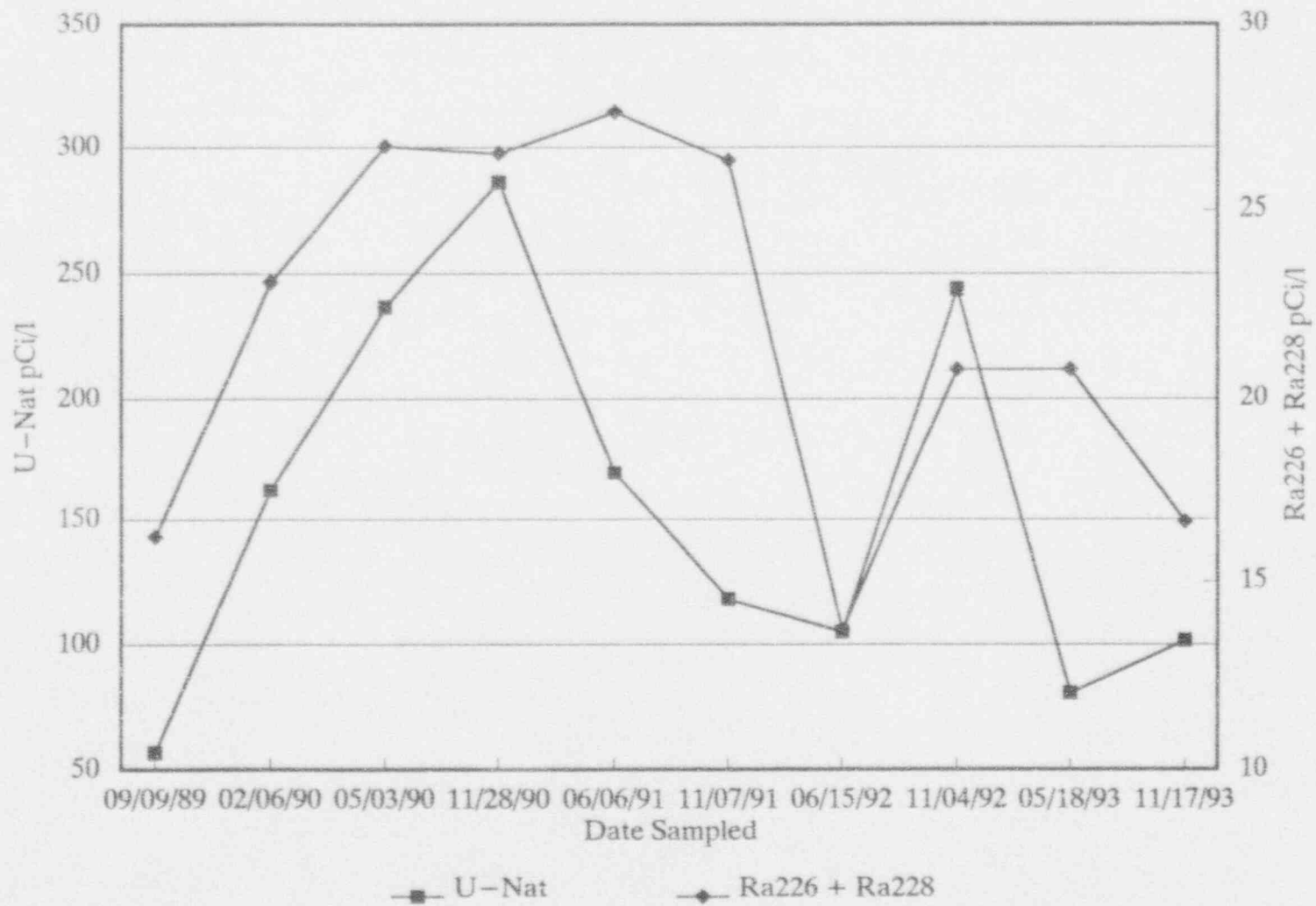
GROUND WATER ANALYSES FOR R. W. 2

Date Sampled	06/16/92	10/29/92	05/18/93	12/09/93
UNat pCi/l	172.00	131.00	670.00	364.00
UNat % M.P.C.	0.57	0.44	2.23	1.21
Ra226 pCi/l	21.60	22.40	16.00	15.20
Ra226 Error +/-	1.10	1.10	0.70	0.80
Ra226 % M.P.C.	72.00	74.67	53.33	50.67
Ra228 pCi/l	4.10	7.20	9.10	9.50
Ra228 Error +/-	1.00	0.80	0.50	0.40
Ra228 % M.P.C.	13.67	24.00	30.33	31.67
Th230 pCi/l	<1.0	<0.2	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	1.30	<1.0	<1.0
Pb210 Error +/-		0.90		
Pb210 % M.P.C.		1.30		
Gross Alpha - U & Rn pCi/l	23.40	22.50	17.80	29.40
Gross Alpha Error +/-	4.80	4.70	2.60	5.40
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	0.12	0.10	0.097	0.198
Fe mg/l	6.20	1.89	0.84	1.15
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.03		
Al mg/l	0.78	0.63		
Be mg/l	<0.01	0.01	<0.01	0.032
Ni mg/l	0.16	0.17	0.28	0.39
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	276.00	306.00	235.00	277.00
Mg mg/l	49.10	46.70	30.70	35.10
Na mg/l	33.60	27.30	63.00	42.60
K mg/l	25.90	24.50		
NH3 mg/l	0.33	0.07	<0.05	
NO3 mg/l	<0.01	<0.10	4.70	5.00
SO4 mg/l	813.00	952.00	854.00	856.00
Cl mg/l	23.40	40.20	22.40	17.00
TDS mg/l	1542.00	1788.00	1390.00	1447.00
pH	6.00	6.33	4.72	4.83
Water Elevation	6799.43	6799.02	5797.15	6798.03

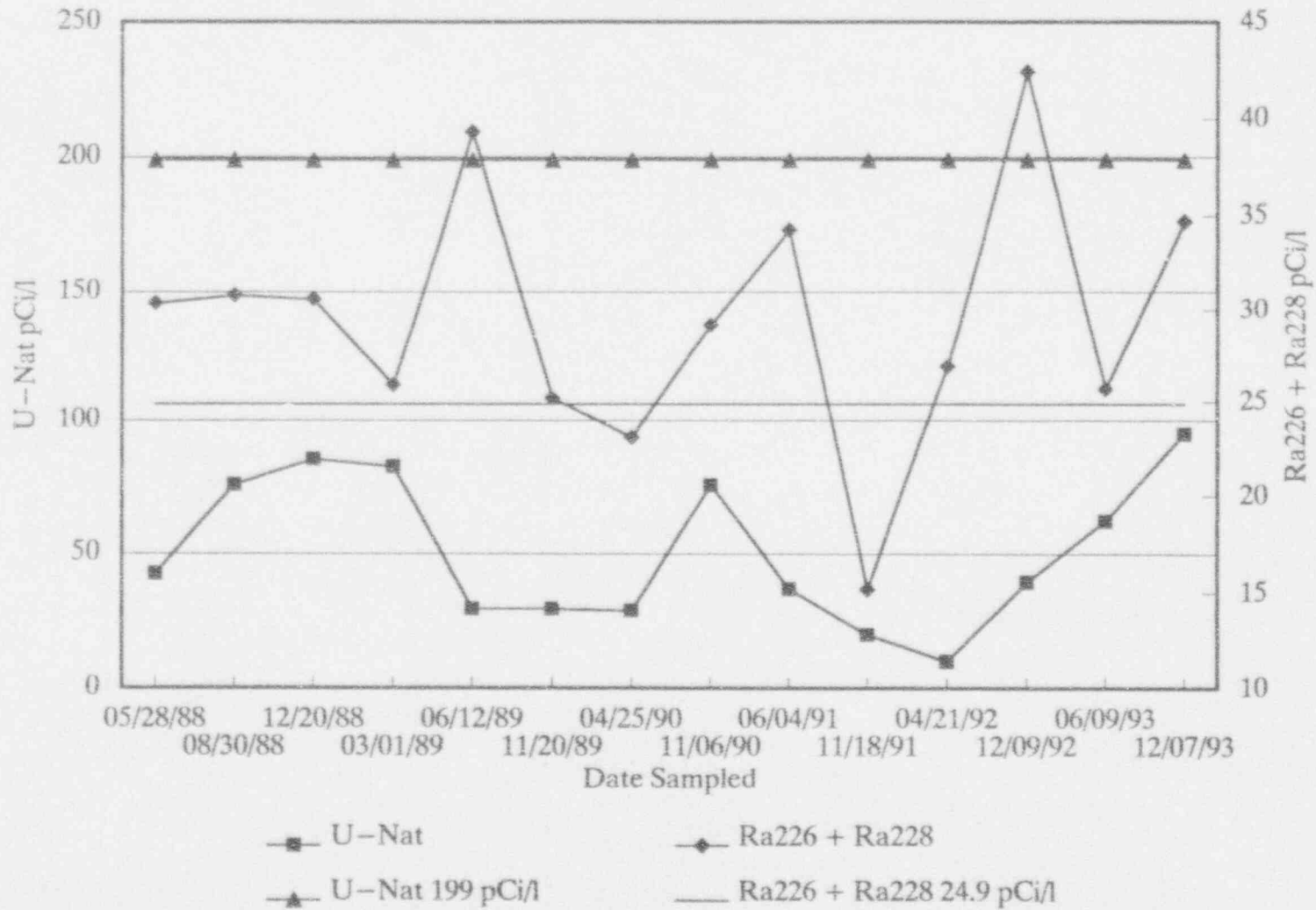
GROUNDWATER ANALYSES FOR P. W. 7

Date Sampled	05/13/92	11/04/92	05/18/93	11/17/93
UNat pCi/l	154.00	291.00	304.00	347.00
UNat % M.P.C.	0.51	0.97	1.01	1.16
Ra226 pCi/l	10.10	10.00	5.50	11.60
Ra226 Error +/-	0.50	0.60	0.40	1.20
Ra226 % M.P.C.	33.67	33.33	18.33	38.67
Ra228 pCi/l	9.60	<1.0	3.00	6.90
Ra228 Error +/-	0.60		0.50	0.50
Ra228 % M.P.C.	32.00		10.00	23.00
Th230 pCi/l	<0.2	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	4.70	1.50	1.40
Pb210 Error +/-		1.00	0.70	0.60
Pb210 % M.P.C.		4.70	1.50	1.40
Gross Alpha - U & Rn pCi/l	10.60	11.40	6.40	21.90
Gross Alpha Error +/-	3.30	3.40	1.90	4.70
As mg/l	0.356	0.070	0.180	0.539
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	19.82	20.30	45.20	62.20
Pb mg/l	<0.01	<0.01		
Mo mg/l	0.01	<0.01		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.07	0.07	0.06	0.13
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	242.00	215.00	242.00	256.00
Mg mg/l	34.00	30.20	37.10	37.20
Na mg/l	23.30	20.90	25.50	23.20
K mg/l	11.00	13.20		
NH3 mg/l	0.29	7.12	0.10	
NO3 mg/l	<0.10	<0.10	<0.10	0.19
SO4 mg/l	730.00	621.00	859.00	813.00
Cl mg/l	4.50	5.60	3.30	3.10
TDS mg/l	1138.00	1011.00	1240.00	1215.00
pH	6.68	6.97	6.26	7.03
Water Elevation	6828.57	6827.91	6830.79	6832.73

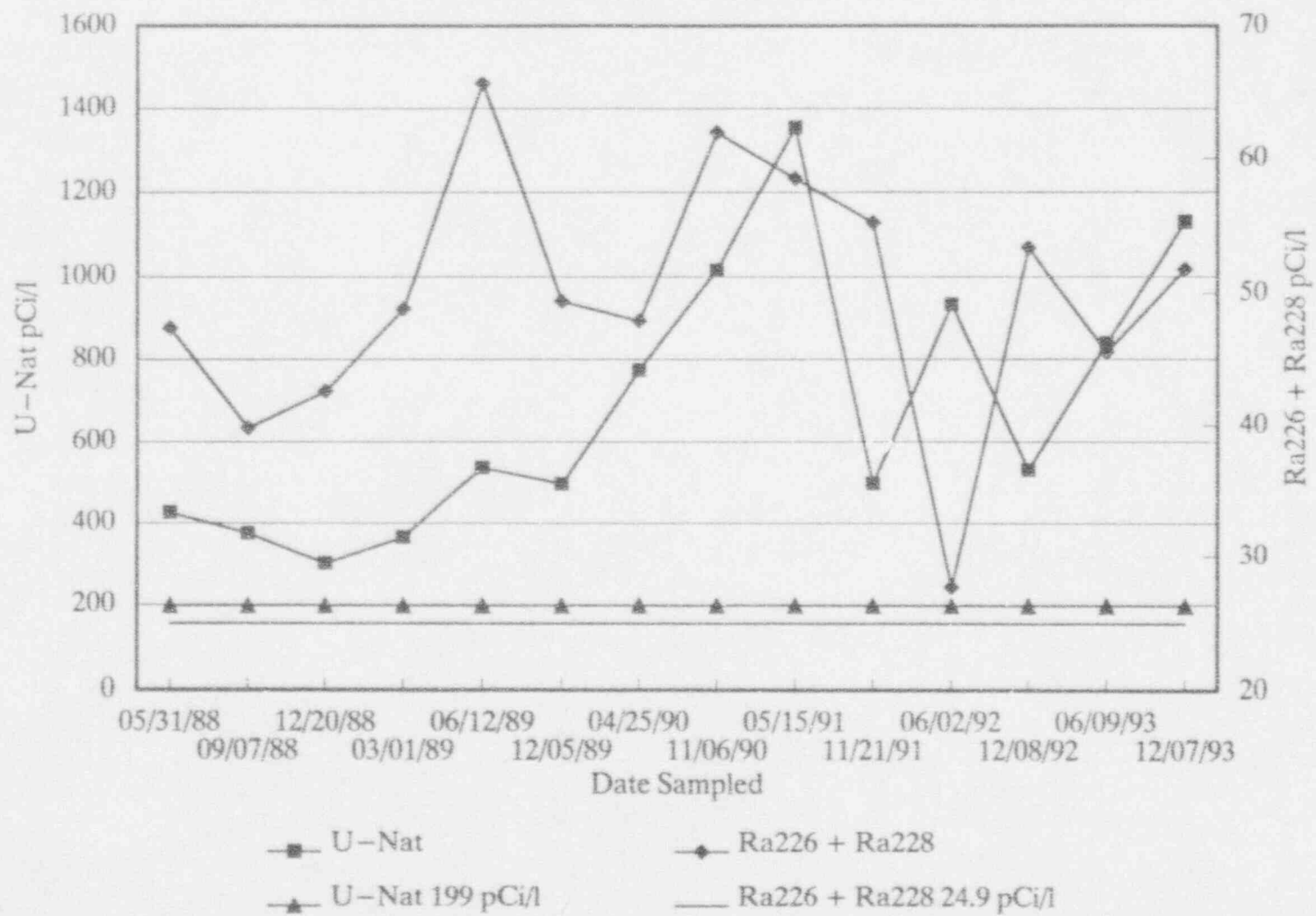
L.A. 2 U-Nat & Ra226 + Ra228



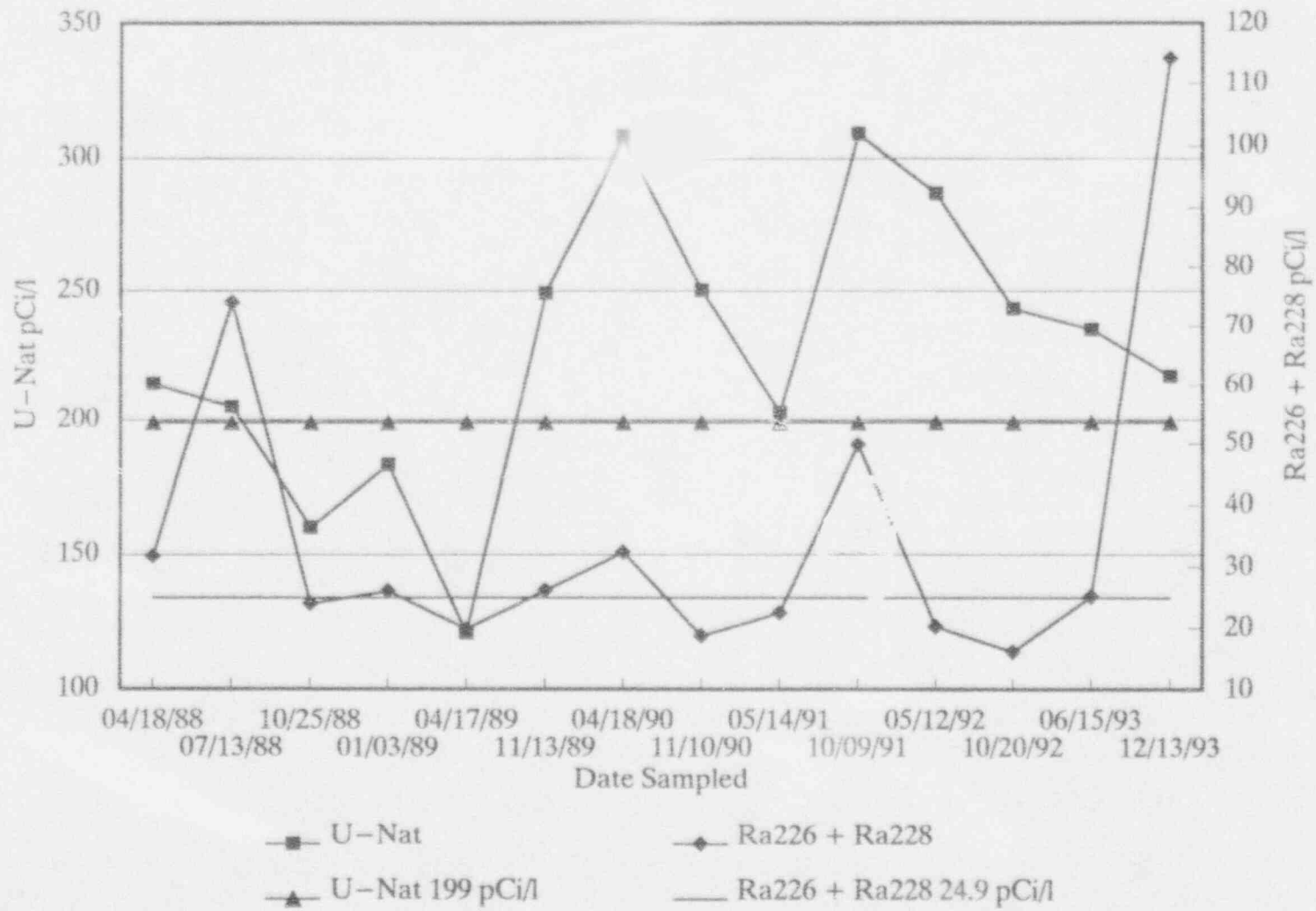
P.W. 1 U-Nat & Ra226 + Ra228



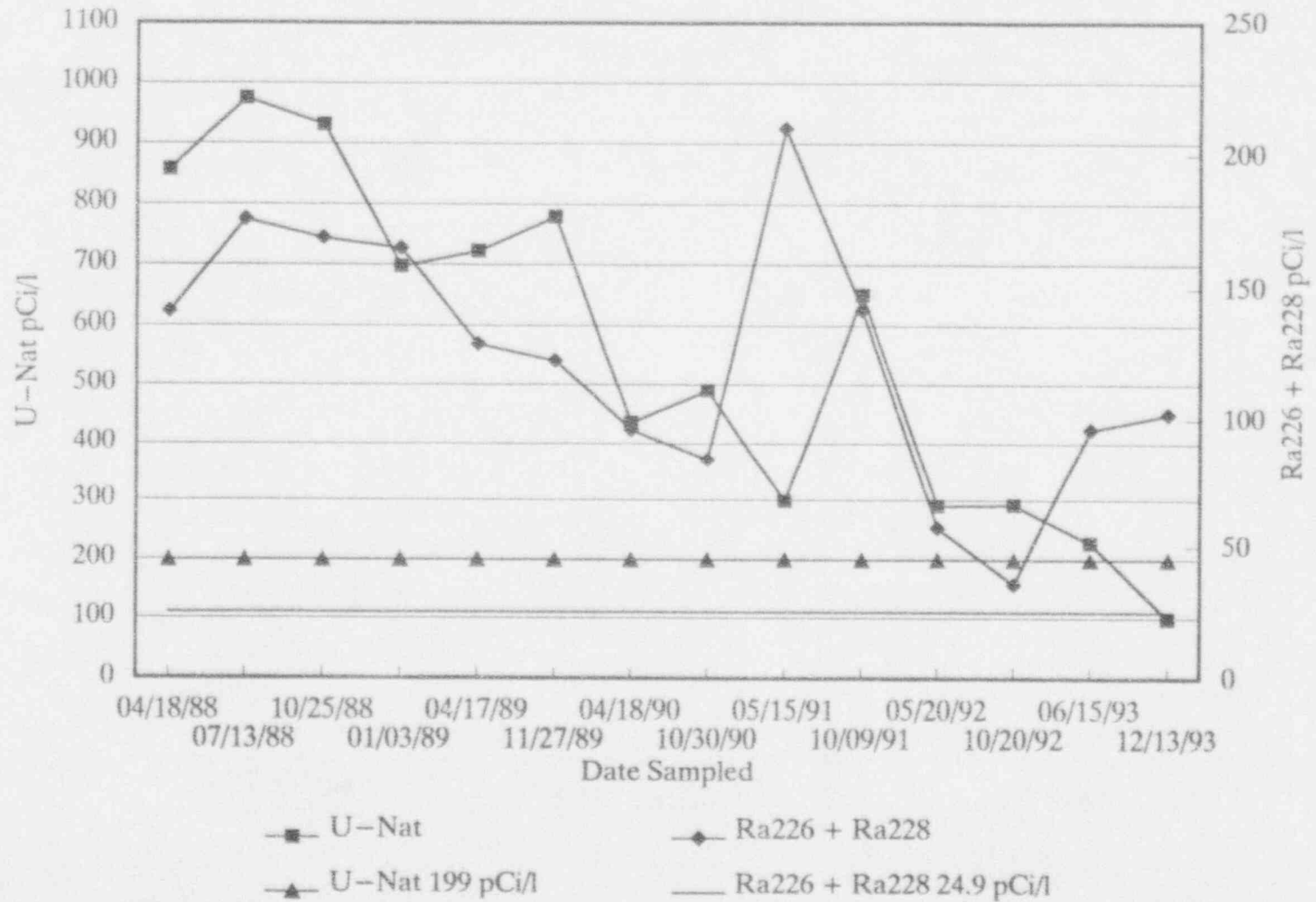
P.W. 2 U-Nat & Ra226 + Ra228



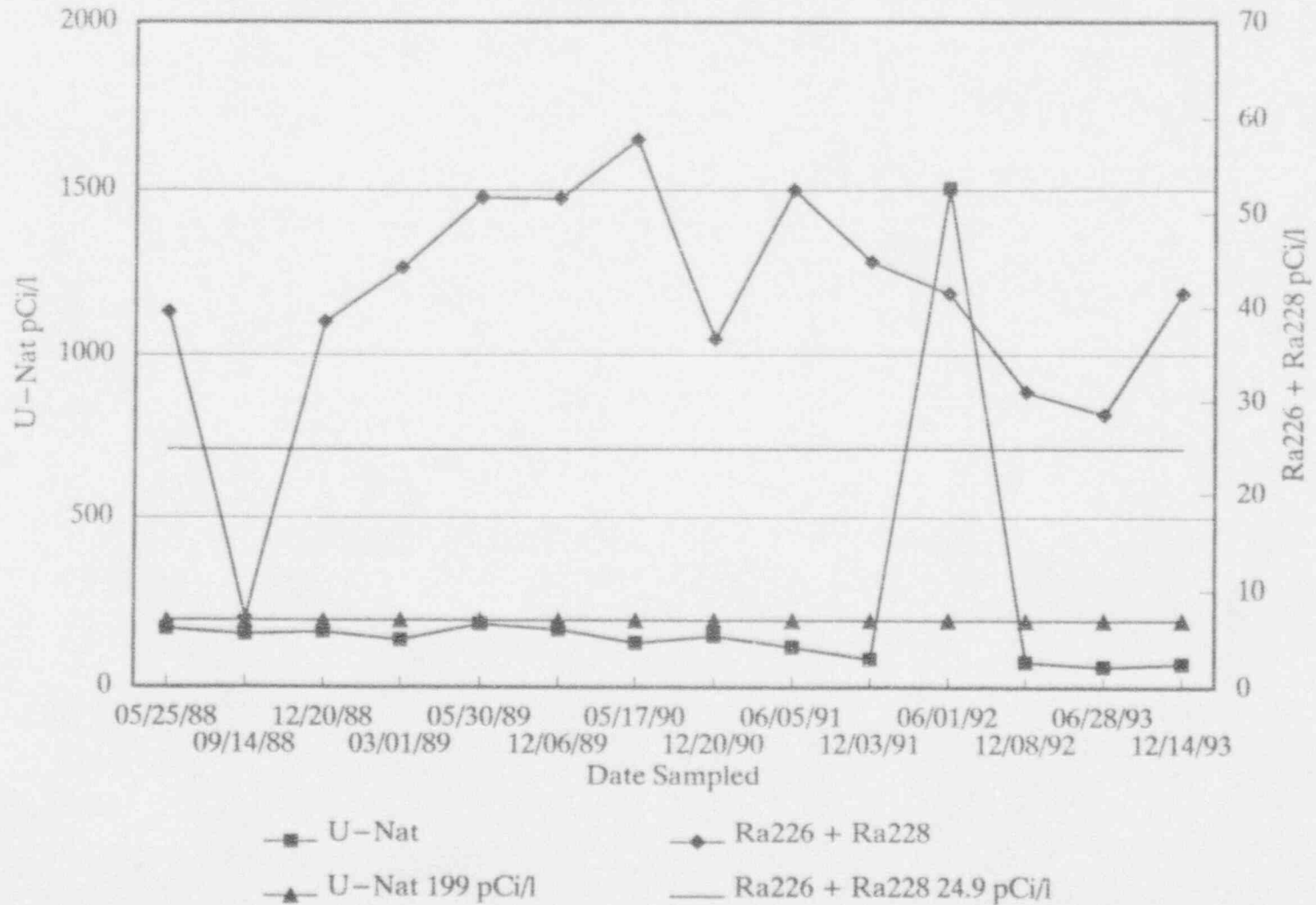
P.W. 3 U-Nat & Ra226 + Ra228



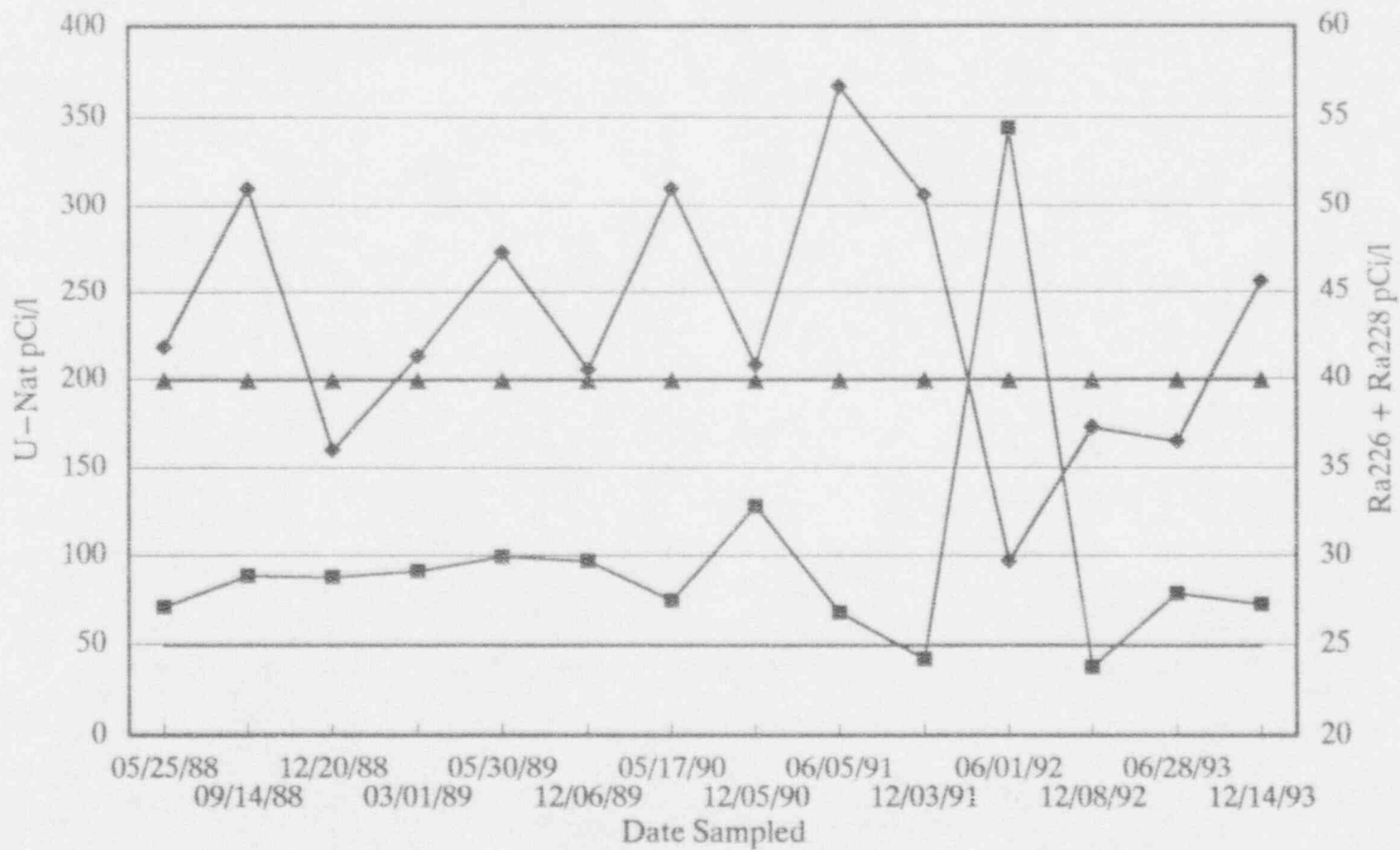
P.W. 4 U-Nat & Ra226 + Ra228



G.W. 1 U-Nat & Ra226 + Ra228



G.W. 2 U-Nat & Ra226 + Ra228



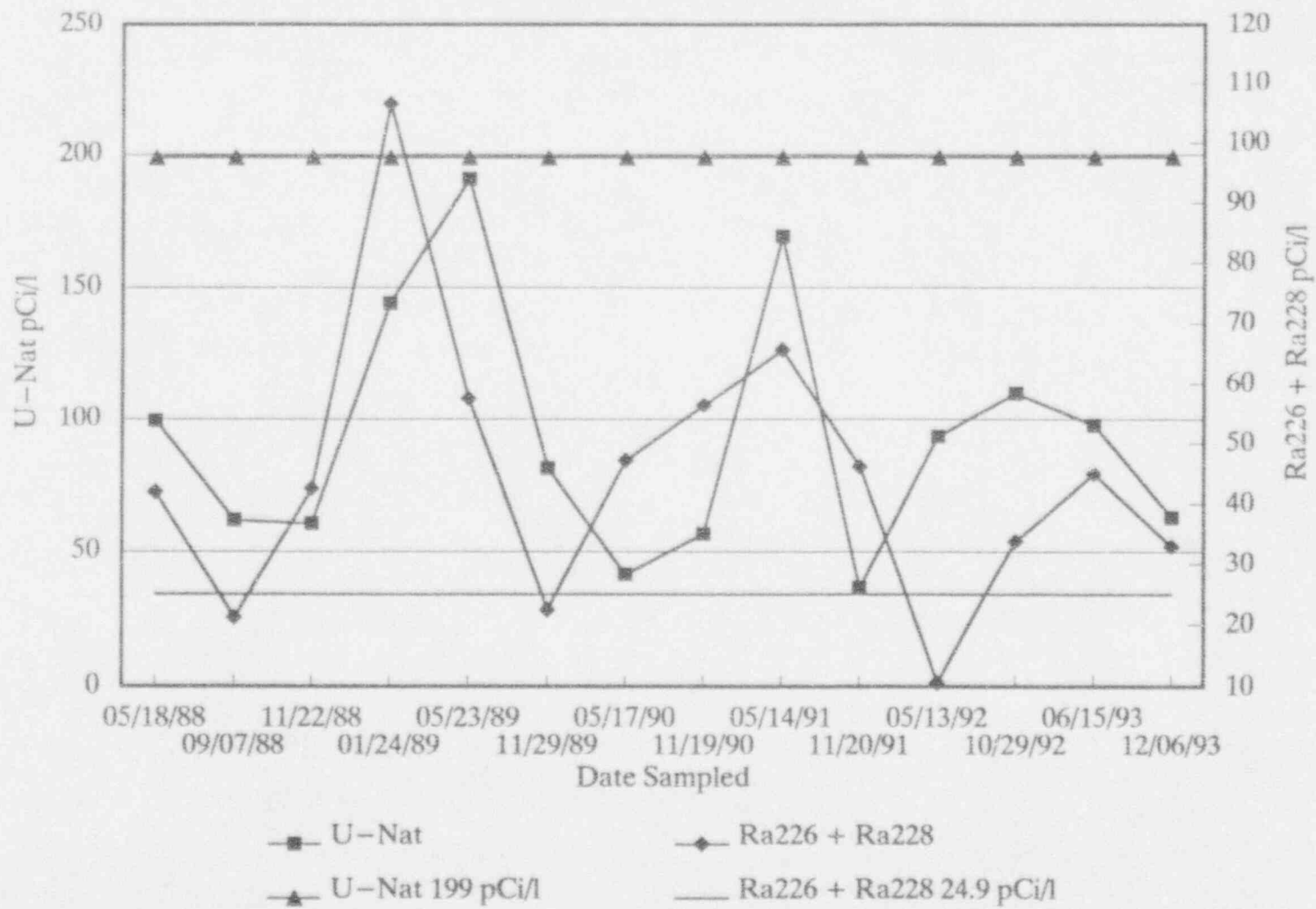
■ U-Nat

◆ Ra226 + Ra228

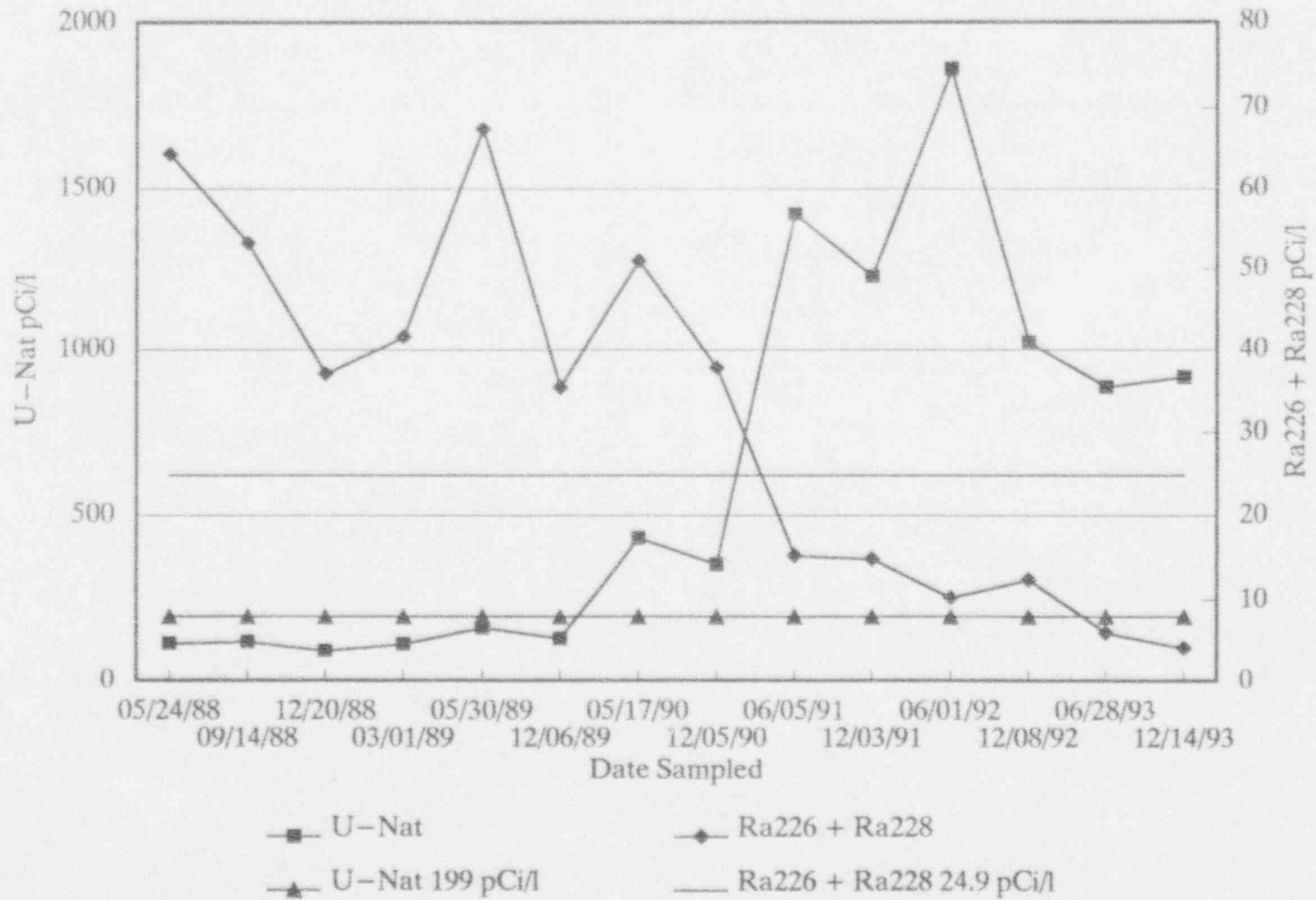
▲ U-Nat 199 pCi/l

— Ra226 + Ra228 24.9 pCi/l

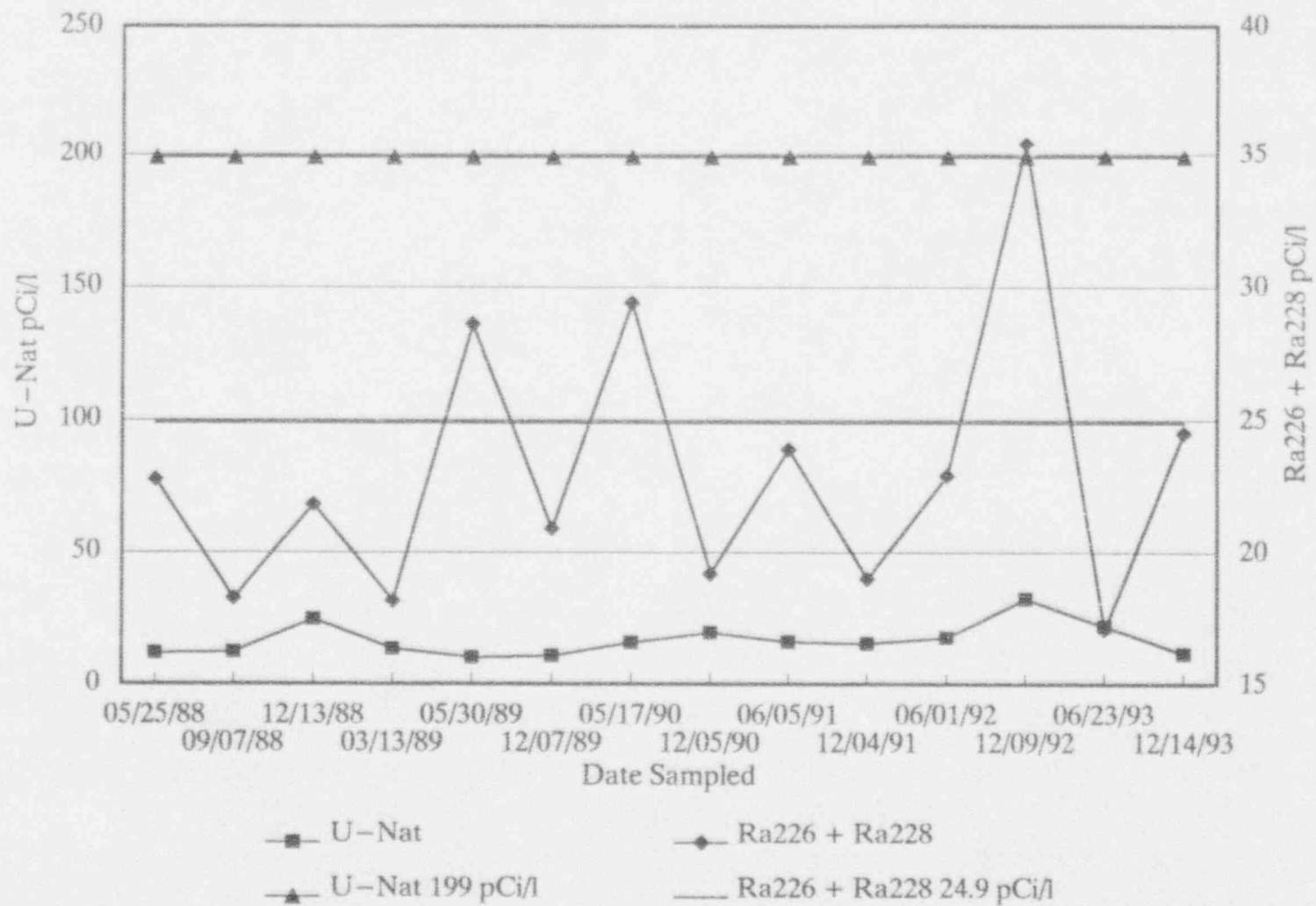
G.W. 4 U-Nat & Ra226 + Ra228



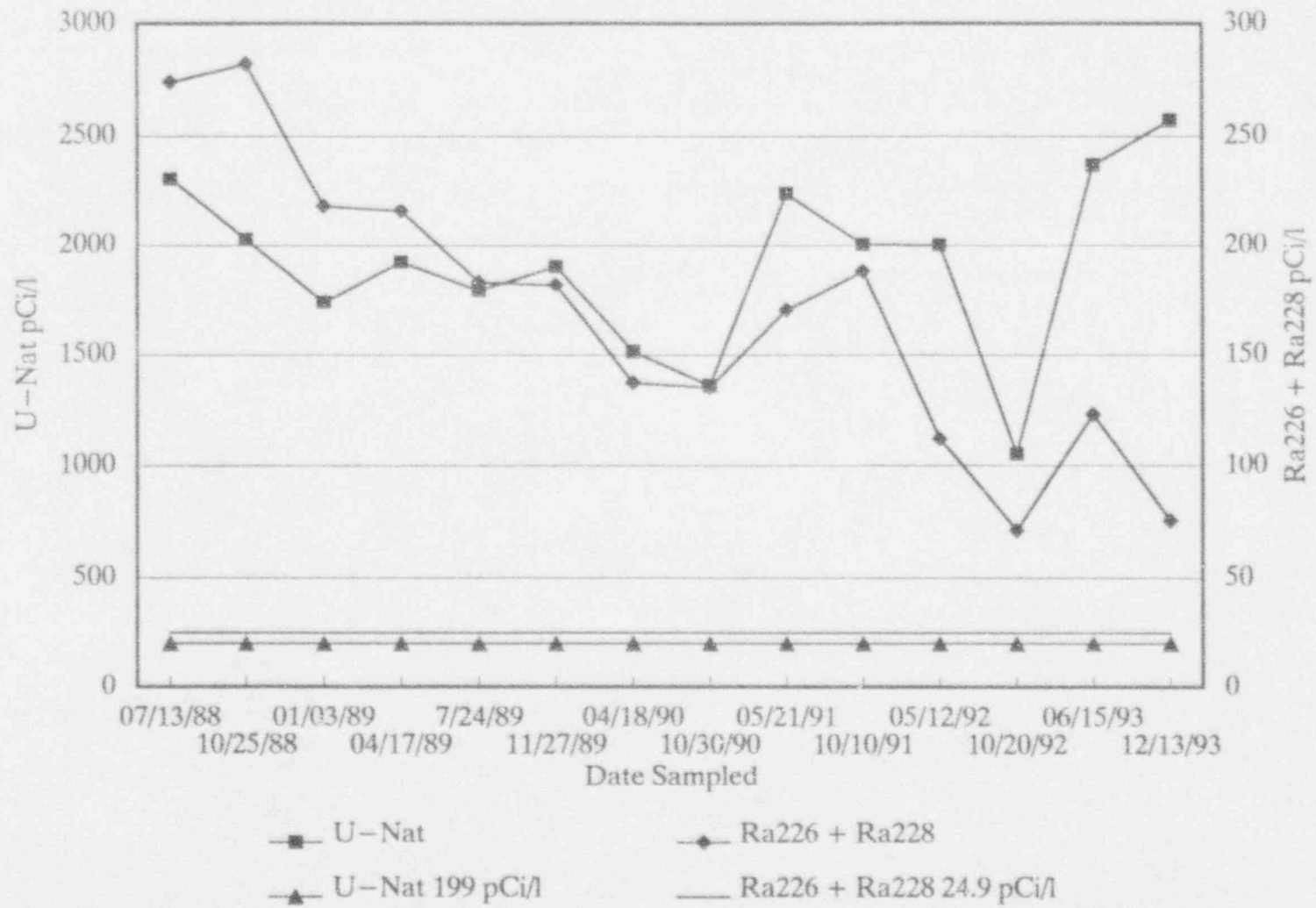
G.W. 5 U-Nat & Ra226 + Ra228



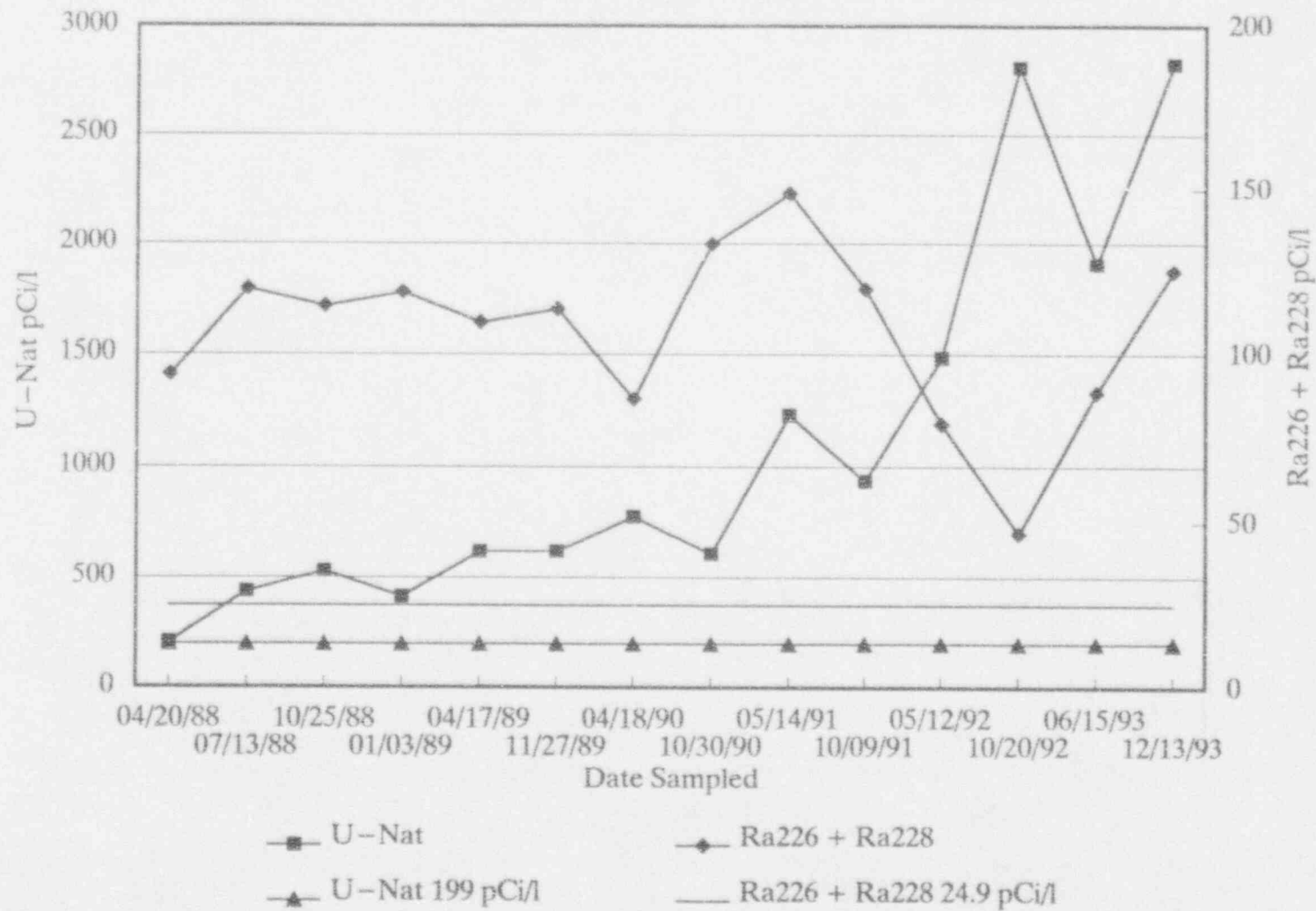
G.W. 6 U-Nat & Ra226 + Ra228



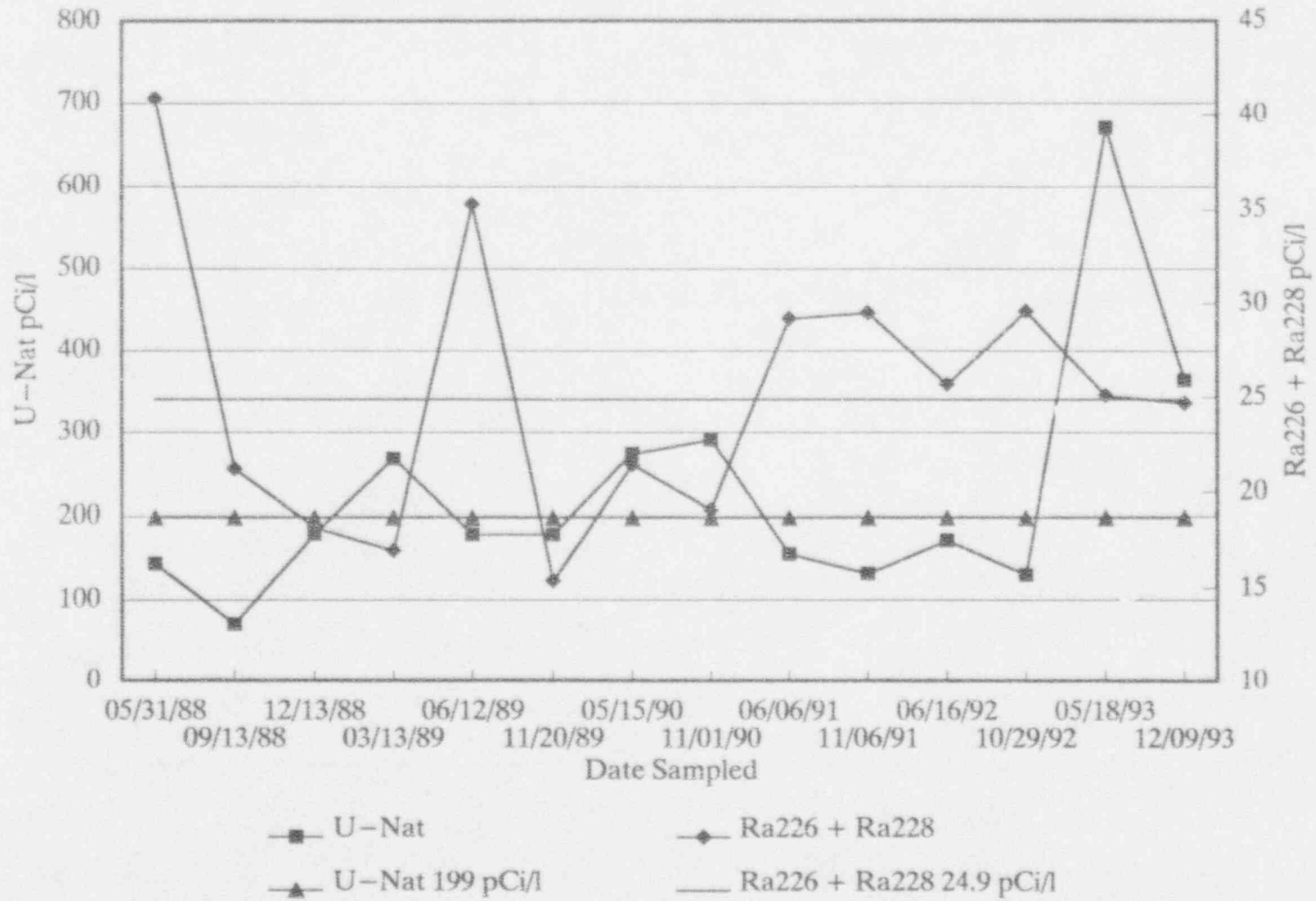
G.W. 7 U-Nat & Ra226 + Ra228



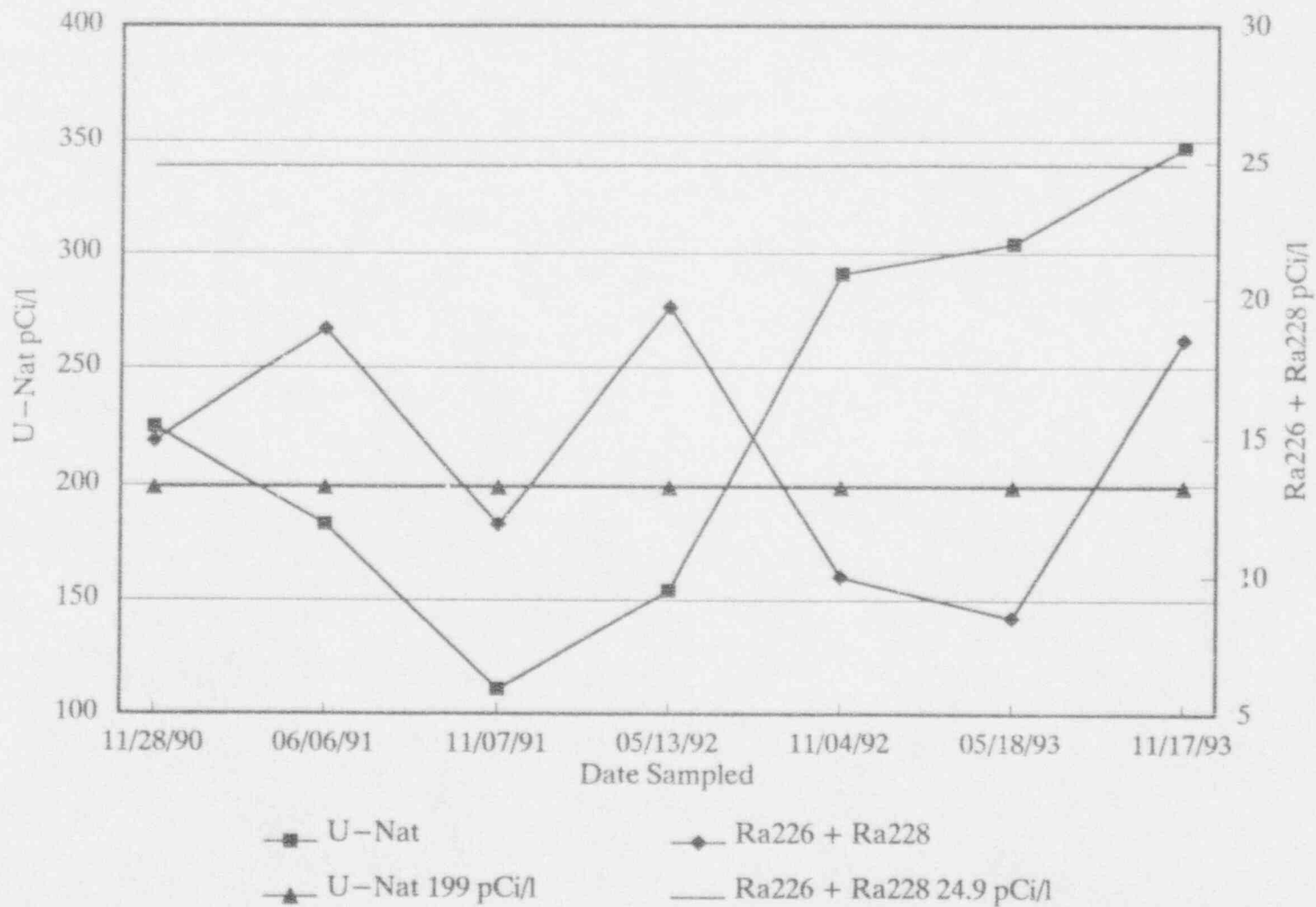
G.W. 8 U-Nat & Ra226 + Ra228



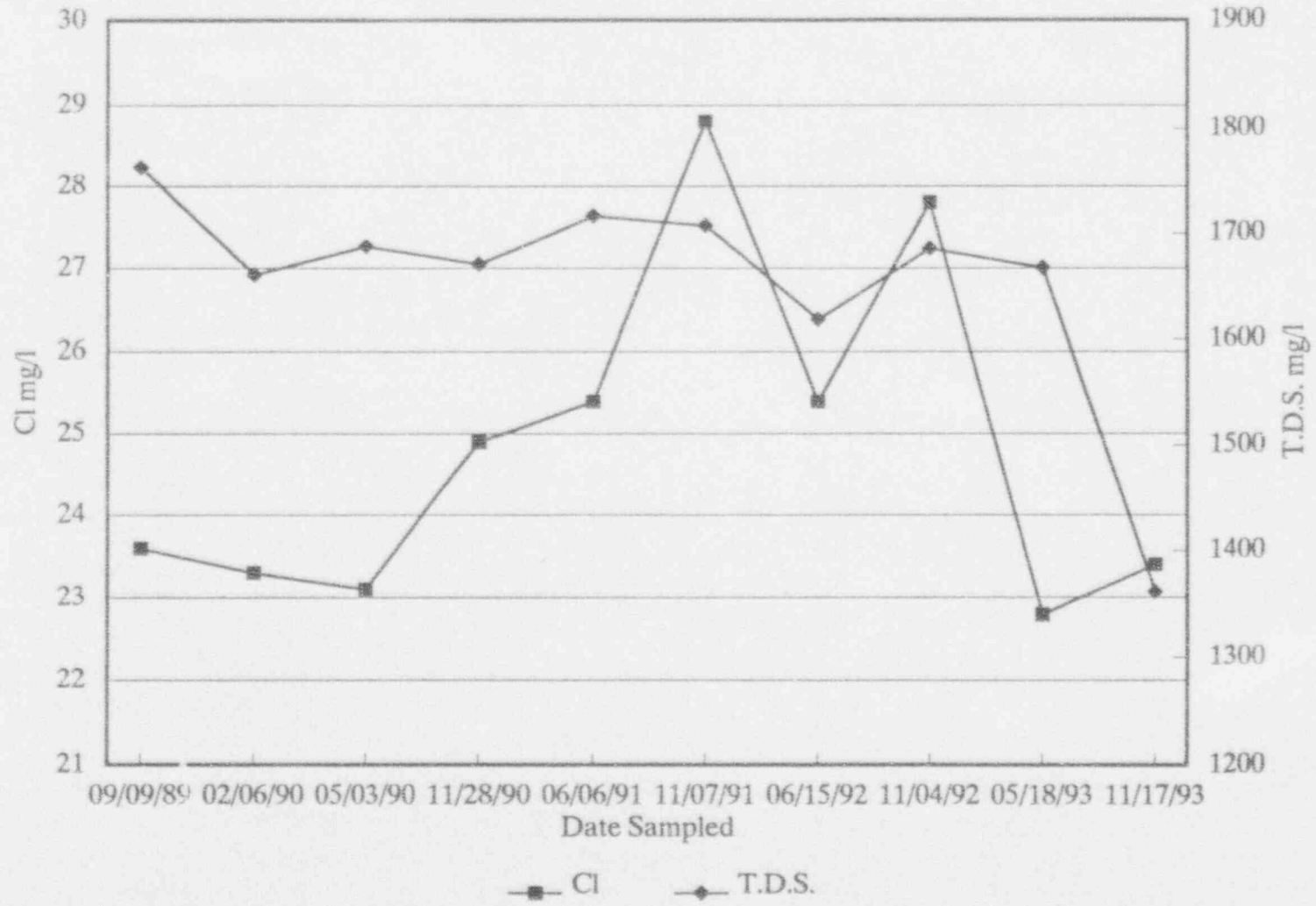
R.W. 2 U-Nat & Ra226 + Ra228



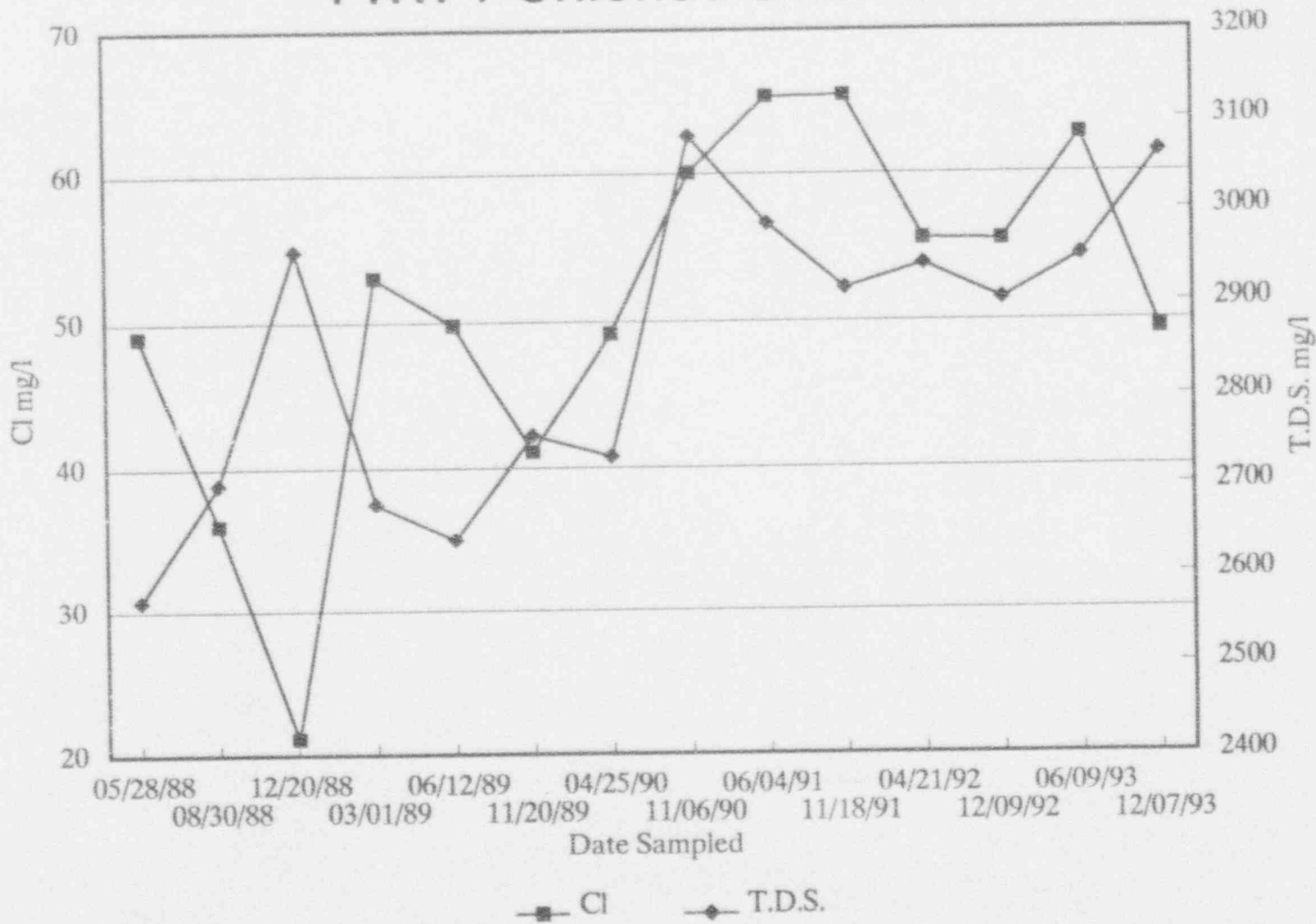
P.W. 7 U-Nat & Ra226 + Ra228



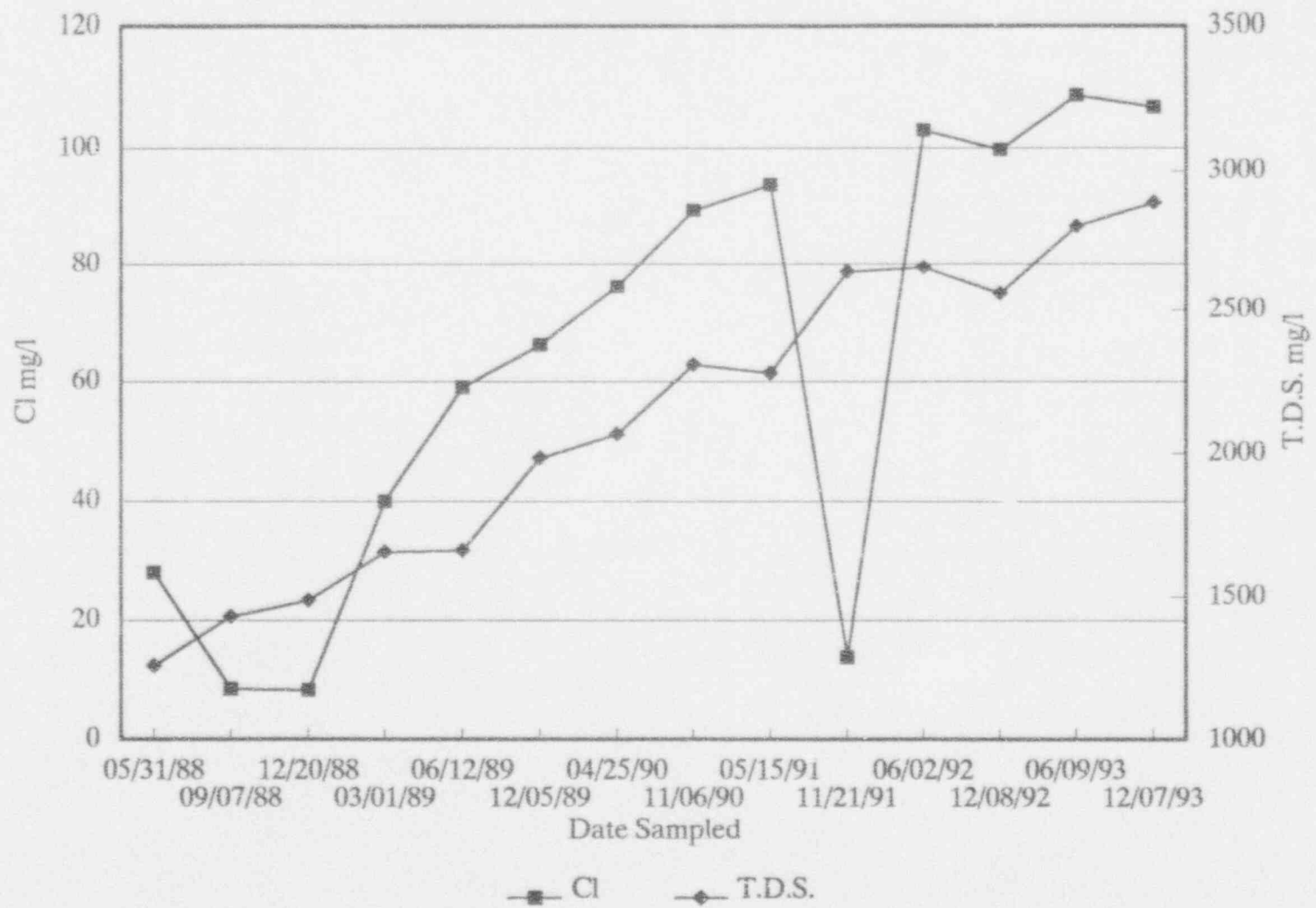
L.A. 2 Chloride & T.D.S.



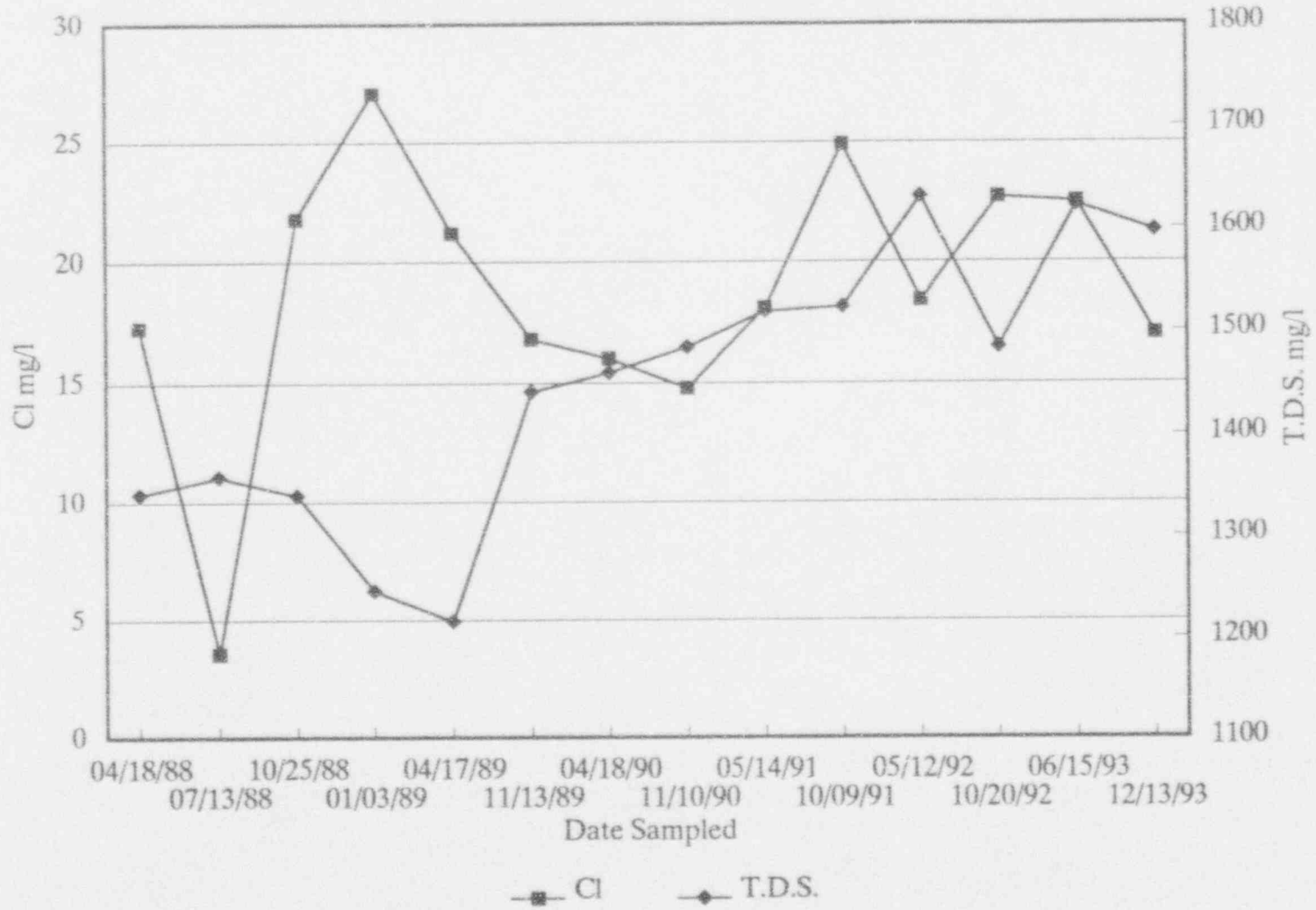
P.W. 1 Chloride & T.D.S.



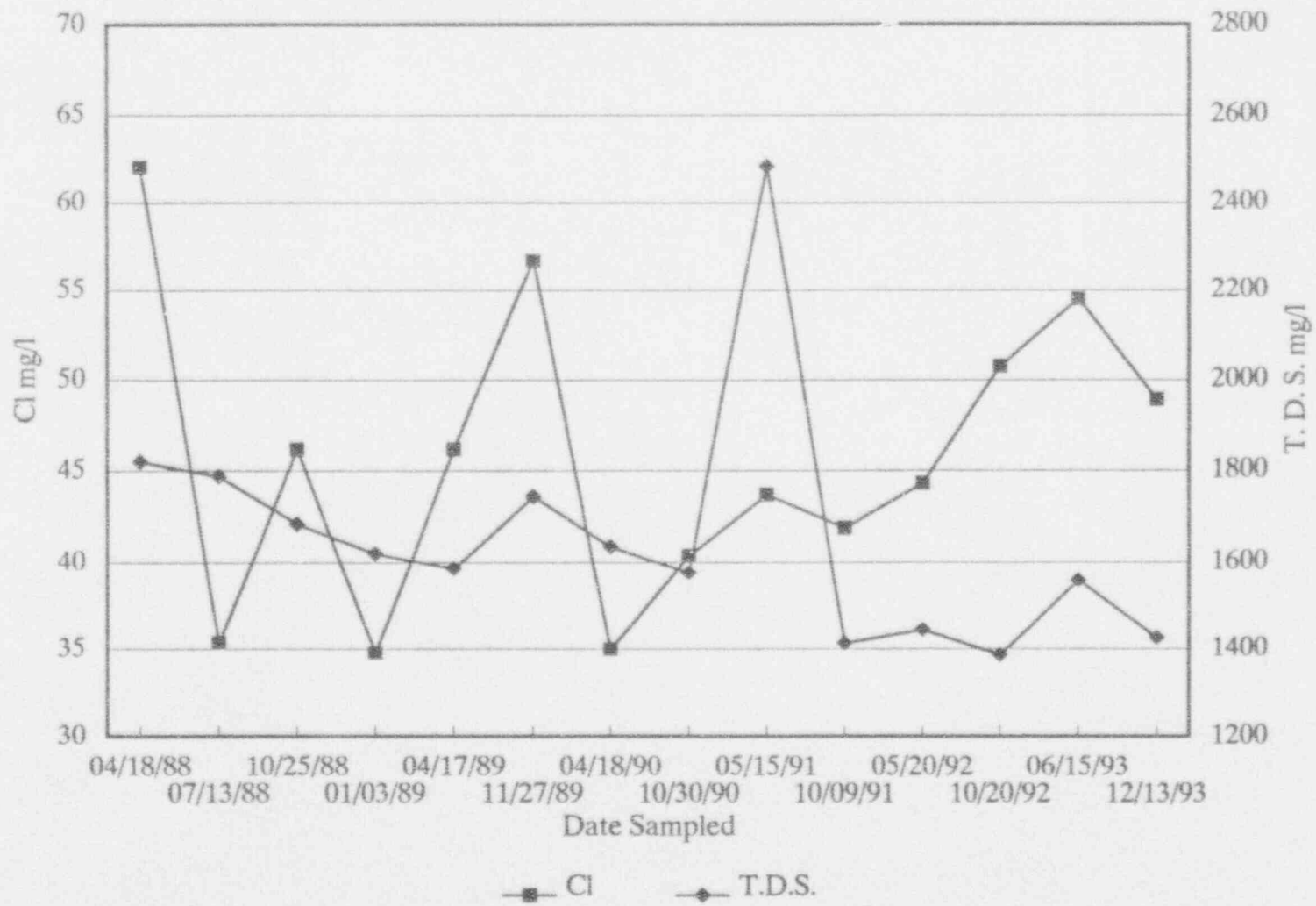
P.W. 2 Chloride & T.D.S.



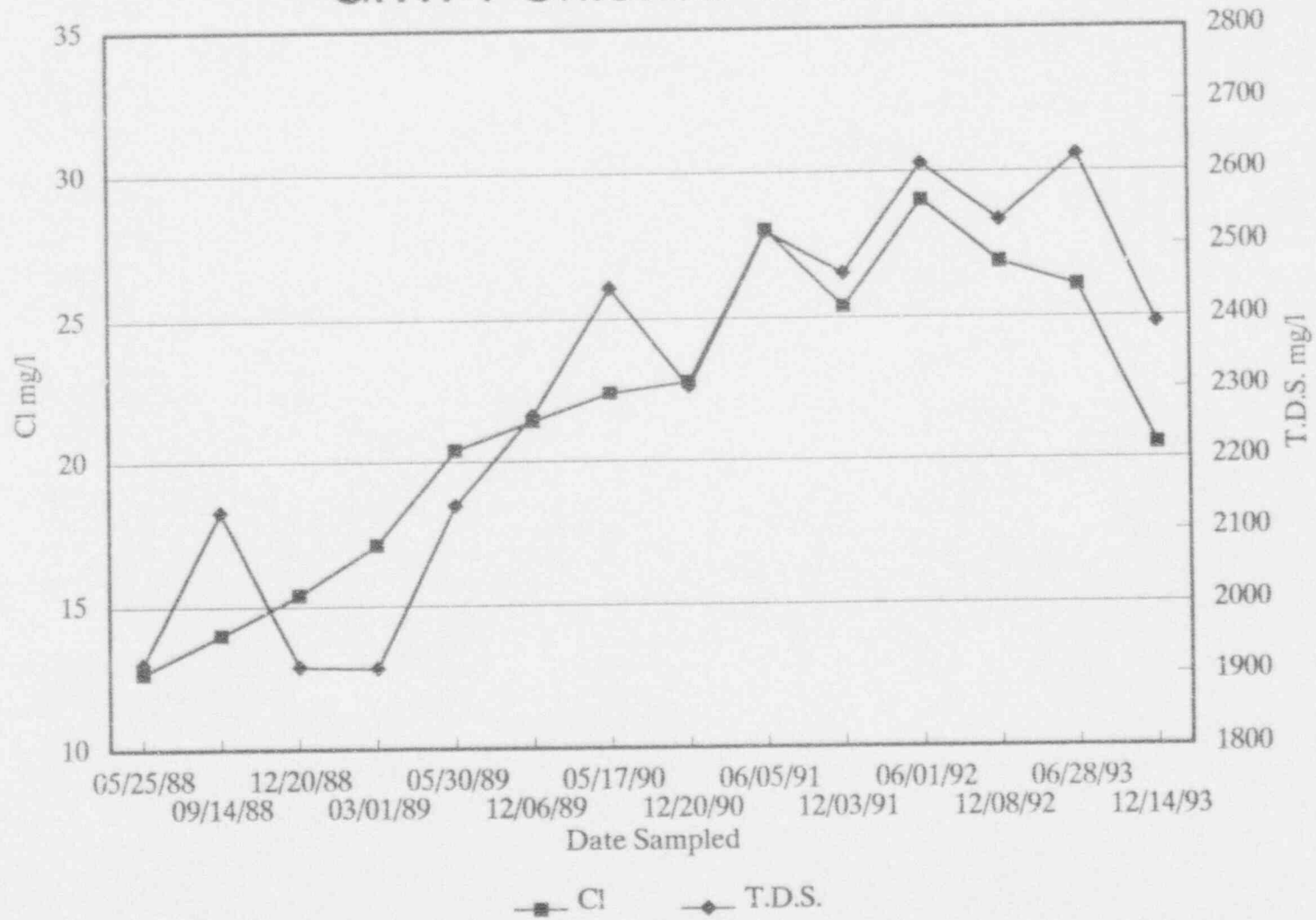
P.W. 3 Chloride & T.D.S.



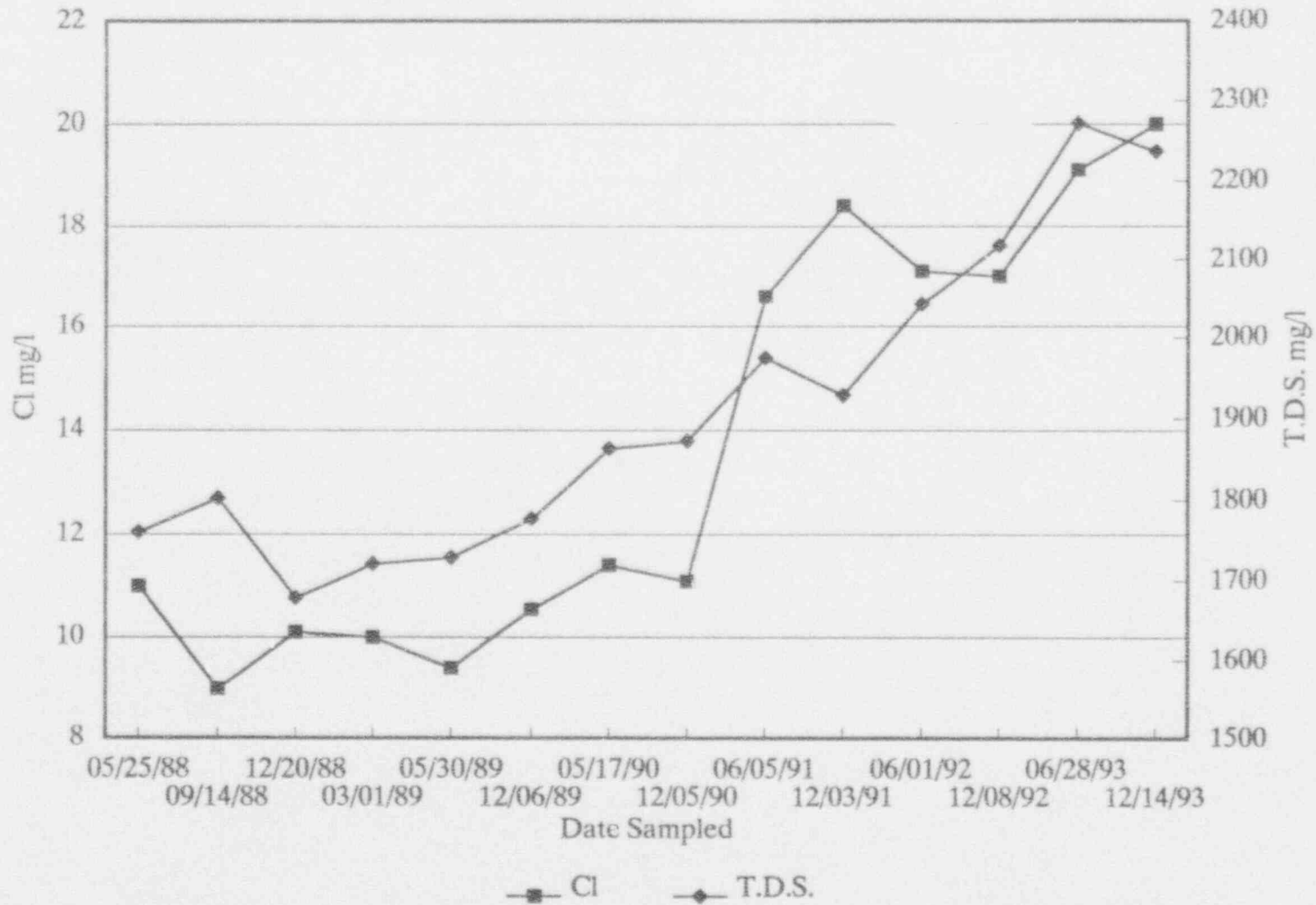
P.W. 4 Chloride & T.D.S.



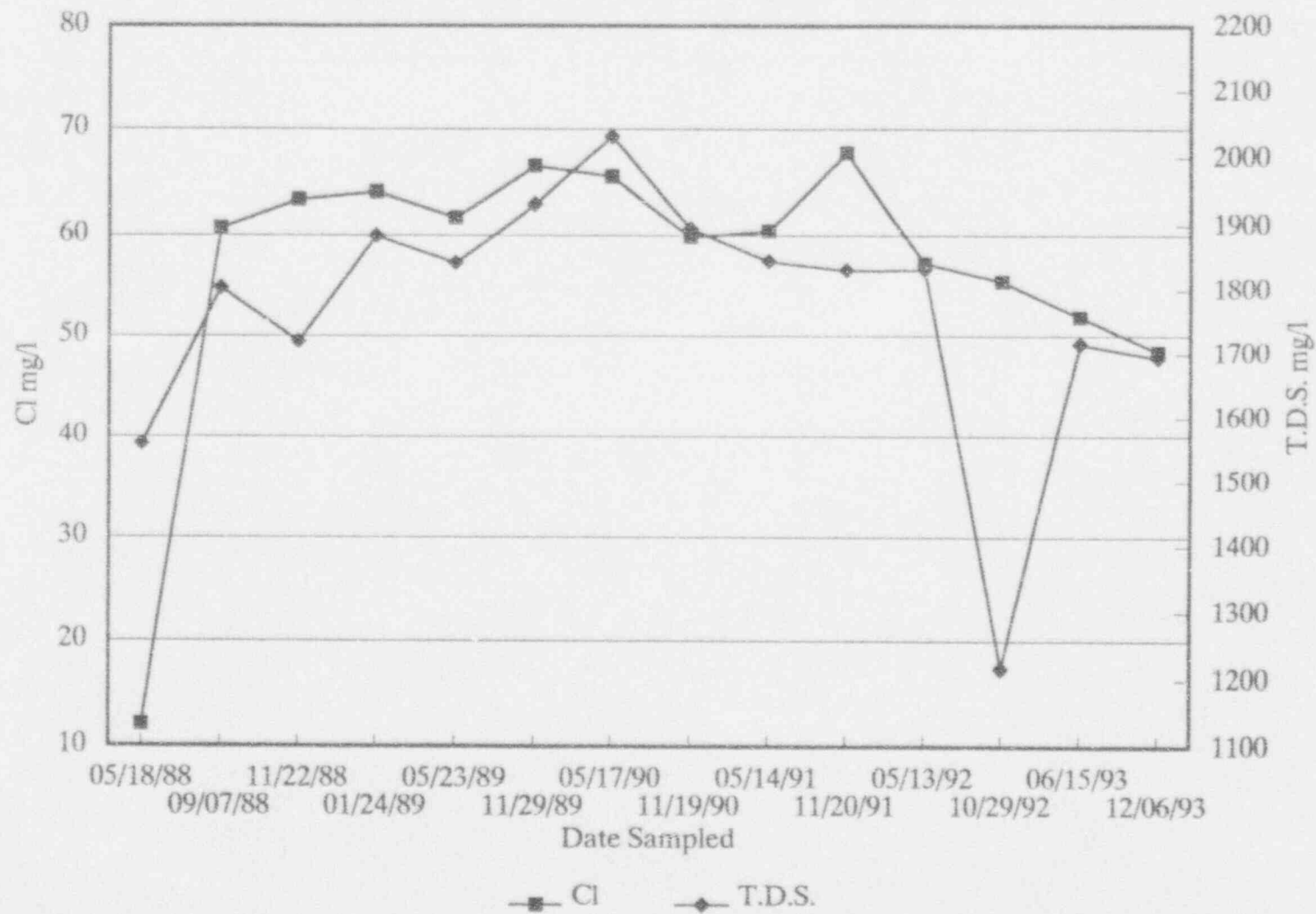
G.W. 1 Chloride & T.D.S.



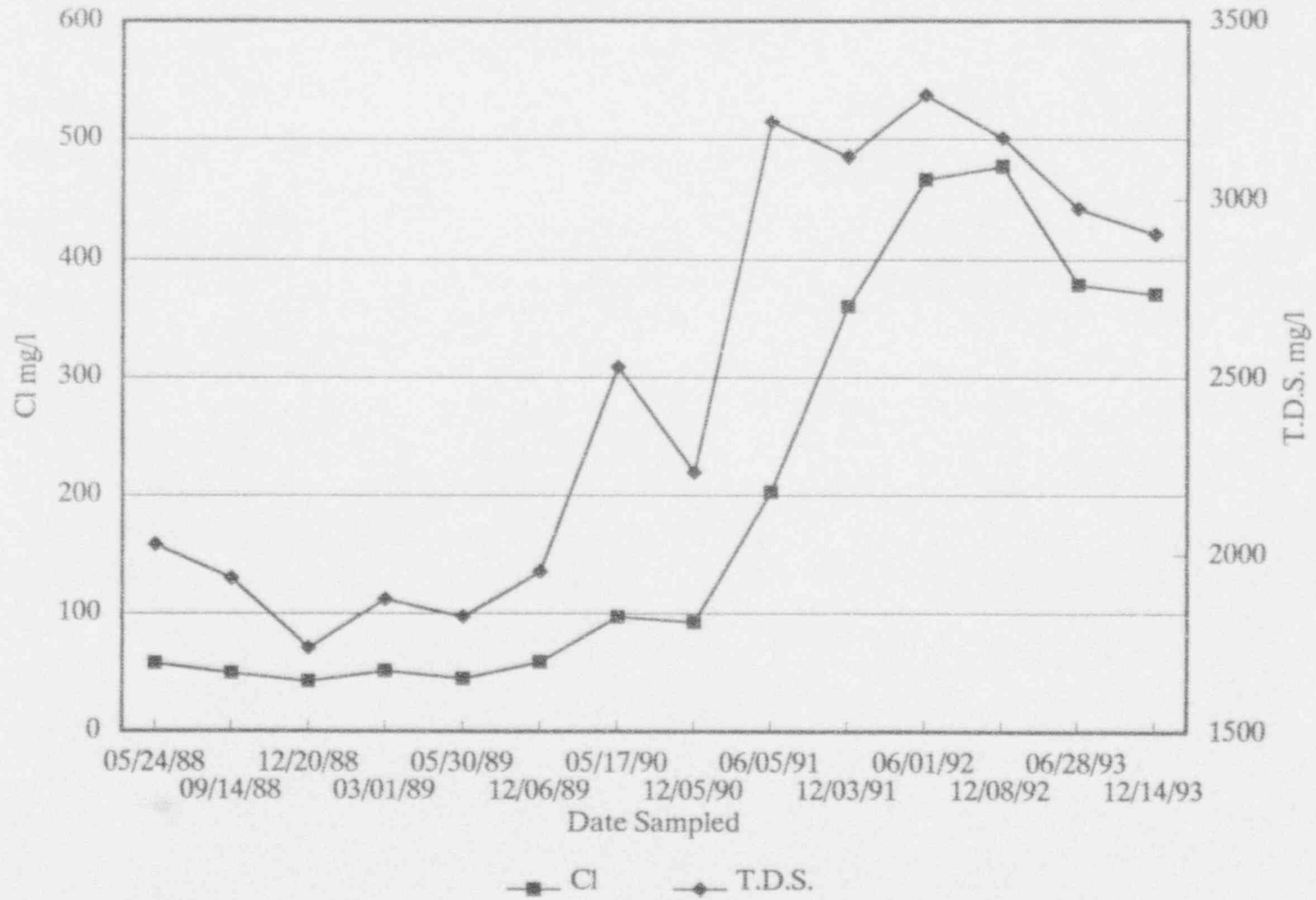
G.W. 2 Chloride & T.D.S.



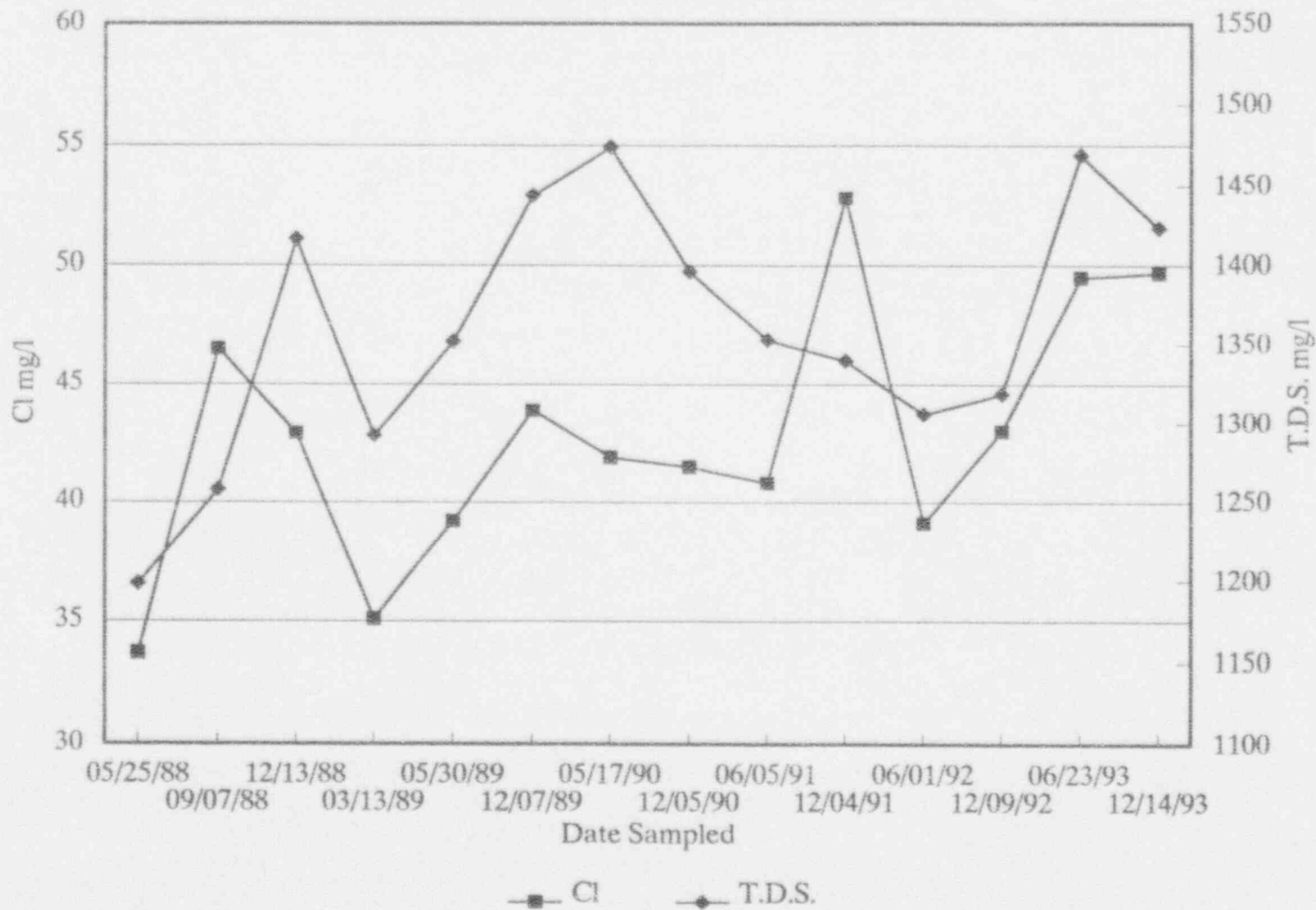
G.W. 4 Chloride & T.D.S.



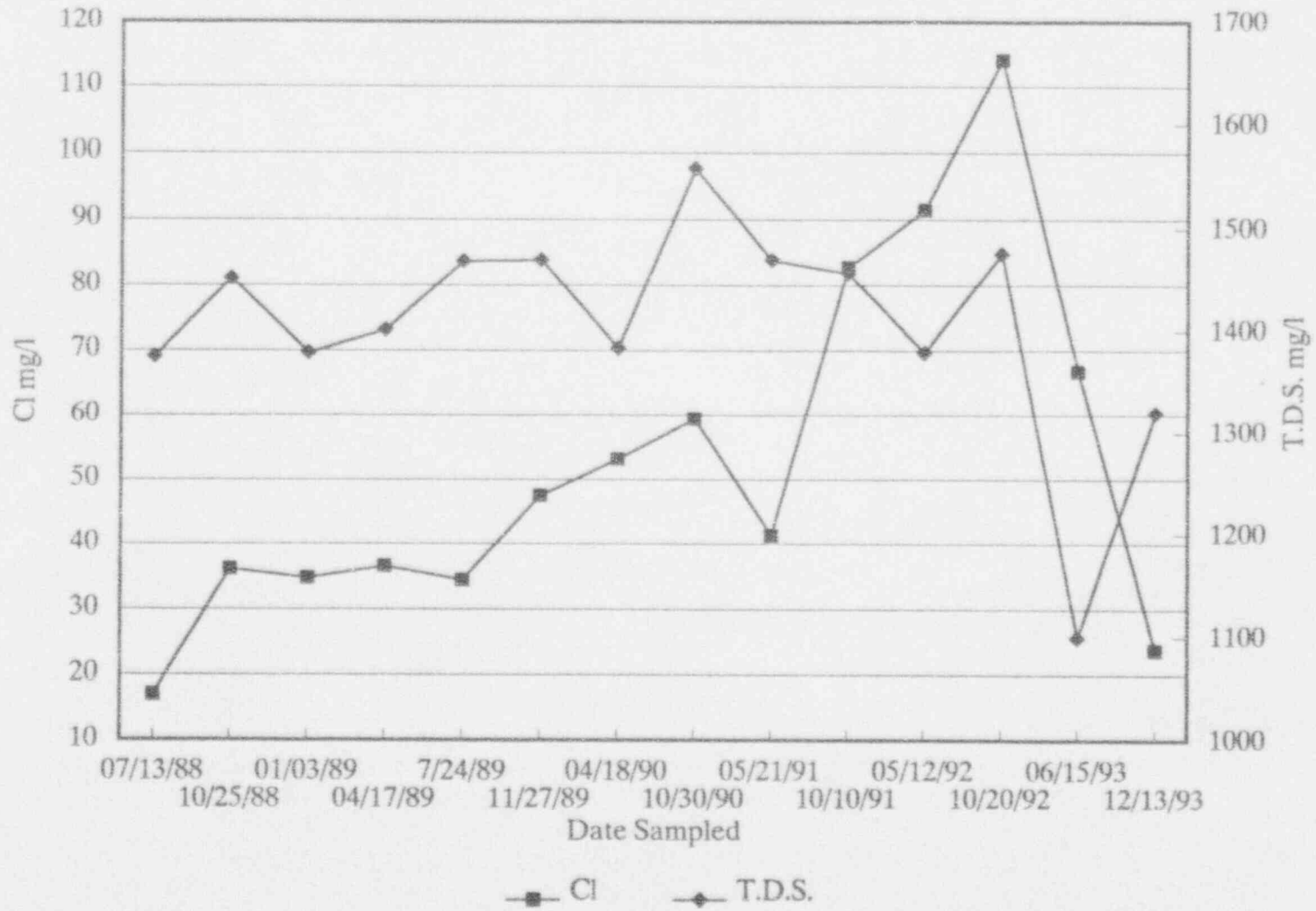
G.W. 5 Chloride & T.D.S.



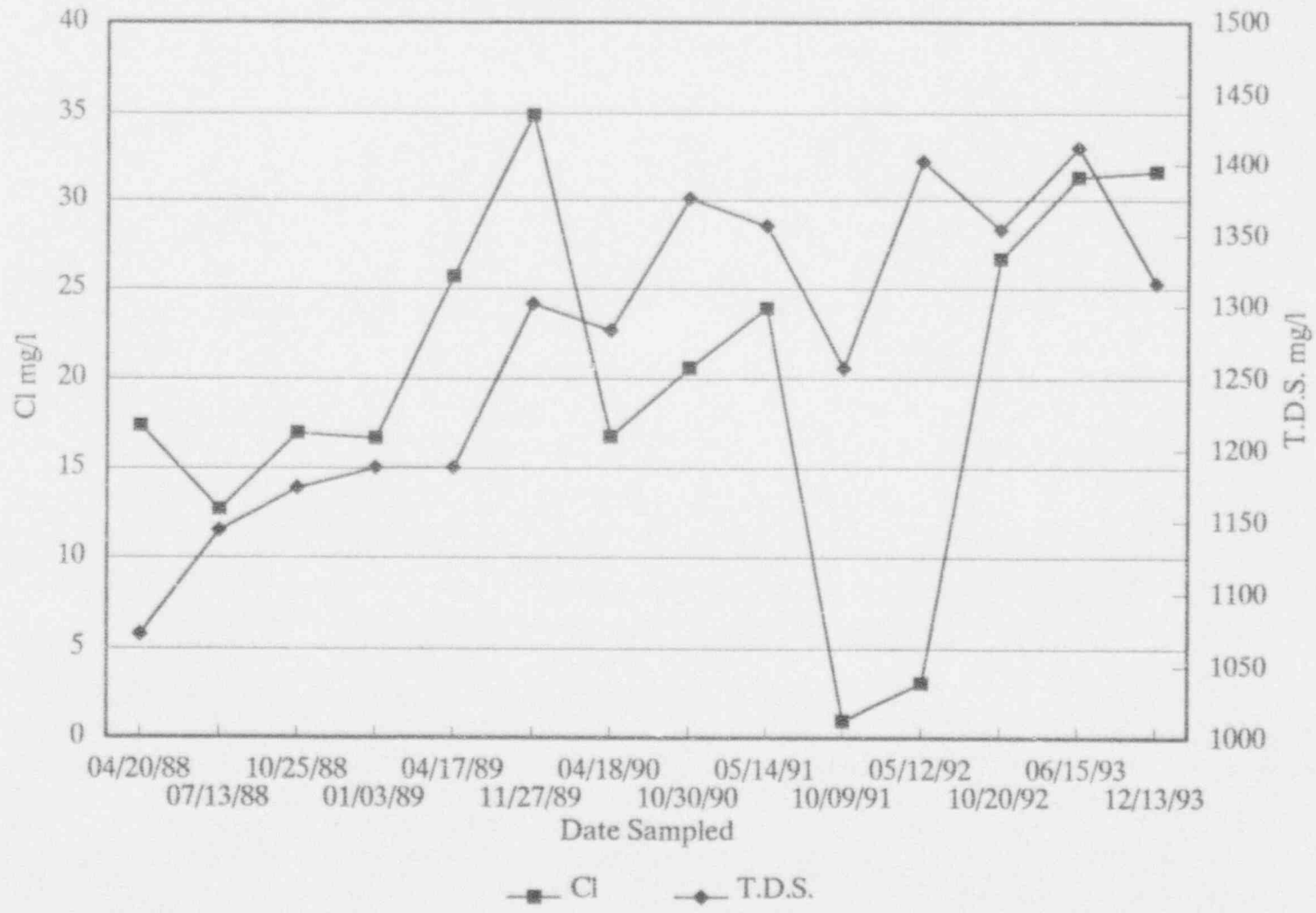
G.W. 6 Chloride & T.D.S.



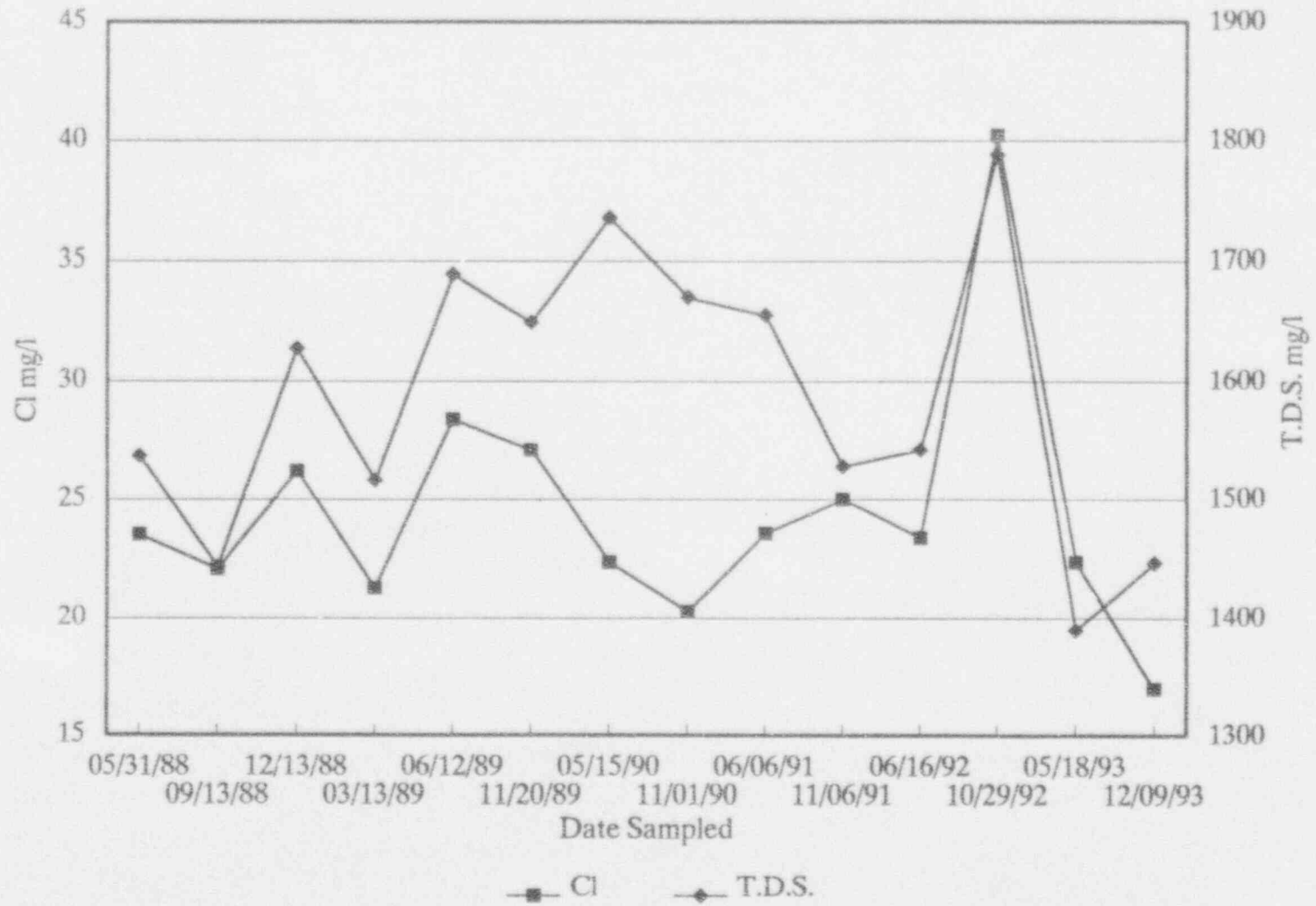
G.W. 7 Chloride & T.D.S.



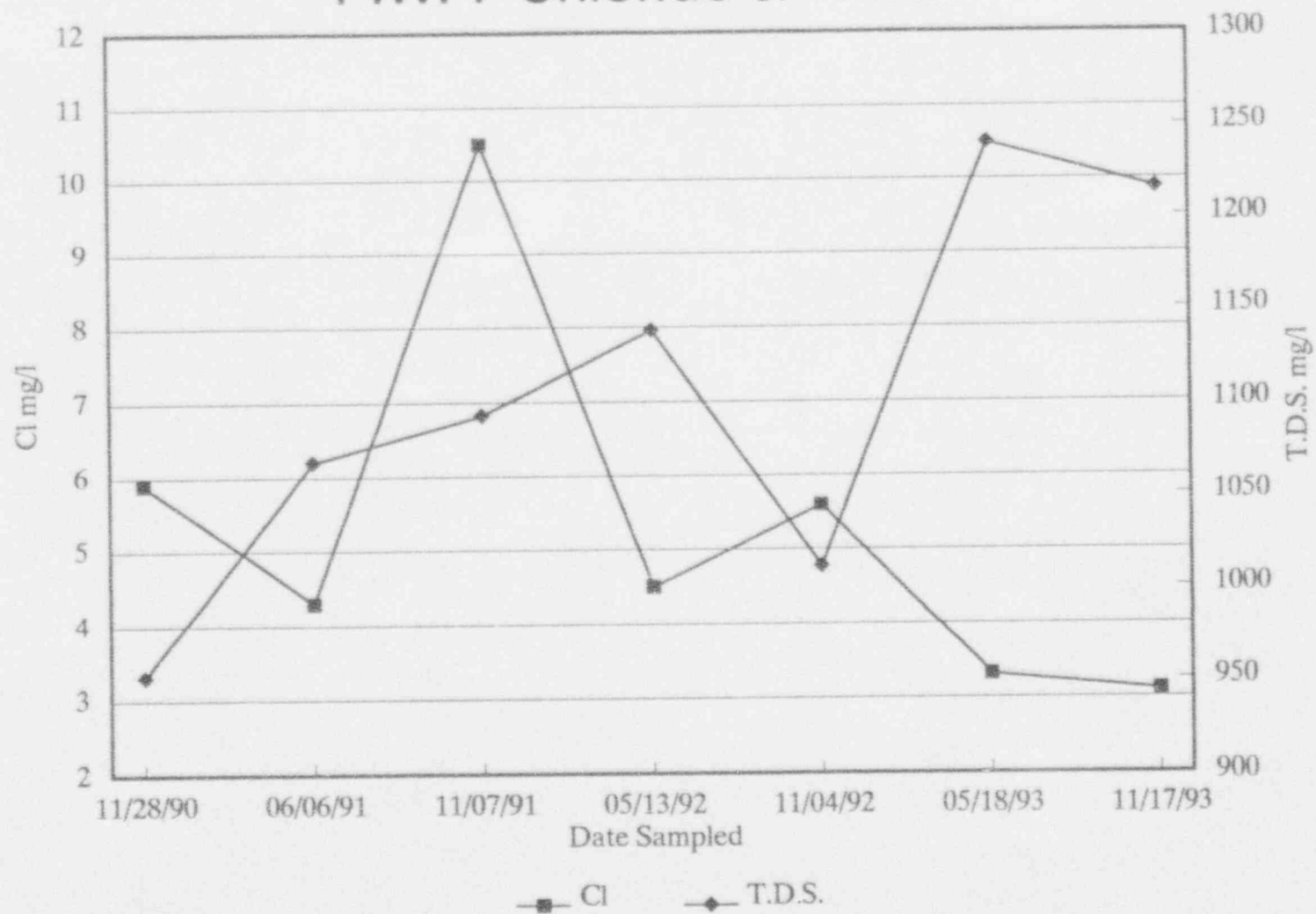
G.W. 8 Chloride & T.D.S.



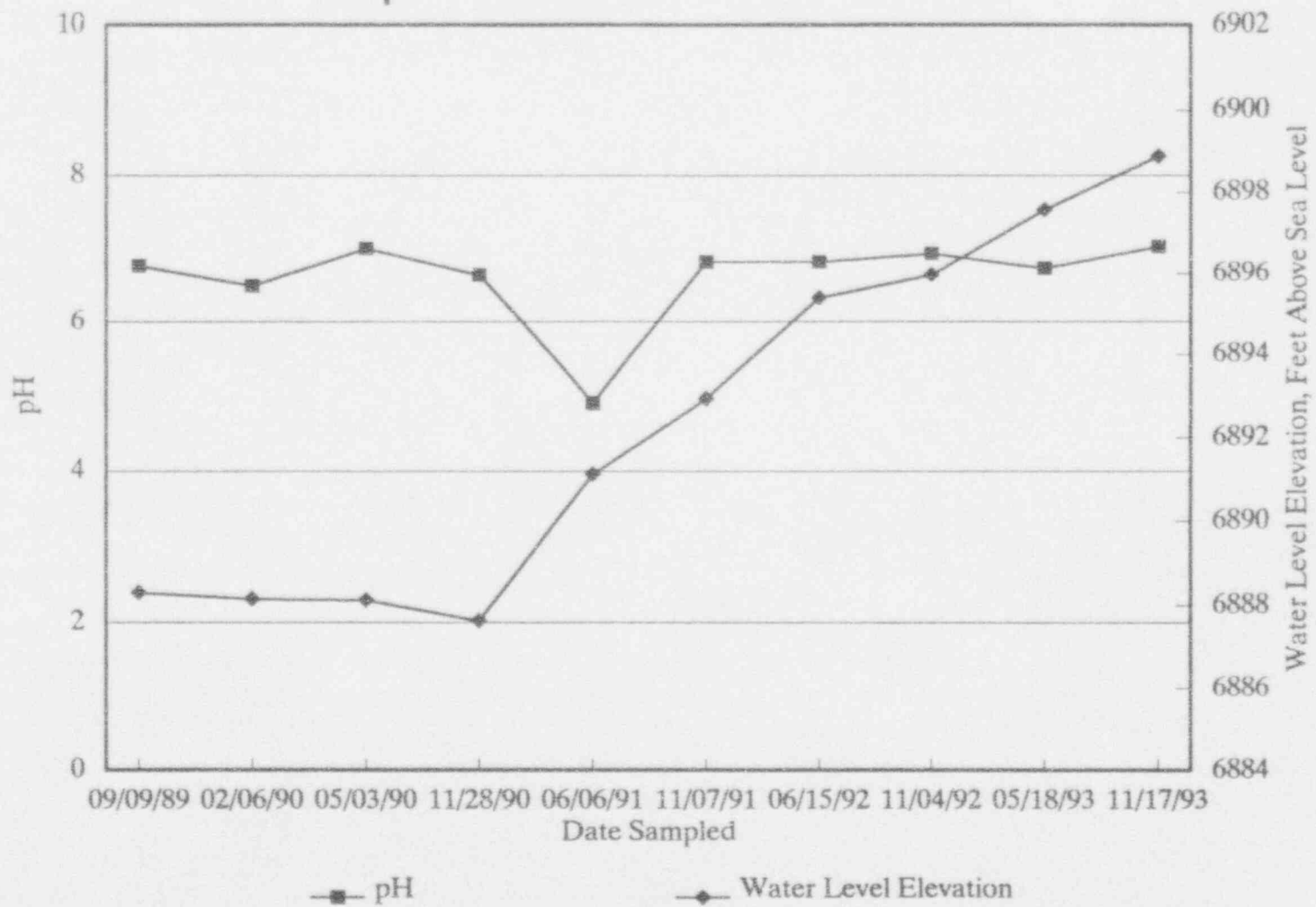
R.W. 2 Chloride & T.D.S.



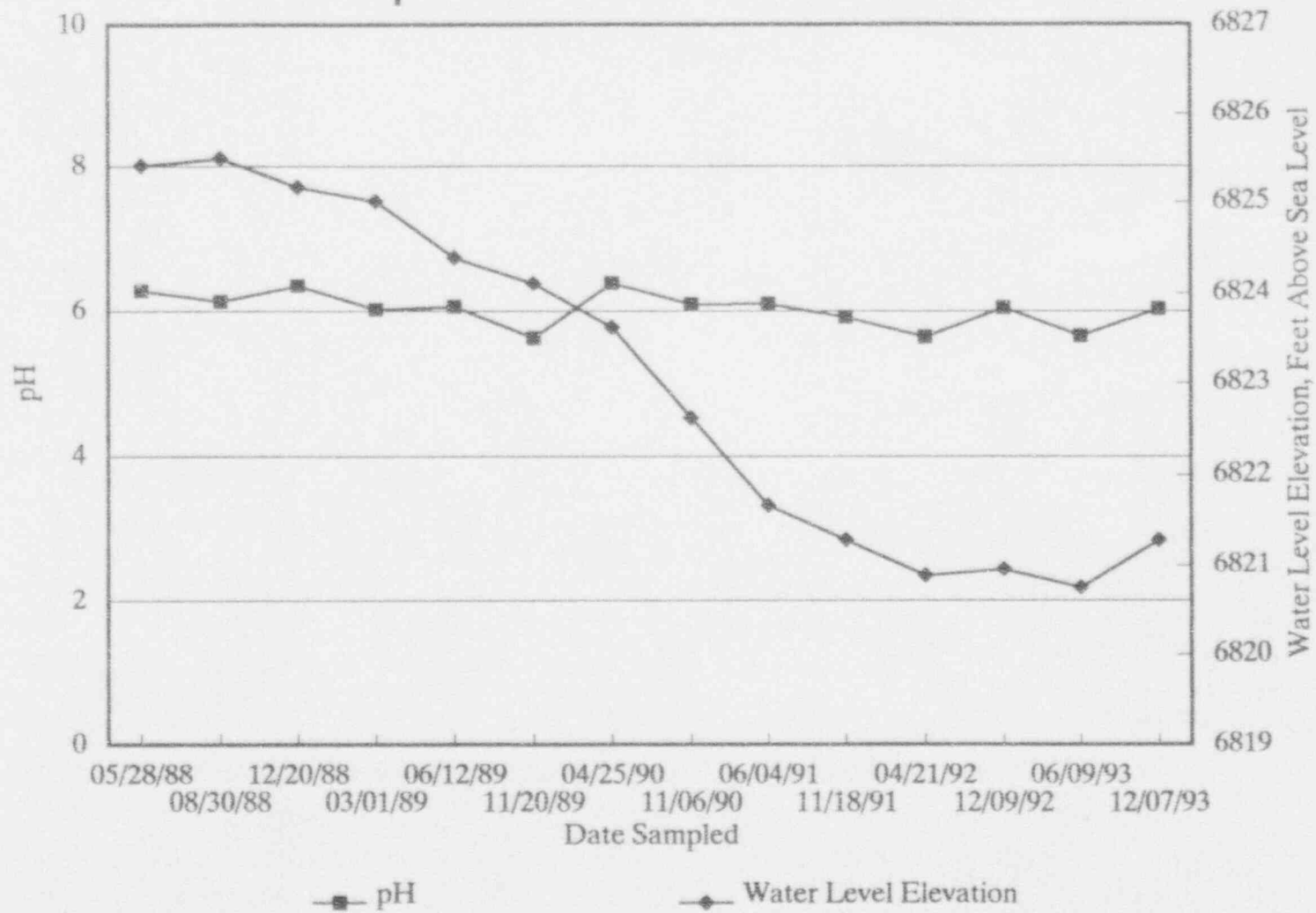
P.W. 7 Chloride & T.D.S.



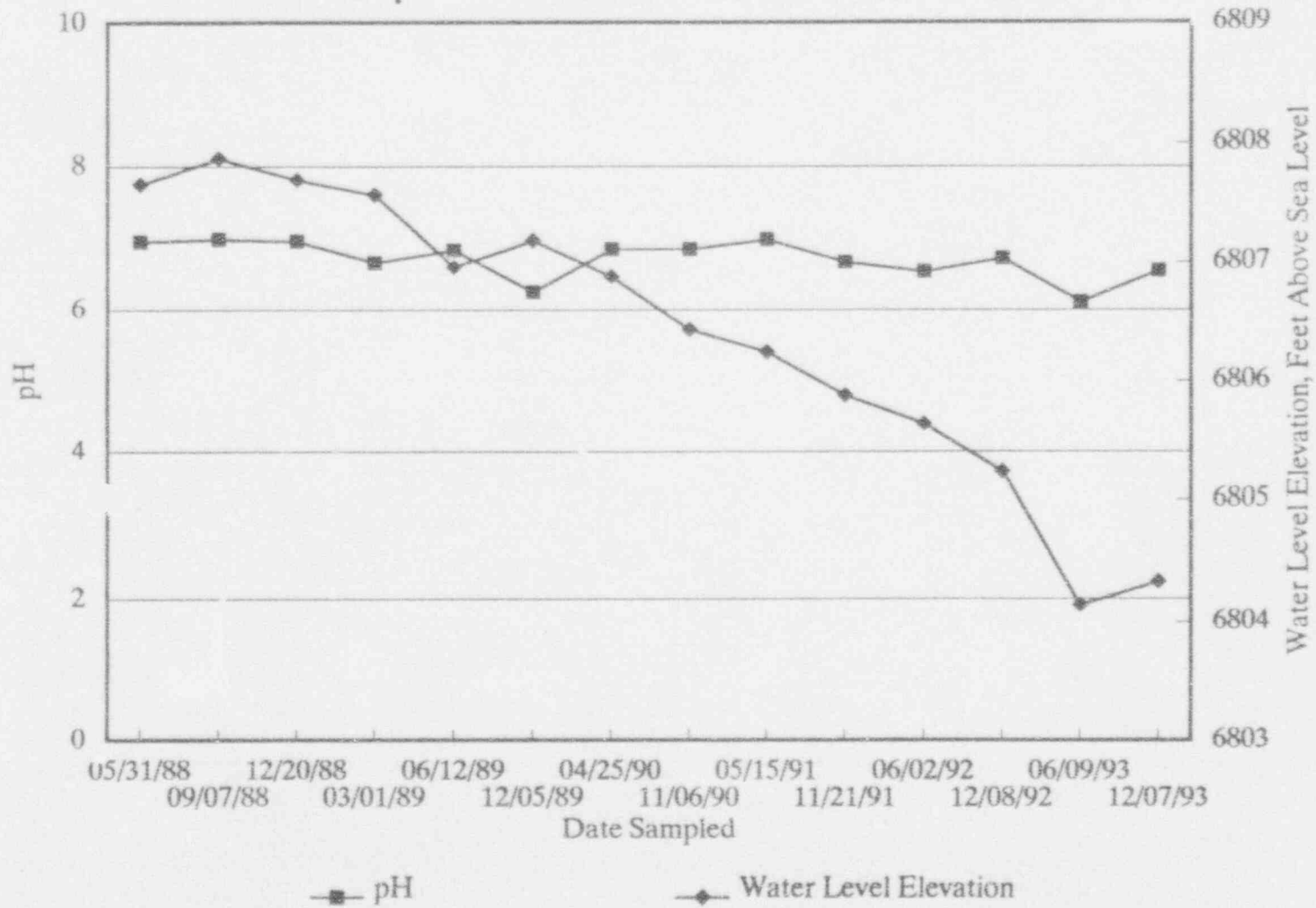
L.A. 2 pH & Water Level Elevation



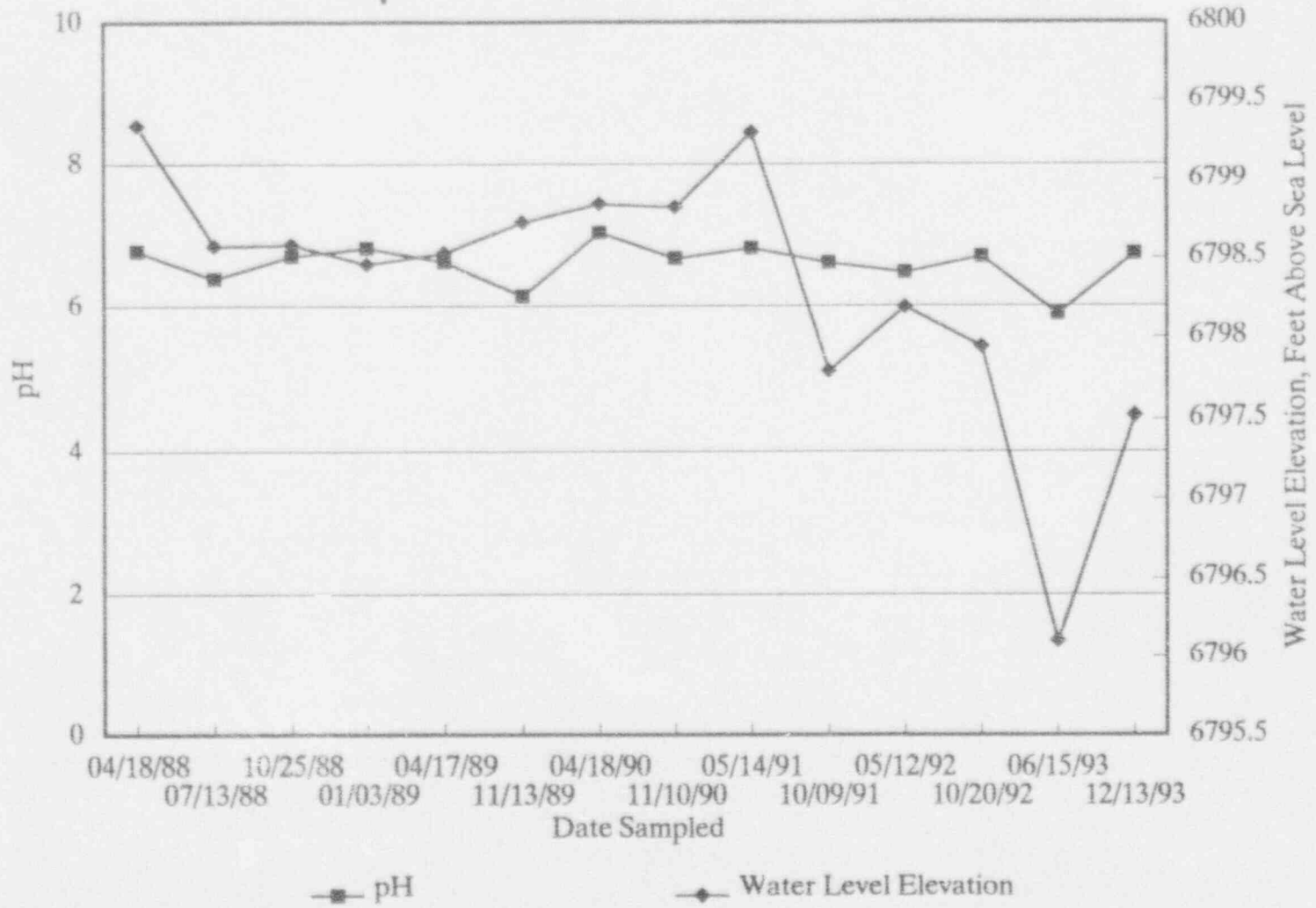
P.W. 1 pH & Water Level Elevation



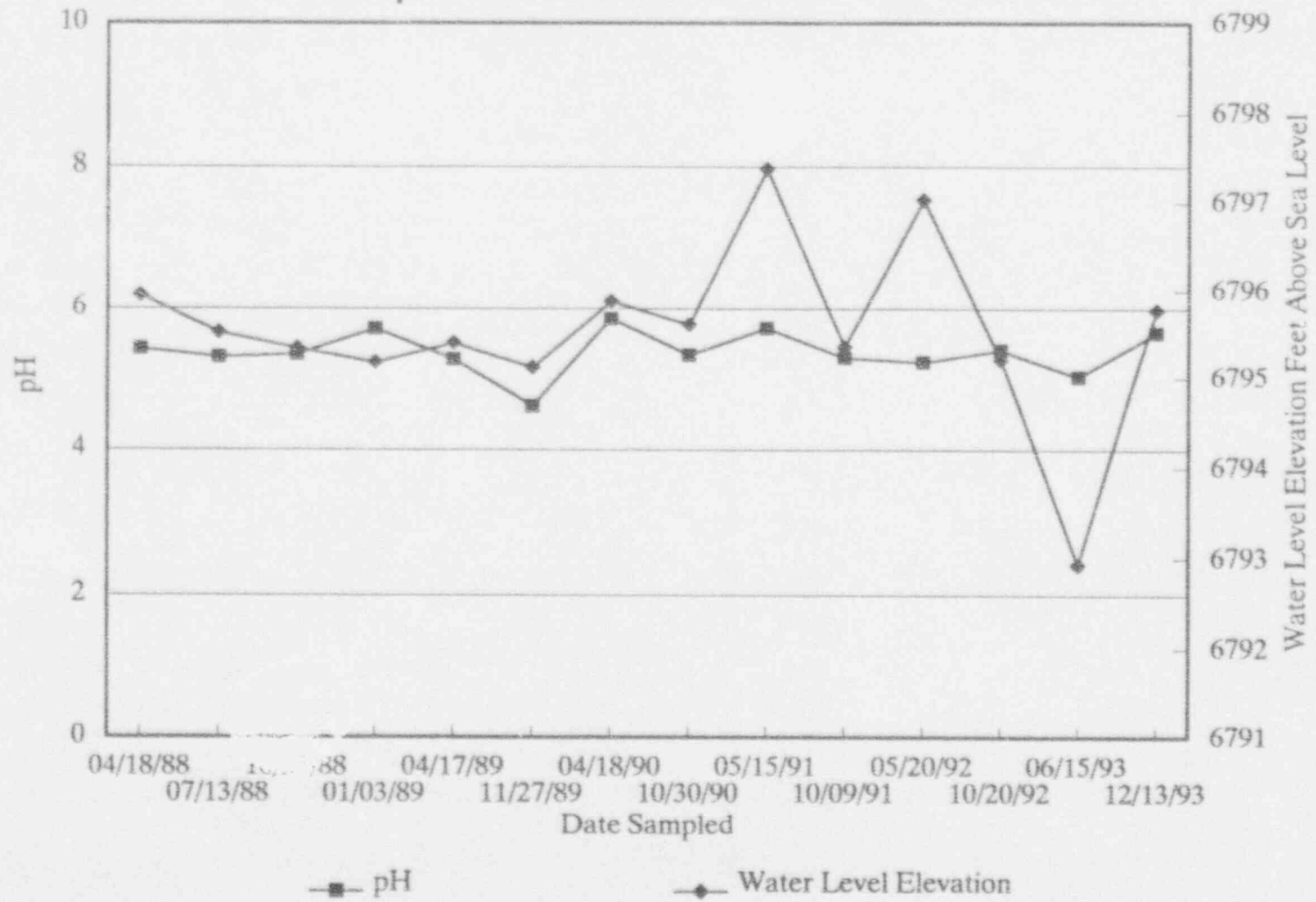
P.W. 2 pH & Water Level Elevation



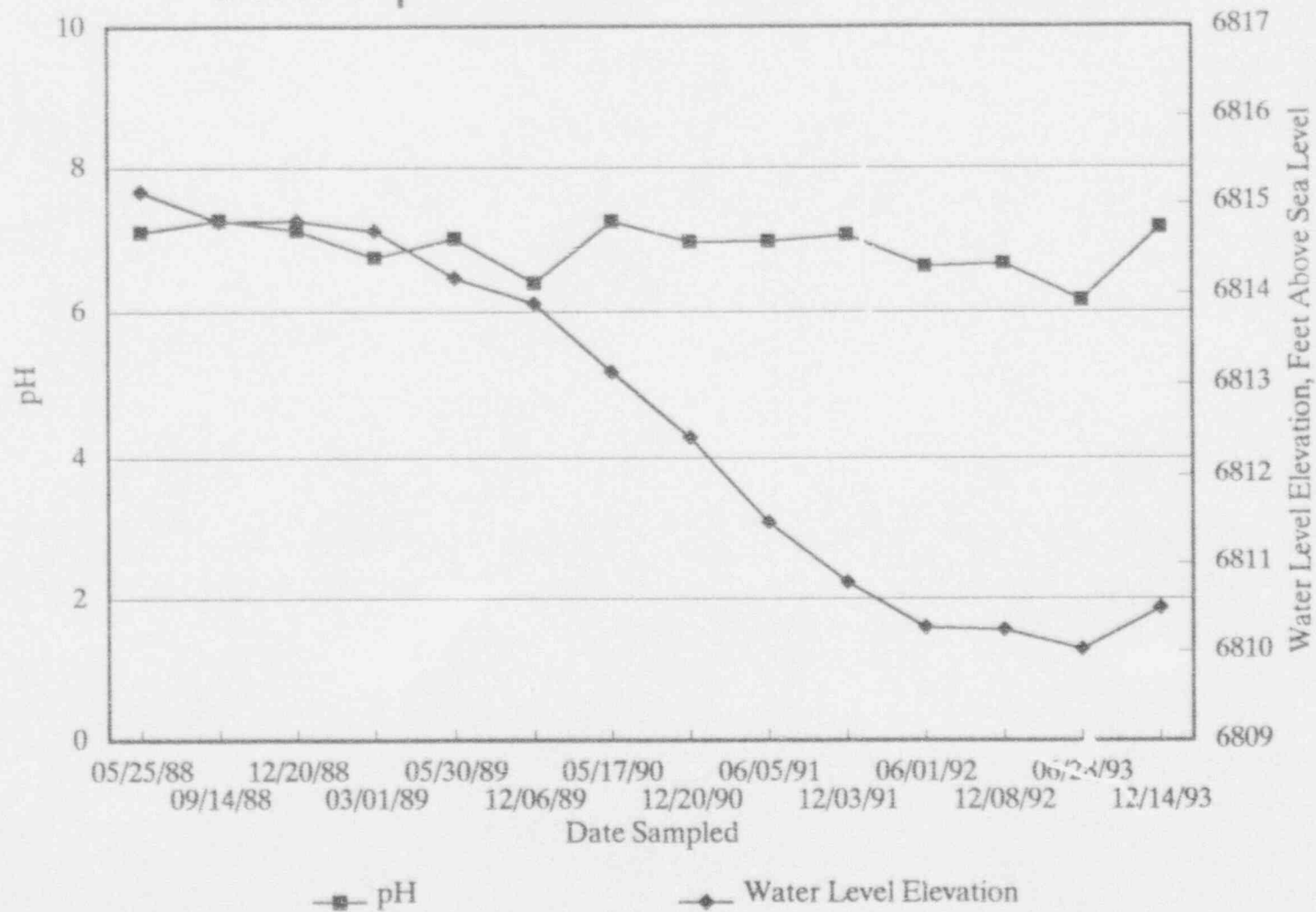
P.W. 3 pH & Water Level Elevation



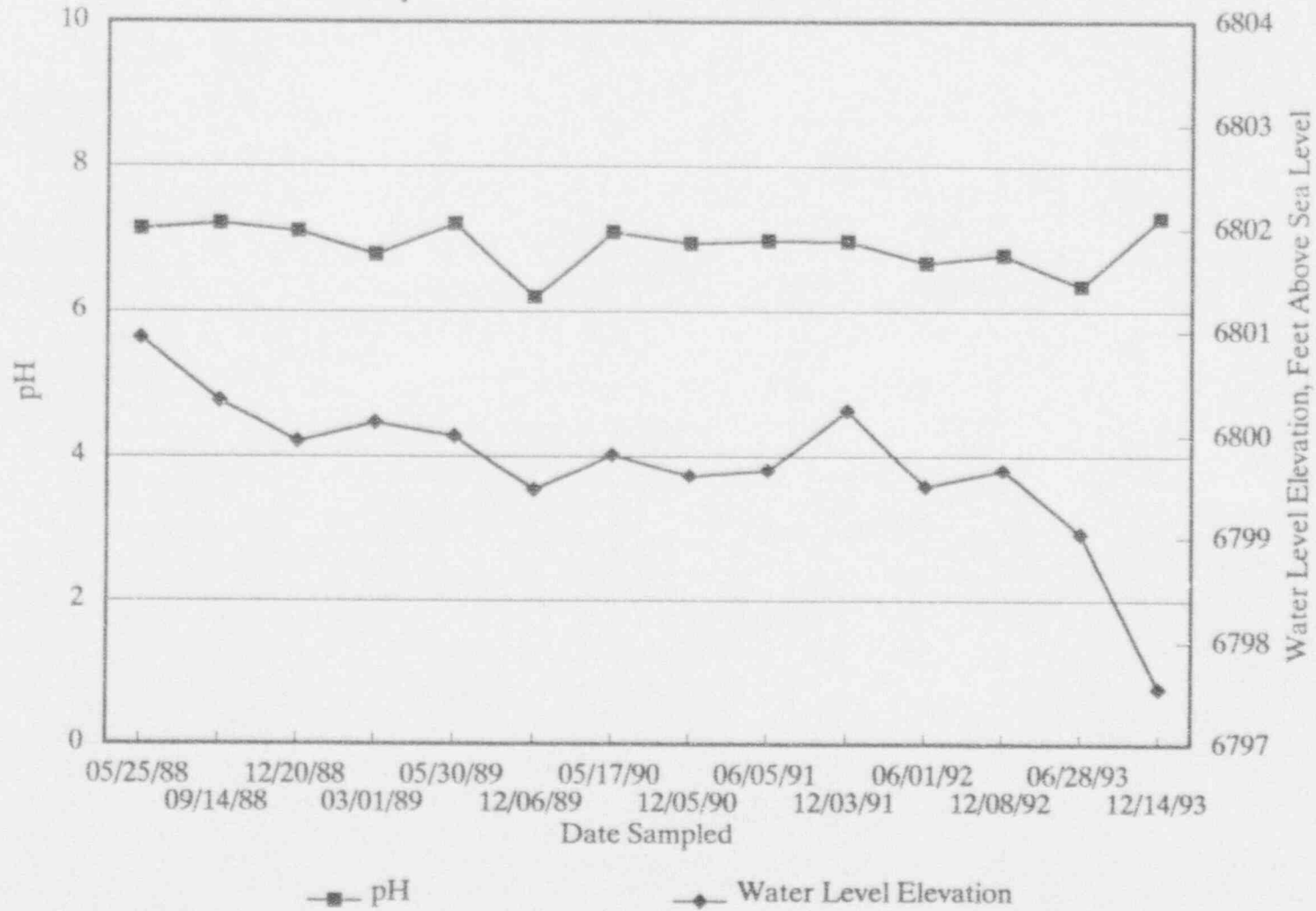
P.W. 4 pH & Water Level Elevation



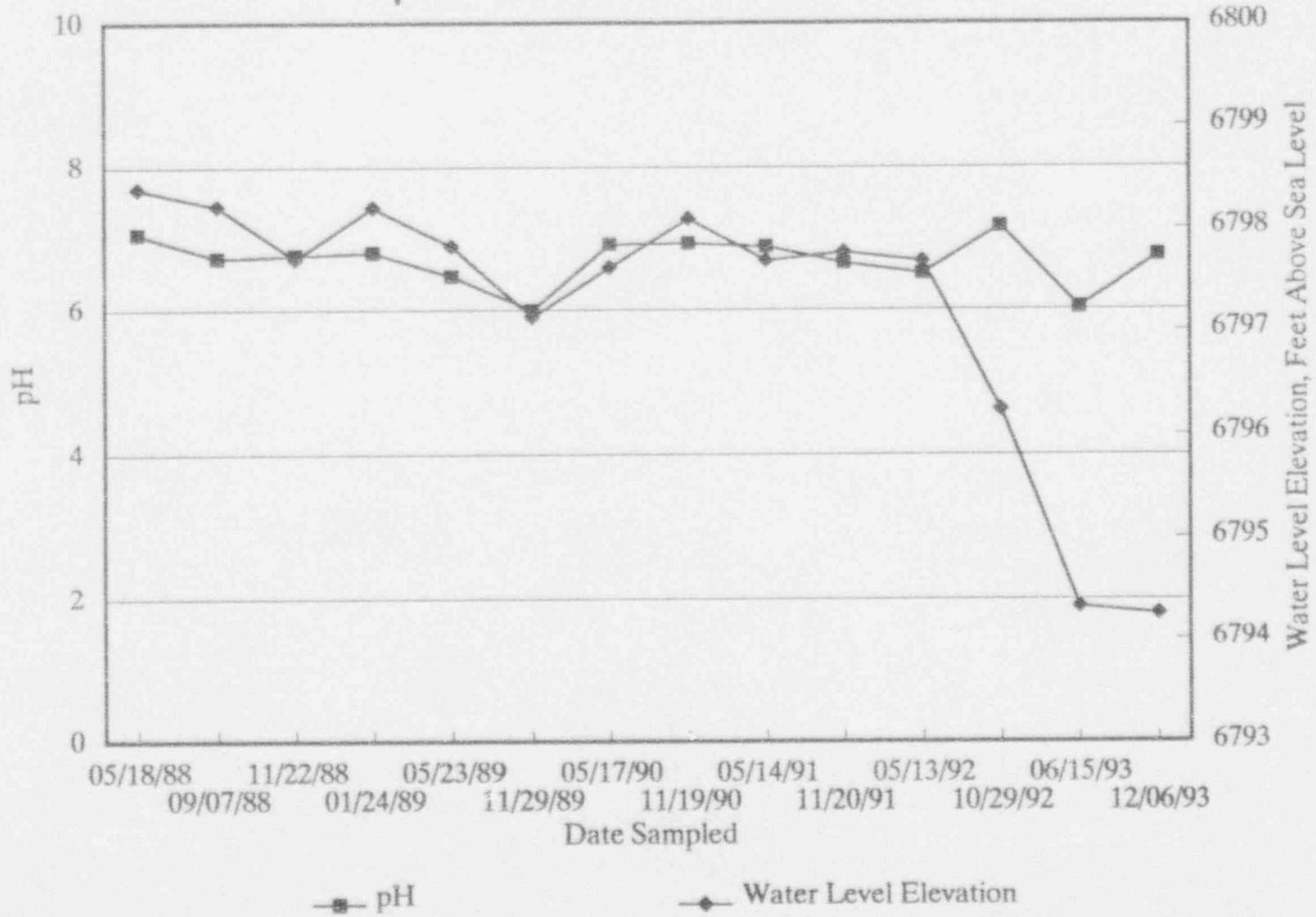
G.W. 1 pH & Water Level Elevation



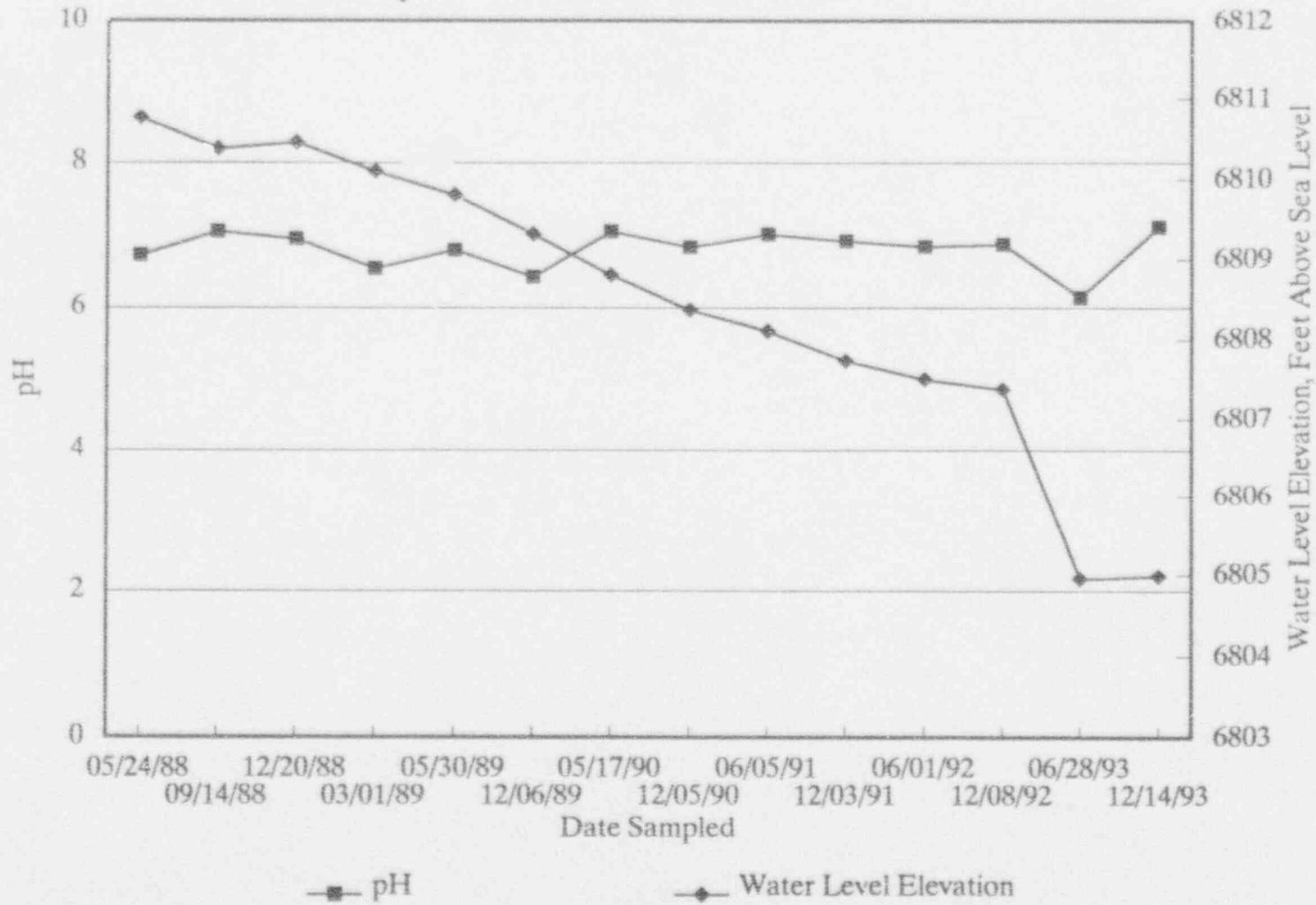
G.W. 2 pH & Water Level Elevation



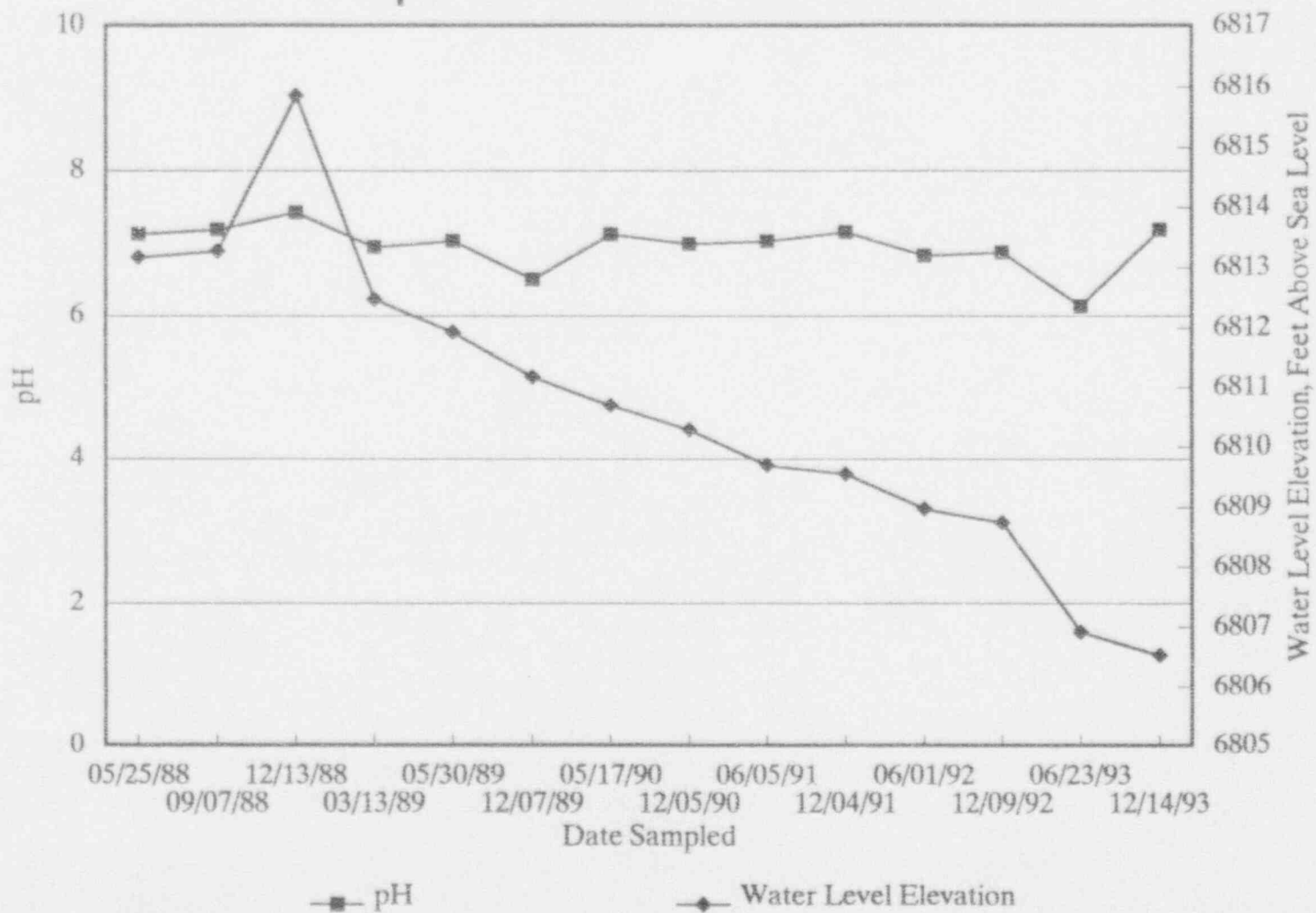
G.W. 4 pH & Water Level Elevation



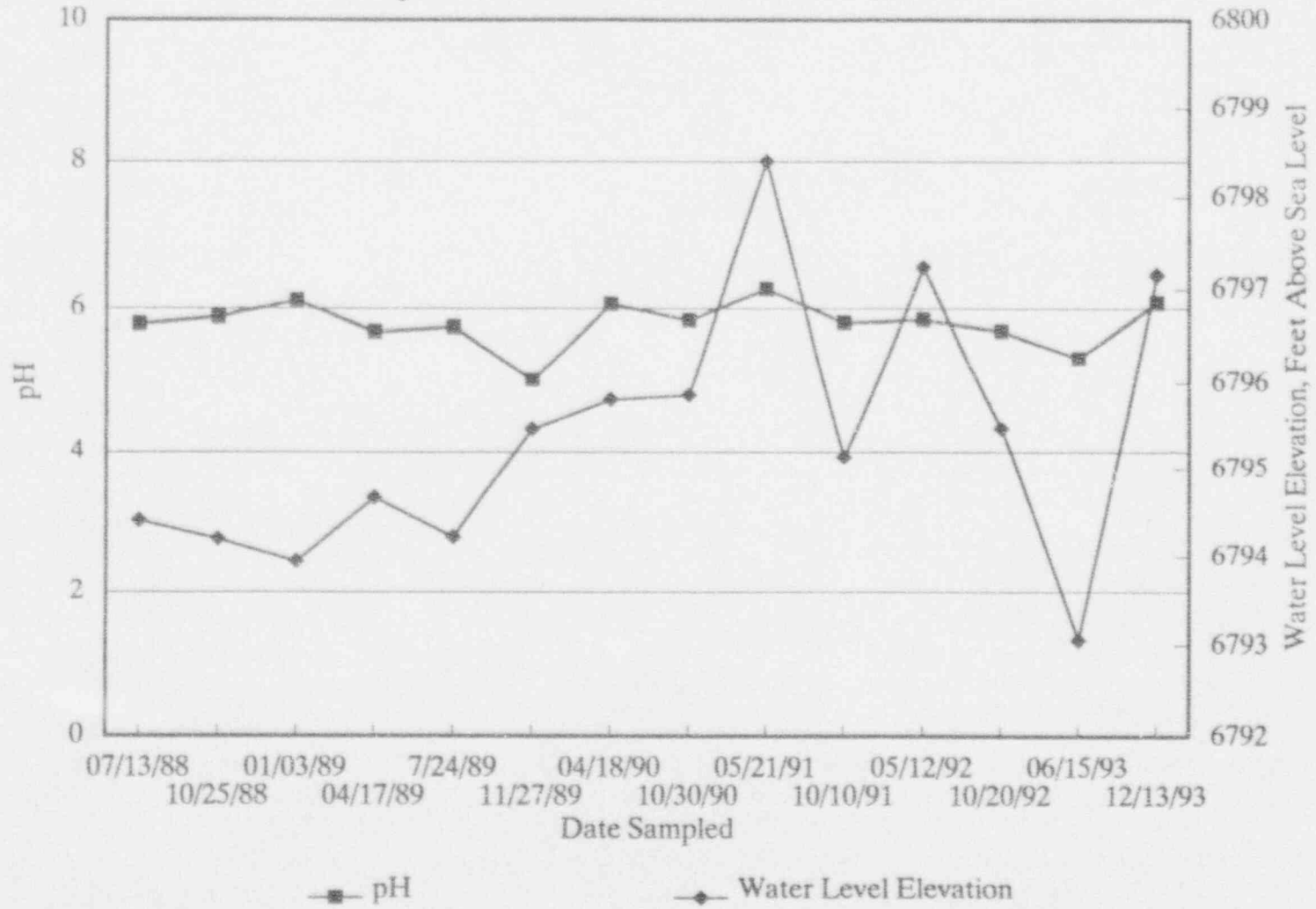
G.W. 5 pH & Water Level Elevation



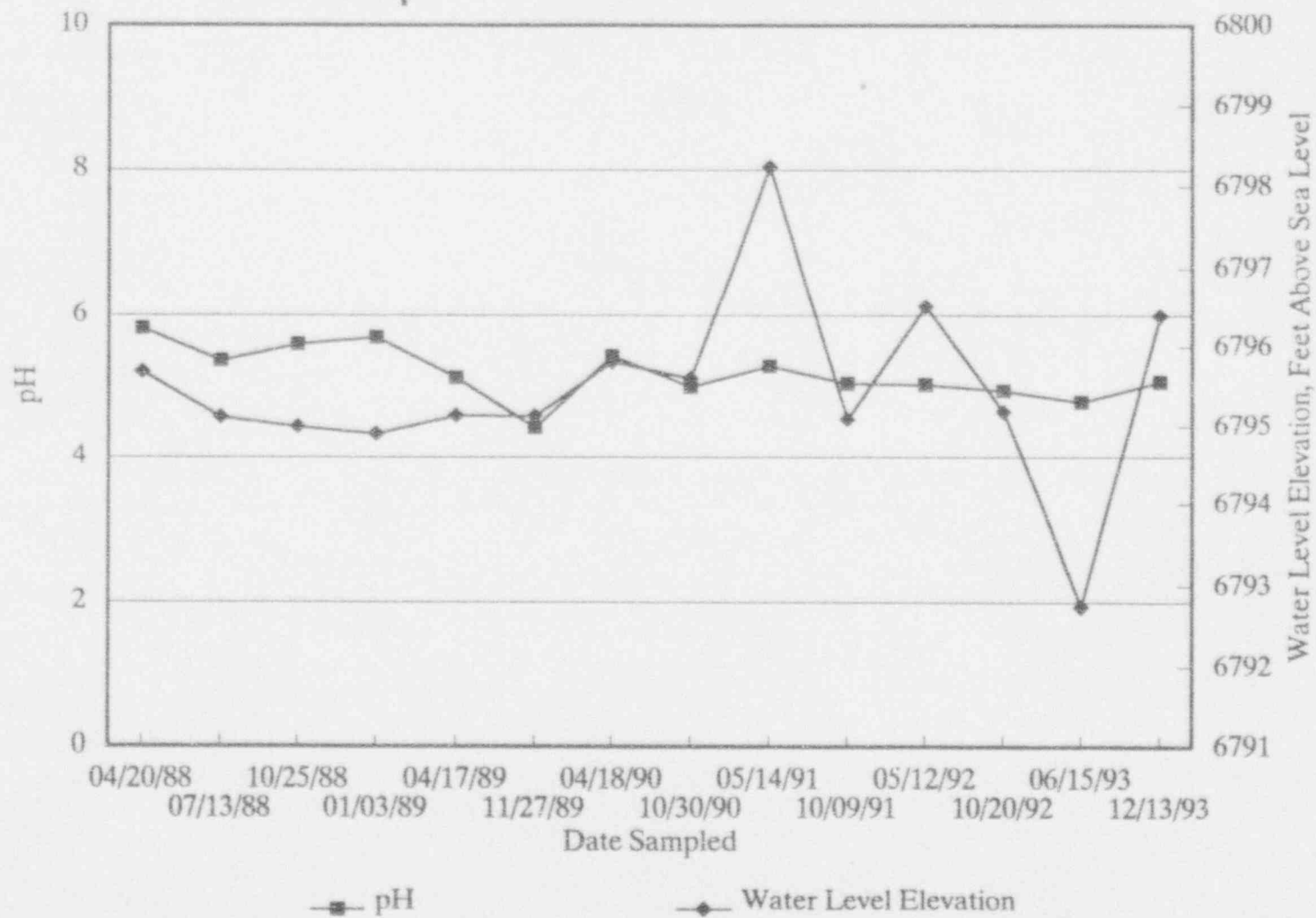
G.W. 6 pH & Water Level Elevation



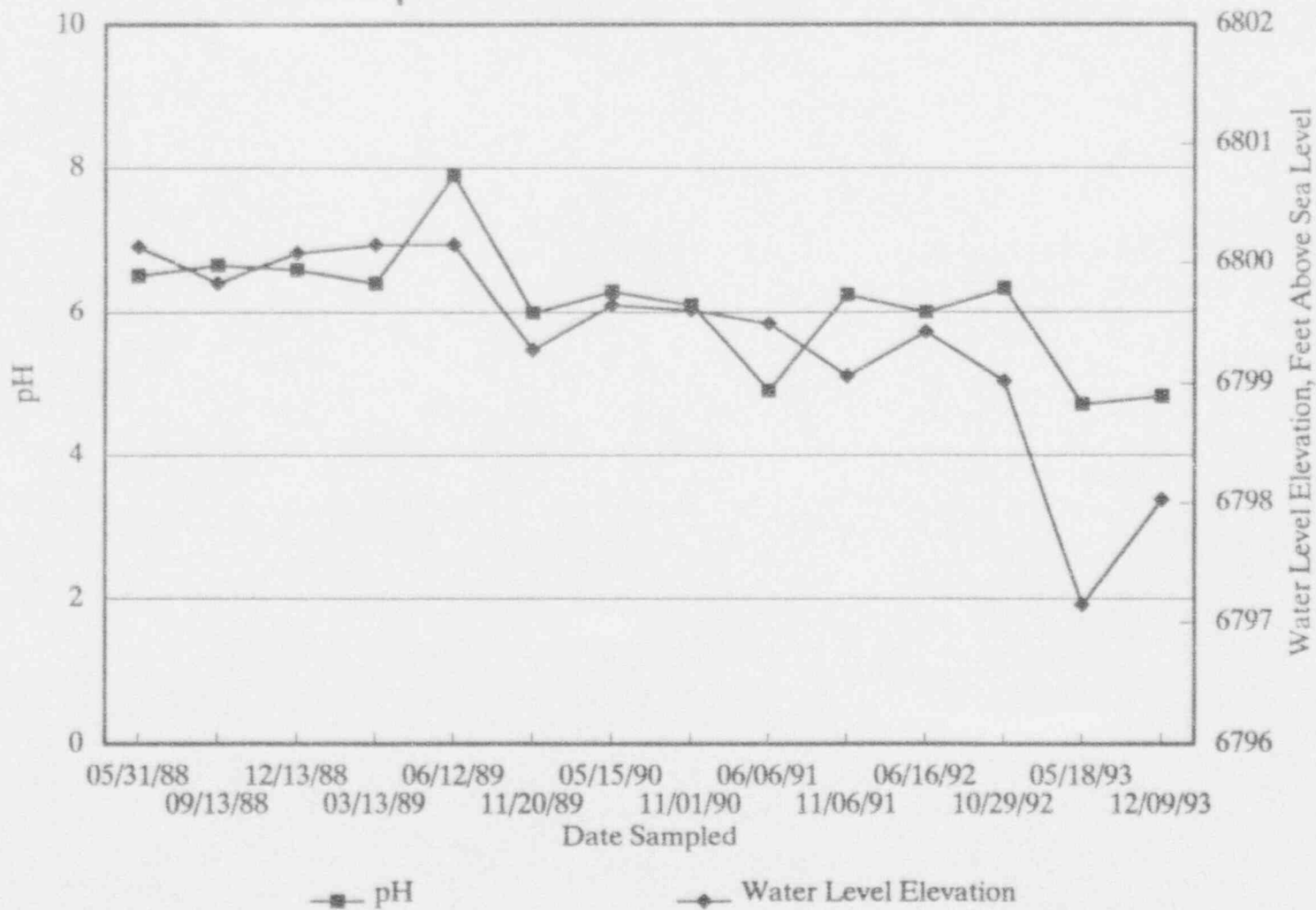
G.W. 7 pH & Water Level Elevation



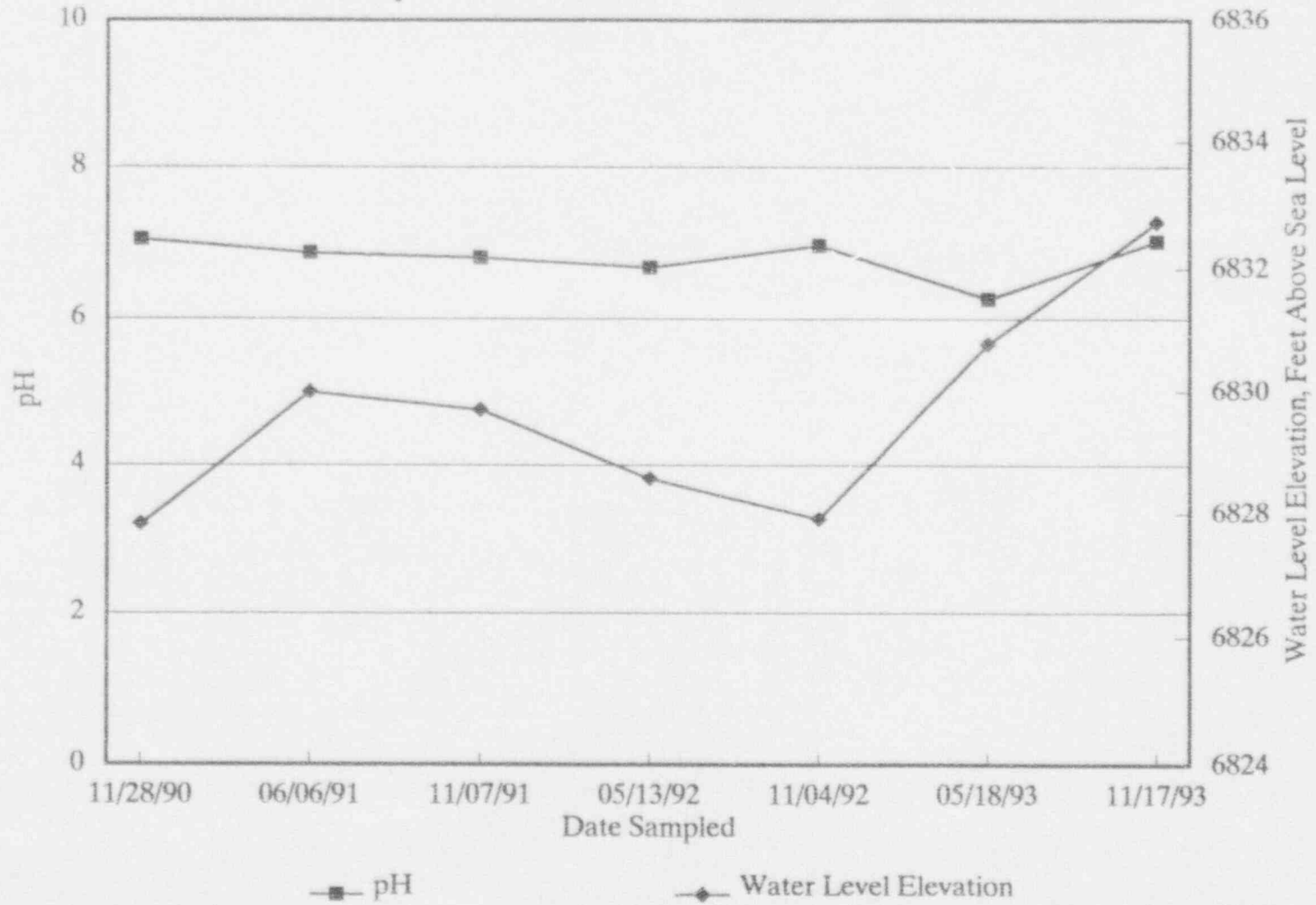
G.W. 8 pH & Water Level Elevation



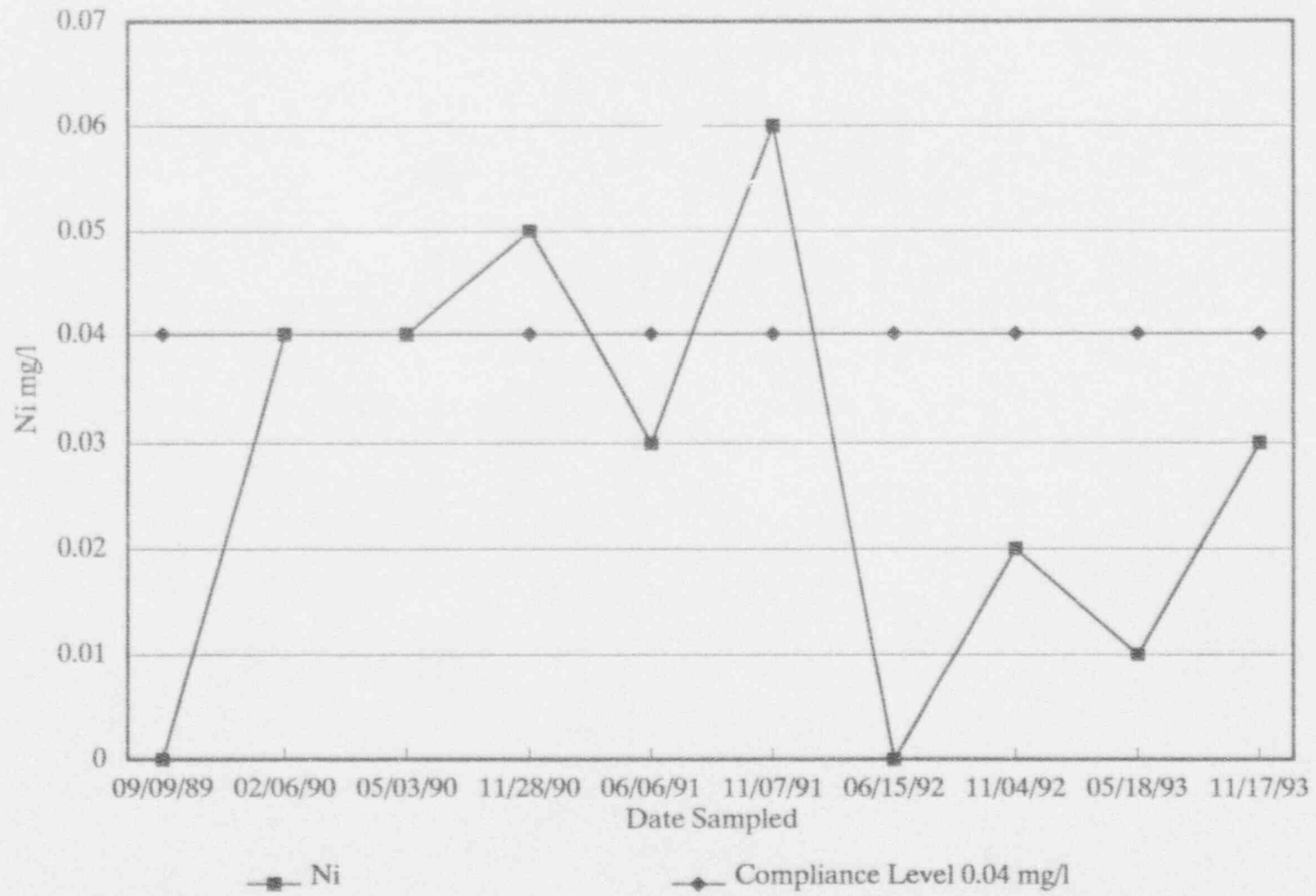
R.W. 2 pH & Water Level Elevation



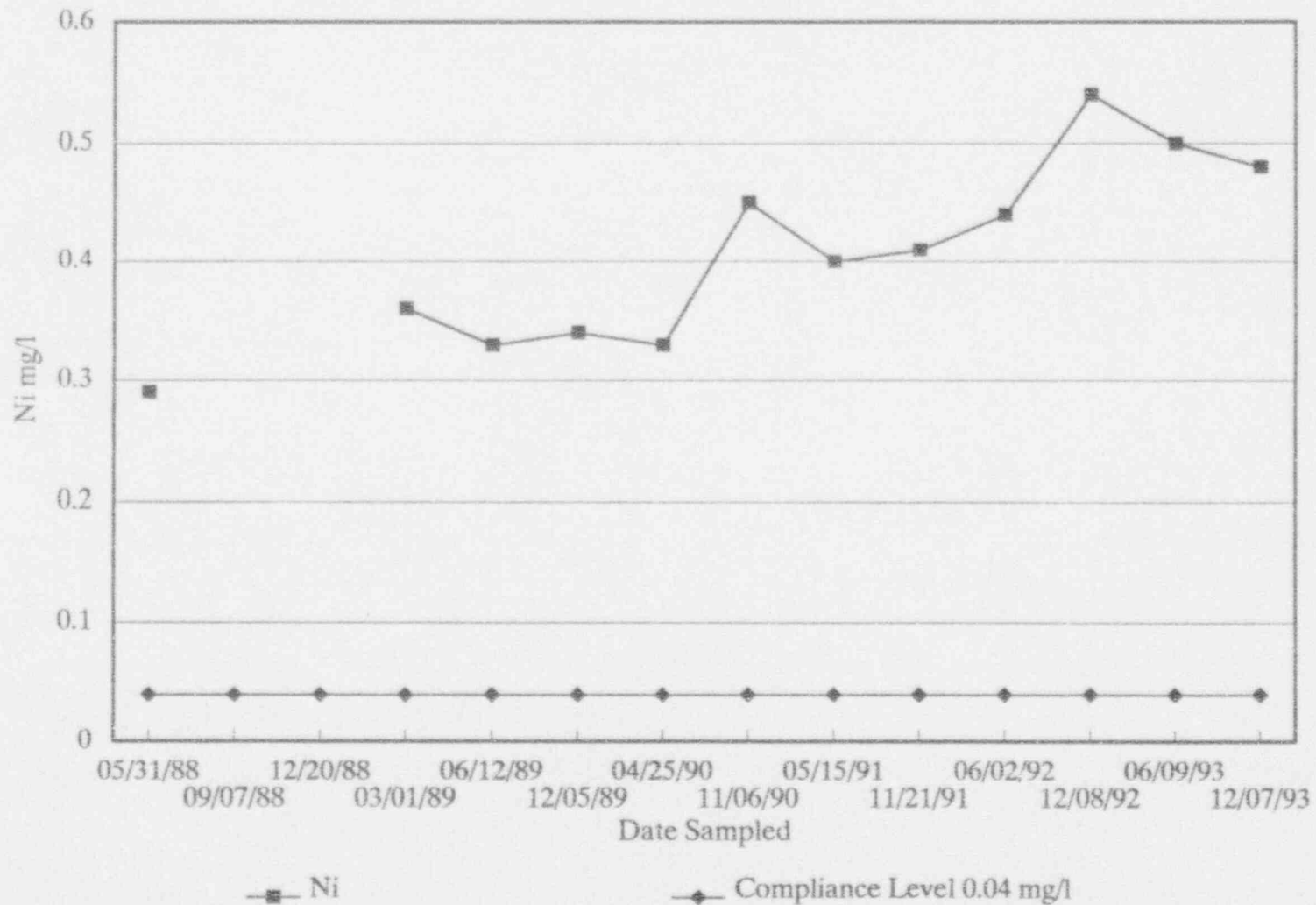
P.W. 7 pH & Water Level Elevation



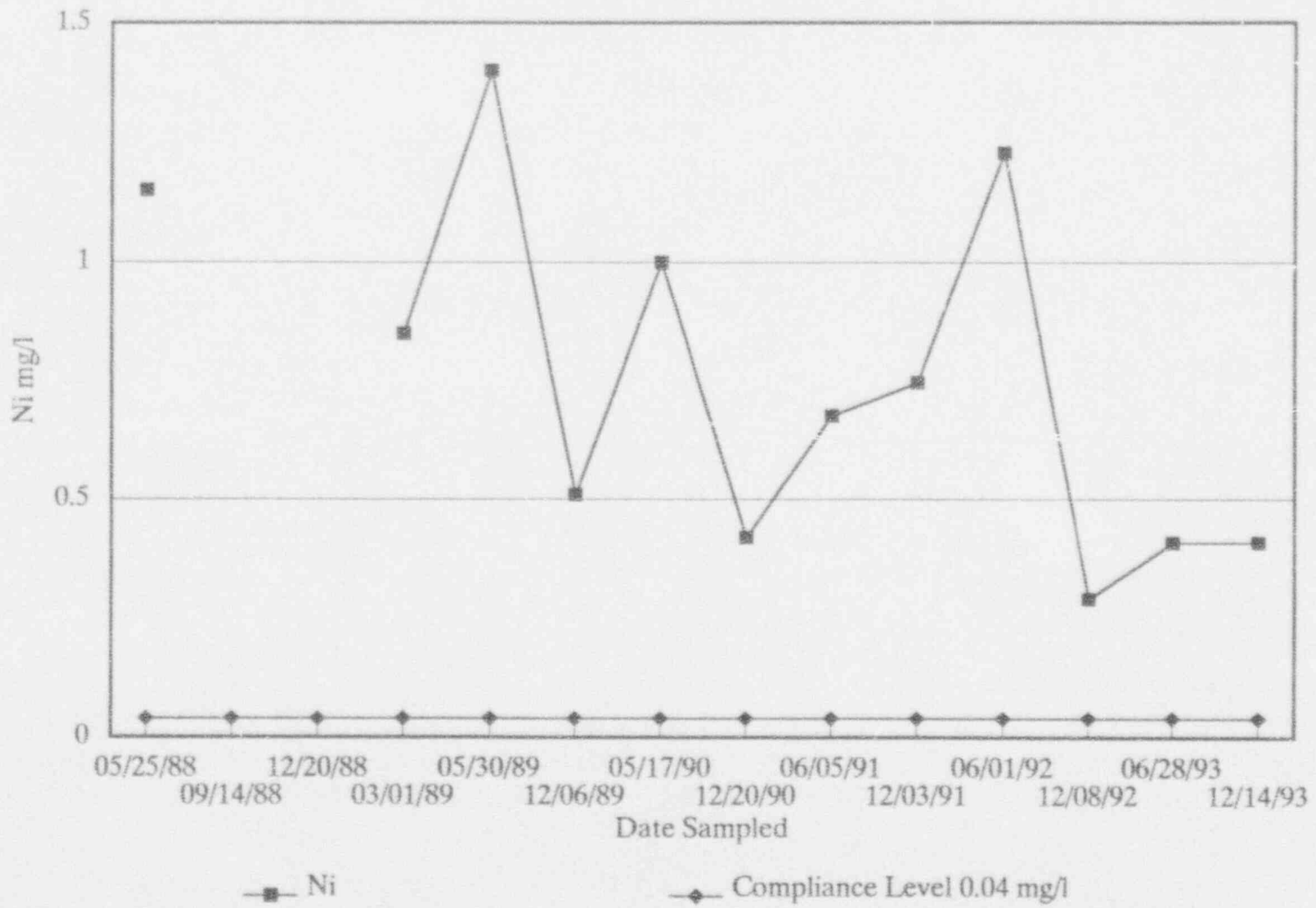
L.A. 2 Nickel



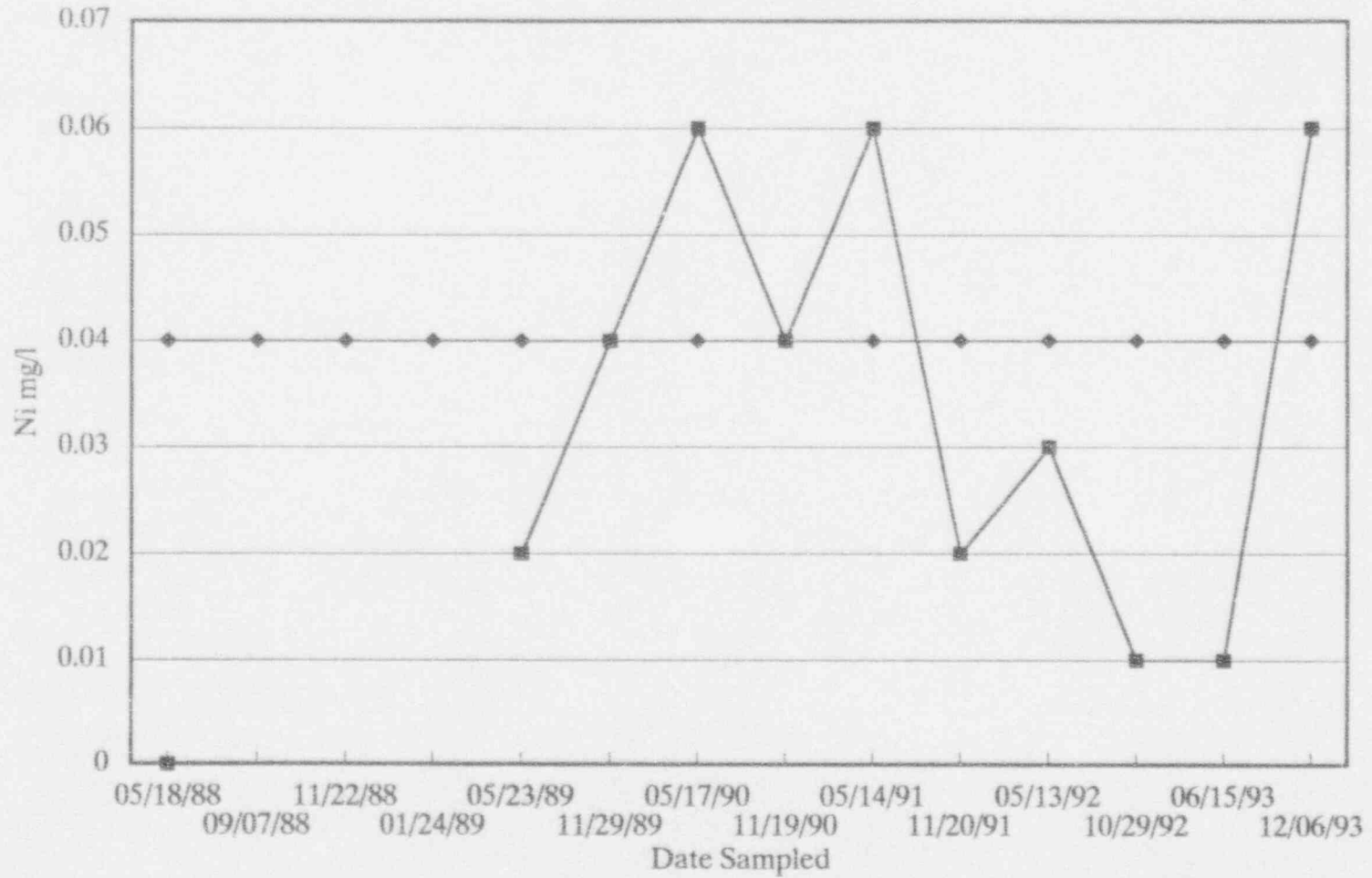
P.W. 2 Nickel



G.W. 1 Nickel



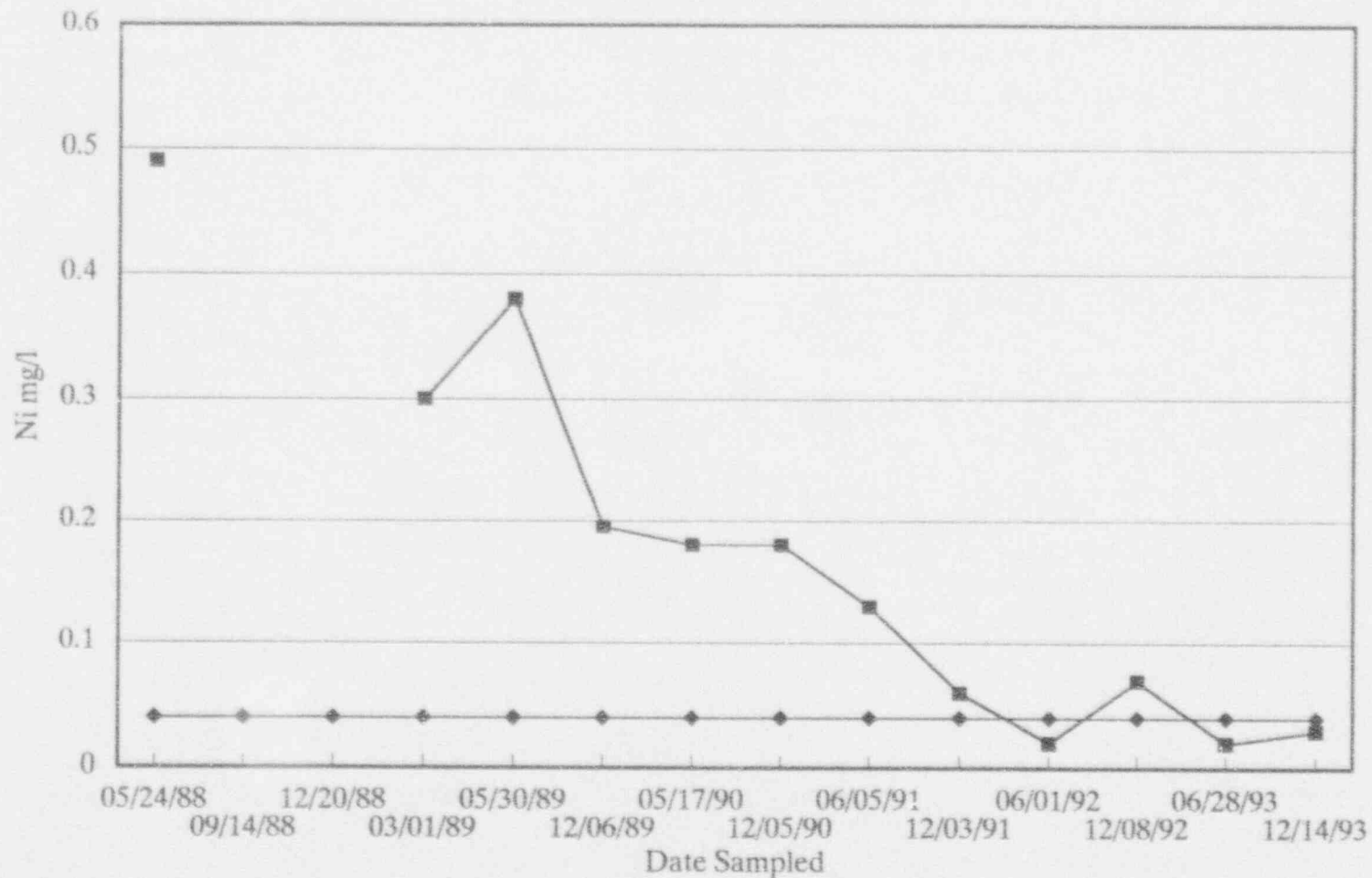
G.W. 4 Nickel



—■— Ni

—◆— Compliance Level 0.04 mg/l

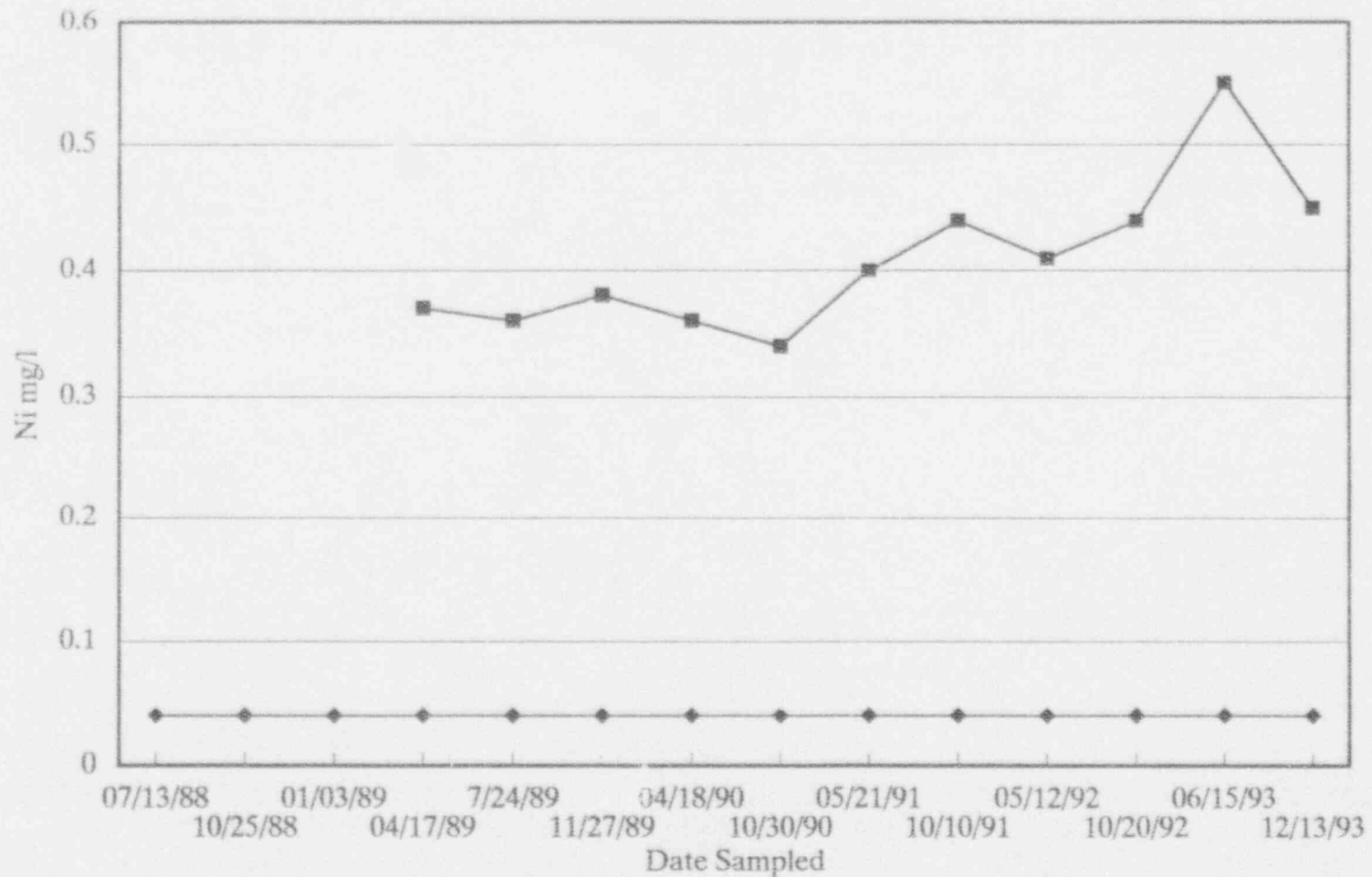
G.W. 5 Nickel



■ Ni

◆ Compliance Level 0.04 mg/l

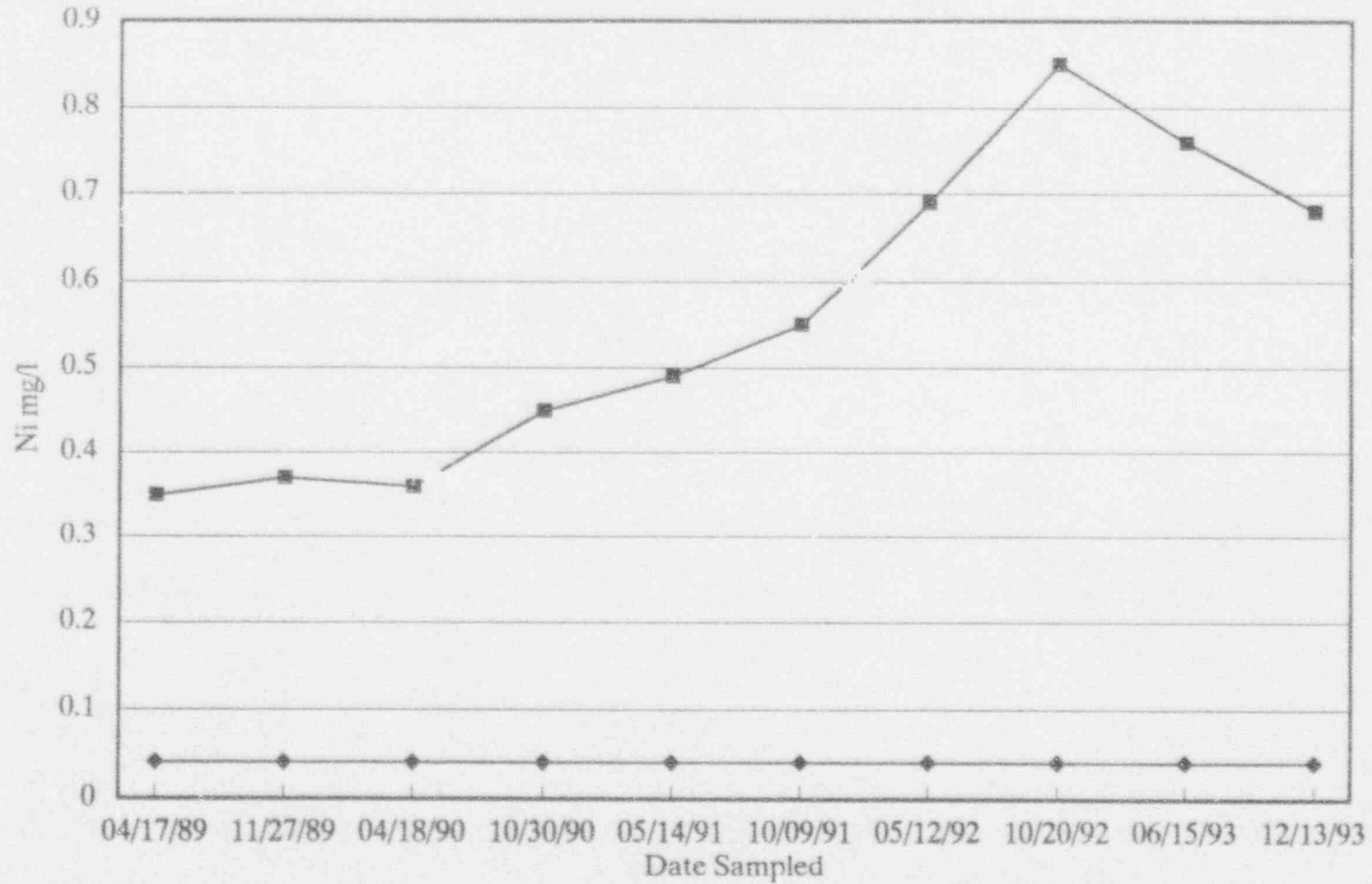
G.W. 7 Nickel



■ Ni

◆ Compliance Level 0.04 mg/l

G.W. 8 Nickel



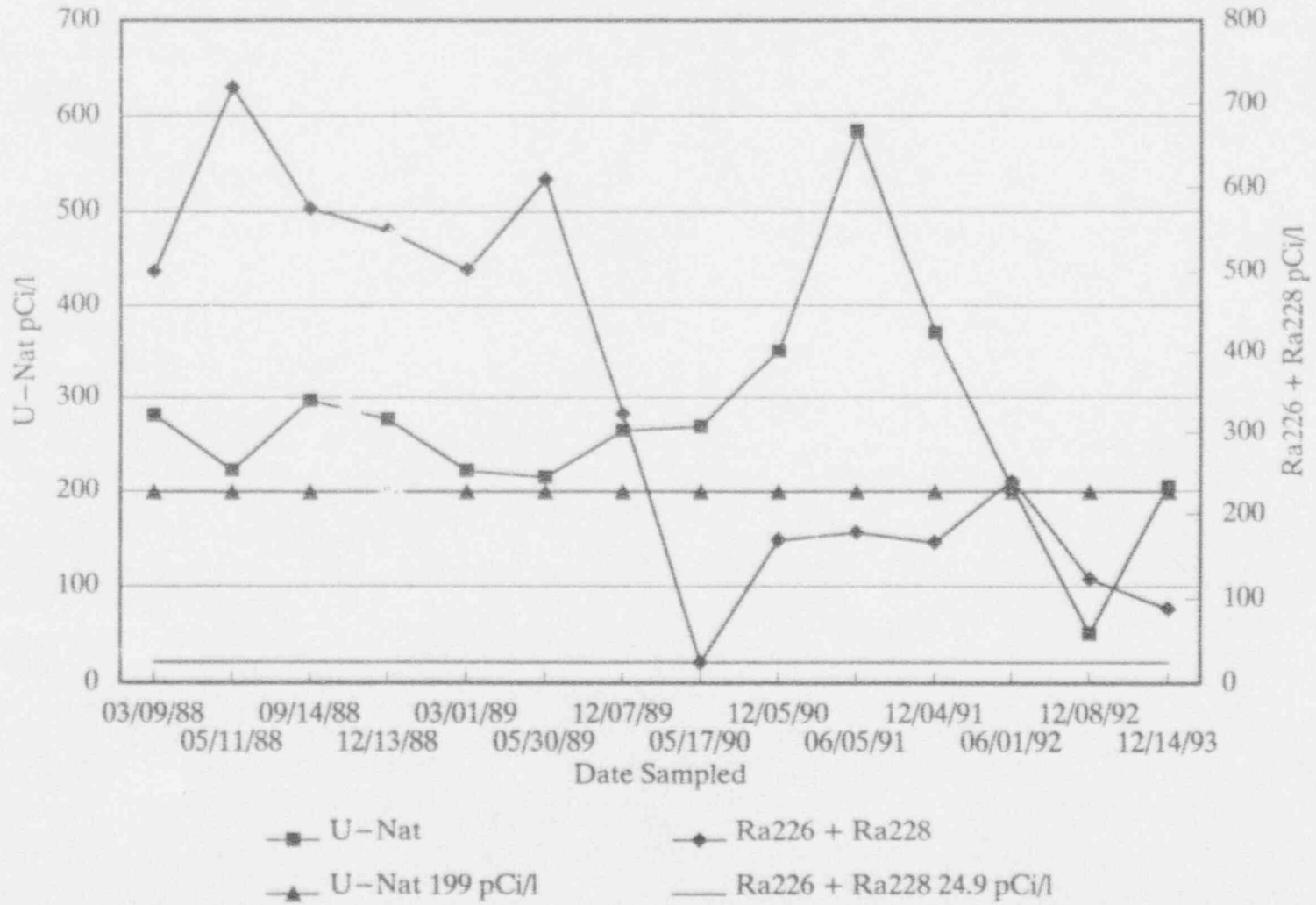
■ Ni

◆ Compliance Level 0.04 mg/l

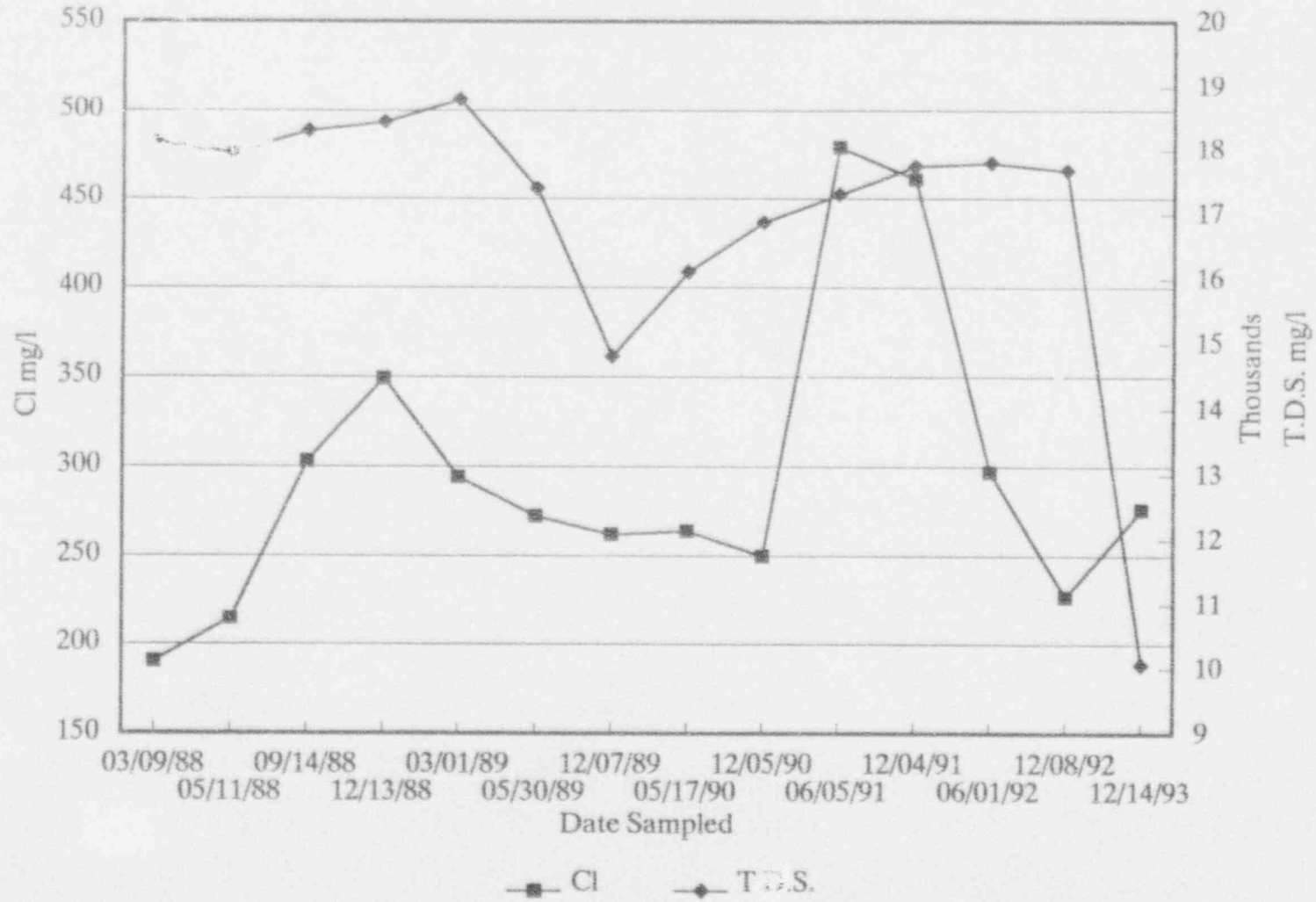
GROUND WATER ANALYSES FOR G. W. 3

Date Sampled	12/04/91	06/01/92	12/08/92	12/14/93
UNat pCi/l	371.00	204.00	51.70	205.00
UNat % M.P.C.	1.24	0.68	0.17	0.68
Ra226 pCi/l	292.00	258.00	281.00	160.00
Ra226 Error +/-	6.70	6.40	4.80	4.30
Ra226 % M.P.C.	973.33	860.00	936.67	533.33
Ra228 pCi/l	49.80	72.20	37.10	26.40
Ra228 Error +/-	0.90	3.40	5.10	3.80
Ra228 % M.P.C.	166.00	240.67	123.67	88.00
Th230 pCi/l	<1.0	<1.0	<1.0	6.90
Th230 Error +/-				0.70
Th230 % M.P.C.				0.35
Pb210 pCi/l	21.80	<1.0	22.20	9.70
Pb210 Error +/-	1.30		1.90	1.10
Pb210 % M.P.C.	21.80		22.20	9.70
Gross Alpha - U & Rn pCi/l	300.00	267.00	300.00	207.00
Gross Alpha Error +/-	17.30	16.30	17.00	14.40
As mg/l	0.025	0.02	0.02	0.012
Se mg/l	<0.005	<0.005	0.011	<0.001
Fe mg/l	2028.00	875.00	1785.00	1039.00
Pb mg/l	0.01	<0.01		
Mo mg/l	0.10	0.06		
Al mg/l	478.00	420.00		
Be mg/l	1.06	1.16	0.92	<0.01
Ni mg/l	10.40	10.40	9.62	6.48
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	0.14		
Cd mg/l	<0.005	0.091		
Cr mg/l	<0.01	<0.01		
Ca mg/l	397.00	377.00	395.00	397.00
Mg mg/l	503.00	542.00	476.00	311.00
Na mg/l	271.00	260.00	270.00	214.00
K mg/l	122.00	127.00		
NH3 mg/l	517.00	660.00		
NO3 mg/l	<0.01	<0.10	<0.10	0.21
SO4 mg/l	12600.00	10948.00	11597.00	6310.00
Cl mg/l	461.00	297.00	227.00	276.00
TDS mg/l	1775.00	17800.00	17678.00	10060.00
pH	4.07	3.58	4.11	4.68
Water Elevation	6797.92	6797.75	6794.07	6797.77

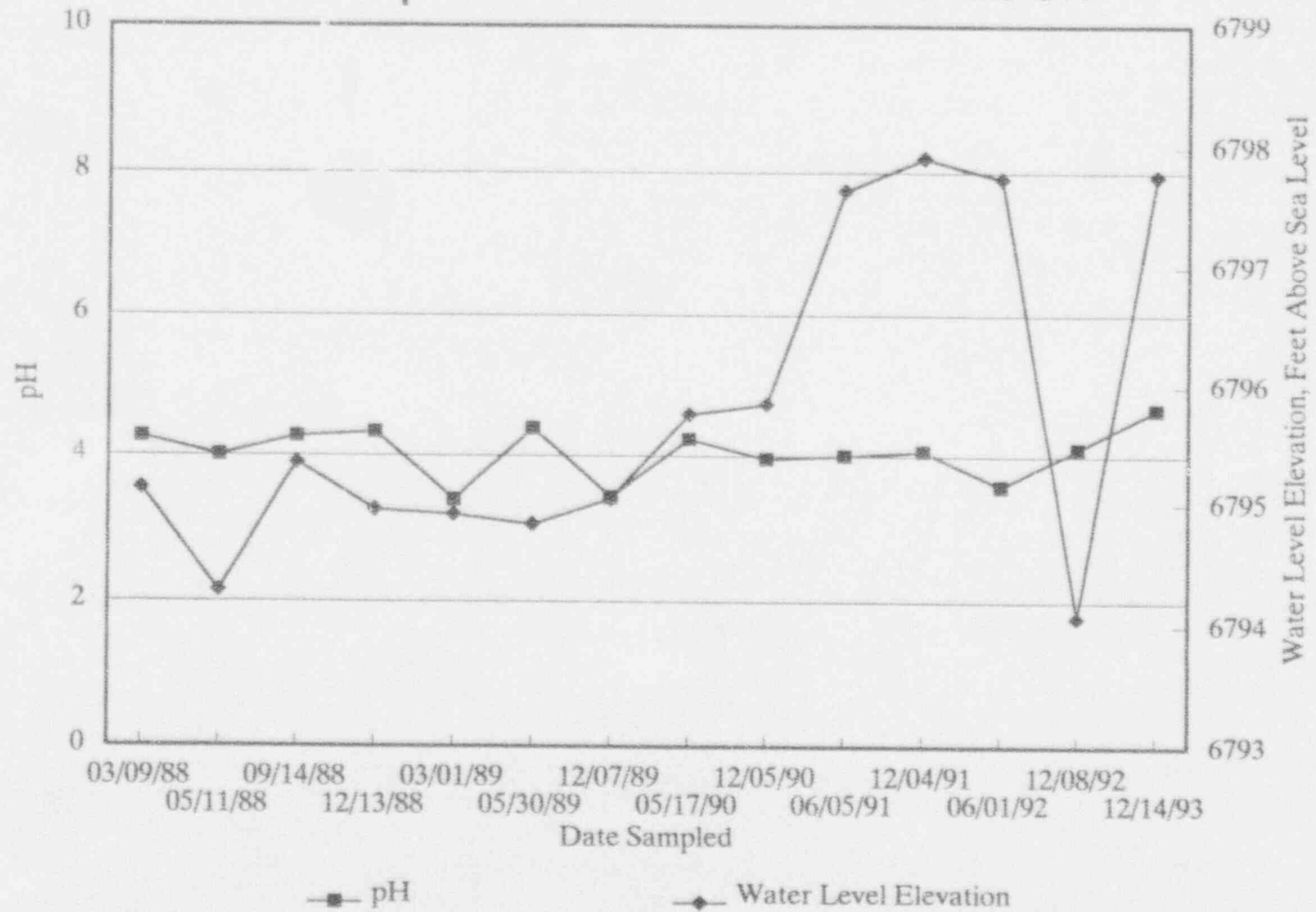
G.W. 3 U-Nat & Ra226 + Ra228



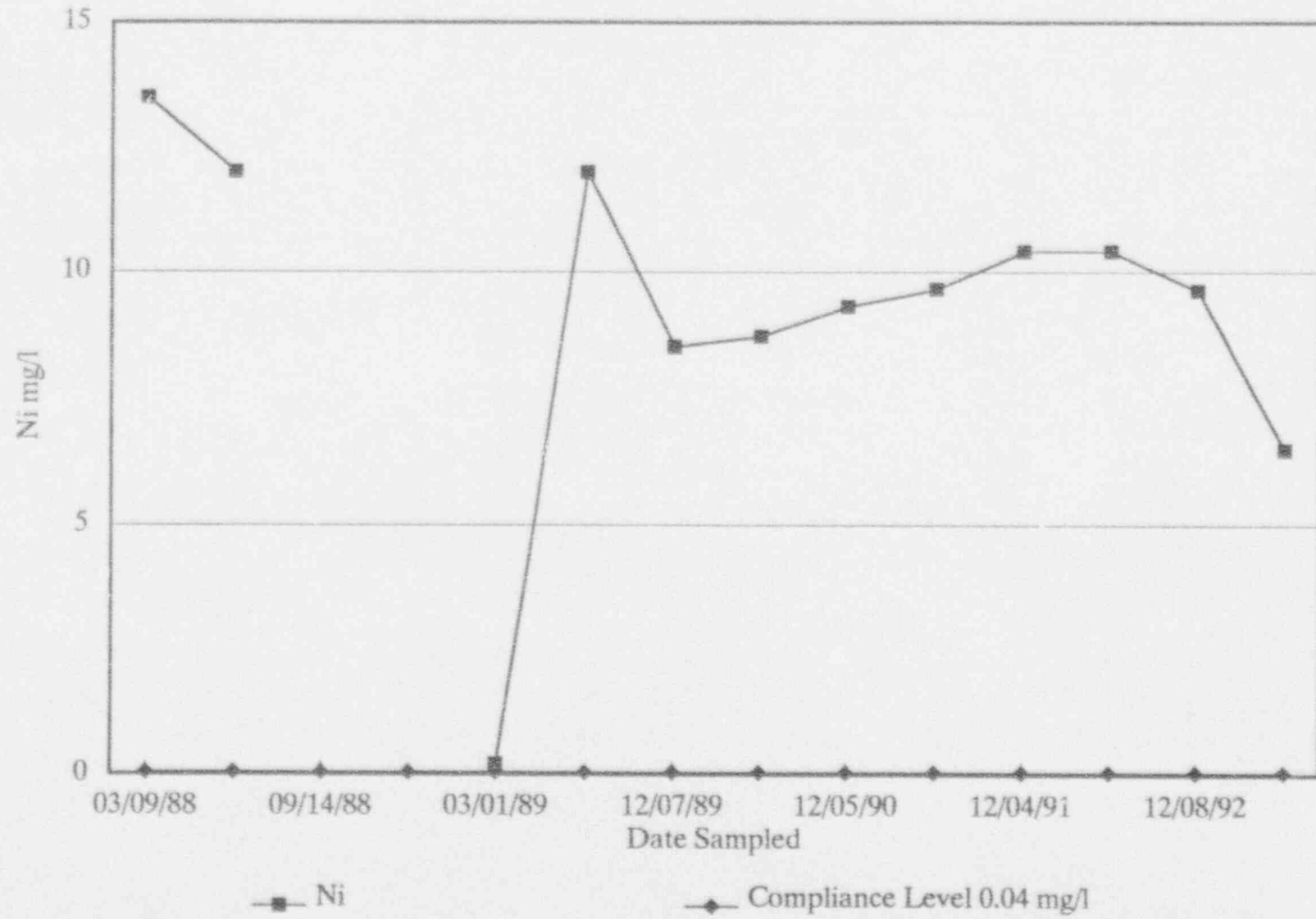
G.W. 3 Chloride & T.D.S.



G.W. 3 pH & Water Level Elevation



G.W. 3 Nickel



GROUND WATER ANALYSES FOR H. W. 2

Date Sampled	05/20/92	11/11/92	06/23/93	12/06/93
UNat pCi/l	315.00	221.00	253.00	309.00
UNat % M.P.C.	1.05	0.74	0.84	1.03
Ra226 pCi/l	34.30	48.40	44.90	47.00
Ra226 Error +/-	2.70	2.40	2.00	2.50
Ra226 % M.P.C.	114.33	161.33	149.67	156.67
Ra228 pCi/l	16.90	14.40	12.80	16.00
Ra228 Error +/-	1.30	1.40	2.10	0.80
Ra228 % M.P.C.	56.33	48.00	42.67	53.33
Th230 pCi/l	<1.0	<1.0	2.60	9.70
Th230 Error +/-			0.30	0.90
Th230 % M.P.C.			0.13	0.49
Pb210 pCi/l	4.60	10.10	7.40	10.60
Pb210 Error +/-	0.60	0.90	1.00	1.10
Pb210 % M.P.C.	4.60	10.10	7.40	10.60
Gross Alpha - U & Rn pCi/l	34.90	49.50	53.70	80.70
Gross Alpha Error +/-	5.90	7.00	7.30	8.90
As mg/l	0.02	0.02	0.01	0.013
Se mg/l	<0.005	0.01	<0.005	<0.001
Fe mg/l	35.00	64.60	47.00	49.47
Pb mg/l	0.04	0.05		
Mo mg/l	<0.01	<0.01		
Al mg/l	15.60	17.90		
Be mg/l	0.02	0.03	0.02	0.02
Ni mg/l	0.26	0.32	0.34	0.36
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	0.008		
Cr mg/l	<0.01	<0.01		
Ca mg/l	143.00	162.00	177.00	149.00
Mg mg/l	22.10	30.10	22.10	22.70
Na mg/l	15.60	15.50	16.40	13.90
K mg/l	10.80	11.30		
NH3 mg/l	0.23	<0.05		
NO3 mg/l	<0.10	<0.10	<0.01	<0.10
SO4 mg/l	661.00	735.00	766.00	688.00
Cl mg/l	21.90	20.10	15.20	19.50
TDS mg/l	1086.00	1118.00	1052.00	1105.00
pH	4.33	4.89	4.05	4.55
Water Elevation	6812.39	6812.00	6811.85	6811.76

GROUND WATER ANALYSES FOR H. W. 3

Date Sampled	06/02/92	12/08/92	06/09/93	12/06/93
UNat pCi/l	119.00	9.60	89.20	178.70
UNat % M.P.C.	0.40	0.03	0.30	0.60
Ra226 pCi/l	9.90	14.20	18.20	18.30
Ra226 Error +/-	0.50	1.50	1.40	0.70
Ra226 % M.P.C.	33.00	47.33	60.67	61.00
Ra228 pCi/l	<1.0	4.90	9.10	6.40
Ra228 Error +/-		0.40	0.60	0.70
Ra228 % M.P.C.		16.33	30.33	21.33
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	2.70	<1.0	<1.0	2.80
Pb210 Error +/-	0.70			0.90
Pb210 % M.P.C.	2.70			2.80
Gross Alpha - U & Rn pCi/l	10.20	14.30	20.00	27.90
Gross Alpha Error +/-	3.20	3.80	1.50	5.30
As mg/l	0.04	0.05	0.05	0.029
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	18.78	19.20	25.50	49.73
Pb mg/l	<0.01			
Mo mg/l	0.04			
Al mg/l	0.15			
Be mg/l	<0.01	<0.01	<0.01	
Ni mg/l	0.14	0.13	0.21	0.46
Ag mg/l	<0.01			
V mg/l	<0.01			
Cd mg/l	<0.005			
Cr mg/l	0.01			
Ca mg/l	617.00	603.00	641.00	633.00
Mg mg/l	102.00	94.30	95.20	84.90
Na mg/l	106.00	99.00	103.00	109.00
K mg/l	18.80			
NH3 mg/l	0.61			
NO3 mg/l	<0.10	<0.10	0.10	<0.10
SO4 mg/l	1685.00	1768.00	1749.00	1903.00
Cl mg/l	94.30	117.00	150.00	136.00
TDS mg/l	2948.00	3061.00	3325.00	3399.00
pH	6.60	6.78	6.42	6.64
Water Elevation	6837.92	6837.53	6837.00	6837.11

GROUND WATER ANALYSES FOR E.W. 1

Date Sampled	05/20/92	11/11/92	06/23/93	12/08/93
UNat $\mu\text{Ci/l}$	28.60	40.30	18.20	15.20
UNat % M.P.C.	0.10	0.13	0.06	0.05
Ra226 $\mu\text{Ci/l}$	29.80	37.10	23.10	20.60
Ra226 Error +/-	2.00	2.00	1.50	1.60
Ra226 % M.P.C.	99.33	123.67	77.00	68.67
Ra228 $\mu\text{Ci/l}$	14.10	30.30	12.80	14.30
Ra228 Error +/-	1.40	1.70	2.20	0.70
Ra228 % M.P.C.	47.00	101.00	42.67	47.67
Th230 $\mu\text{Ci/l}$	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 $\mu\text{Ci/l}$	8.20	11.10	4.50	5.90
Pb210 Error +/-	0.70	0.90	1.00	1.00
Pb210 % M.P.C.	8.20	11.10	4.50	5.90
Gross Alpha - U & Rn $\mu\text{Ci/l}$	30.50	37.20	29.30	42.00
Gross Alpha Error +/-	5.50	6.10	5.40	6.50
As mg/l	0.07	0.07	0.08	0.098
Se mg/l	<0.005	0.009	<0.005	<0.001
Fe mg/l	217.00	198.00	216.00	198.00
Pb mg/l	0.03	0.04		
Mo mg/l	0.04	<0.01		
Al mg/l	15.30	17.20		
Be mg/l	0.09	0.10	0.10	0.09
Ni mg/l	1.25	1.18	1.48	1.27
Ag mg/l	<0.01	0.02		
V mg/l	<0.01	0.01		
Cd mg/l	<0.005	0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	341.00	358.00	318.00	379.00
Mg mg/l	121.00	116.00	111.00	90.60
Na mg/l	32.60	41.40	35.80	33.10
K mg/l	16.60	21.40		
NH3 mg/l	0.29	0.42		
NO3 mg/l	<0.10	<0.10	<0.01	0.13
SO4 mg/l	2000.00	1848.00	2078.00	1848.00
Cl mg/l	15.60	19.90	24.70	21.60
TDS mg/l	3023.00	2852.00	3144.00	2968.00
pH	4.15	4.55	4.11	4.68
Water Elevation	6805.35	6804.78	6804.83	6804.55

GROUND WATER ANALYSES FOR E. W. 2

Date Sampled	05/20/92	11/11/92	06/23/93	12/08/93
UNat pCi/l	1133.00	998.00	1316.00	1285.00
UNat % M.P.C.	3.78	3.33	4.39	4.28
Ra226 pCi/l	37.60	43.60	29.50	22.80
Ra226 Error +/-	2.20	2.20	1.70	1.70
Ra226 % M.P.C.	125.33	145.33	98.33	76.00
Ra228 pCi/l	18.60	6.50	2.90	7.30
Ra228 Error +/-	0.70	1.70	0.60	0.70
Ra228 % M.P.C.	62.00	21.67	9.67	24.33
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	9.50	9.70	6.80	5.10
Pb210 Error +/-	0.70	0.90	1.00	1.70
Pb210 % M.P.C.	9.50	9.70	6.80	5.10
Gross Alpha - U & Rn pCi/l	37.80	43.90	31.00	75.70
Gross Alpha Error +/-	6.10	6.60	5.60	8.70
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	0.057	0.044	0.029	0.010
Fe mg/l	4.74	8.40	8.09	9.74
Pb mg/l	0.02	<0.01		
Mo mg/l	0.01	<0.01		
Al mg/l	56.10	38.10		
Be mg/l	0.11	0.09	0.08	0.07
Ni mg/l	0.90	0.63	0.55	0.46
Ag mg/l	<0.01	0.02		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	279.00	263.00	193.00	159.00
Mg mg/l	81.60	93.70	113.00	28.10
Na mg/l	38.90	40.30	23.70	21.10
K mg/l	15.20	12.80		
NH3 mg/l	0.23	<0.05		
NO3 mg/l	<0.10	<0.10	0.77	0.20
SO4 mg/l	1244.00	1129.00	1153.00	713.00
Cl mg/l	25.40	20.80	13.20	11.00
TDS mg/l	2132.00	1602.00	1334.00	1141.00
pH	3.61	3.82	3.42	4.03
Water Elevation	6798.69	6798.73	6798.05	6797.87

GROUND WATER ANALYSES FOR E. W. 3

Date Sampled	05/20/92	11/11/92	06/23/93	12/08/93
UNat pCi/l	332.00	193.00	322.00	333.00
UNat % M.P.C.	1.11	0.64	1.07	1.11
Ra226 pCi/l	11.20	15.50	15.80	15.50
Ra226 Error +/-	0.70	0.70	1.60	1.40
Ra226 % M.P.C.	37.33	51.67	52.67	51.67
Ra228 pCi/l	5.20	2.50	5.50	6.30
Ra228 Error +/-	0.60	1.90	1.10	0.70
Ra228 % M.P.C.	17.33	8.33	18.33	21.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	1.90	4.70	<1.0	3.50
Pb210 Error +/-	0.60	0.80		0.90
Pb210 % M.P.C.	1.90	4.70		3.50
Gross Alpha - U & Rn pCi/l	11.80	15.70	18.50	24.90
Gross Alpha Error +/-	3.40	4.00	4.30	5.00
As mg/l	0.09	0.11	0.07	0.078
Se mg/l	<0.005	0.008	<0.005	<0.001
Fe mg/l	25.80	23.80	33.80	31.12
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	20.30	16.20		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.17	0.16	0.25	0.19
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	148.00	193.00	202.00	216.00
Mg mg/l	26.60	27.20	29.20	26.30
Na mg/l	18.30	14.80	15.00	16.10
K mg/l	10.70	9.10		
NH3 mg/l	0.34	<0.05		
NO3 mg/l	<0.10	<0.10	<0.01	<0.10
SO4 mg/l	520.00	593.00	763.00	725.00
Cl mg/l	91.40	102.00	104.00	94.70
TDS mg/l	996.00	971.00	1225.00	1250.00
pH	4.66	5.65	4.45	5.10
Water Elevation	6802.44	6801.31	6800.46	6800.50

GROUND WATER ANALYSES FOR M. W. 30

Date Sampled	06/02/92	10/20/92	06/23/93	12/08/93
UNat pCi/l	73.70	3.90	39.50	37.10
UNat % M.P.C.	0.25	0.01	0.13	0.12
Ra226 pCi/l	5.00	5.70	11.70	14.20
Ra226 Error +/-	0.40	0.50	1.10	1.70
Ra226 % M.P.C.	16.67	19.00	39.00	47.33
Ra228 pCi/l	5.20	<1.0	4.60	<1.0
Ra228 Error +/-	0.80		2.70	
Ra228 % M.P.C.	17.33		15.33	
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	2.70	1.20	<1.0	17.70
Pb210 Error +/-	0.70	0.70		1.20
Pb210 % M.P.C.	2.70	1.20		17.70
Gross Alpha -- U & Rn pCi/l	5.10	6.00	14.00	14.30
Gross Alpha Error +/-	0.90	2.40	3.70	3.80
As mg/l	<0.01	<0.01	<0.01	0.002
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	0.19	0.74	0.25	1.08
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	<0.01		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	0.04	0.01	0.02	<0.01
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	135.00	147.00	154.00	134.00
Mg mg/l	17.20	14.00	15.40	11.80
Na mg/l	12.20	9.20	10.20	9.30
K mg/l	8.37	6.10		
NH3 mg/l	0.09	<0.05		
NO3 mg/l	<0.10	<0.10	<0.01	<0.10
SO4 mg/l	255.00	267.00	292.00	240.00
Cl mg/l	3.90	10.60	2.60	4.10
TDS mg/l	470.00	501.00	524.00	558.00
pH	7.28	7.29	6.01	6.99
Water Elevation	6768.63	6768.15	6767.25	6766.95

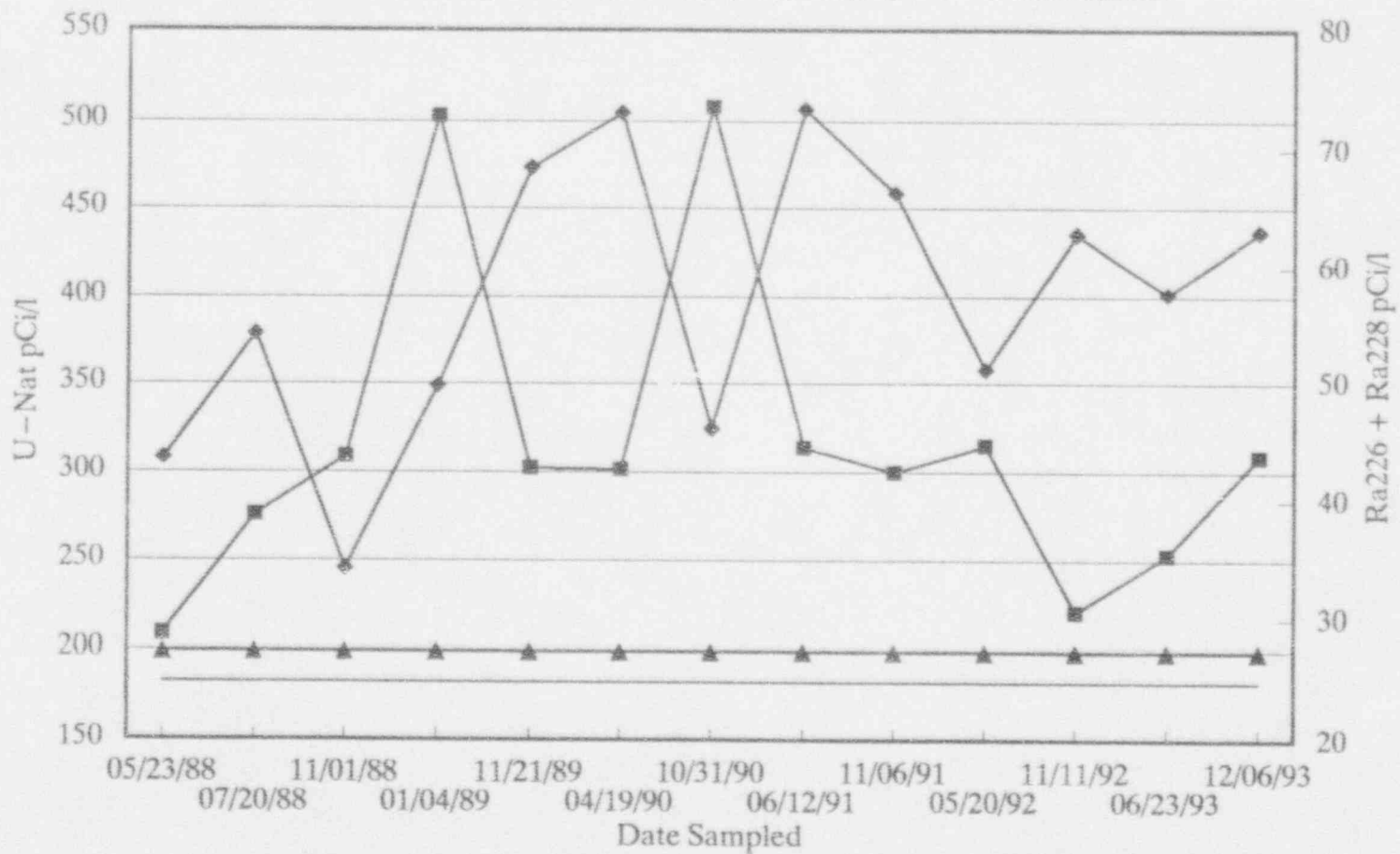
GROUND WATER ANALYSES FOR P.W. 5

Date Sampled	05/12/92	10/20/92	06/15/93	12/13/93
UNat pCi/l	26.70	70.00	39.40	29.70
UNat % M.P.C.	0.09	0.23	0.13	0.10
Ra226 pCi/l	8.40	6.80	11.30	13.50
Ra226 Error +/-	0.60	0.50	0.50	1.30
Ra226 % M.P.C.	28.00	22.67	37.67	45.00
Ra228 pCi/l	<1.0	<1.0	1.60	1.80
Ra228 Error +/-			0.80	0.60
Ra228 % M.P.C.			5.33	6.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	4.20	3.00	2.00
Pb210 Error +/-		0.70	0.90	0.90
Pb210 % M.P.C.		4.20	3.00	2.00
Gross Alpha - U & Rn pCi/l	8.60	14.00	11.80	17.20
Gross Alpha Error +/-	2.90	3.70	3.40	4.10
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	0.17	0.40	0.91	0.32
Pb mg/l	<0.01	<0.01		
Mo mg/l	0.02	<0.01		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	<0.01	0.02	<0.01	<0.01
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	135.00	146.00	147.00	145.00
Mg mg/l	18.80	18.20	17.20	17.10
Na mg/l	10.20	9.90	10.50	10.30
K mg/l	7.00	6.10		
NH3 mg/l	<0.05	<0.05		
NO3 mg/l	<0.10	<0.10	<0.01	<0.10
SO4 mg/l	275.00	293.00	283.00	273.00
Cl mg/l	6.60	8.90	7.30	6.30
TDS mg/l	475.00	562.00	581.00	629.00
pH	6.87	6.99	6.30	7.20
Water Elevation	6791.87	6788.17	6785.90	6789.04

GROUND WATER ANALYSES FOR P. W. 6

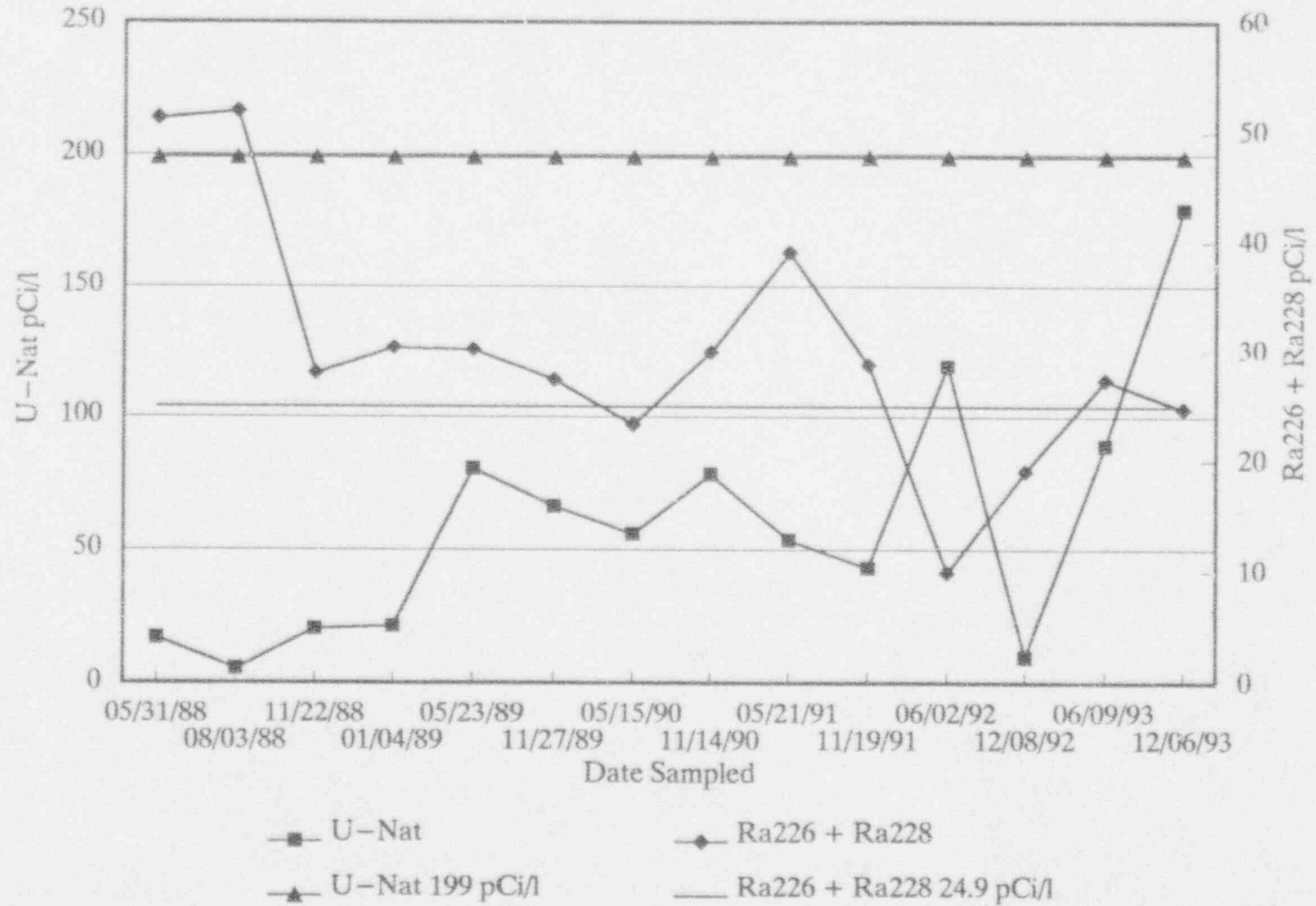
Date Sampled	05/13/92	11/04/92	05/18/93	11/17/93
UNat pCi/l	18.30	8.80	34.90	15.60
UNat % M.P.C	0.06	0.03	0.12	0.05
Ra226 pCi/l	10.90	11.00	8.50	11.40
Ra226 Error +/-	0.60	0.90	0.50	1.20
Ra226 % M.P.C.	36.33	36.67	28.33	38.00
Ra228 pCi/l	5.40	<1.0	4.10	4.80
Ra228 Error +/-	0.50		0.40	0.40
Ra228 % M.P.C.	18.00		13.67	16.00
Th230 pCi/l	<0.2	<1.0	<1.0	<1.0
Th230 Error +/-				
Th230 % M.P.C.				
Pb210 pCi/l	<1.0	<1.0	1.50	2.70
Pb210 Error +/-			0.70	0.70
Pb210 % M.P.C.			1.50	2.70
Gross Alpha -- U & Rn pCi/l	11.00	12.40	9.40	18.60
Gross Alpha Error +/-	3.30	3.50	2.10	4.30
As mg/l	<0.01	<0.01	<0.01	<0.001
Se mg/l	<0.005	<0.005	<0.005	<0.001
Fe mg/l	2.40	2.83	2.19	2.09
Pb mg/l	<0.01	<0.01		
Mo mg/l	<0.01	0.02		
Al mg/l	<0.10	<0.10		
Be mg/l	<0.01	<0.01	<0.01	<0.01
Ni mg/l	<0.01	<0.01	<0.01	0.02
Ag mg/l	<0.01	<0.01		
V mg/l	<0.01	<0.01		
Cd mg/l	<0.005	<0.005		
Cr mg/l	<0.01	<0.01		
Ca mg/l	168.00	163.00	169.00	175.00
Mg mg/l	23.10	24.20	22.70	22.20
Na mg/l	16.50	19.60	18.70	15.40
K mg/l	8.71	8.70		
NH3 mg/l	0.12	0.07	<0.05	
NO3 mg/l	<0.10	<0.10	<0.10	0.17
SO4 mg/l	376.00	367.00	392.00	392.00
Cl mg/l	3.80	9.40	3.30	2.80
TDS mg/l	723.00	738.00	736.00	710.00
pH	6.93	7.13	6.41	7.19
Water Elevation	6026.20	6825.02	6824.83	6825.82

H.W. 2 U-Nat & Ra226 + Ra228

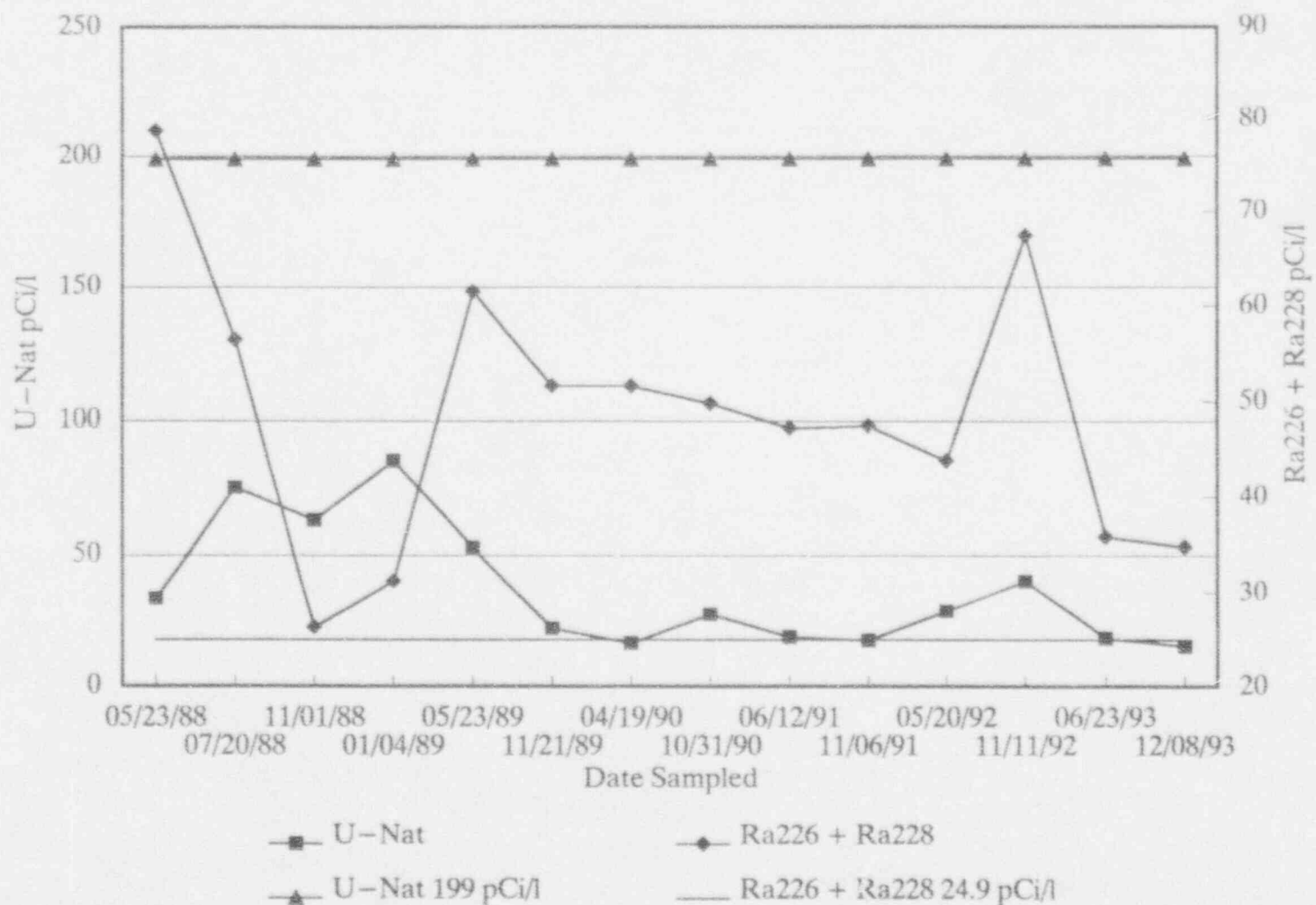


- U-Nat
- ▲ U-Nat 199 pCi/l
- ◆ Ra226 + Ra228
- Ra226 + Ra228 24.9 pCi/l

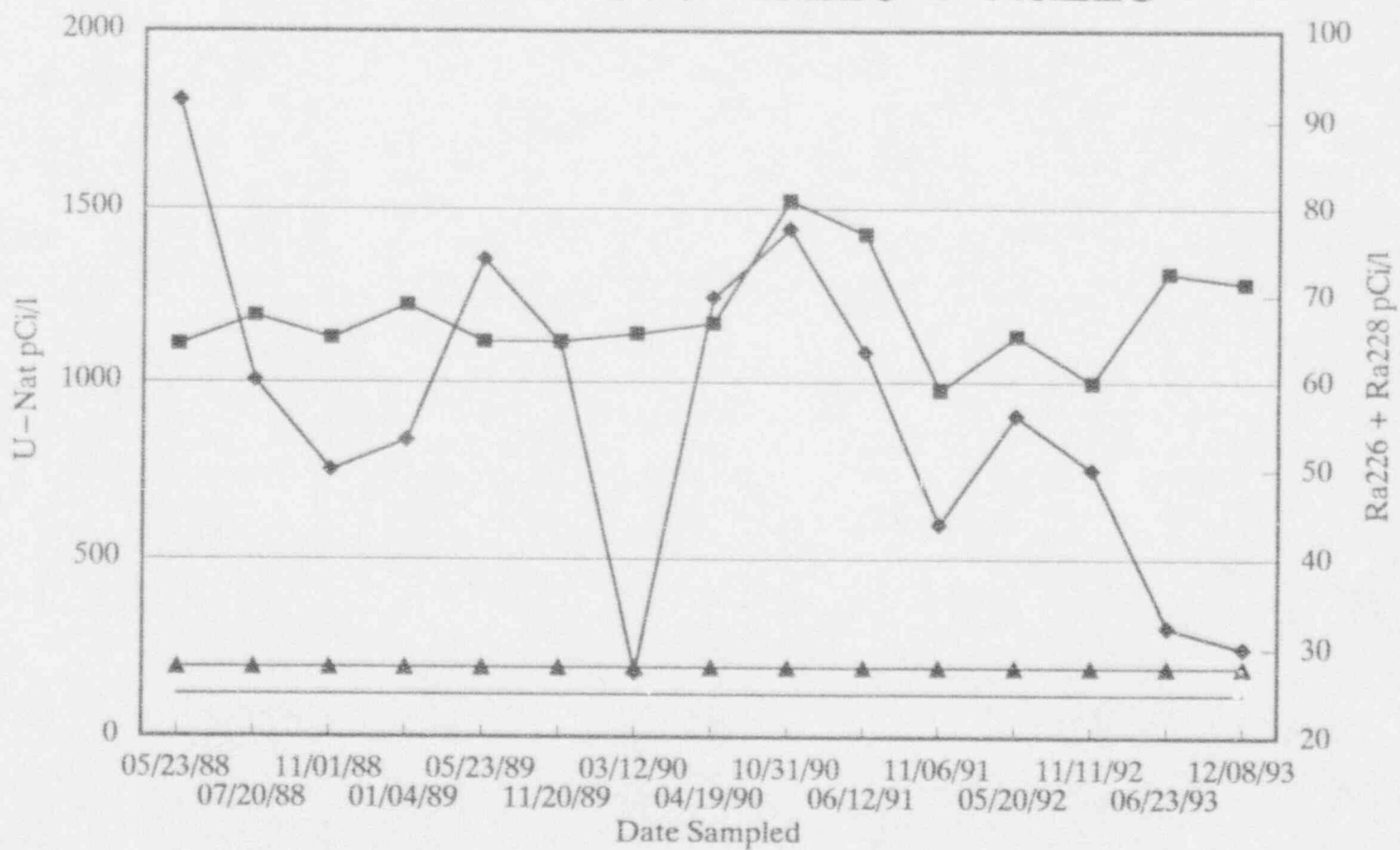
H.W. 3 U-Nat & Ra226 + Ra228



E.W. 1 U-Nat & Ra226 + Ra228

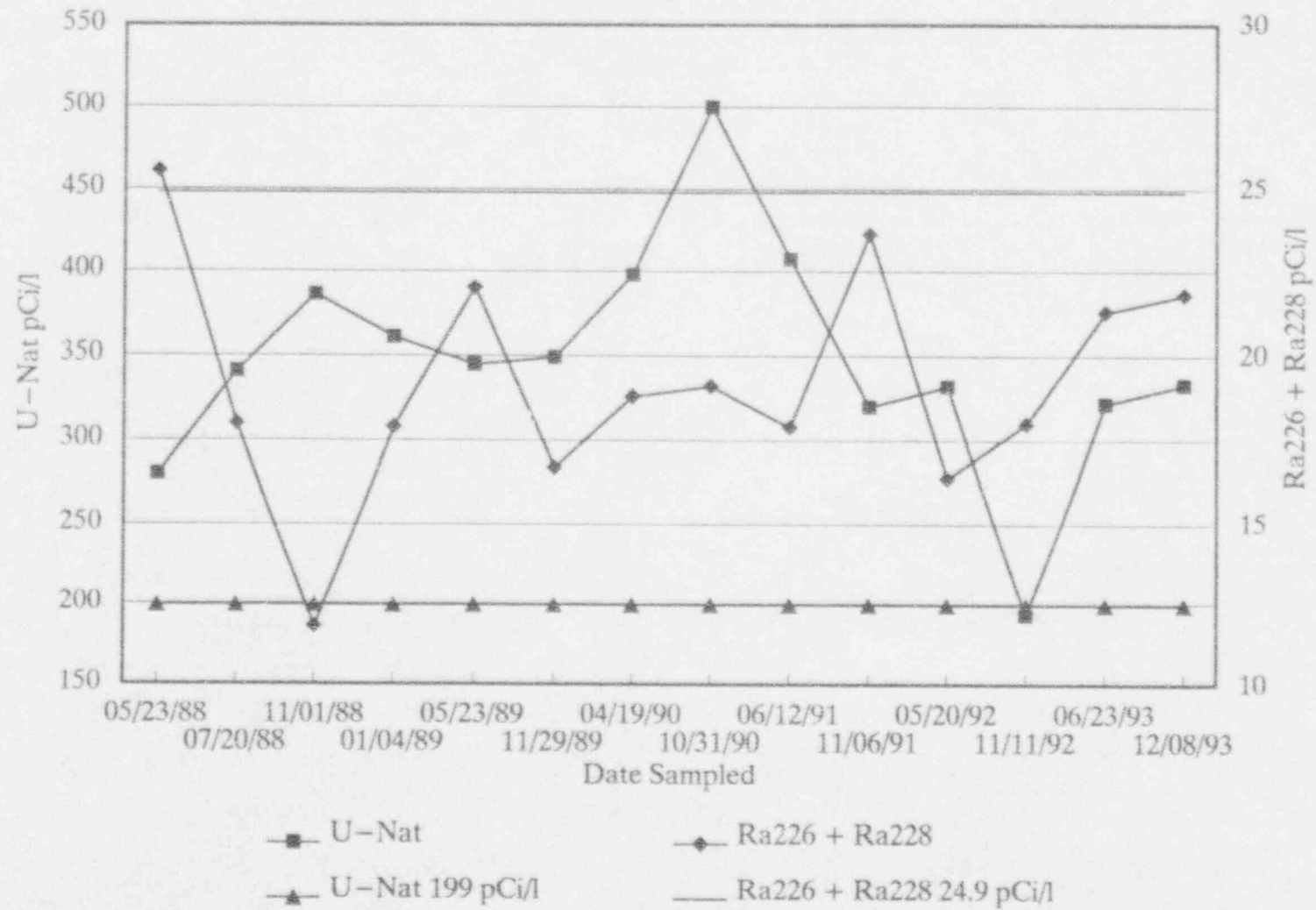


E.W. 2 U-Nat & Ra226 + Ra228

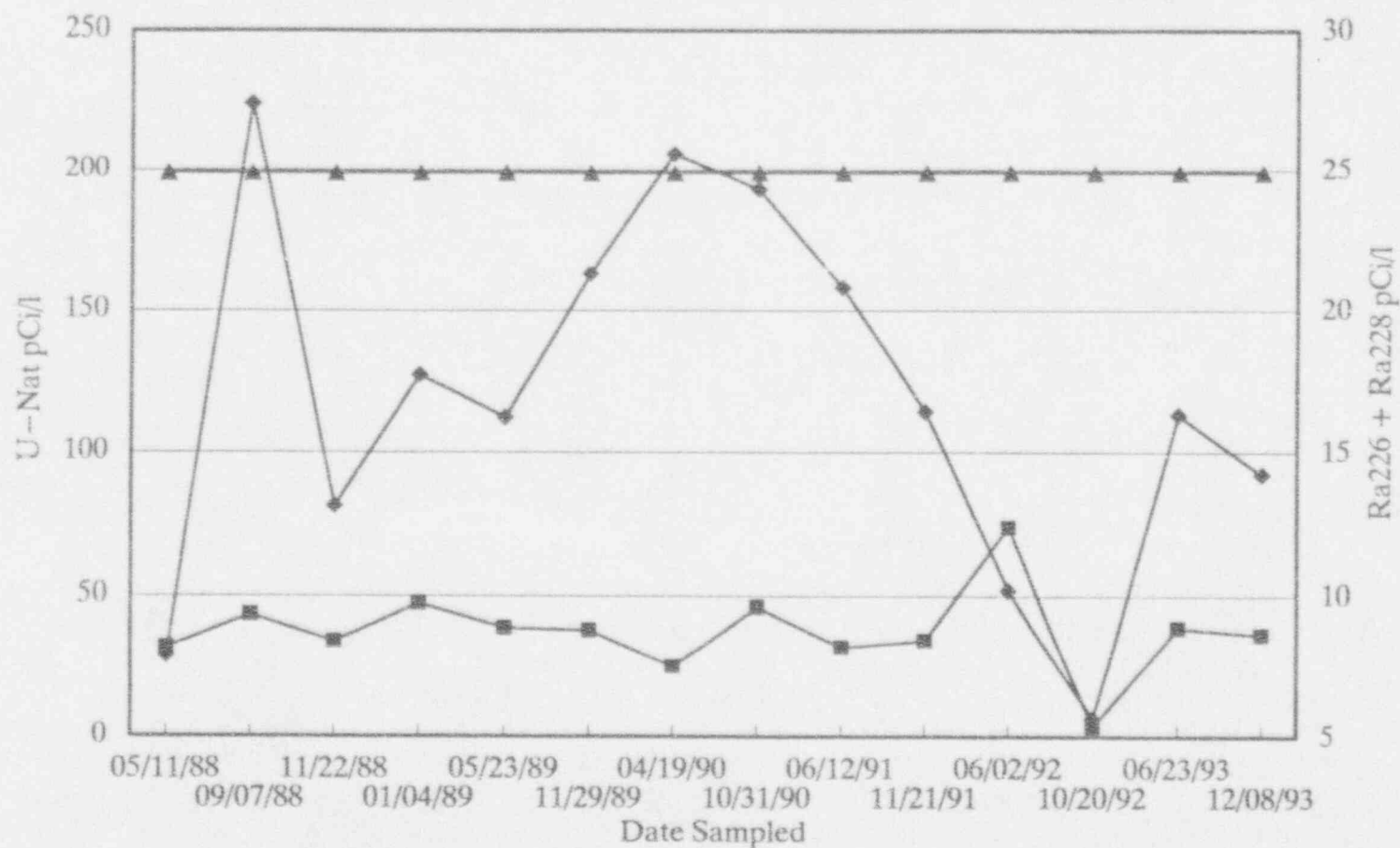


- U-Nat
- ◆ Ra226 + Ra228
- ▲ U-Nat 199 pCi/l
- Ra226 + Ra228 24.9 pCi/l

E.W. 3 U-Nat & Ra226 + Ra228



M.W. 30 U-Nat & Ra226 + Ra228



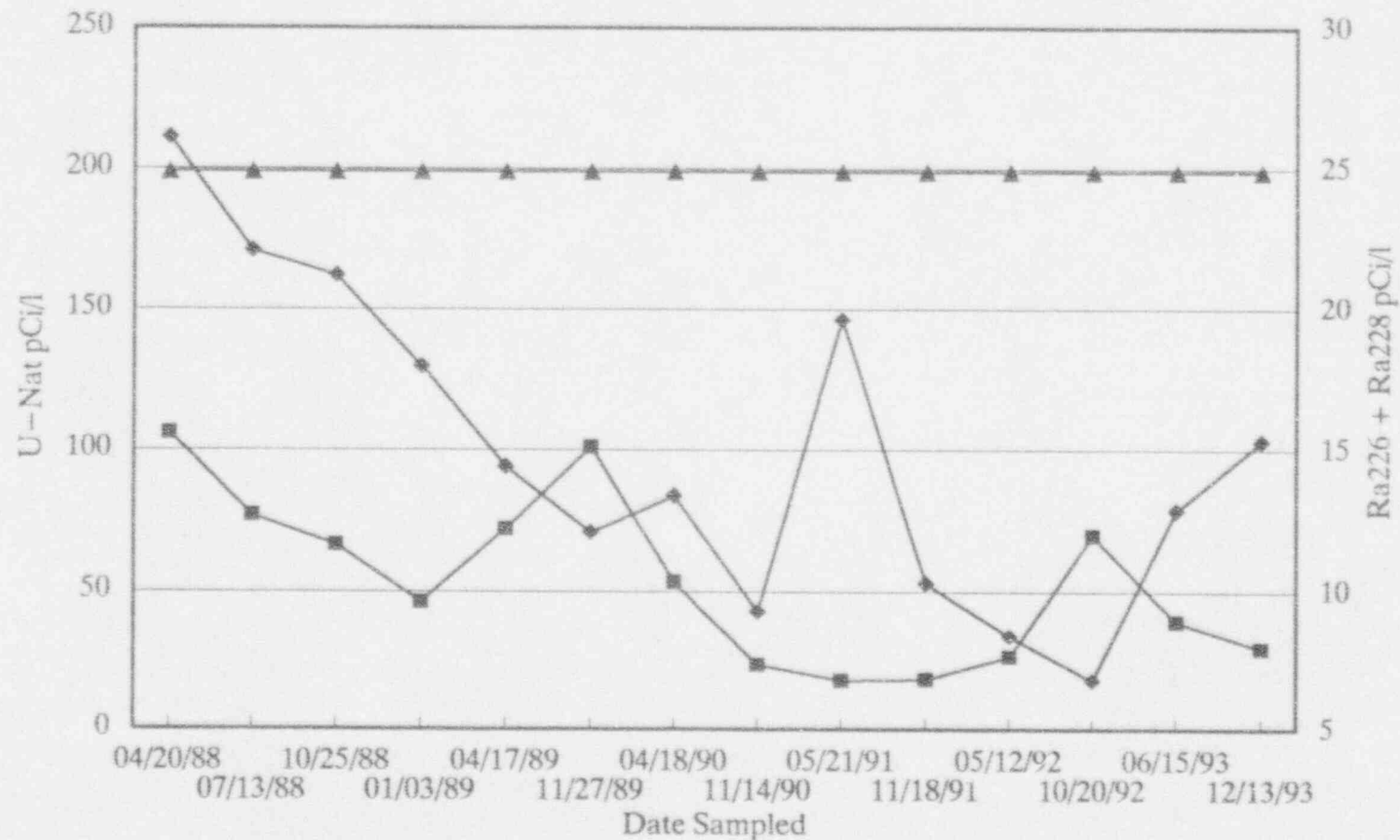
■ U-Nat

◆ Ra226 + Ra228

▲ U-Nat 199 pCi/l

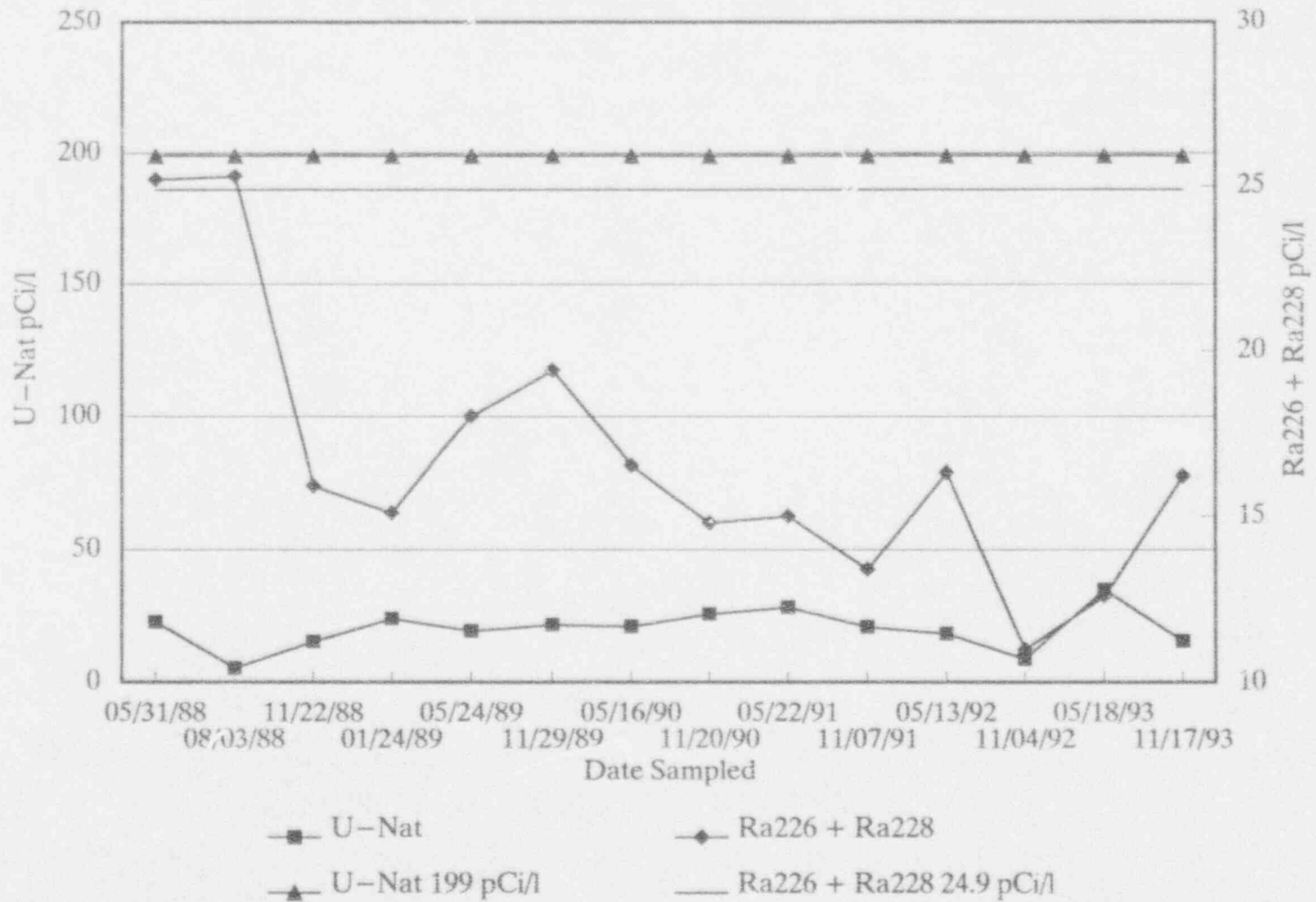
— Ra226 + Ra228 24.9 pCi/l

P.W. 5 U-Nat & Ra226 + Ra228

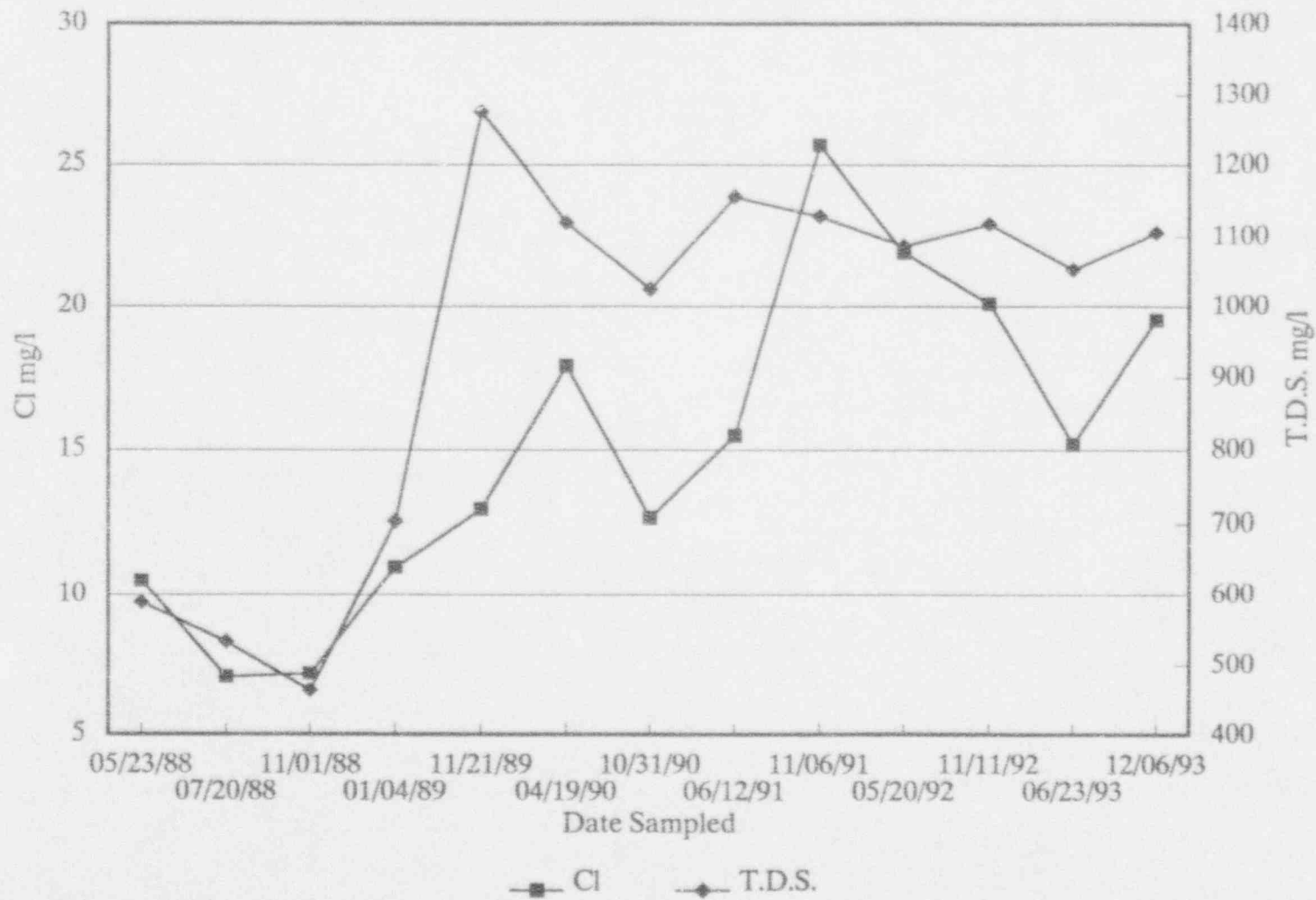


- U-Nat
- ▲ U-Nat 199 pCi/l
- ◆ Ra226 + Ra228
- Ra226 + Ra228 24.9 pCi/l

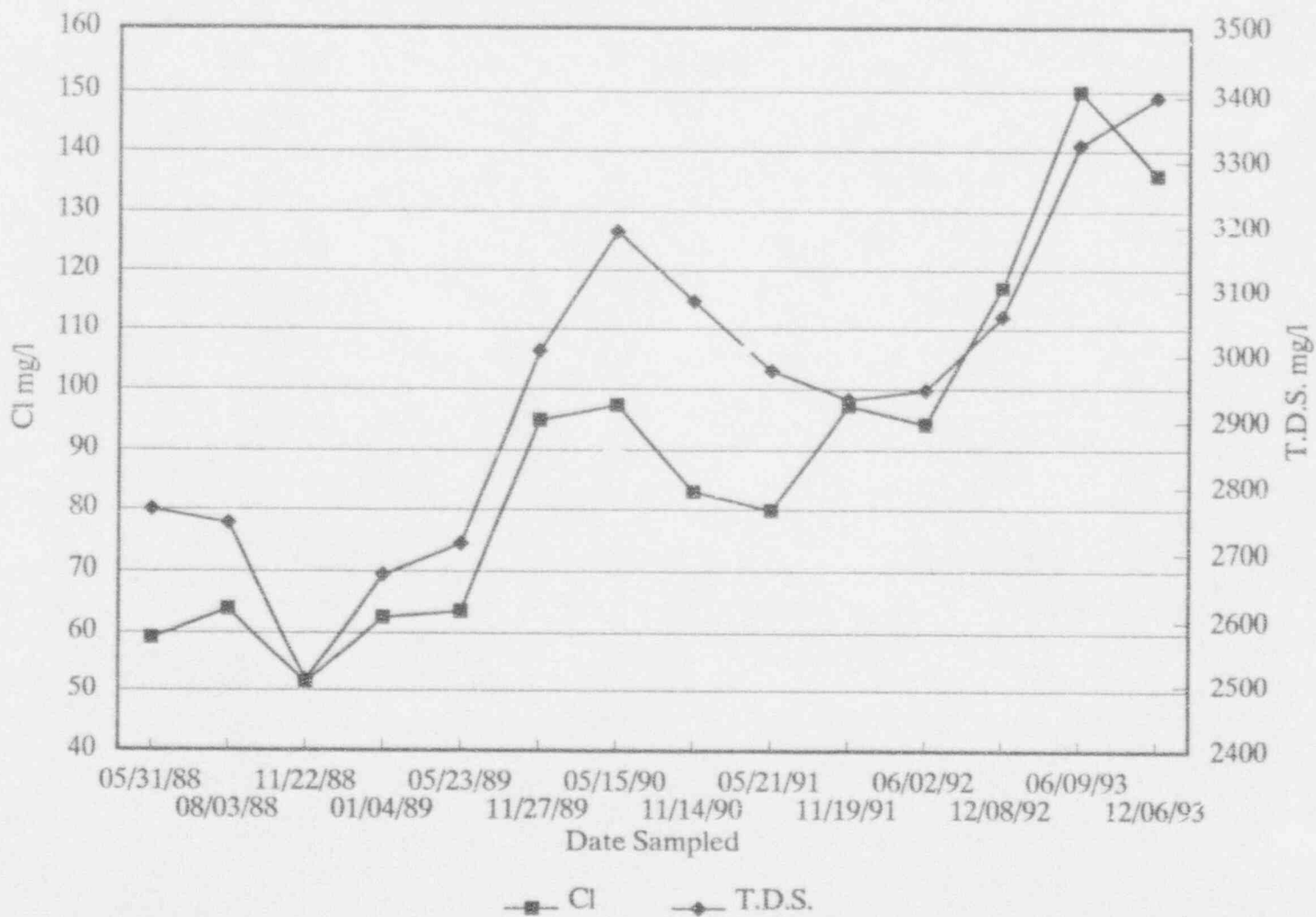
P.W. 6 U-Nat & Ra226 + Ra228



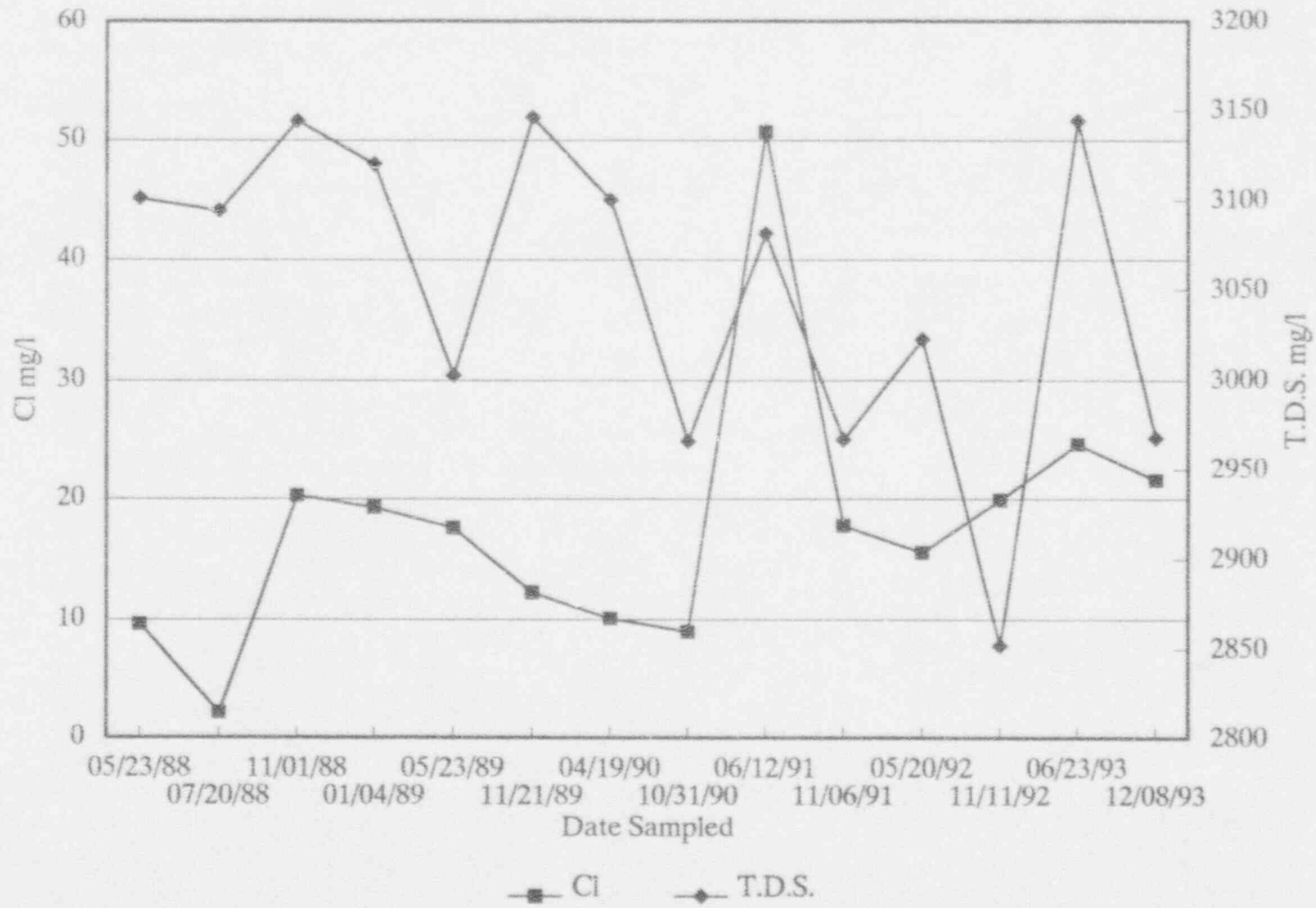
H.W. 2 Chloride & T.D.S.



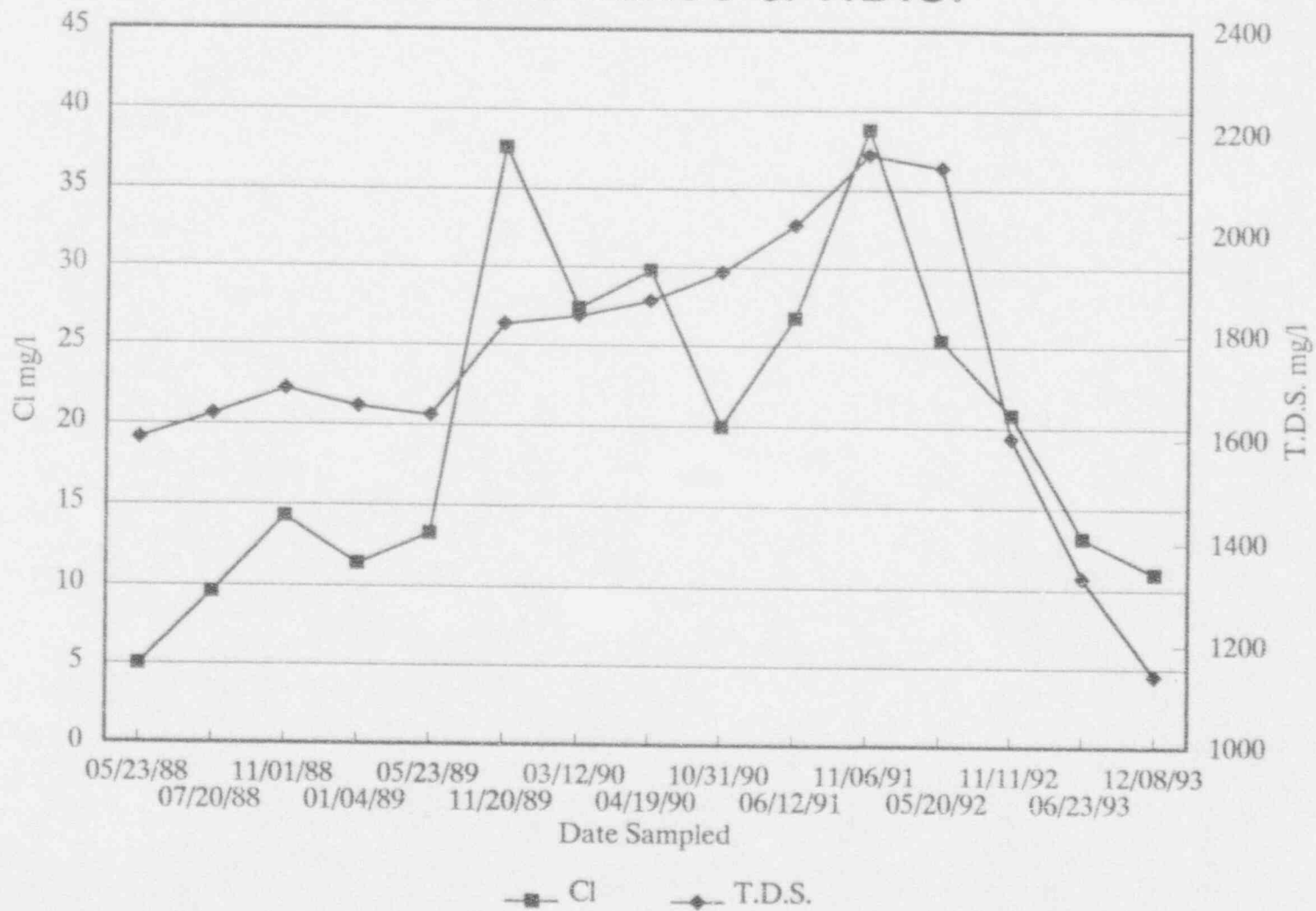
H.W. 3 Chloride & T.D.S.



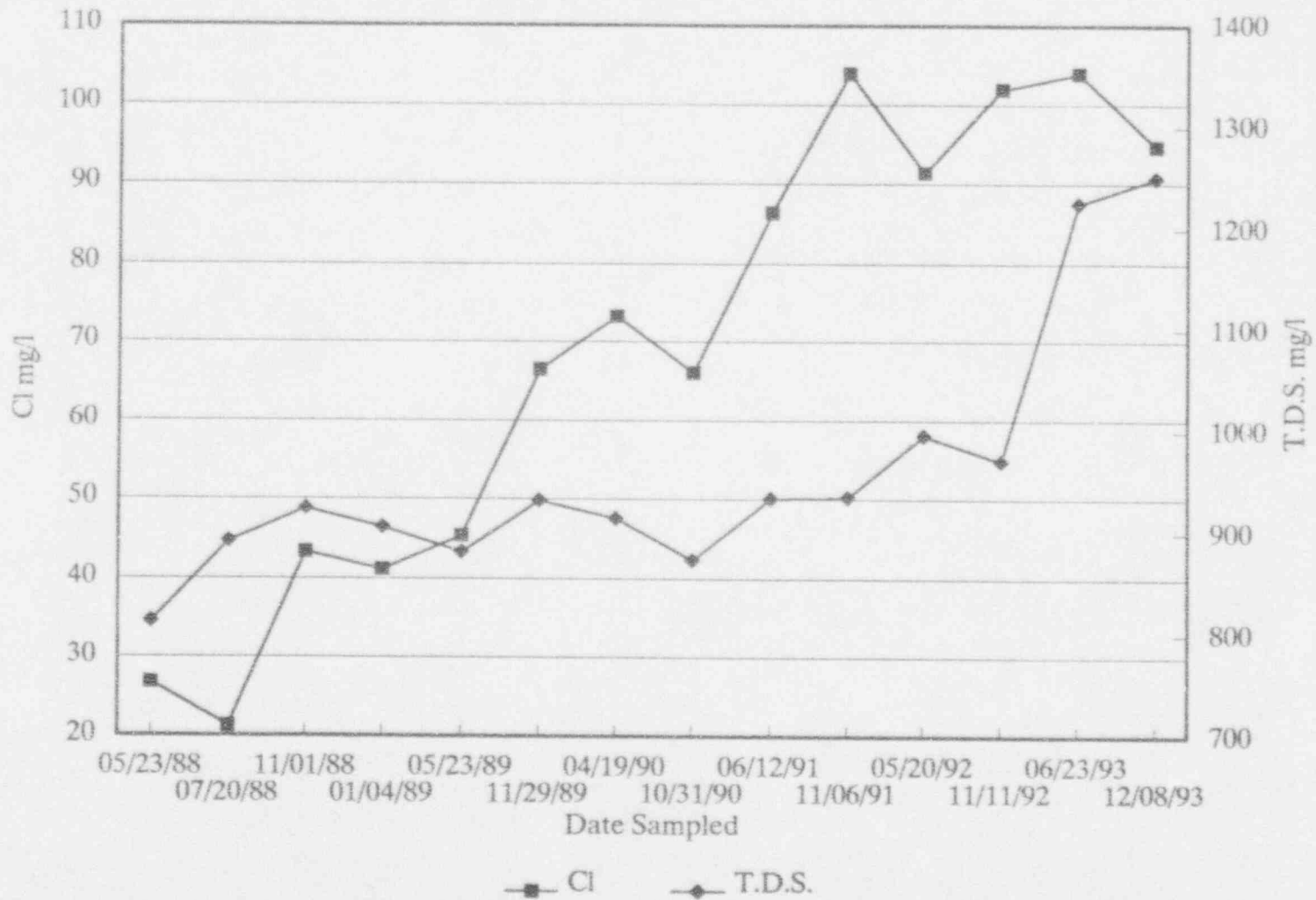
E.W. 1 Chloride & T.D.S.



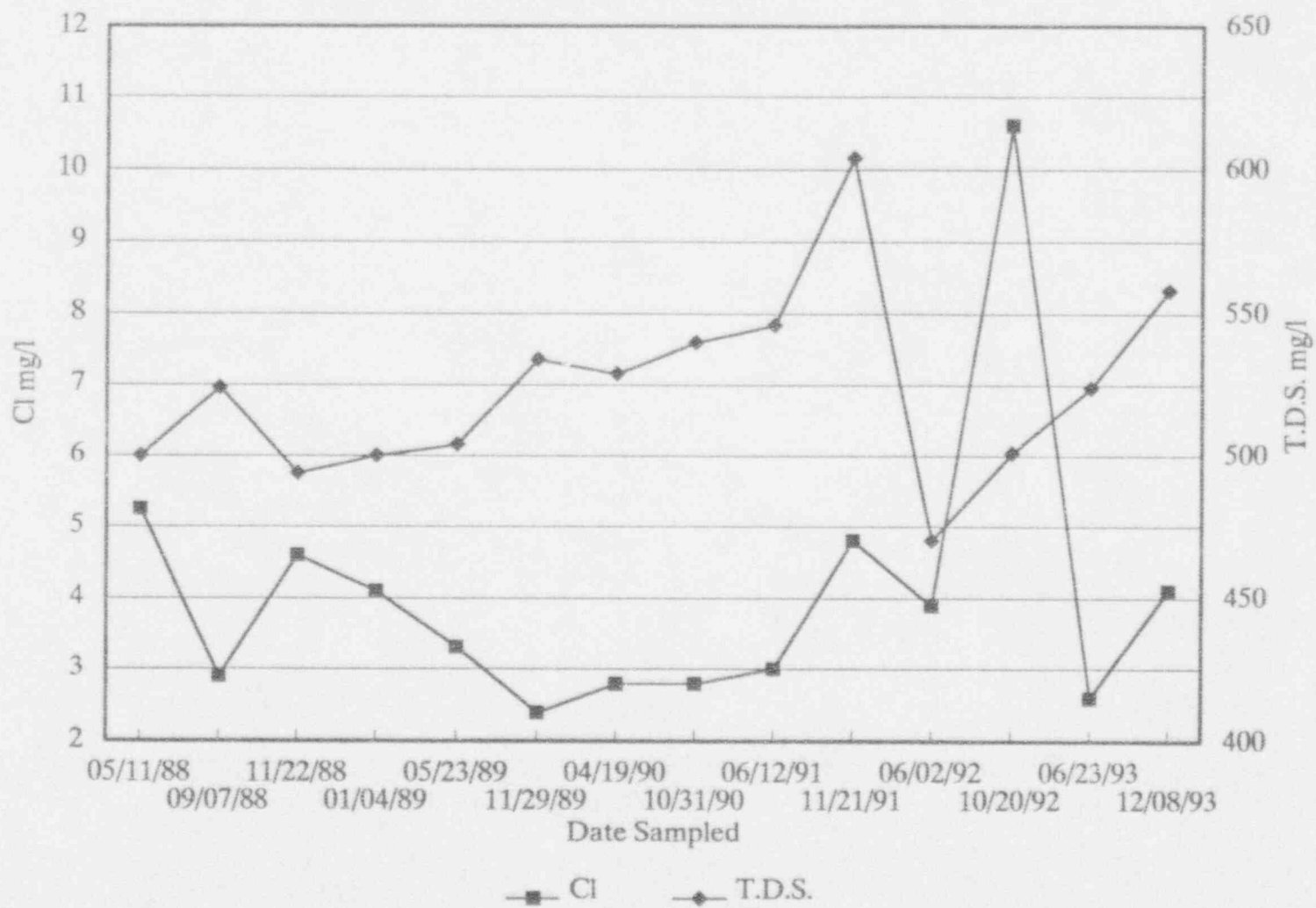
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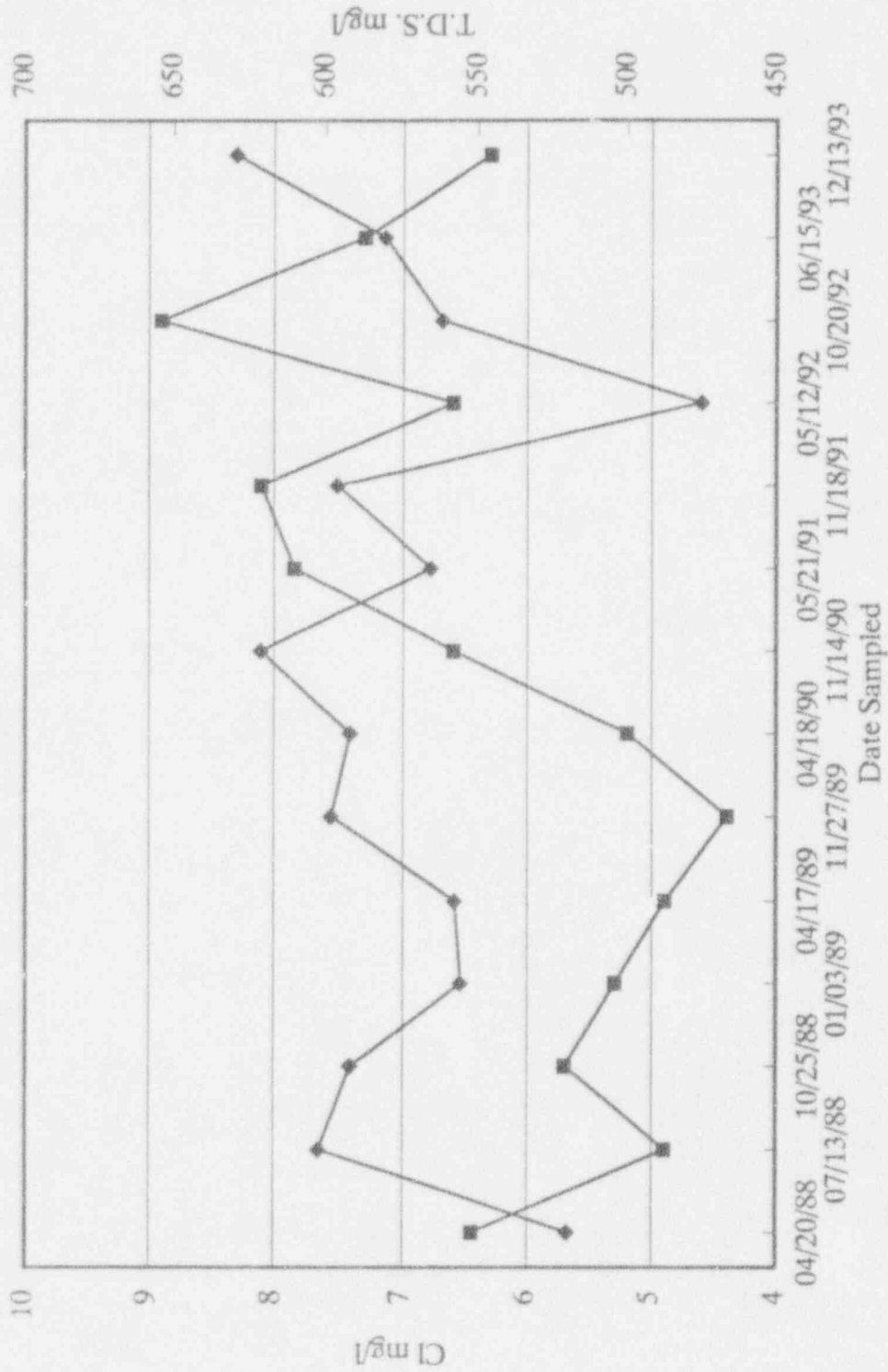
E.W. 3 Chloride & T.D.S.



M.W. 30 Chloride & T.D.S.

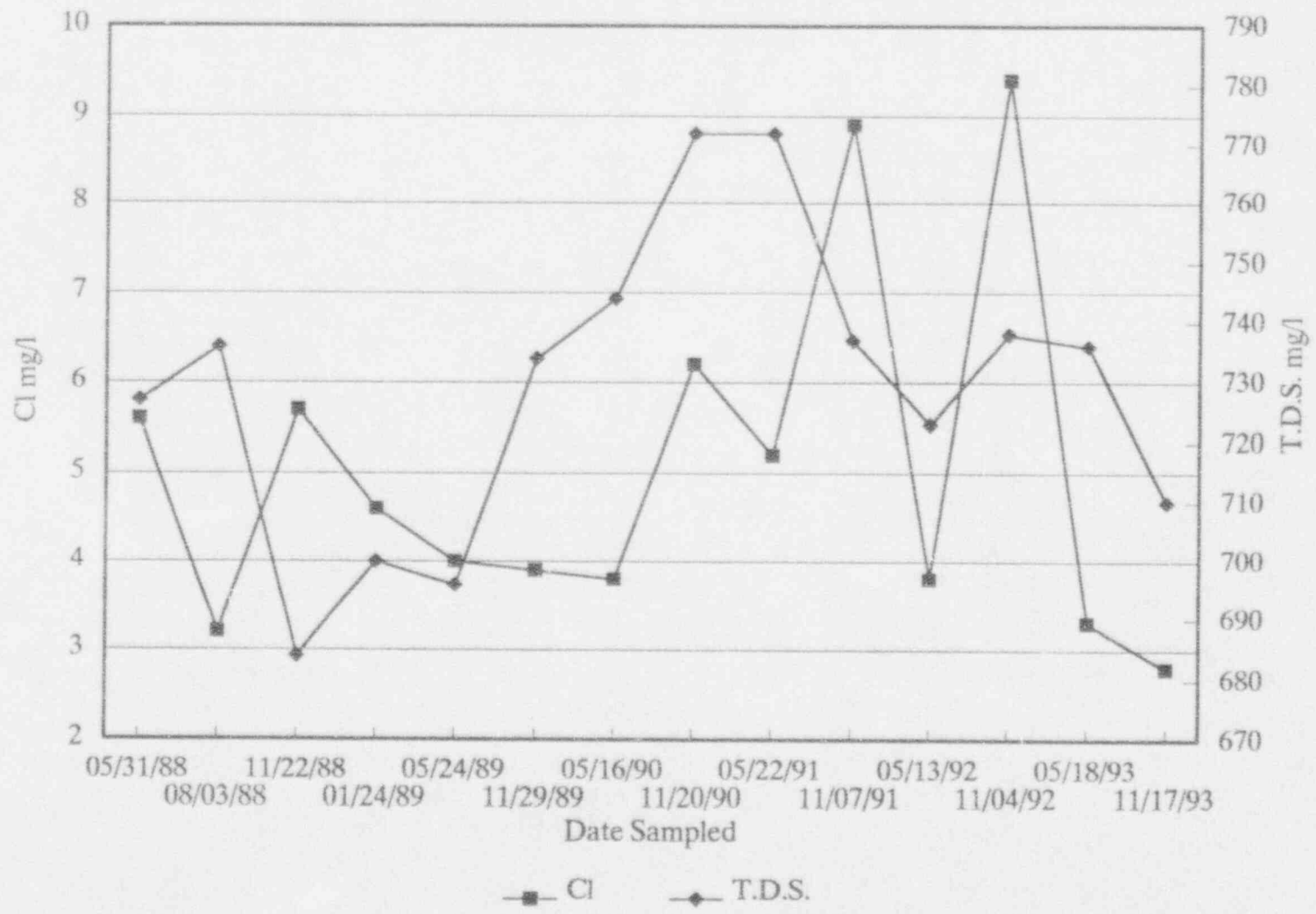


P.W. 5 Chloride & T.D.S.

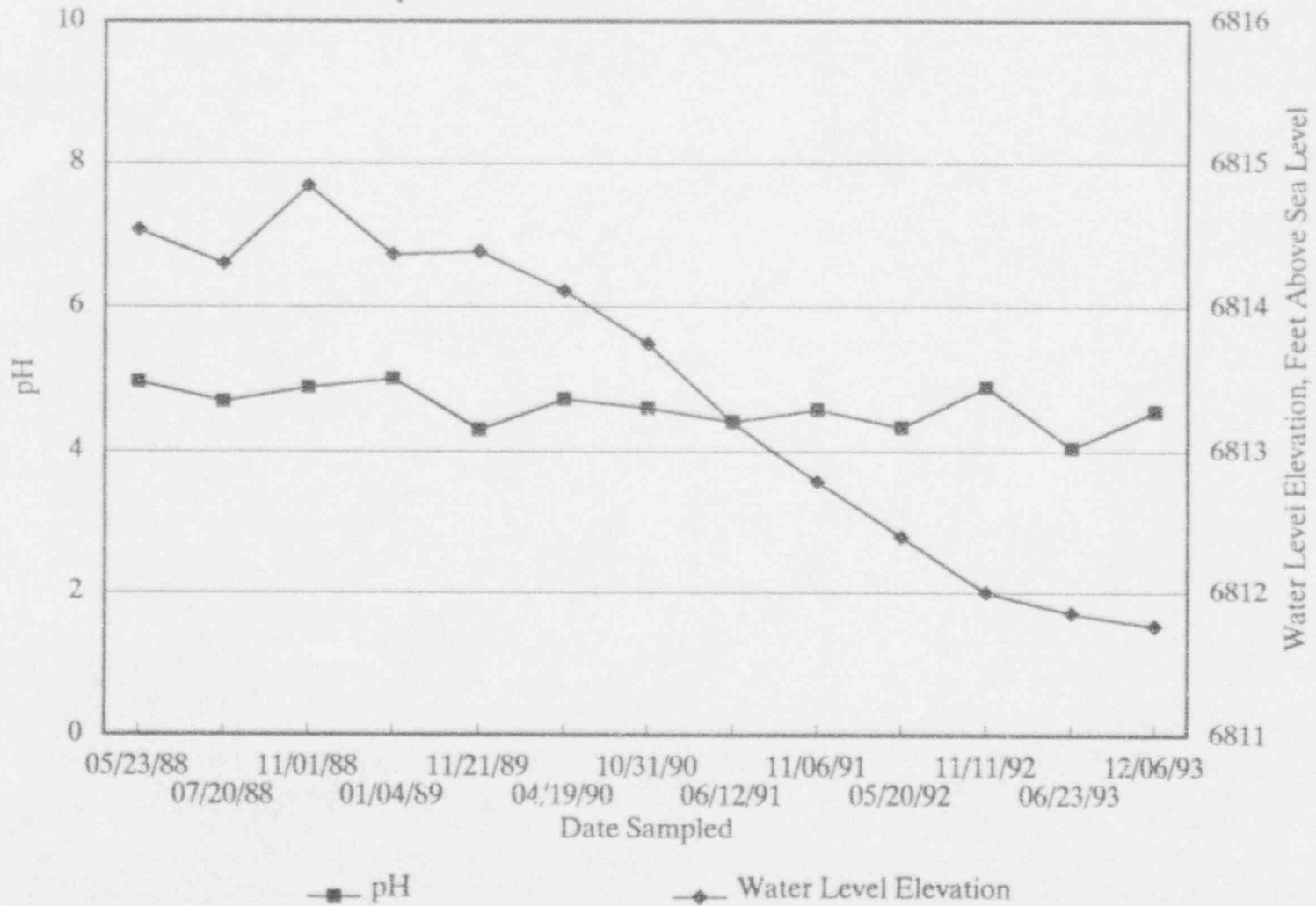


—■— Cl —◆— T.D.S.

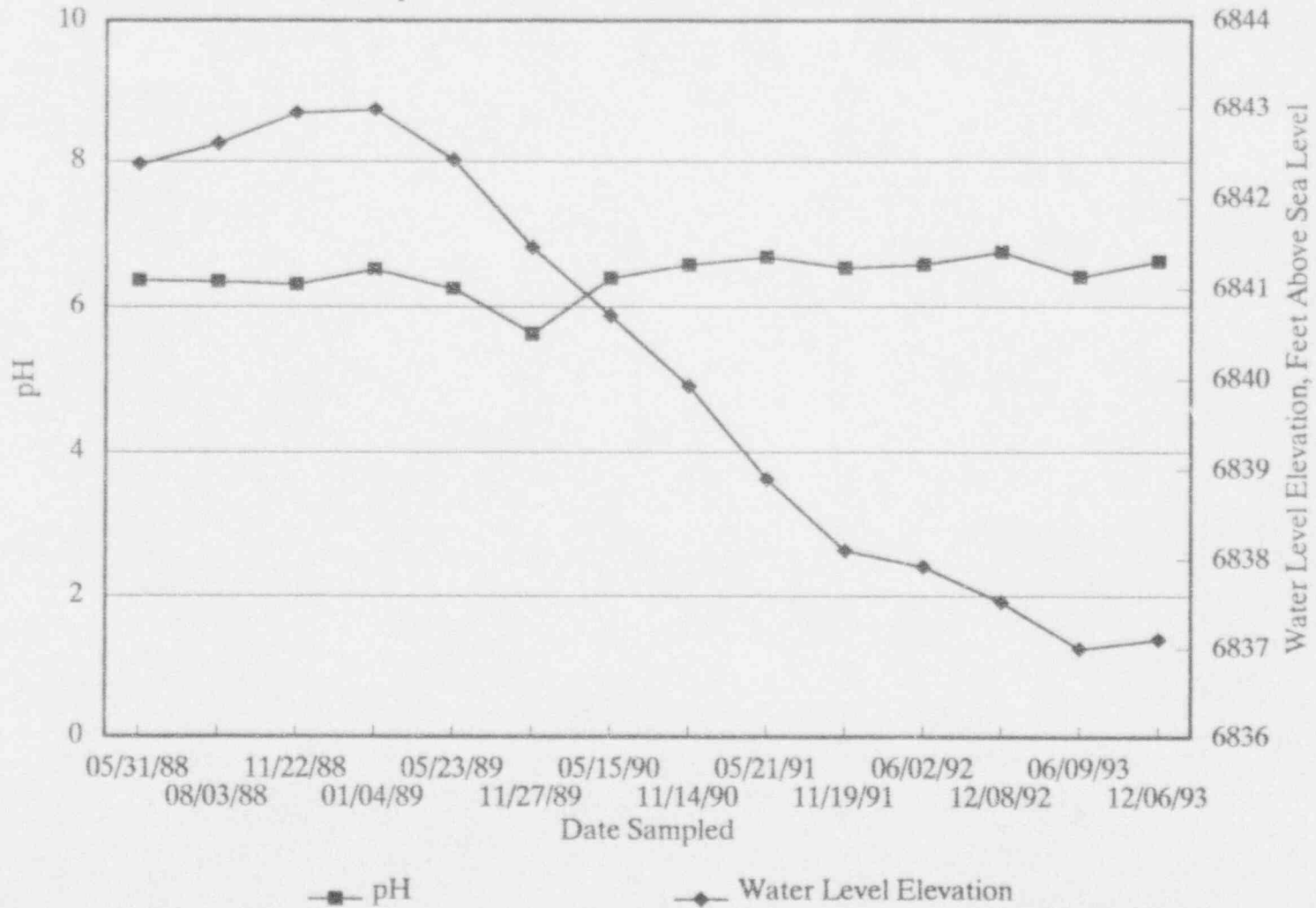
P.W. 6 Chloride & T.D.S.



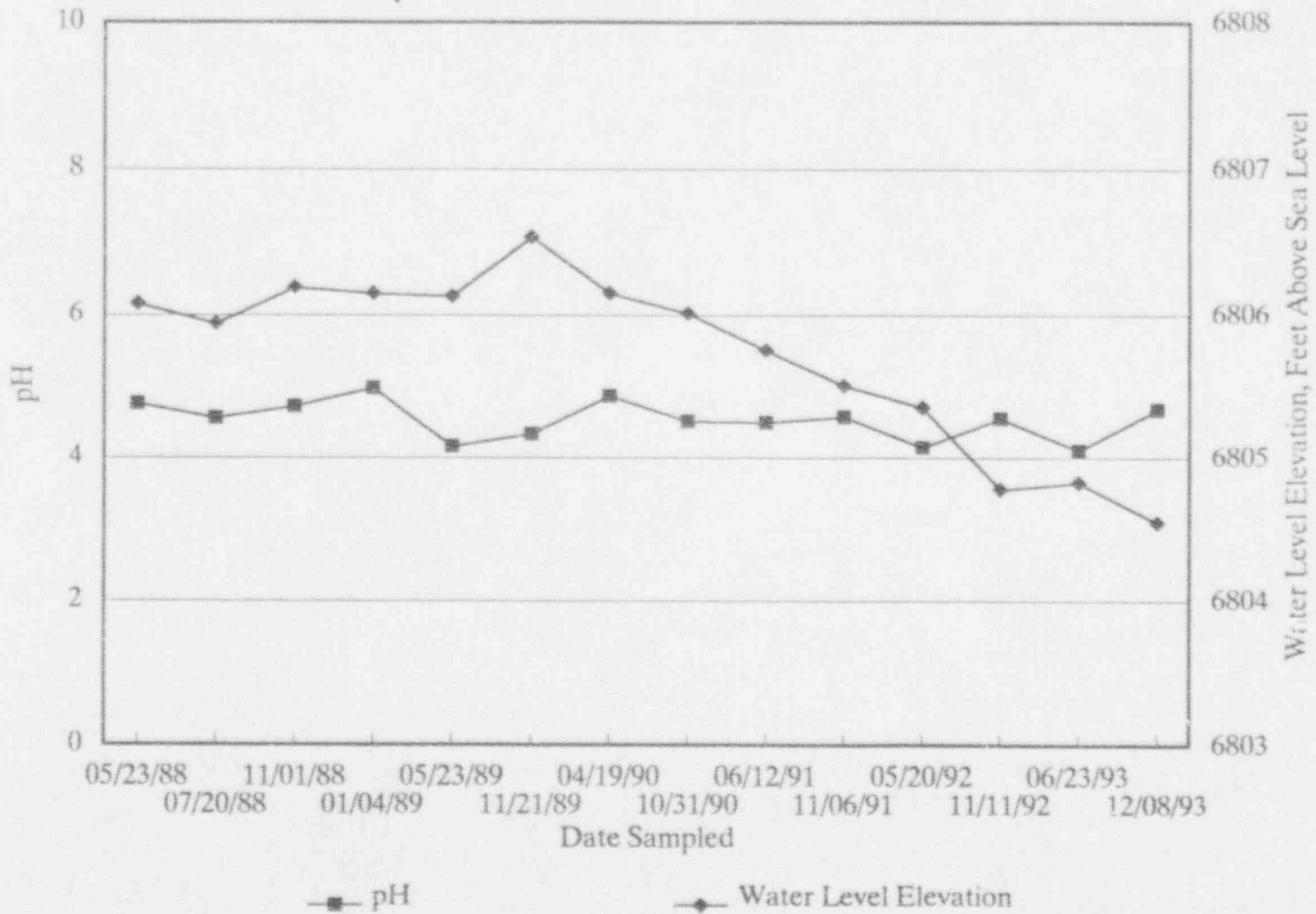
H.W. 2 pH & Water Level Elevation



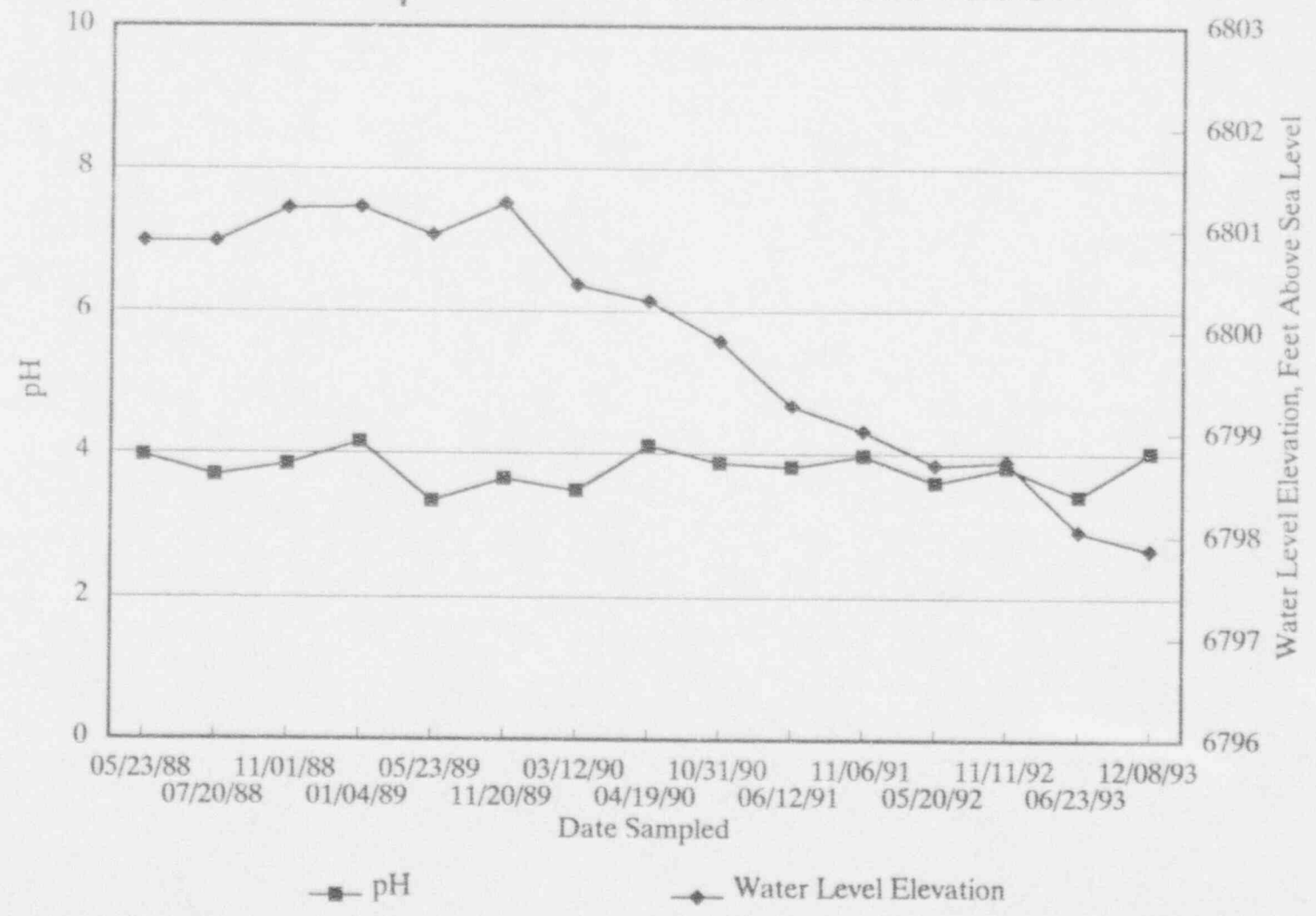
H.W. 3 pH & Water Level Elevation



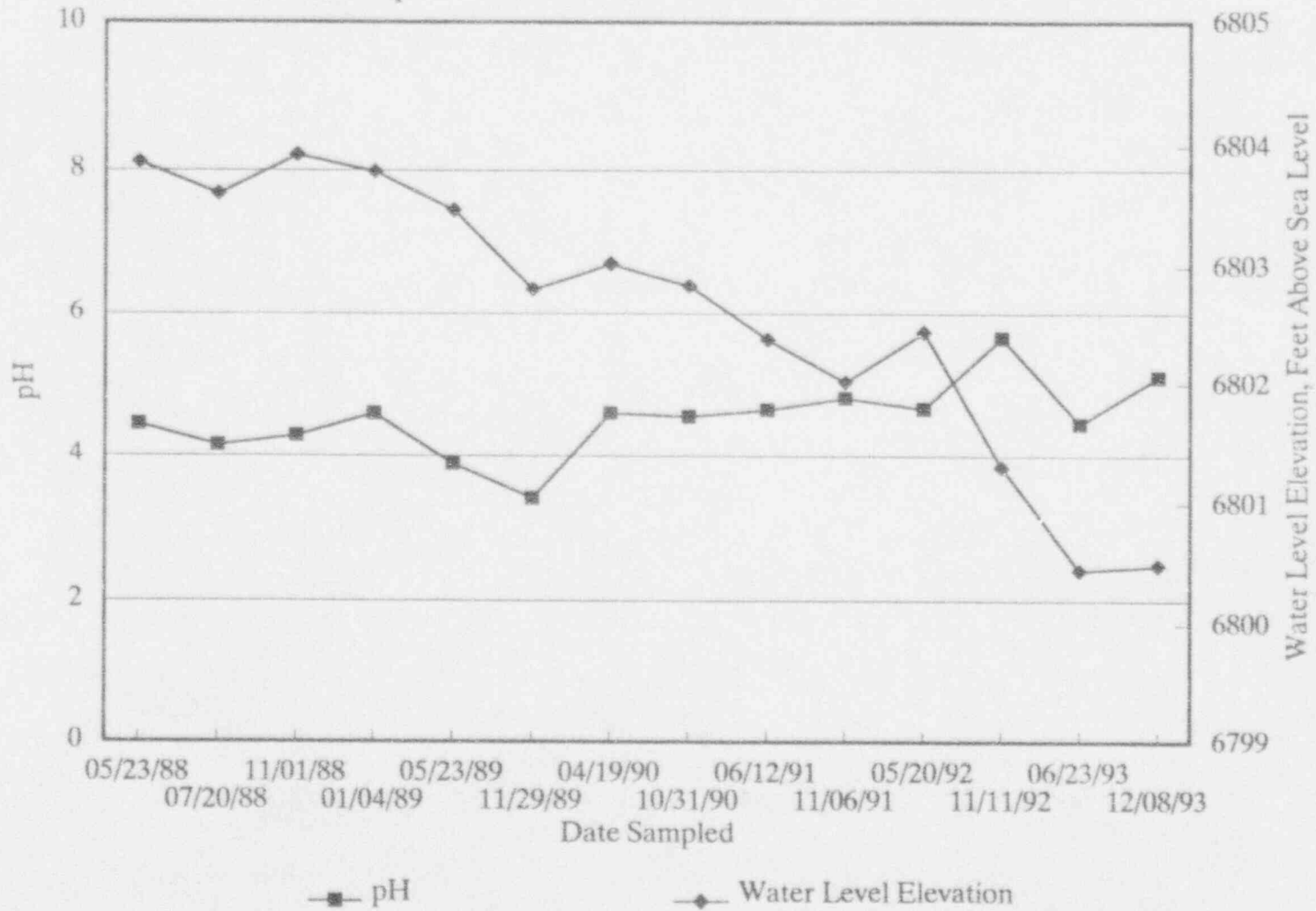
E.W. 1 pH & Water Level Elevation



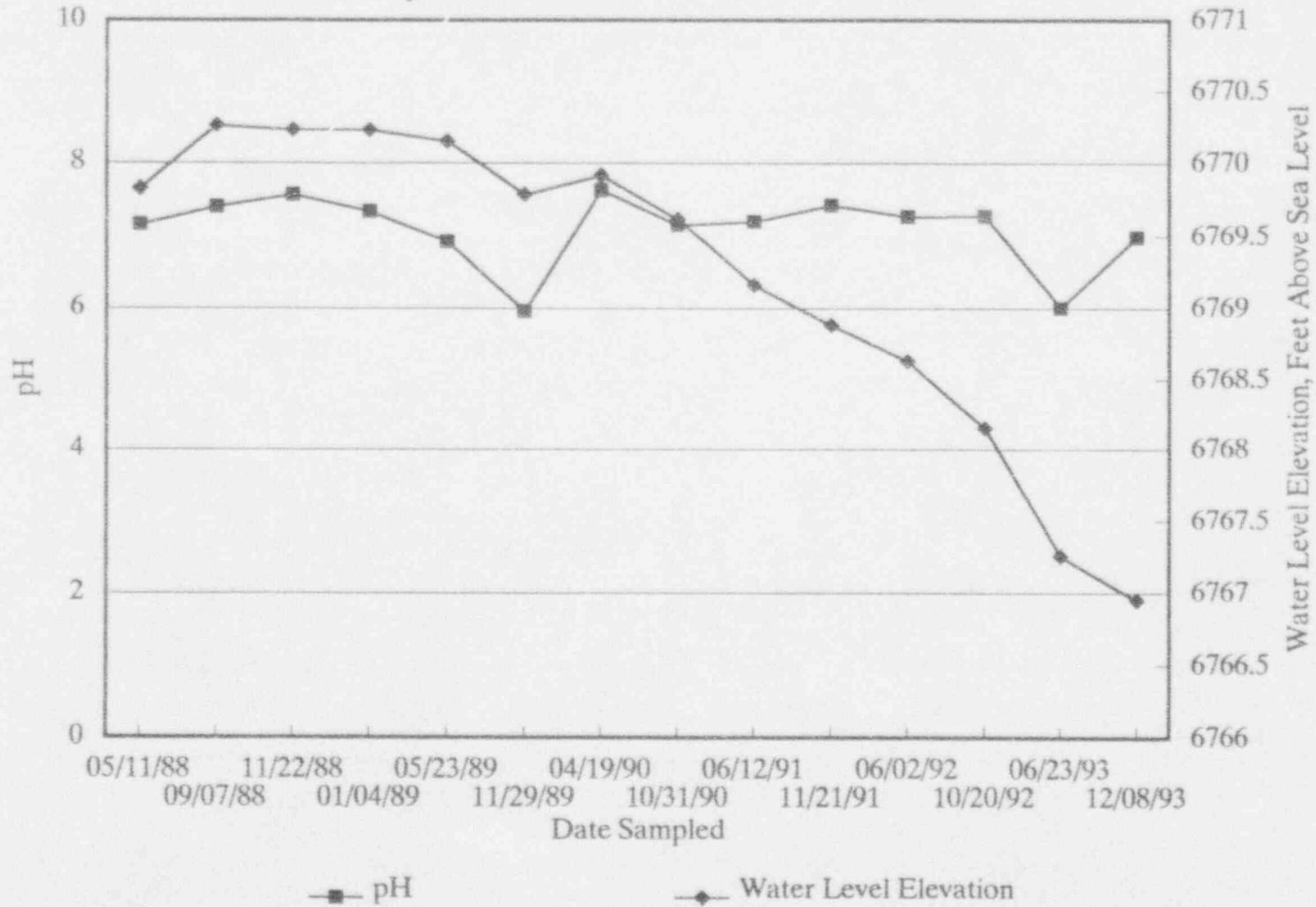
E.W. 2 pH & Water Level Elevation



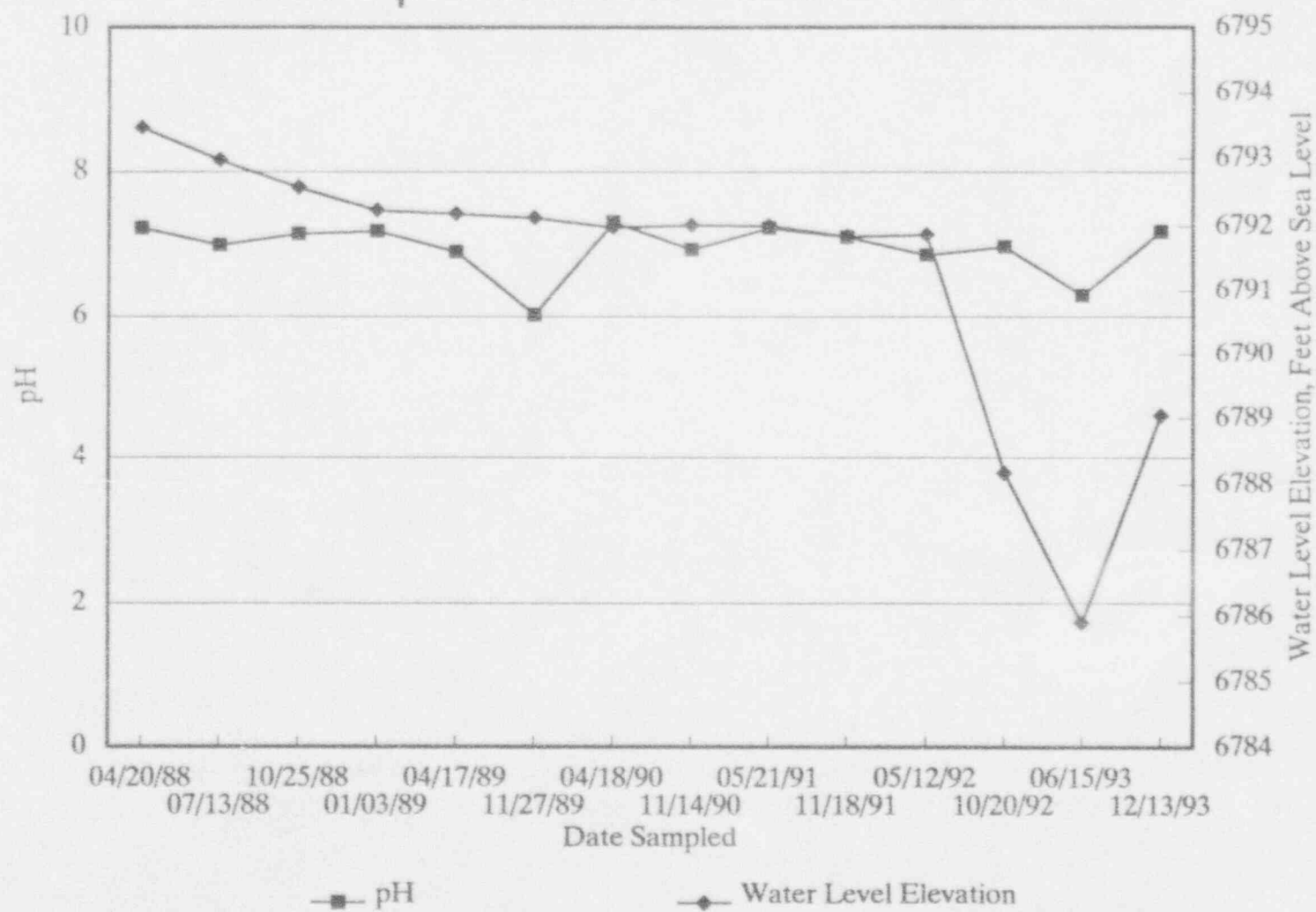
E.W. 3 pH & Water Level Elevation



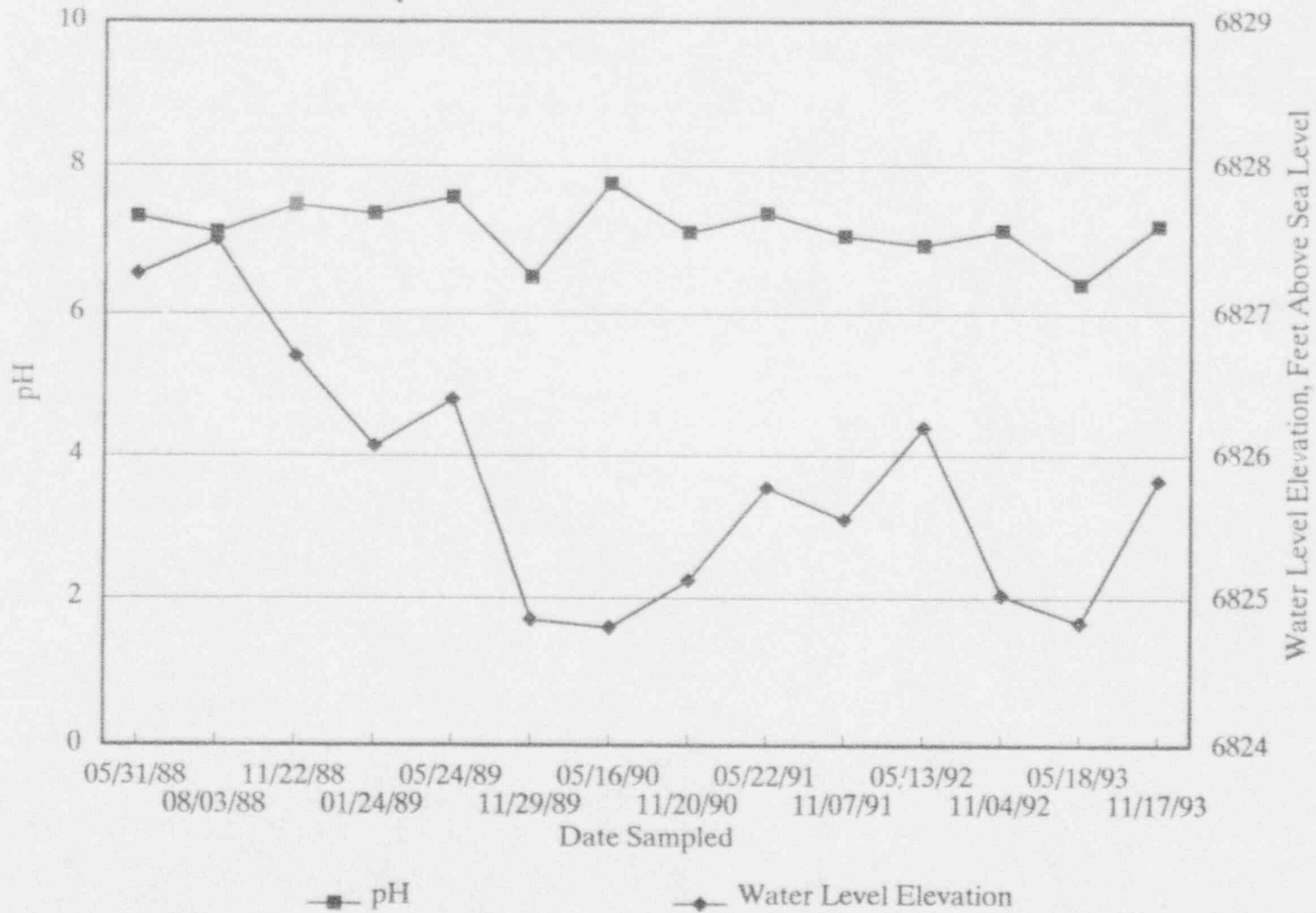
M.W. 30 pH & Water Level Elevation



P.W. 5 pH & Water Level Elevation



P.W. 6 pH & Water Level Elevation



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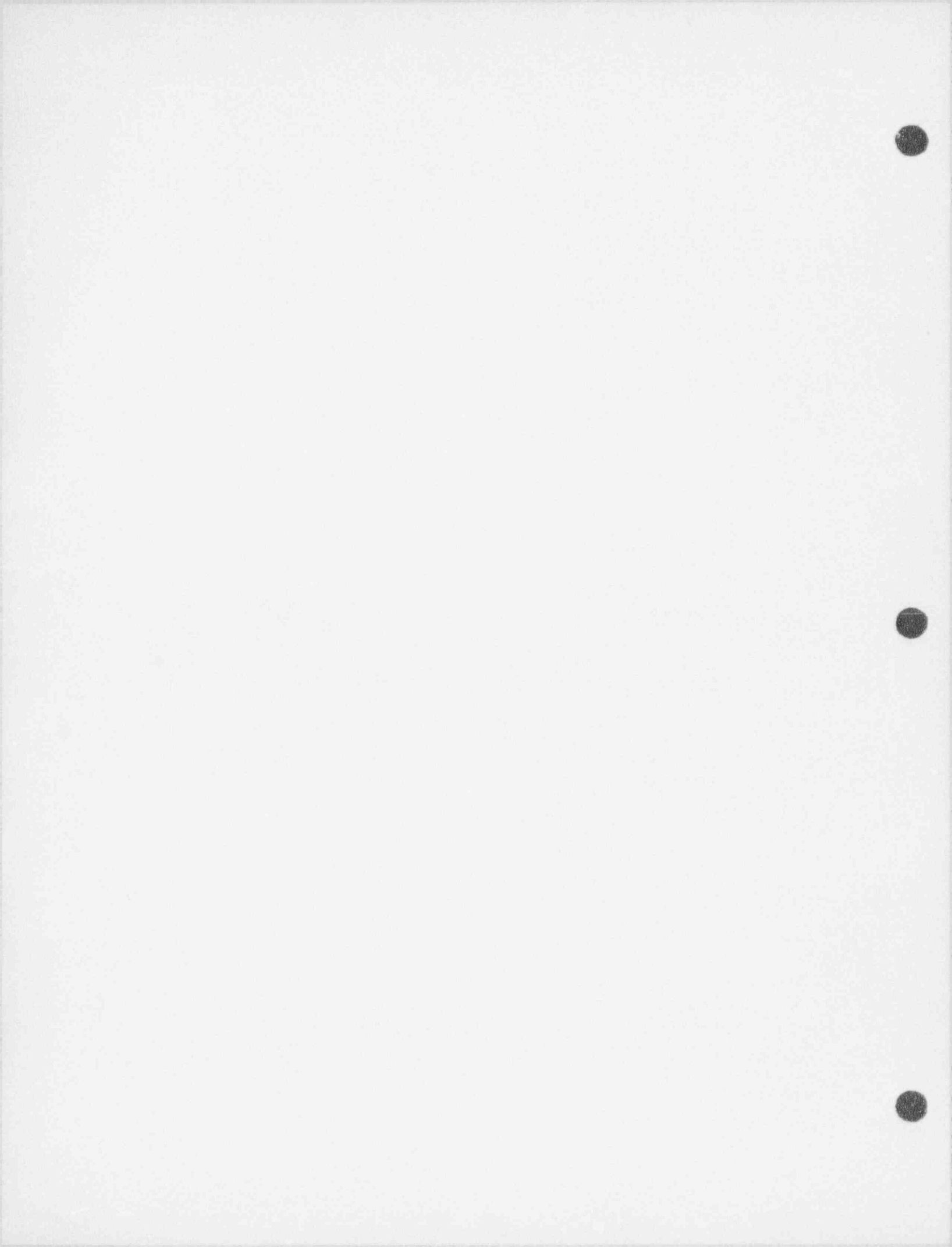
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SECTION 2.3.1
QUALITY ASSURANCE PROGRAM



GROUND WATER ANALYSES, QUALITY ASSURANCE PROGRAM

MW 17 LAB USED	ENERGY MW 17	SPLIT ENERGY MW 51
Date Sampled	11/22/93	11/22/93
UNat pCi/l	18.60	17.30
UNat % M.P.C.	0.06	0.06
Ra226 pCi/l	32.00	34.30
Ra226 Error +/-	1.80	2.40
Ra226 % M.P.C.	106.67	114.33
Ra228 pCi/l	11.30	12.90
Ra228 Error +/-	0.50	1.10
Ra228 % M.P.C.	37.67	43.00
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.		
Pb210 pCi/l	4.00	<1.0
Pb210 Error +/-	1.00	
Pb210 % M.P.C.	4.00	
Gross Alpha - U & Rn pCi/l	48.90	53.60
Gross Alpha Error +/-	7.00	7.30
As mg/l	<0.001	<0.001
Se mg/l	0.128	0.131
Fe mg/l	0.82	0.80
Pb mg/l		
Mo mg/l		
Al mg/l		
Be mg/l	<0.01	<0.01
Ni mg/l	0.11	0.12
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	482.00	491.00
Mg mg/l	121.00	125.00
Na mg/l	103.00	90.80
K mg/l		
NH3 mg/l		
NO3 mg/l	39.70	36.70
SO4 mg/l	1756.00	1763.00
Cl mg/l	88.90	90.50
TDS mg/l	3117.00	3072.00
pH	5.76	n/a
Water Elevation	6804.05	6804.05

GROUND WATER ANALYSES, QUALITY ASSURANCE PROGRAM

MW 21A LAB USED	ENERGY MW 21A	SPLIT ENERGY M.W. 52	BARRINGER MW 21A
Date Sampled	12/06/93	12/06/93	12/06/93
UNat pCi/l	7.40	3.40	1.10
UNat % M.P.C.			
Ra226 pCi/l	11.30	10.50	9.60
Ra226 Error +/-	0.60	0.60	1.60
Ra226 % M.P.C.			
Ra228 pCi/l	10.20	5.50	12.00
Ra228 Error +/-	0.60	0.60	2.00
Ra228 % M.P.C.			
Th230 pCi/l	<1.0	<1.0	0.00
Th230 Error +/-			0.30
Th230 % M.P.C.			
Pb210 pCi/l	3.70	2.00	1.40
Pb <10 Error +/-	0.90	0.90	1.60
Pb <10 % M.P.C.			
Gross Alpha - U & Rn pCi/l	26.60	18.70	25.00
Gross Alpha Error +/-	5.20	4.30	10.00
As mg/l	0.036	0.035	0.043
Se mg/l	<0.001	<0.001	<0.001
Fe mg/l	87.09	84.42	83.40
Pb mg/l			
Mo mg/l			
Al mg/l			
Be mg/l			0.02
Ni mg/l	0.30	0.28	0.28
Ag mg/l			
V mg/l			
Cd mg/l			
Cr mg/l			
Ca mg/l	246.00	242.00	264.00
Mg mg/l	65.60	57.00	72.90
Na mg/l	61.80	57.30	72.40
K mg/l			
NH3 mg/l			
NO3 mg/l	<0.10	<0.10	0.30
SO4 mg/l	1001.00	1004.00	1110.00
Cl mg/l	45.20	49.40	52.00
TDS mg/l	1683.00	1664.00	1580.00
pH			
Water Elevation	6790.32	6790.32	6790.32

GROUND WATER ANALYSES, QUALITY ASSURANCE PROGRAM

MW 25 LAB USED	ENERGY MW 25	BARRINGER MW 25	SPLIT BARRINGER MW 42
Date Sampled	11/23/93	11/23/93	11/23/93
UNat pCi/l	8.80	11.00	10.00
UNat % M.P.C.			
Ra226 pCi/l	28.90	23.00	26.00
Ra226 Error +/-	2.80	4.00	4.00
Ra226 % M.P.C.			
Ra228 pCi/l	21.80	27.00	26.00
Ra228 Error +/-	2.90	2.00	2.00
Ra228 % M.P.C.			
Th230 pCi/l	<1.0	0.40	0.30
Th230 Error +/-		0.50	0.40
Th230 % M.P.C.			
Pb210 pCi/l	1.10	2.70	2.10
Pb210 Error +/-	0.90	2.80	3.20
Pb210 % M.P.C.			
Gross Alpha - U & Rn pCi/l	61.50	53.00	54.00
Gross Alpha Error +/-	7.80	21.00	22.00
As mg/l	0.07	0.088	0.89
Se mg/l	<0.001	0.006	<0.002
Fe mg/l	93.60	88.10	88.40
Pb mg/l			
Mo mg/l			
Al mg/l			
Be mg/l	<0.005	<0.01	<0.01
Ni mg/l	0.37	0.39	0.39
Ag mg/l			
V mg/l			
Cd mg/l			
Cr mg/l			
Ca mg/l	680.00	728.00	733.00
Mg mg/l	139.00	161.00	160.00
Na mg/l	14.60	185.00	180.00
K mg/l			
NH3 mg/l			
NO3 mg/l	<0.10	0.20	0.50
SO4 mg/l	2110.00	2310.00	2330.00
Cl mg/l	126.00	141.00	140.00
TDS mg/l	3892.00	3770.00	3760.00
pH	n/a	n/a	n/a
Water Elevation	6747.34	6747.34	6747.34

GROUND WATER ANALYSES, QUALITY ASSURANCE PROGRAM

MW 26 LAB USED	ENERGY MW 26	SPLIT ENERGY MW 50
Date Sampled	11/23/93	11/23/93
UNat pCi/l	146.00	151.00
UNat % M.P.C.	0.49	0.50
Ra226 pCi/l	91.00	76.90
Ra226 Error +/-	3.40	2.92
Ra226 % M.P.C.	303.33	256.33
Ra228 pCi/l	6.60	4.50
Ra228 Error +/-	0.50	0.50
Ra228 % M.P.C.	22.00	15.00
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.		
Pb210 pCi/l	5.40	4.10
Pb210 Error +/-	1.00	1.00
Pb210 % M.P.C.	5.40	4.10
Gross Alpha - U & Rn pCi/l	101.00	83.60
Gross Alpha Error +/-	10.00	9.10
As mg/l	0.002	0.002
Se mg/l	0.032	0.029
Fe mg/l	1.37	1.34
Pb mg/l		
Mo mg/l		
Al mg/l		
Be mg/l	<0.01	<0.01
Ni mg/l	0.02	0.02
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	278.00	270.00
Mg mg/l	42.50	41.70
Na mg/l	31.20	31.00
K mg/l		
NH3 mg/l		
NO3 mg/l	27.80	29.40
SO4 mg/l	735.00	731.00
Cl mg/l	20.30	16.50
TDS mg/l	1407.00	1390.00
pH		
Water Elevation	6802.81	6802.81

GROUND WATER ANALYSES, QUALITY ASSURANCE PROGRAM

MW 28 LAB USED	ENERGY MW 28	SPLIT ENERGY MW 43
Date Sampled	11/23/93	11 '23/93
UNat pCi/l	0.70	<0.2
UNat % M.P.C.	0.00	0.00
Ra226 pCi/l	7.70	8.40
Ra226 Error +/-	0.60	0.70
Ra226 % M.P.C.	25.67	28.00
Ra228 pCi/l	4.10	3.80
Ra228 Error +/-	0.50	0.50
Ra228 % M.P.C.	13.67	12.67
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.		
Pb210 pCi/l	1.90	<1.0
Pb210 Error +/-	3.70	
Pb210 % M.P.C.	1.90	
Gross Alpha - U & Rn pCi/l	13.80	14.10
Gross Alpha Error +/-	3.70	3.80
As mg/l	0.005	0.005
Se mg/l	<0.001	<0.001
Fe mg/l	8.26	8.24
Pb mg/l		
Mo mg/l		
Al mg/l		
Be mg/l	<0.005	<0.005
Ni mg/l	<0.05	<0.05
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	92.70	94.50
Mg mg/l	17.00	17.20
Na mg/l	57.50	54.90
K mg/l		
NH3 mg/l		
NO3 mg/l	<0.10	<0.10
SO4 mg/l	314.00	300.00
Cl mg/l	3.80	4.40
TDS mg/l	654.00	623.00
pH		
Water Elevation	6735.16	6735.16

GROUND WATER ANALYSES, QUALITY ASSURANCE PROGRAM

EWP 2 LAB USED	ENERGY EWP 2	BARRINGER EWP 2	SPLIT BARRINGER MW53
Date Sampled	12/08/93	12/08/93	12/08/93
UNat pCi/l	1285.00	1090.00	1130.00
UNat % M.P.C.	4.28	3.63	3.77
Ra226 pCi/l	22.80	15.00	15.00
Ra226 Error +/-	1.70	2.00	2.00
Ra226 % M.P.C.	76.00	50.00	50.00
Ra228 pCi/l	7.30	8.10	8.20
Ra228 Error +/-	0.70	1.40	1.40
Ra228 % M.P.C.	24.33	27.00	27.33
Th230 pCi/l	<1.0	1.50	1.90
Th230 Error +/-		0.90	1.00
Th230 % M.P.C.		0.08	0.10
Pb210 pCi/l	5.10	7.60	7.90
Pb210 Error +/-	1.70	1.70	2.00
Pb210 % M.P.C.	5.10	7.60	7.90
Gross Alpha - U & Rn pCi/l	75.70	1200.00	1570.00
Gross Alpha Error +/-	8.70	50.00	50.00
As mg/l	<0.001	0.003	0.004
Se mg/l	0.01	0.014	0.014
Fe mg/l	9.74	10.20	10.40
Pb mg/l			
Mo mg/l			
Al mg/l			
Be mg/l	0.07	0.06	0.06
Ni mg/l	0.46	0.49	0.51
Ag mg/l			
V mg/l			
Cd mg/l			
Cr mg/l			
Ca mg/l	159.00	182.00	188.00
Mg mg/l	28.10	35.50	36.00
Na mg/l	21.10	20.50	22.80
K mg/l			
NH3 mg/l			
NO3 mg/l	0.20	0.40	0.40
SO4 mg/l	713.00	961.00	939.00
Cl mg/l	11.00	8.00	9.00
TDS mg/l	1141.00	1060.00	1060.00
pH	3.98		
Water Elevation	6797.87	6797.87	6797.87

GROUND WATER ANALYSES, QUALITY ASSURANCE PROGRAM

GW 5

LAB USED	ENERGY GW 5	BARRINGER GW 5	SPLIT BARRINGER MW 41
Date Sampled	12/14/93	12/14/93	12/14/93
UNat pCi/l	917.00	1300.00	1300.00
UNat % M.P.C.	3.06	4.33	4.33
Ra226 pCi/l	4.20	3.70	4.10
Ra226 Error +/-	0.40	1.20	1.20
Ra226 % M.P.C.	14.00	12.33	13.67
Ra228 pCi/l	<1.0	3.50	3.50
Ra228 Error +/-		1.60	1.60
Ra228 % M.P.C.		11.67	11.67
Th230 pCi/l	<1.0	0.40	0.10
Th230 Error +/-		0.70	0.60
Th230 % M.P.C.		0.02	0.01
Pb210 pCi/l	<1.0	2.30	2.40
Pb210 Error +/-		1.80	1.70
Pb210 % M.P.C.		2.30	2.40
Gross Alpha - U & Rn pCi/l	6.70	560.00	820.00
Gross Alpha Error +/-	2.60	60.00	80.00
As mg/l	0.004	0.004	0.003
Se mg/l	0.006	0.006	0.006
Fe mg/l	0.07	0.06	0.05
Pb mg/l			
Mo mg/l			
Al mg/l			
Be mg/l	<0.01	<0.01	<0.01
Ni mg/l	0.03	0.04	0.05
Ag mg/l			
V mg/l			
Cd mg/l			
Cr mg/l			
Ca mg/l	534.00	616.00	601.00
Mg mg/l	73.10	86.40	86.00
Na mg/l	164.00	194.00	192.00
K mg/l			
NH3 mg/l			
NO3 mg/l	<0.10	0.10	0.10
SO4 mg/l	1128.00	1150.00	1160.00
Cl mg/l	371.00	423.00	424.00
TDS mg/l	2904.00	2690.00	2680.00
pH	7.12		
Water Elevation	6804.98	6804.98	6804.98

R.O. / I.X. WATER ANALYSES FOR SPLIT SAMPLES AS PART OF QUALITY ASSURANCE PROGRAM

Date Sampled	R. O. SOFTENER 12/20/94	R.O. CHECK 12/20/94
UNat pCi/l	162.00	167.00
UNat % M.P.C.	0.54	0.56
Ra226 pCi/l	6.70	6.50
Ra226 Error +/-	0.40	0.50
Ra226 % M.P.C.	22.33	21.67
Ra228 pCi/l	<1.0	<1.0
Ra228 Error +/-		
Ra228 % M.P.C.	0.00	0.00
Th230 pCi/l	<1.0	<1.0
Th230 Error +/-		
Th230 % M.P.C.	0.00	0.00
Pb210 pCi/l	1.60	<1.0
Pb210 Error +/-	1.00	
Pb210 % M.P.C.	1.60	0.00
Gross Alpha pCi/l	16.90	13.00
Gross Alpha Error +/-	2.60	3.60
As mg/l	0.023	0.024
Se mg/l	<0.001	<0.001
Fe mg/l	22.14	22.47
Pb mg/l		
Mn mg/l	3.82	3.79
Al mg/l	2.98	2.86
Be mg/l	0.04	0.04
Ni mg/l	0.25	0.27
Ag mg/l		
V mg/l		
Cd mg/l		
Cr mg/l		
Ca mg/l	100.00	98.70
Mg mg/l	56.20	55.10
Na mg/l	246.00	254.00
K mg/l		
NH3 mg/l		
NO3 mg/l	0.21	0.25
SO4 mg/l	915.00	900.00
Cl mg/l	161.00	158.00
TDS mg/l	1605.00	1619.00
SiO2 mg/L	22.6	21.8
pH	3.92	3.92

SECTION 3.0
GROUND WATER REMEDIATION-R.O. ANALYSIS

3.0 GROUNDWATER REMEDIATION - IX/RO FACILITY

The IX/RO facility continues to operate effectively utilizing only the IX units for cleaning the groundwater prior to reinjection. The attached monthly water quality assay data shows the effectiveness of the system. The second half through-put was 18,954,700 gallons of product water for injection. 18,423,600 gallons were reinjected into seven wells in the lower Wind River aquifer at an average rate of 41 gallons per minute (gpm) and into seven wells in the upper Wind River aquifer at an average rate of 31 gpm. Total injection of product water into the two aquifers since December of 1990 is about 61,735,600 gallons.

WATER ANALYSES FOR I.X./RO., I.X. UNIT

Date Sampled	04/21/93	05/24/93	06/21/93	07/26/93	08/23/93	09/21/93	10/25/93	11/23/93	12/20/93
UNat pCi/l	12.10	13.70	5.50	<0.2	112.00	10.90	21.30	9.50	139.00
UNat % M.P.C.	0.04	0.05	0.02	0.00	0.37	0.04	0.07	0.03	0.46
Ra226 pCi/l	1.30	0.90	0.90	0.80	18.10	1.40	1.70	0.30	4.10
Ra226 Error +/-	0.20	0.20	0.20	0.30	0.80	0.30	0.30	0.20	0.40
Ra226 % M.P.C.	4.33	3.00	3.00	2.67	60.33	4.67	5.67	1.00	13.67
Ra228 pCi/l	2.30	<1.0	<1.0	1.90	<1.0	<1.0	2.00	1.20	6.80
Ra228 Error +/-	0.80			0.80			0.30	1.20	0.40
Ra228 % M.P.C.	7.67			6.33			6.67	4.00	22.67
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-									
Th230 % M.P.C.									
Pb210 pCi/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.10	<1.0	<1.0
Pb210 Error +/-							1.10		
Pb210 % M.P.C.							4.10		
Gross Alpha pCi/l	<5.0	<5.0	<1.0	<5.0	18.20	1.50	4.70	2.10	15.30
Gross Alpha Error +/-					4.30	1.20	2.20	1.40	3.90
As mg/l	<0.01	<0.01	0.01	0.003	0.004	0.040	0.001	0.014	0.005
Se mg/l	<0.005	<0.005	<0.005	<0.001	0.001	<0.005	0.003	<0.001	<0.001
Fe mg/l	0.52	0.69	0.23	<0.10	47.20	0.57	0.69	0.36	16.44
Pb mg/l									
Mo mg/l									
Mn mg/l	0.14	0.06	0.02	0.02	7.75	0.11	0.41	0.11	3.10
Al mg/l	0.40	0.12	<0.10	0.15	6.90	0.15	0.11	0.33	2.67
Be mg/l	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	<0.005	0.03
Ni mg/l	0.01	<0.01	<0.01	<0.01	0.51	<0.01	<0.01	<0.05	0.21
Ag mg/l									
V mg/l									
Cd mg/l									
Cr mg/l									
Ca mg/l	4.50	3.25	2.90	1.63	244.00	3.00	10.80	3.80	81.20
Mg mg/l	3.30	0.80	0.40	0.32	63.70	0.80	3.00	26.00	47.90
Na mg/l	473.00	465.00	451.00	443.00	140.00	608.00	551.00	406.00	304.00
K mg/l									
NH3 mg/l	<0.10	0.20	<0.01	<0.10	<0.10	0.40	<0.10	<0.10	0.26
NO3 mg/l	819.00	752.00	644.00	771.00	1123.00	1012.00	965.00	762.00	888.00
SO4 mg/l	169.00	185.00	251.00	160.00	172.00	191.00	128.00	183.00	158.00
Cl mg/l									
SiO2 mg/l	1514.00	22.00	22.40	23.20	25.40	25.30	19.40	16.80	21.70
TDS mg/l	3.87	1356.00	1344.00	1287.00	1936.00	1846.00	1853.00	1445.00	1629.00
pH		3.63	3.19	4.13	4.10	3.59	4.53	5.52	4.34

WATER ANALYSES FOR I.X./P.O. SOFTENER

Date Sampled	04/21/93	05/24/93	06/21/93	07/26/93	08/23/93	09/21/93	10/25/93	11/23/93	12/20/93
UNat pCi/l	29.20	160.00	6.90	1.40	121.00	11.90	24.50	14.90	162.00
UNat % M.P.C.	0.10	0.53	0.02	0.00	0.40	0.04	0.08	0.05	0.54
Ra226 pCi/l	1.00	0.90	1.30	0.80	17.30	0.60	1.70	1.30	6.70
Ra226 Error +/-	0.20	0.20	0.60	0.30	0.80	0.30	0.30	0.30	0.40
Ra226 % M.P.C.	3.33	3.00	4.33	2.67	57.67	2.00	5.67	4.33	22.33
Ra228 pCi/l	<1.0	1.30	<1.0	2.30	3.20	2.40	<1.0	<1.0	<1.0
Ra228 Error +/-		0.50		1.40	0.60	0.60			
Ra228 % M.P.C.		4.33		7.67	10.67	8.00			
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-									
Th230 % M.P.C.									
Pb210 pCi/l	<1.0	<1.0	<1.0	<1.0	3.20	<1.0	<1.0	<1.0	1.60
Pb210 Error +/-					0.50				1.00
Pb210 % M.P.C.					3.20				1.60
Gross Alpha pCi/l	<5.0	<5.0	1.00	<5.0	22.10	4.20	1.80	1.30	16.90
Gross Alpha Error +/-			1.00		4.70	2.00	1.30	1.10	2.60
As mg/l	<0.01	<0.01	<0.01	0.005	0.005	0.030	0.003	0.022	0.023
Se mg/l	<0.005	<0.005	<0.005	<0.001	0.001	0.006	0.002	<0.001	<0.001
Fe mg/l	2.06	0.79	0.20	0.23	49.10	25.30	1.18	0.40	22.14
Pb mg/l									
Mn mg/l	0.17	0.05	0.02	0.01	8.23	0.10	0.38	0.12	3.82
Mo mg/l									
Al mg/l	0.50	0.20	<0.10	<0.10	7.29	0.18	0.15	0.29	2.98
Be mg/l	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	<0.005	0.04
Ni mg/l	<0.01	<0.01	0.01	<0.01	0.57	<0.01	<0.01	<0.05	0.25
Ag mg/l									
V mg/l									
Cd mg/l									
Cr mg/l									
Ca mg/l	5.70	2.84	2.40	1.30	222.00	2.60	10.50	4.30	100.00
Mg mg/l	3.40	0.55	0.30	0.19	68.50	0.70	3.10	1.80	56.20
Na mg/l	488.00	482.00	446.00	472.00	144.00	584.00	535.00	411.00	246.00
K mg/l									
NH3 mg/l									
NO3 mg/l	<0.10	0.20	<0.01	<0.10	0.22	0.40	0.24	0.12	0.21
SO4 mg/l	831.00	822.00	588.00	745.00	1112.00	1102.00	981.00	657.00	915.00
Cl mg/l	176.00	188.00	244.00	163.00	179.00	179.00	168.00	177.00	161.00
SiO2 mg/l		23.00	24.40	21.60	24.90	25.30	19.00	16.80	22.60
TDS mg/l	1508.00	1390.00	1377.00	1297.00	1920.00	1835.00	1846.00	1541.00	1605.00
pH	3.95	2.94	2.80	4.69	4.50	3.64	4.46	5.30	3.92

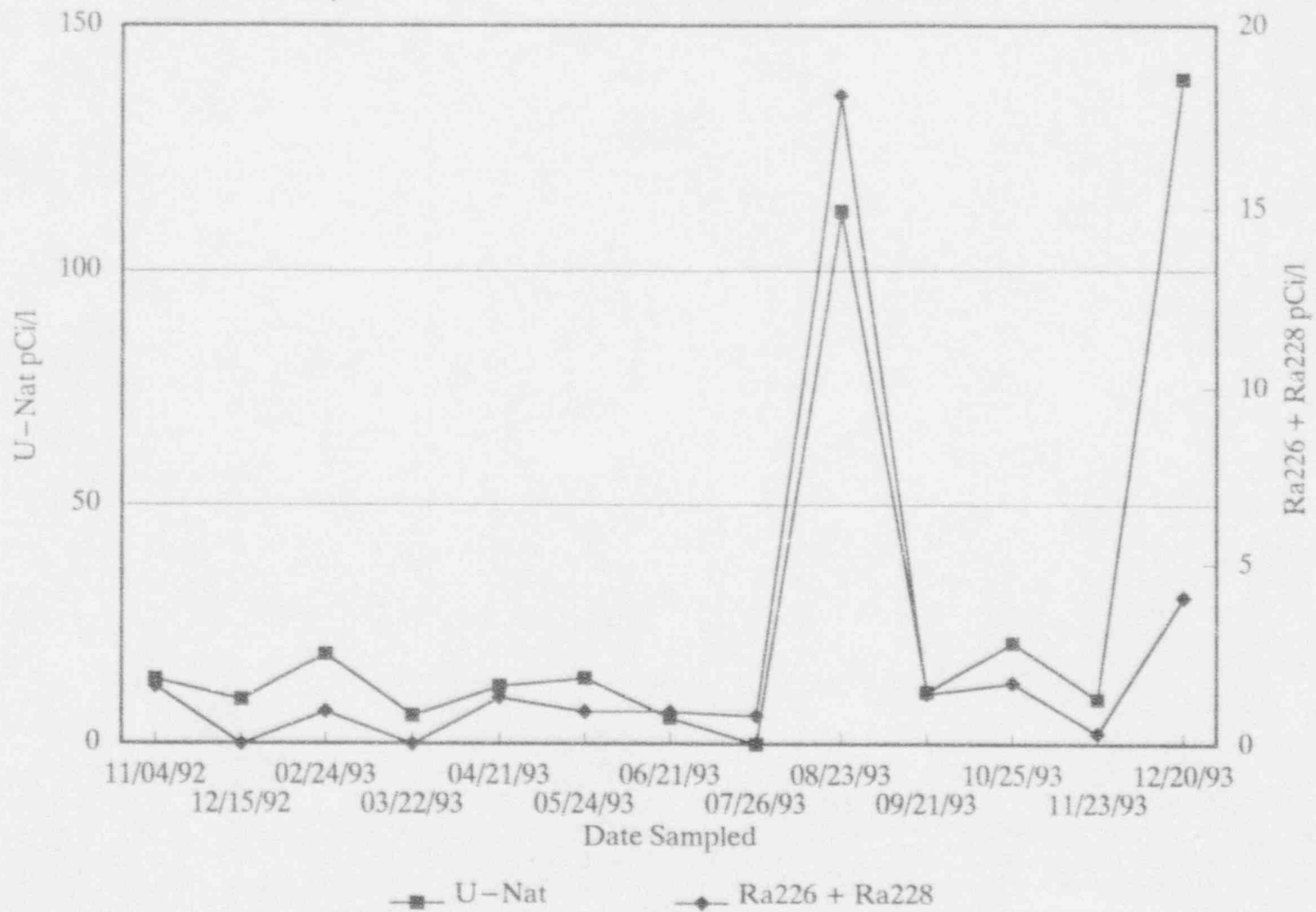
ANALYSES FOR I.X./R.O. RAW FEED WATER

Date Sampled	04/21/93	05/24/93	06/21/93	07/26/93	08/23/93	09/21/93	10/25/93	11/23/93	12/20/93
UNat pCi/l	56.50	46.60	70.30	23.00	93.30	93.90	84.60	98.20	77.20
UNat % M.P.C.	0.19	0.16	0.23	0.08	0.31	0.31	0.28	0.33	0.26
Ra226 pCi/l	23.30	20.20	21.20	22.30	30.30	26.60	32.50	29.20	24.00
Ra226 Error +/-	1.50	1.50	1.50	1.50	1.90	1.60	2.10	2.20	0.80
Ra226 % M.P.C.	77.67	67.33	70.67	74.33	101.00	88.67	108.33	97.33	80.00
Ra228 pCi/l	5.90	9.60	7.60	4.30	<1.0	11.10	10.20	11.50	9.90
Ra228 Error +/-	0.80	0.50	1.50	0.80		0.40	0.40	0.70	0.60
Ra228 % M.P.C.	19.67	32.00	25.33	14.33		37.00	34.00	36.33	33.00
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-									
Th230 % M.P.C.									
Pb210 pCi/l	<1.0	1.10	<1.0	5.00	3.70	<1.0	6.90	2.00	<1.0
Pb210 Error +/-		0.70		0.60	0.50		1.20	1.00	
Pb210 % M.P.C.		1.10		5.00	3.70		6.90	2.00	
Gross Alpha pCi/l	24.60	21.50	23.00	28.70	30.50	43.20	47.70	46.40	38.80
Gross Alpha Error +/-	4.90	2.70	4.80	5.40	5.50	6.60	6.90	6.80	6.20
As mg/l	<0.01	<0.01	<0.01	0.006	0.009	0.030	0.004	0.025	0.026
Se mg/l	<0.005	<0.005	<0.005	0.005	0.001	<0.005	0.002	0.001	<0.001
Fe mg/l	42.00	51.80	22.60	34.30	64.80	35.30	25.20	17.80	29.91
Pb mg/l									
Mo mg/l									
Mn mg/l	2.73	2.89	1.86	2.45	9.41	8.90	7.91	3.56	4.97
Al mg/l	3.67	3.00	2.93	2.54	9.40	7.10	5.20	3.42	4.92
Be mg/l	0.04	0.05	0.03	<0.01	0.06	0.02	0.01	<0.005	0.02
Ni mg/l	0.31	0.34	0.15	0.22	0.63	0.55	0.40	0.20	0.35
Ag mg/l									
V mg/l									
Cd mg/l									
Cr mg/l									
Ca mg/l	174.00	213.00	191.00	218.00	271.00	374.00	299.00	191.00	259.00
Mg mg/l	42.20	45.20	37.10	45.00	69.20	68.30	66.80	45.60	61.00
Na mg/l	110.00	54.60	101.00	46.50	65.00	116.00	60.40	127.00	54.60
K mg/l									
NH3 mg/l									
NO3 mg/l	<0.10	0.10	<0.01	<0.10	<0.10	<0.10	<0.10	0.13	0.36
SO4 mg/l	829.00	834.00	643.00	779.00	1125.00	1219.00	968.00	731.00	897.00
Cl mg/l	224.00	188.00	234.00	150.00	175.00	175.00	165.00	196.00	158.00
SiO2 mg/l		22.30	26.40	25.50	25.30	27.30	18.70	19.10	23.40
TDS mg/l	1397.00	1372.00	1241.00	1210.00	1889.00	1818.00	1823.00	1334.00	1637.00
pH	3.90	2.91	3.95	3.15	3.15	3.46	4.58	3.14	4.36

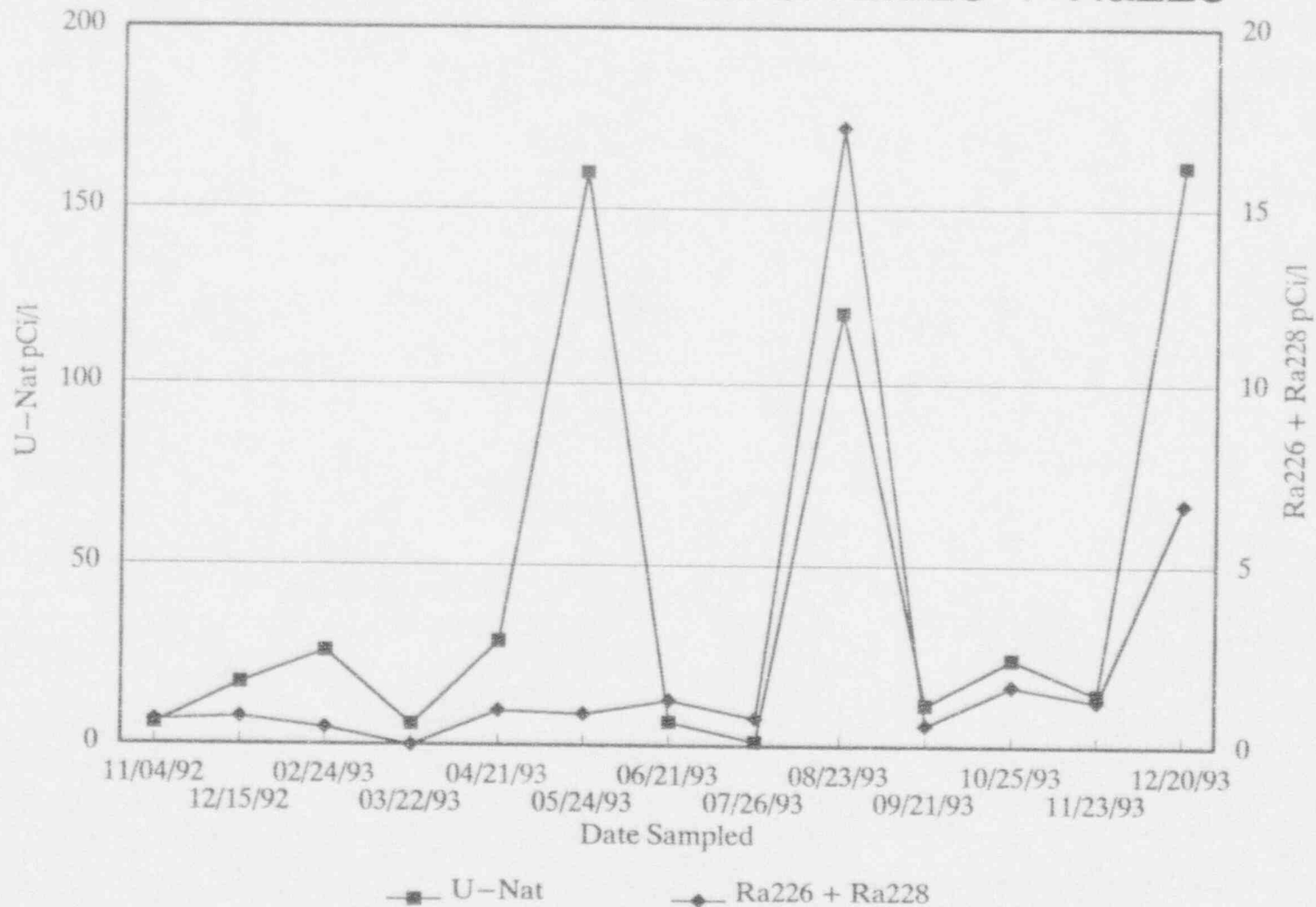
ANALYSES FOR I.X./R.O. INJECTION WATER

Date Sampled	06/21/93	07/26/93	08/23/93	09/21/93	10/25/93	11/23/93	12/20/93
UNat pCi/l	4.40	2.00	15.90	17.20	5.70	7.50	5.40
UNat % M.P.C.	0.01	0.01	0.05	0.06	0.02	0.03	0.02
Ra226 pCi/l	5.60	0.80	6.00	1.60	1.00	0.20	0.70
Ra226 Error +/-	0.80	0.20	0.50	0.30	0.20	0.20	0.20
Ra226 % M.P.C.	18.67	2.67	20.00	5.33	3.33	0.67	2.33
Ra228 pCi/l	2.20	2.30	1.40	2.80	<1.0	<1.0	<1.0
Ra228 Error +/-	0.50	1.50	0.60	0.50			
Ra228 % M.P.C.	7.33	7.67	4.67	9.33			
Th230 pCi/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Th230 Error +/-							
Th230 % M.P.C.							
Pb210 pCi/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Pb210 Error +/-							
Pb210 % M.P.C.							
Gross Alpha pCi/l	6.00	<5.0	8.10	5.70	2.20	<1.0	<1.0
Gross Alpha Error +/-	2.40		2.80	2.40	1.10		
As mg/l	<0.01	0.001	<0.001	<0.01	0.002	0.007	0.005
Se mg/l	<0.005	<0.001	0.002	<0.005	0.001	<0.001	<0.001
Fe mg/l	1.83	<0.10	2.82	<0.05	0.87	0.15	0.66
Pb mg/l							
Mn mg/l	1.03	0.36	3.79	0.91	0.99	0.43	0.81
Al mg/l	0.43	<0.10	<0.10	<0.10	<0.10	<0.10	0.10
Be mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.01
Ni mg/l	0.08	0.04	0.19	0.05	0.01	<0.05	0.04
Ag mg/l							
V mg/l							
Cd mg/l							
Cr mg/l							
Ca mg/l	86.10	24.10	127.00	57.70	19.80	12.90	25.40
Mg mg/l	21.40	8.70	43.80	25.30	8.20	5.20	11.30
Na mg/l	340.00	450.00	399.00	549.00	573.00	430.00	525.00
K mg/l							
NH3 mg/l							
NO3 mg/l	<0.01	<0.10	<0.10	0.30	0.12	0.11	0.31
SO4 mg/l	653.00	774.00	1122.00	994.00	947.00	650.00	885.00
Cl mg/l	231.00	172.00	188.00	217.00	240.00	174.00	208.00
TDS mg/l	1413.00	1393.00	1956.00	2728.00	1941.00	1486.00	1771.00
pH	5.67	6.98	6.90	6.37	6.15	6.56	6.16

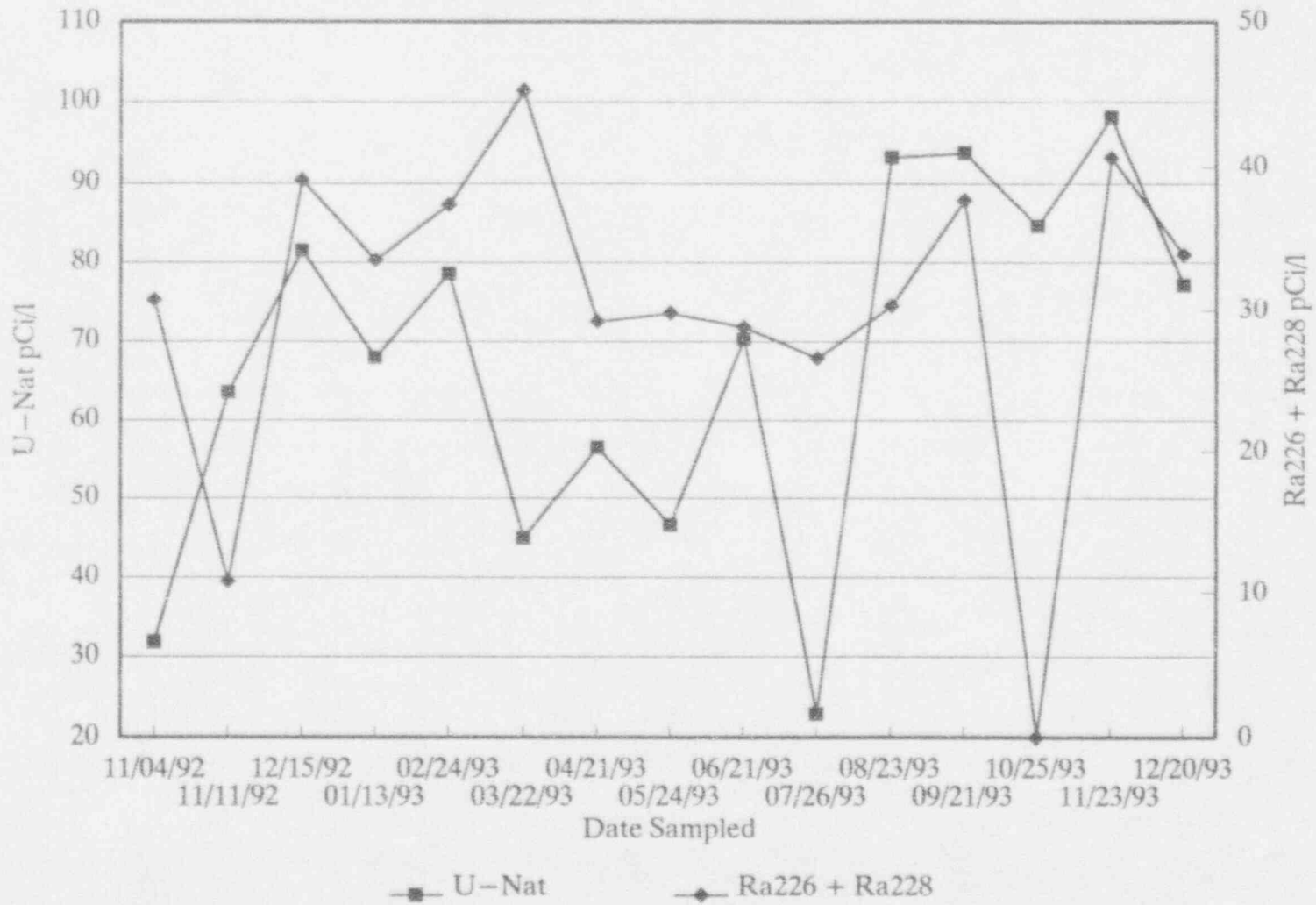
I.X./R.O., I.X. Unit U-Nat & Ra226 + Ra228



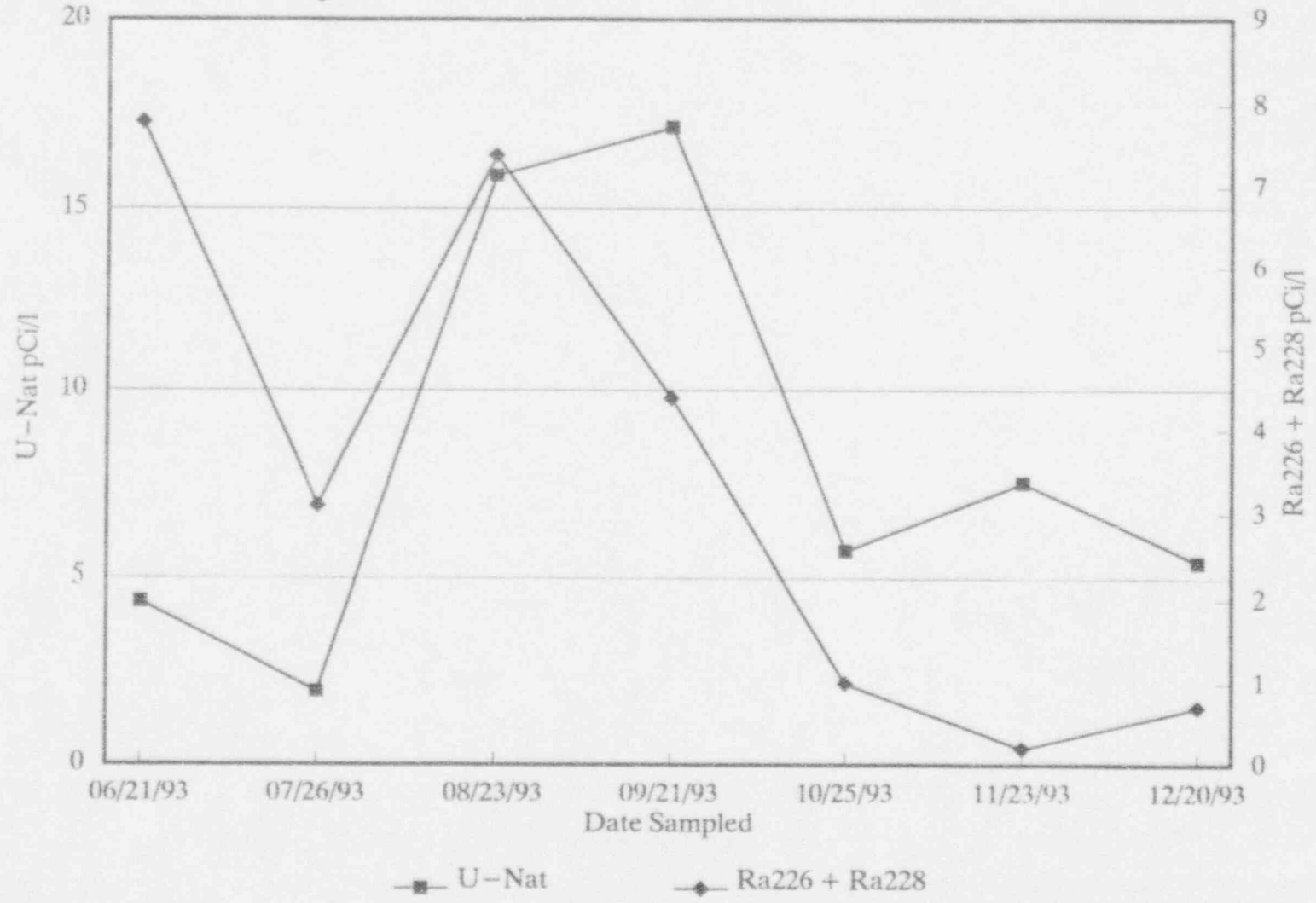
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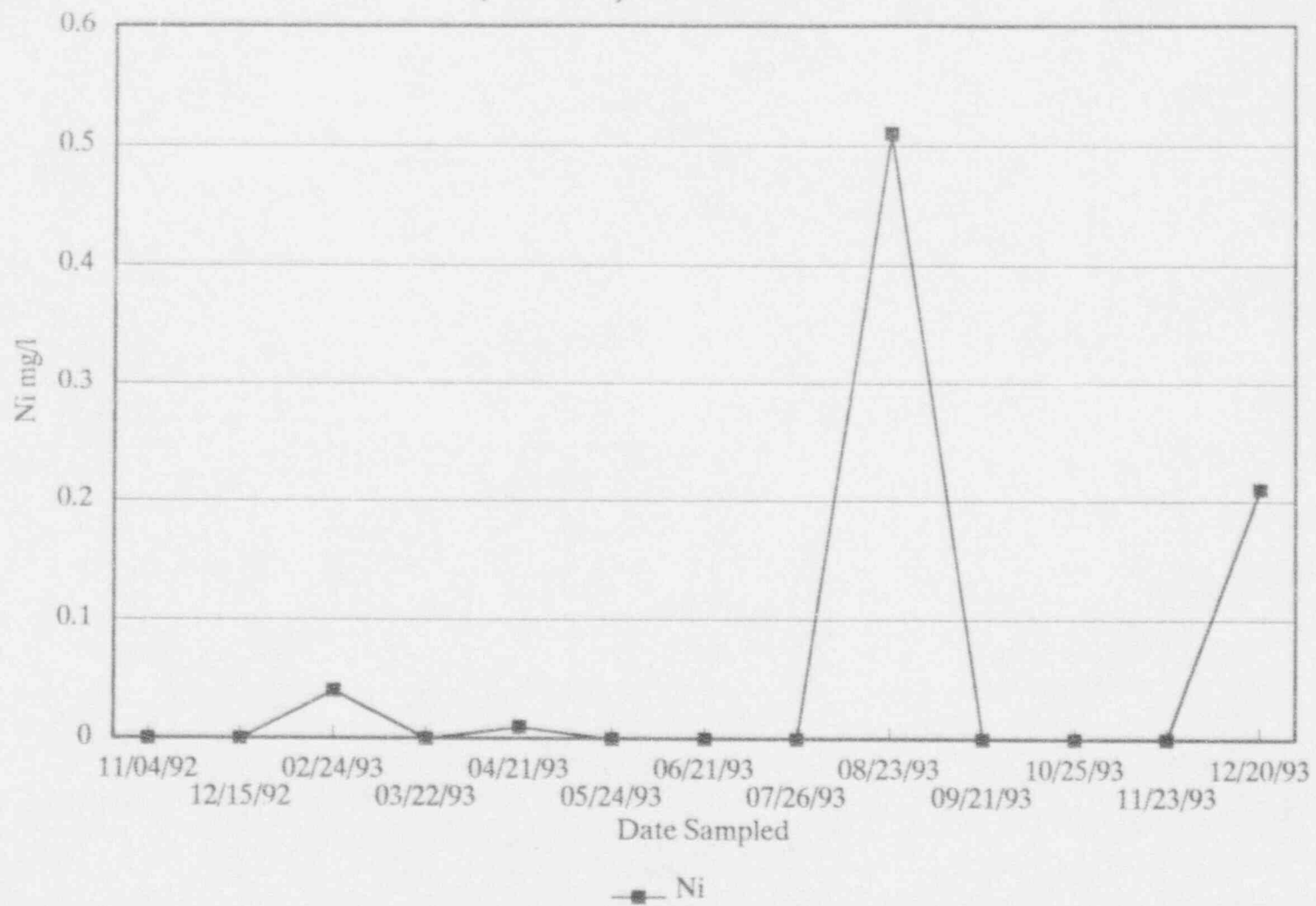
I.X./R.O. Raw Feed U-Nat & Ra226 + Ra228



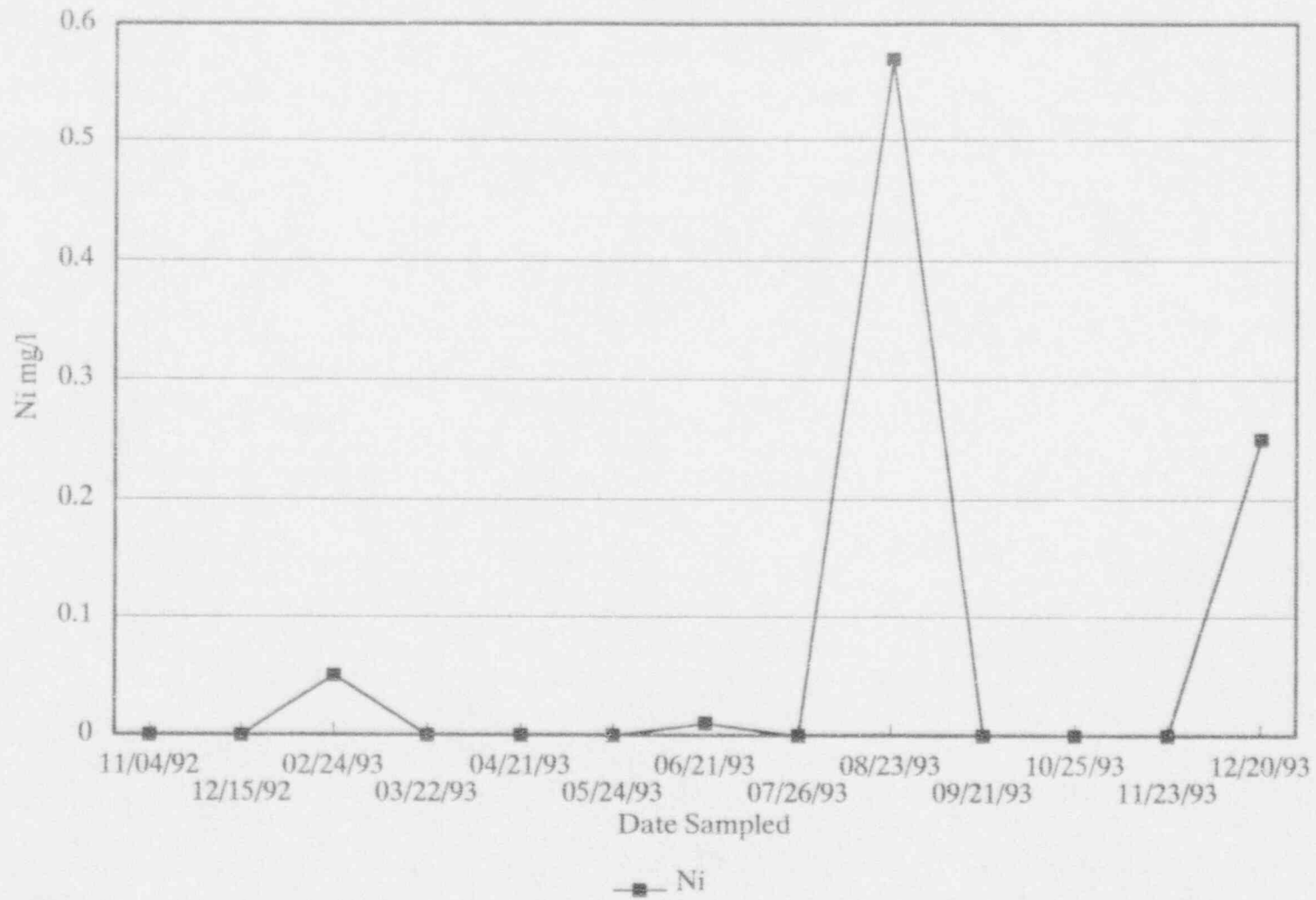
I.X./R.O. Injection Water U-Nat & Ra226 + Ra228



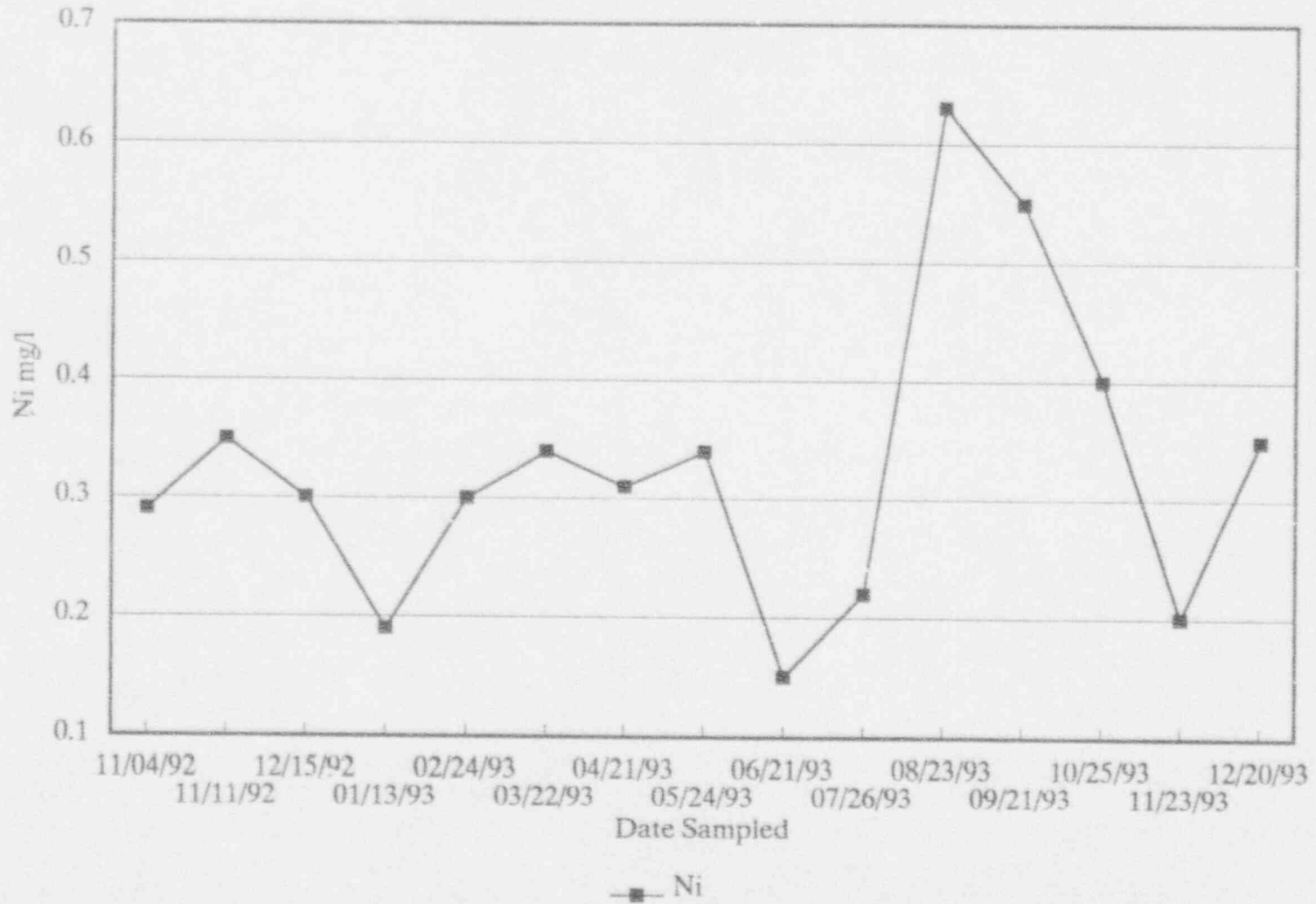
I.X./R.O., I.X. Unit Nickel



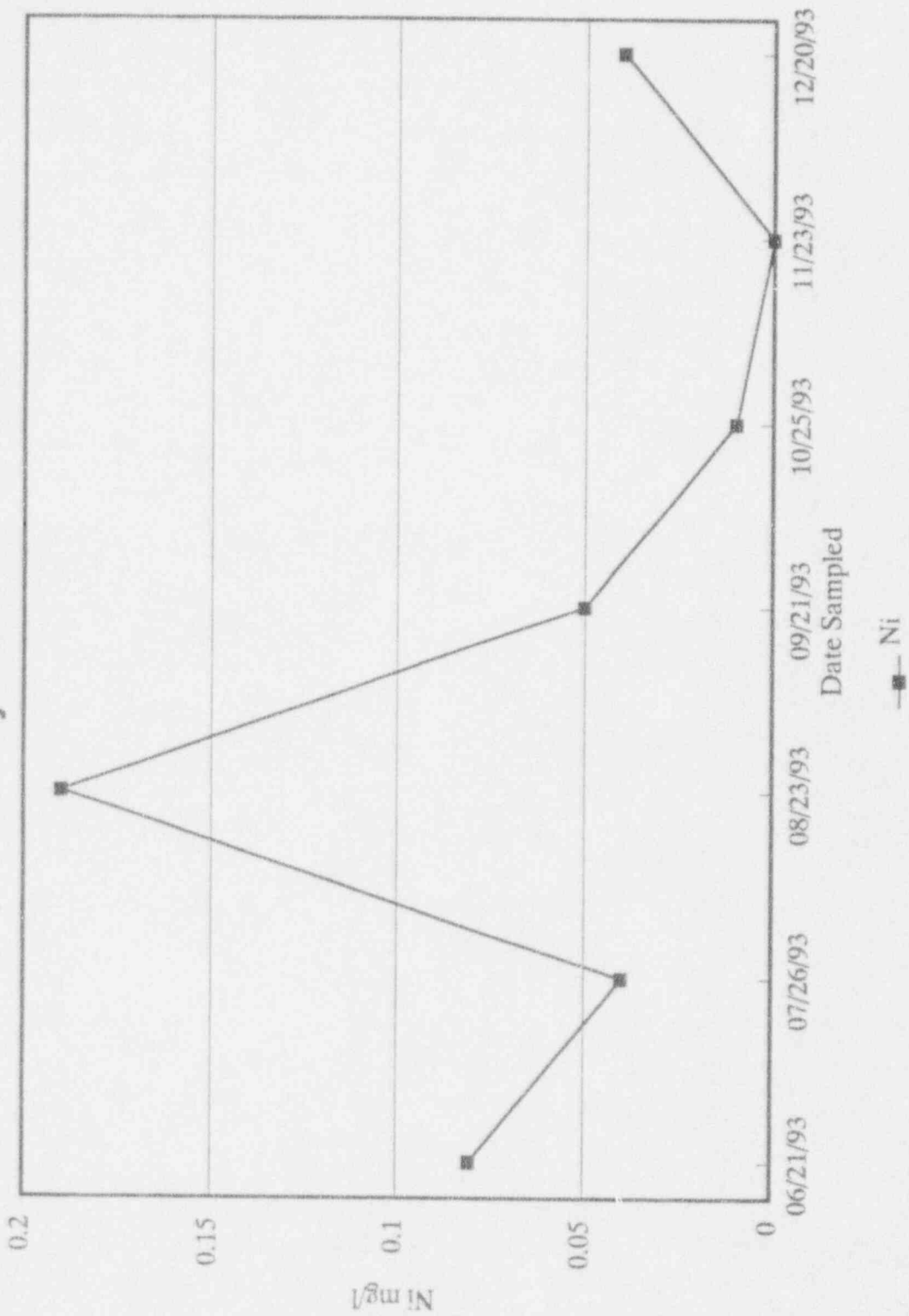
I.X./R.O. Softener Nickel



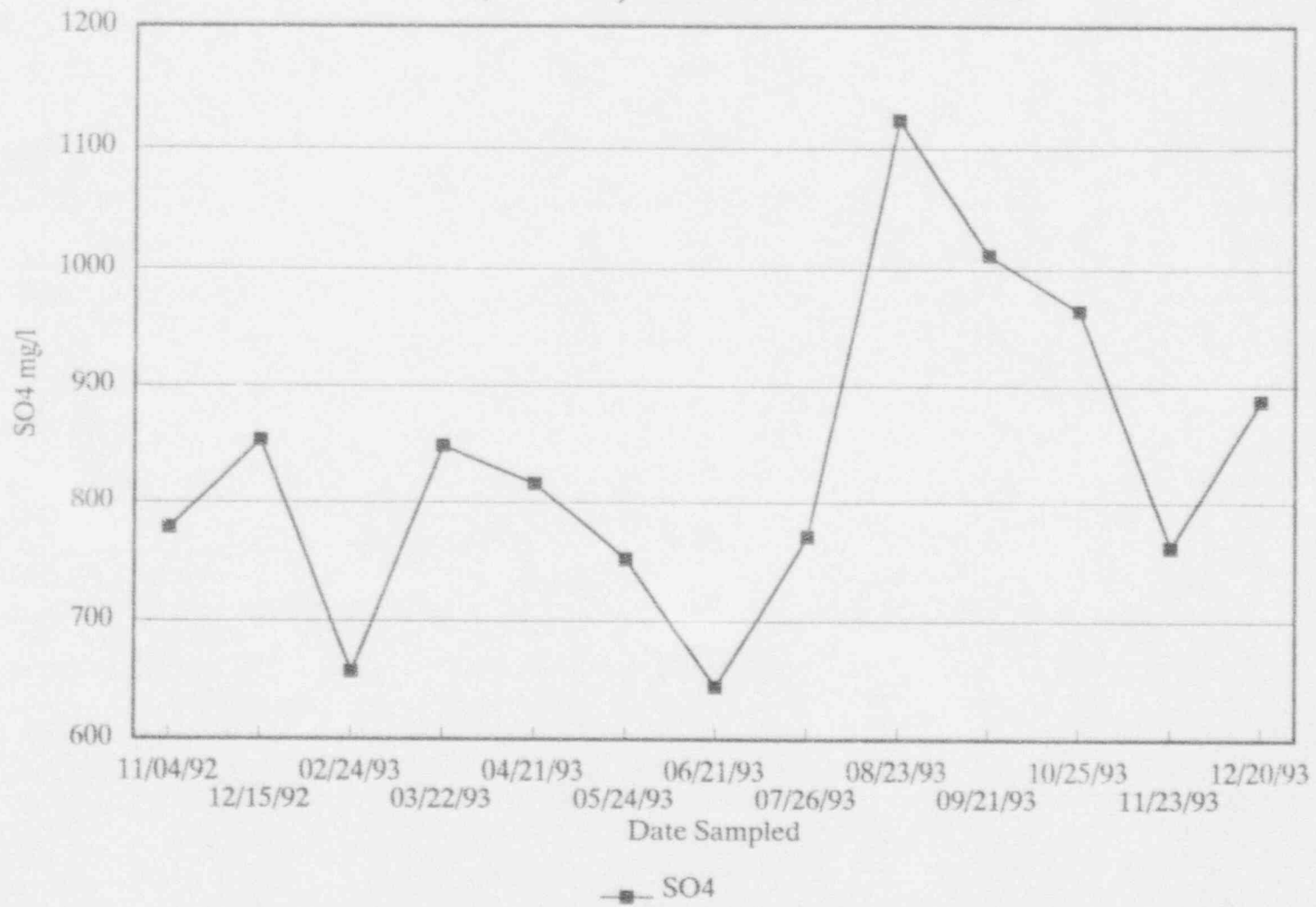
I.X./R.O. Raw Feed Nickel



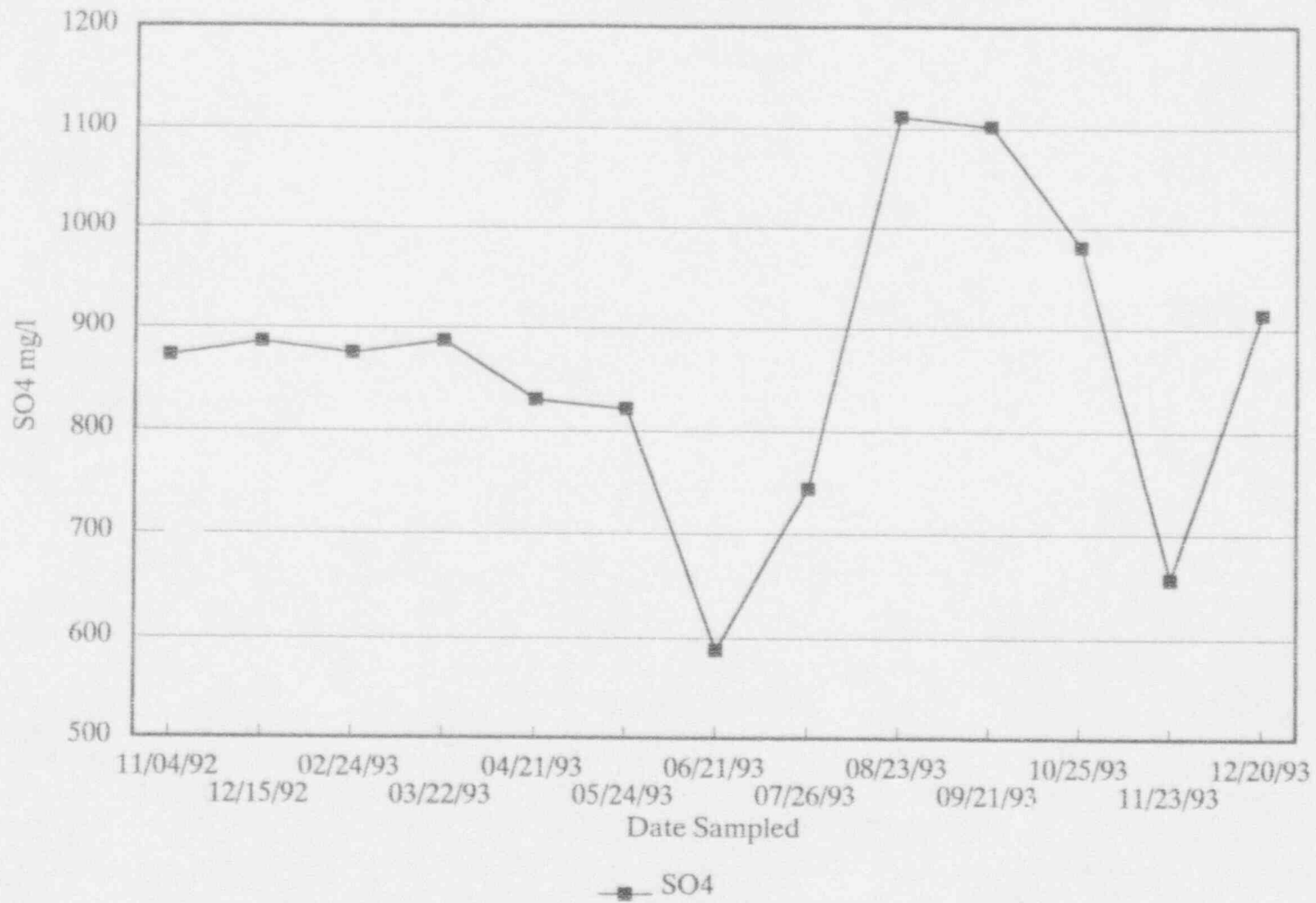
I.X./R.O. Injection Water Nickel



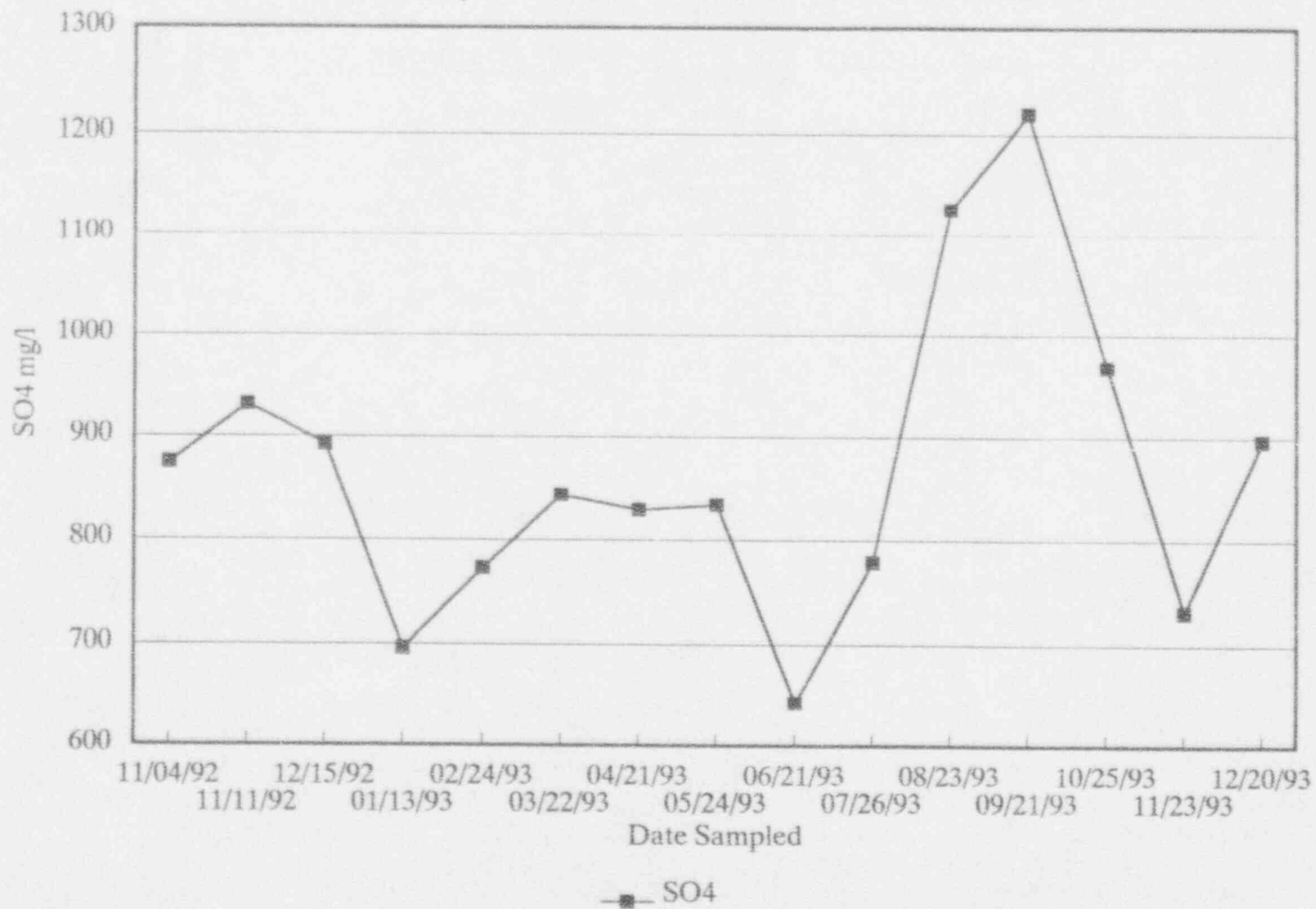
I.X./R.O., I.X. Unit Sulfate



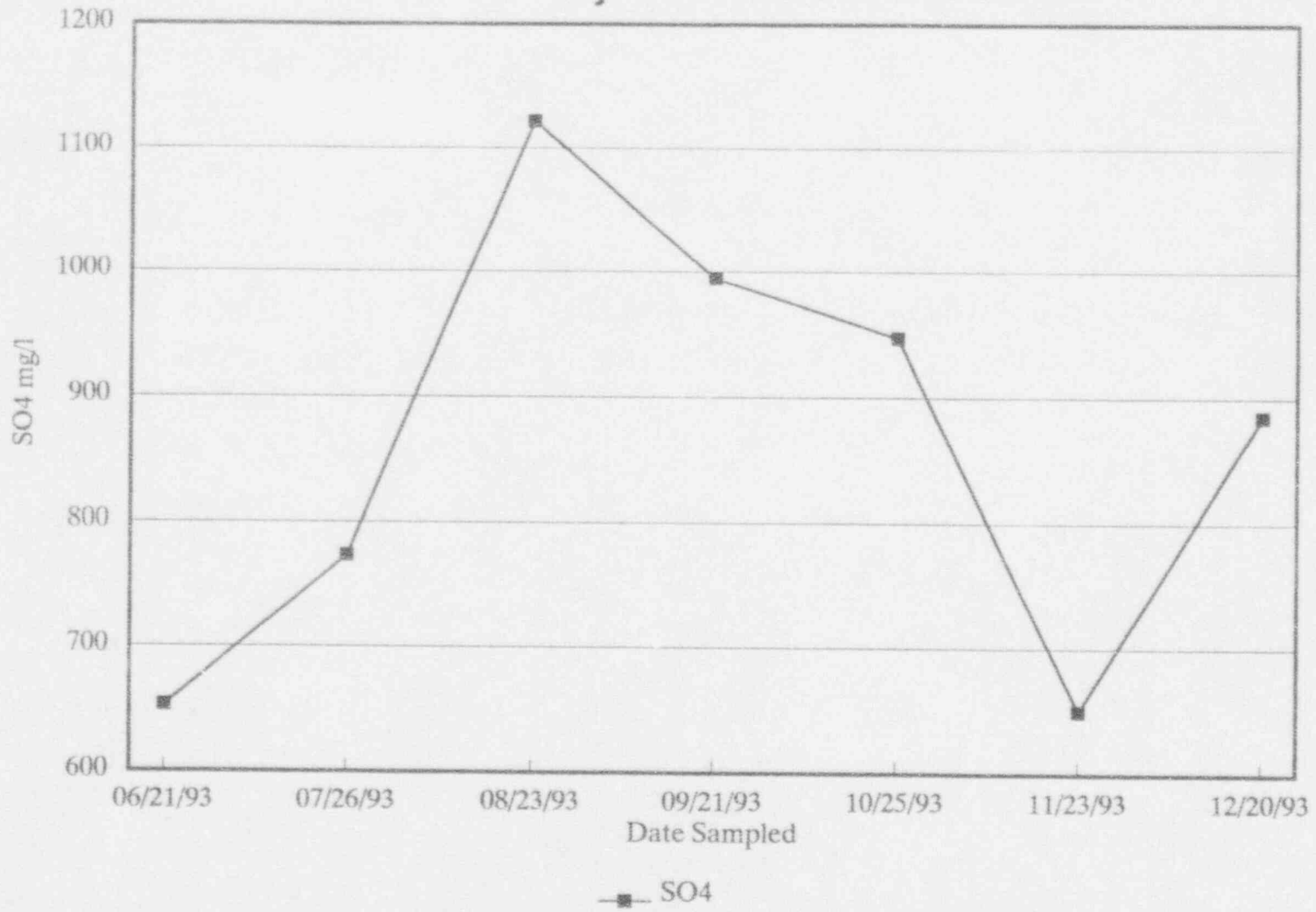
I.X./R.O. Softener Sulfate



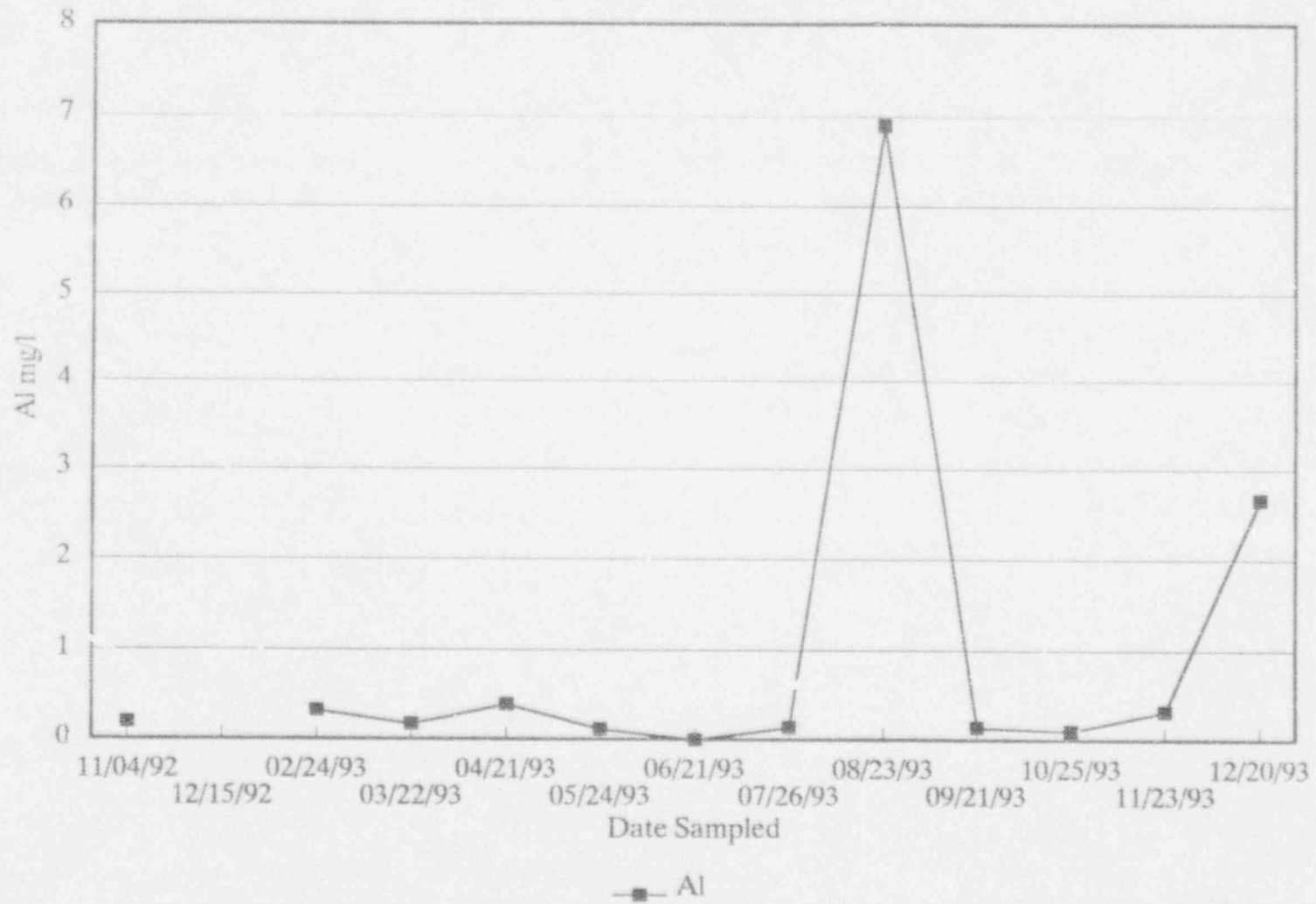
I.X./R.O. Raw Feed Sulfate



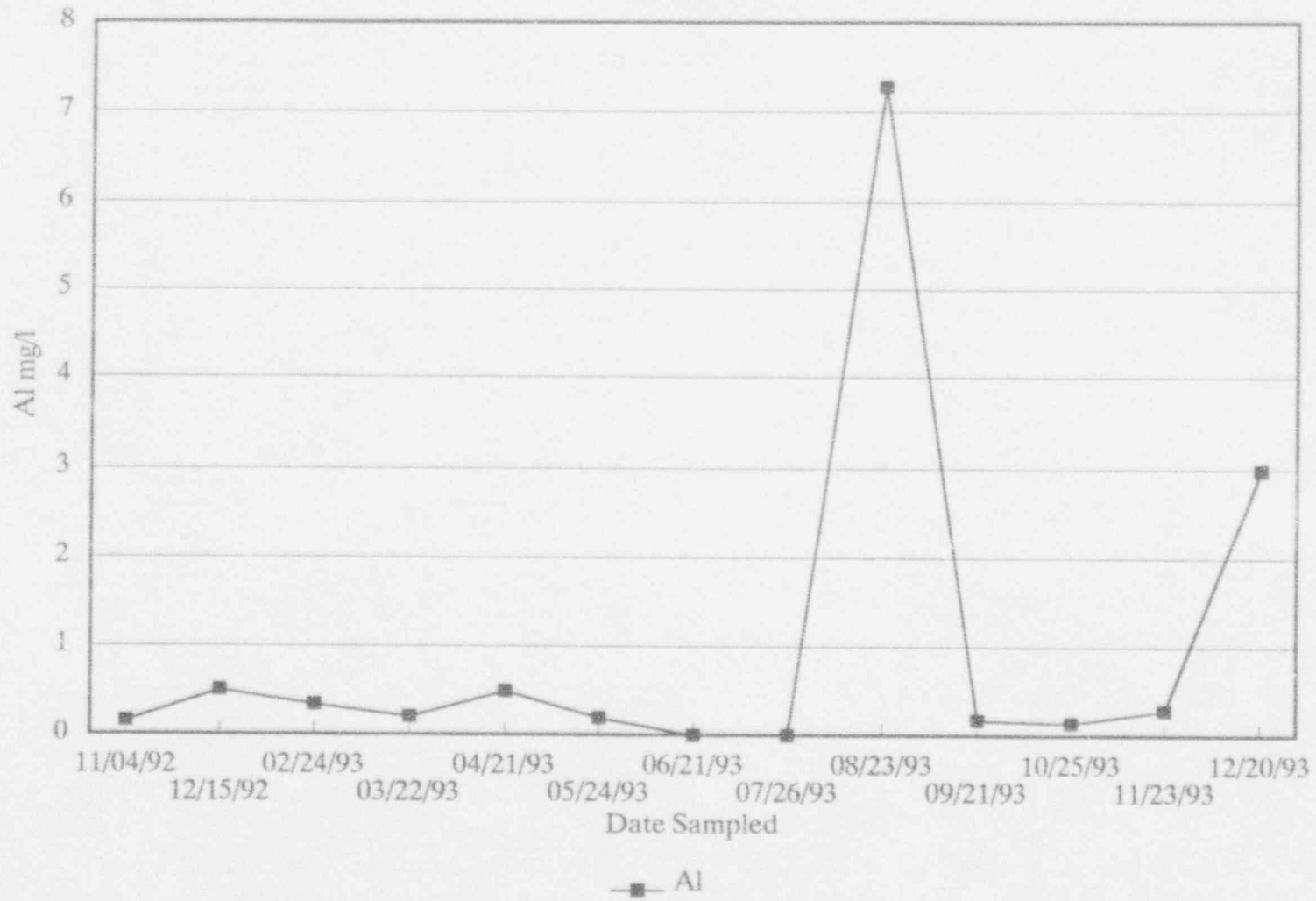
I.X./R.O. Injection Water Sulfate



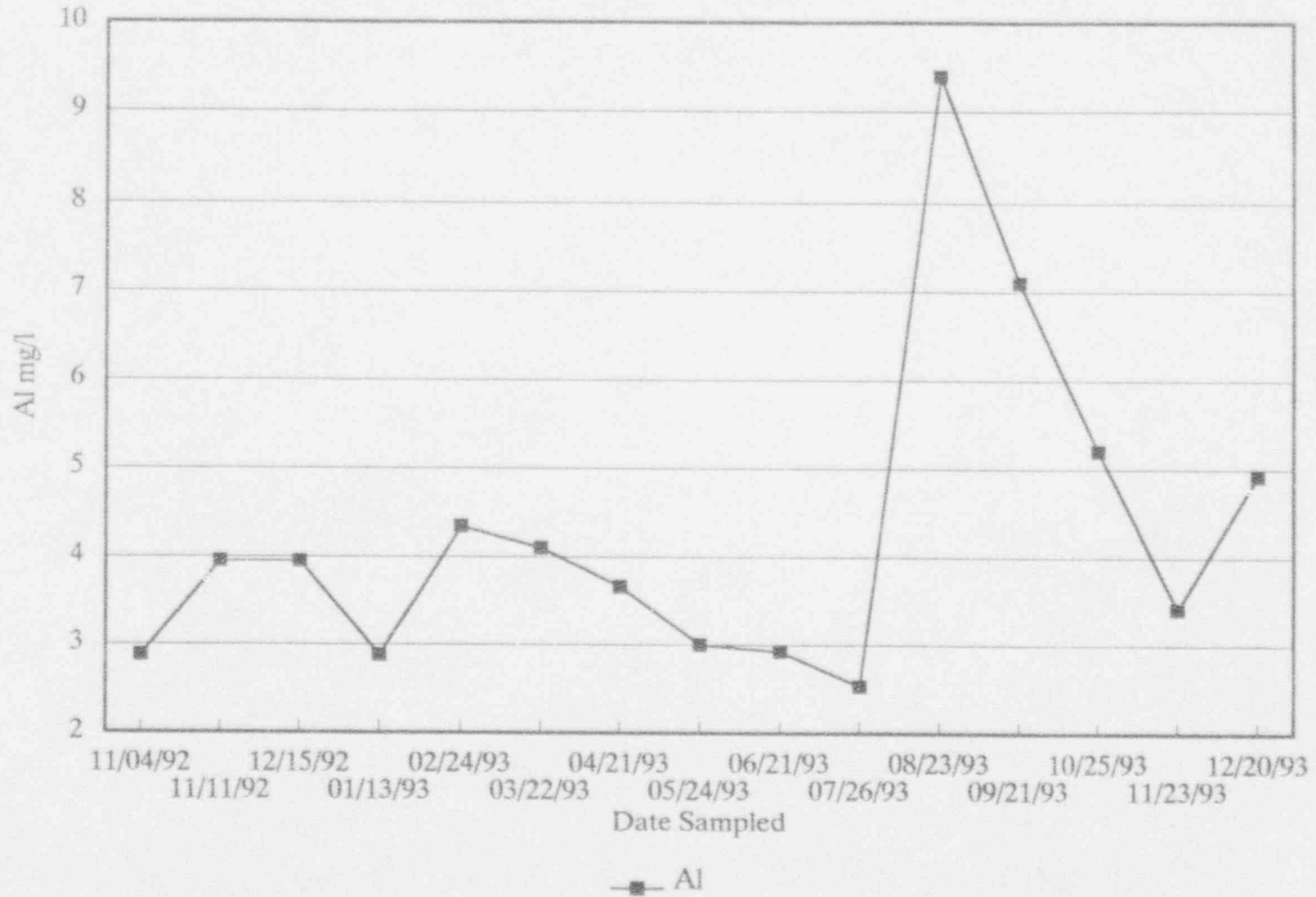
I.X./R.O., I.X. Unit Aluminum



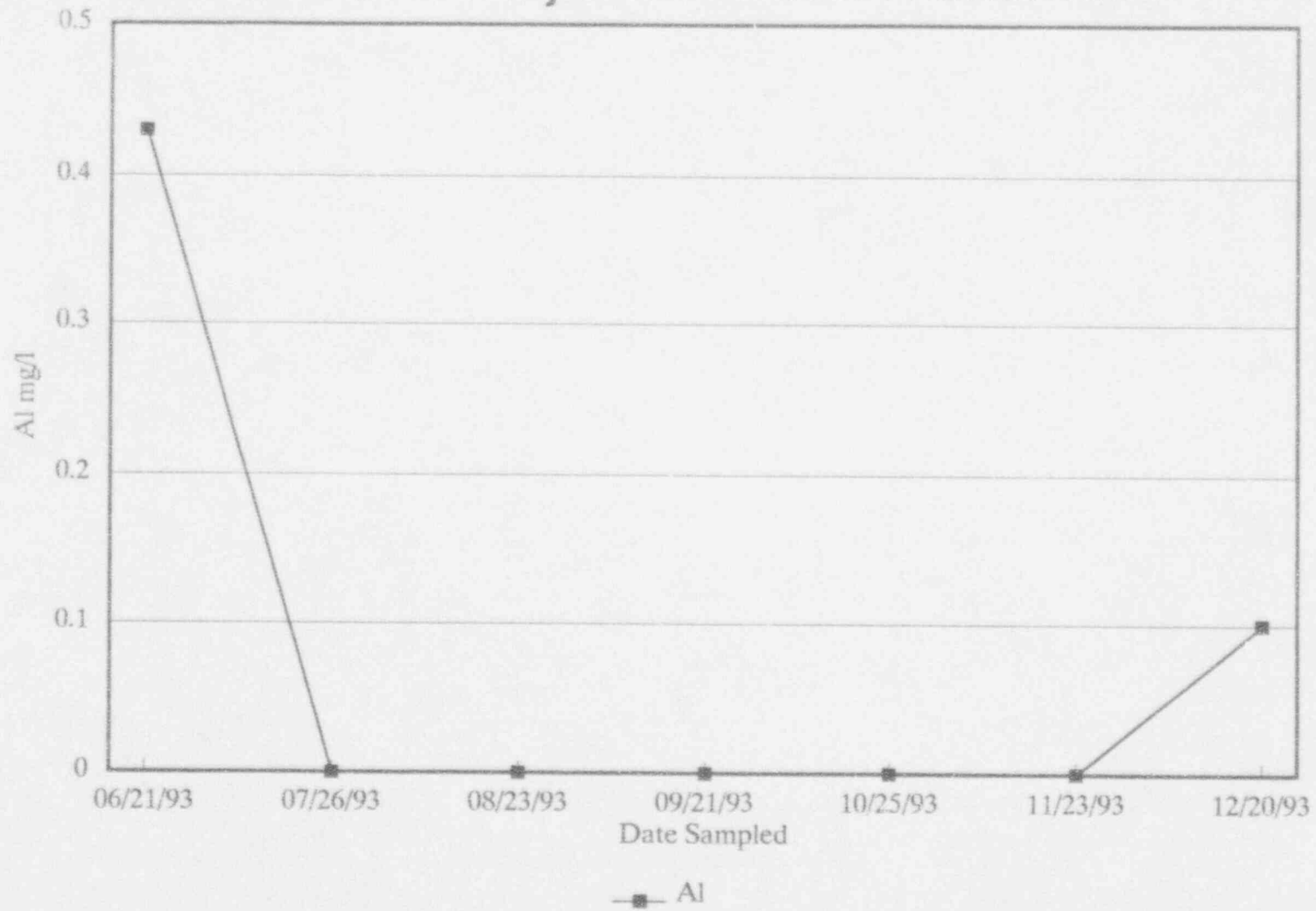
I.X./R.O. Softener Aluminum



I.X./R.O. Raw Feed Aluminum



I.X./R.O. Injection Water Aluminum



SECTION 4.0
SURFACE WATER MONITORING

4.0 SURFACE WATER MONITORING

Annual surface water samples were collected on April 16, 1993 at all locations, with those sampling results presented in the first half of 1993 40.65 report

SECTION 5.0
OFF-SITE AIR SAMPLING

5.0 OFF-SITE AIR SAMPLING

Six high-volume air particulate samplers are used to collect air samples. These units are operated continuously with the filters changed weekly. The filters for a month are analyzed as a composite sample for the month in which they were collected. The sample results show no significant trends and continue to indicate no environmental hazards exist with respect to air pollution with regard to Umetco's Gas Hills operations. All of the sample results are 1% of MPC or less.

AIR PARTICULATE DATA FOR TOWER 1

PERIOD ENDING	Ra 226 uCi/ml	Ra 226 ERROR uCi/ml	Ra 226 MPC in %	Ra 226 LLD uCi/ml	Th 230 uCi/ml	Th 230 ERROR uCi/ml	Th 230 MPC in %	Th 230 LLD uCi/ml	Pb 210 uCi/ml	Pb 210 ERROR uCi/ml	Pb 210 MPC in %	Pb 210 LLD uCi/ml	U-Nat uCi/ml	U-Nat MPC in %	U-Nat LLD uCi/ml
07/29/93	1.0E-16	9.0E-18	0.003	1.6E-17	0	0	0.000	2.2E-18	6.5E-15	4.4E-16	0.163	2.2E-18	1.6E-16	0.003	4.5E-18
08/26/93	1.1E-16	1.0E-17	0.004	1.6E-17	0	0	0.000	2.3E-18	6.1E-15	4.0E-16	0.151	2.3E-18	1.5E-16	0.003	4.6E-18
09/30/93	6.2E-17	7.1E-18	0.002	1.9E-17	0	0	0.000	1.9E-18	8.7E-15	3.9E-16	0.217	1.8E-18	1.8E-16	0.004	3.5E-18
10/28/93	5.7E-17	8.5E-18	0.002	1.3E-17	0	0	0.000	1.9E-18	8.1E-15	5.5E-16	0.203	1.9E-18	2.8E-16	0.005	3.8E-18
11/24/93	9.0E-17	9.8E-18	0.003	1.3E-17	0	0	0.000	1.8E-18	8.5E-15	4.2E-16	0.212	1.8E-18	1.5E-16	0.003	3.7E-18
12/29/93	1.7E-16	1.7E-17	0.005	1.0E-17	0	0	0.000	1.4E-18	7.7E-15	3.2E-16	0.193	1.4E-18	1.4E-16	0.003	2.8E-18

AIR PARTICULATE DATA FOR TOWER 2

PERIOD ENDING	Ra 226 uCi/ml	Ra 226 ERROR uCi/ml	Ra 226 MPC in %	Ra 226 LLD uCi/ml	Th 230 uCi/ml	Th 230 ERROR uCi/ml	Th 230 MPC in %	Th 230 LLD uCi/ml	Pb 210 uCi/ml	Pb 210 ERROR uCi/ml	Pb 210 MPC in %	Pb 210 LLD uCi/ml	U-Nat uCi/ml	U-Nat MPC in %	U-Nat LLD uCi/ml
07/29/93	1.4E-16	5.3E-17	0.005	1.4E-17	0	0	0.000	2.1E-18	4.1E-15	3.3E-16	0.103	2.1E-18	1.9E-16	0.004	4.1E-18
08/26/93	1.1E-16	6.5E-18	0.004	1.5E-17	0	0	0.000	2.1E-18	5.7E-15	4.0E-16	0.143	2.1E-18	2.9E-16	0.006	4.2E-18
09/30/93	7.6E-17	8.7E-18	0.003	1.1E-17	0	0	0.000	1.6E-18	3.7E-15	2.7E-16	0.092	1.6E-18	9.2E-17	0.002	3.2E-18
10/28/93	1.4E-16	7.3E-18	0.005	1.3E-17	0	0	0.000	1.8E-18	8.9E-15	4.0E-16	0.221	1.8E-18	1.6E-16	0.003	3.6E-18
11/24/93	5.9E-17	9.3E-18	0.002	1.2E-17	0	0	0.000	1.7E-18	6.2E-15	3.3E-16	0.156	1.7E-18	2.2E-16	0.004	3.5E-18
12/29/93	6.3E-17	6.0E-18	0.003	9.4E-18	0	0	0.000	1.3E-18	7.0E-15	3.3E-16	0.174	1.3E-18	8.6E-17	0.002	2.7E-18

AIR PARTICULATE DATA FOR TOWER 3

PERIOD ENDING	Ra 226 uCi/ml	Ra 226 ERROR uCi/ml	Ra 226 MPC in %	Ra 226 LLD uCi/ml	Th 230 uCi/ml	Th 230 ERROR uCi/ml	Th 230 MPC in %	Th 230 LLD uCi/ml	Pb 210 uCi/ml	Pb 210 ERROR uCi/ml	Pb 210 MPC in %	Pb 210 LLD uCi/ml	U-Nat uCi/ml	U-Nat MPC in %	U-Nat LLD uCi/ml
07/29/93	1.5E-16	8.3E-18	0.005	1.5E-17	0	0	0.000	2.1E-18	6.8E-15	4.3E-16	0.171	2.1E-18	3.2E-16	0.006	4.1E-18
08/26/93	3.3E-16	1.6E-17	0.011	1.5E-17	0	0	0.000	2.2E-18	6.5E-15	4.0E-16	0.162	2.2E-18	3.3E-16	0.007	4.3E-18
09/30/93	7.6E-17	6.9E-18	0.003	1.2E-17	0	0	0.000	1.7E-18	7.1E-15	3.6E-16	0.178	1.7E-18	3.8E-16	0.008	3.4E-18
10/28/93	1.4E-16	1.1E-17	0.005	1.4E-17	0	0	0.000	2.0E-18	6.9E-15	3.8E-16	0.172	2.0E-18	4.8E-16	0.010	4.1E-18
11/24/93	2.8E-16	2.9E-17	0.009	1.4E-17	0	0	0.000	2.0E-18	1.1E-14	5.0E-16	0.265	2.0E-18	5.3E-16	0.011	4.1E-18
12/29/93	2.3E-16	2.1E-17	0.008	1.1E-17	0	0	0.000	1.6E-18	8.6E-15	3.5E-16	0.214	1.6E-18	3.5E-16	0.007	3.2E-18

AIR PARTICULATE DATA FOR TOWER 4

PERIOD ENDING	Ra 226 uCi/ml	Ra 226 ERROR uCi/ml	Ra 226 MPC in %	Ra 226 LLD uCi/ml	Th 230 uCi/ml	Th 230 ERROR uCi/ml	Th 230 MPC in %	Th 230 LLD uCi/ml	Pb 210 uCi/ml	Pb 210 ERROR uCi/ml	Pb 210 MPC in %	Pb 210 LLD uCi/ml	U-Nat uCi/ml	U-Nat MPC in %	U-Nat LLD uCi/ml
07/29/93	8.9E-17	6.9E-18	0.003	1.6E-17	0	0	0.000	2.3E-18	5.2E-15	4.1E-16	0.130	2.3E-18	9.8E-17	0.002	4.6E-18
08/26/93	8.1E-17	1.1E-17	0.003	1.7E-17	0	0	0.000	2.4E-18	5.5E-15	4.0E-16	0.138	2.4E-18	6.7E-17	0.001	4.8E-18
09/30/93	5.9E-17	3.7E-18	0.002	1.3E-17	0	0	0.000	1.8E-18	8.8E-15	3.6E-16	0.169	1.8E-18	1.3E-16	0.003	3.7E-18
10/28/93	8.7E-17	8.3E-18	0.003	1.3E-17	0	0	0.000	1.9E-18	6.2E-15	3.5E-16	0.155	1.9E-18	1.5E-16	0.003	3.7E-18
11/24/93	1.9E-16	2.2E-17	0.006	1.2E-17	0	0	0.000	1.7E-18	7.1E-15	3.8E-16	0.177	1.7E-18	7.5E-17	0.001	3.4E-18
12/29/93	7.2E-17	5.9E-18	0.002	9.3E-18	0	0	0.000	1.3E-18	7.2E-15	3.0E-16	0.180	1.3E-18	6.8E-17	0.001	2.7E-18

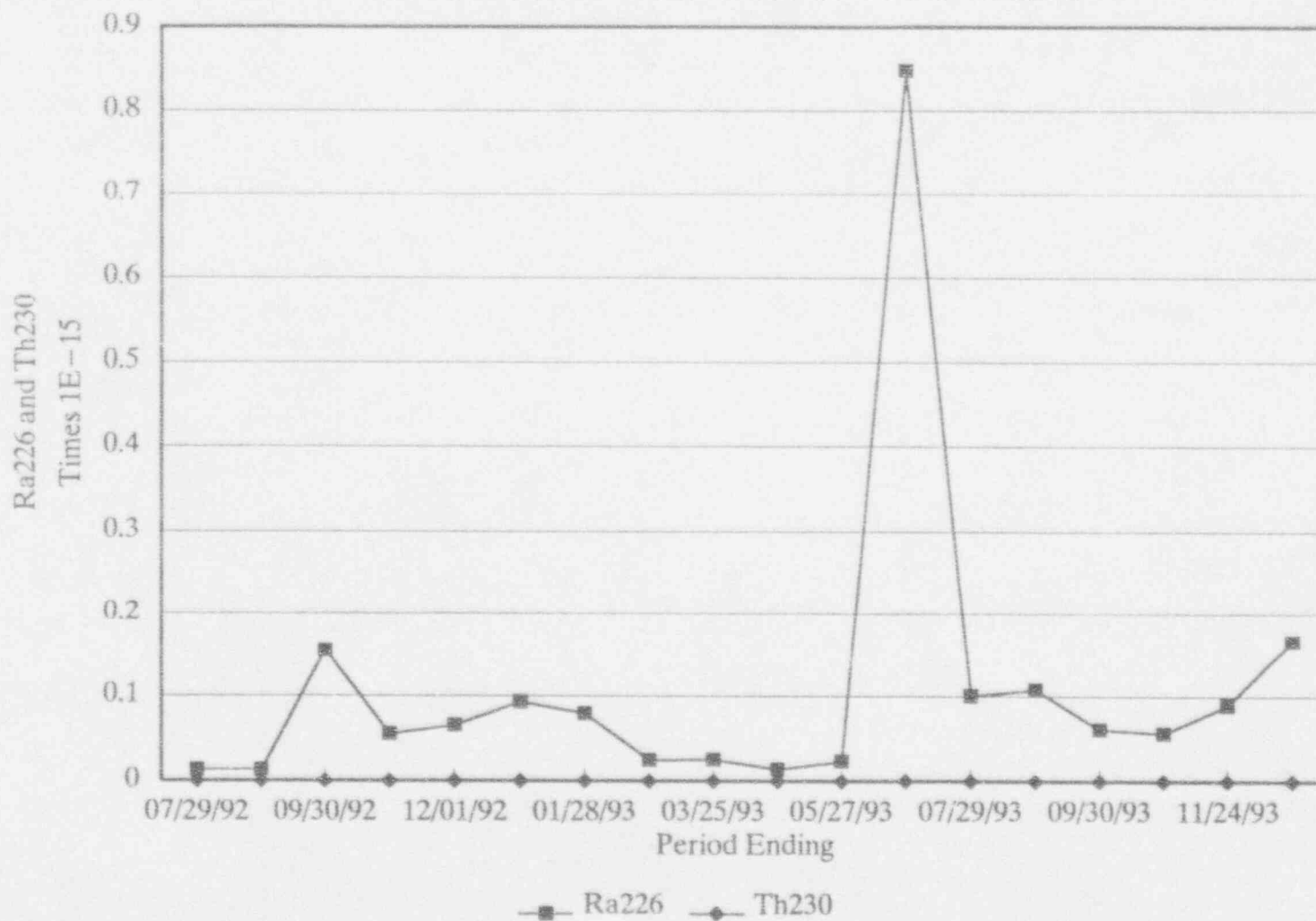
AIR PARTICULATE DATA FOR TOWER 5

PERIOD ENDING	Ra 226 uCi/ml	Ra 226 ERROR uCi/ml	Ra 226 MPC in %	Ra 226 LLD uCi/ml	Th 230 uCi/ml	Th 230 ERROR uCi/ml	Th 230 MPC in %	Th 230 LLD uCi/ml	Pb 210 uCi/ml	Pb 210 ERROR uCi/ml	Pb 210 MPC in %	Pb 210 LLD uCi/ml	U-Nat uCi/ml	U-Nat MPC in %	U-Nat LLD uCi/ml
07/29/93	2.9E-16	1.3E-17	0.001	1.6E-17	0	0	0.000	2.2E-18	5.2E-15	4.0E-16	0.005	2.2E-18	8.1E-16	0.001	4.4E-18
08/26/93	2.9E-16	1.6E-17	0.001	1.6E-17	0	0	0.000	2.3E-18	6.6E-15	4.1E-16	0.007	2.3E-18	1.8E-16	0.000	4.5E-18
09/30/93	2.0E-16	1.1E-17	0.001	1.2E-17	0	0	0.000	1.8E-18	8.0E-15	3.8E-16	0.008	1.8E-18	5.3E-16	0.001	3.5E-18
10/28/93	3.9E-16	2.0E-17	0.001	1.5E-17	0	0	0.000	2.2E-18	8.0E-15	4.3E-16	0.008	2.2E-18	6.9E-16	0.001	4.4E-18
11/24/93	8.8E-17	1.1E-17	0.000	1.4E-17	0	0	0.000	2.0E-18	9.6E-15	4.7E-16	0.010	2.0E-18	2.3E-16	0.000	3.9E-18
12/29/93	1.6E-16	9.0E-18	0.001	1.0E-17	0	0	0.000	1.4E-18	8.2E-15	3.3E-16	0.008	1.4E-18	2.8E-16	0.000	2.9E-18

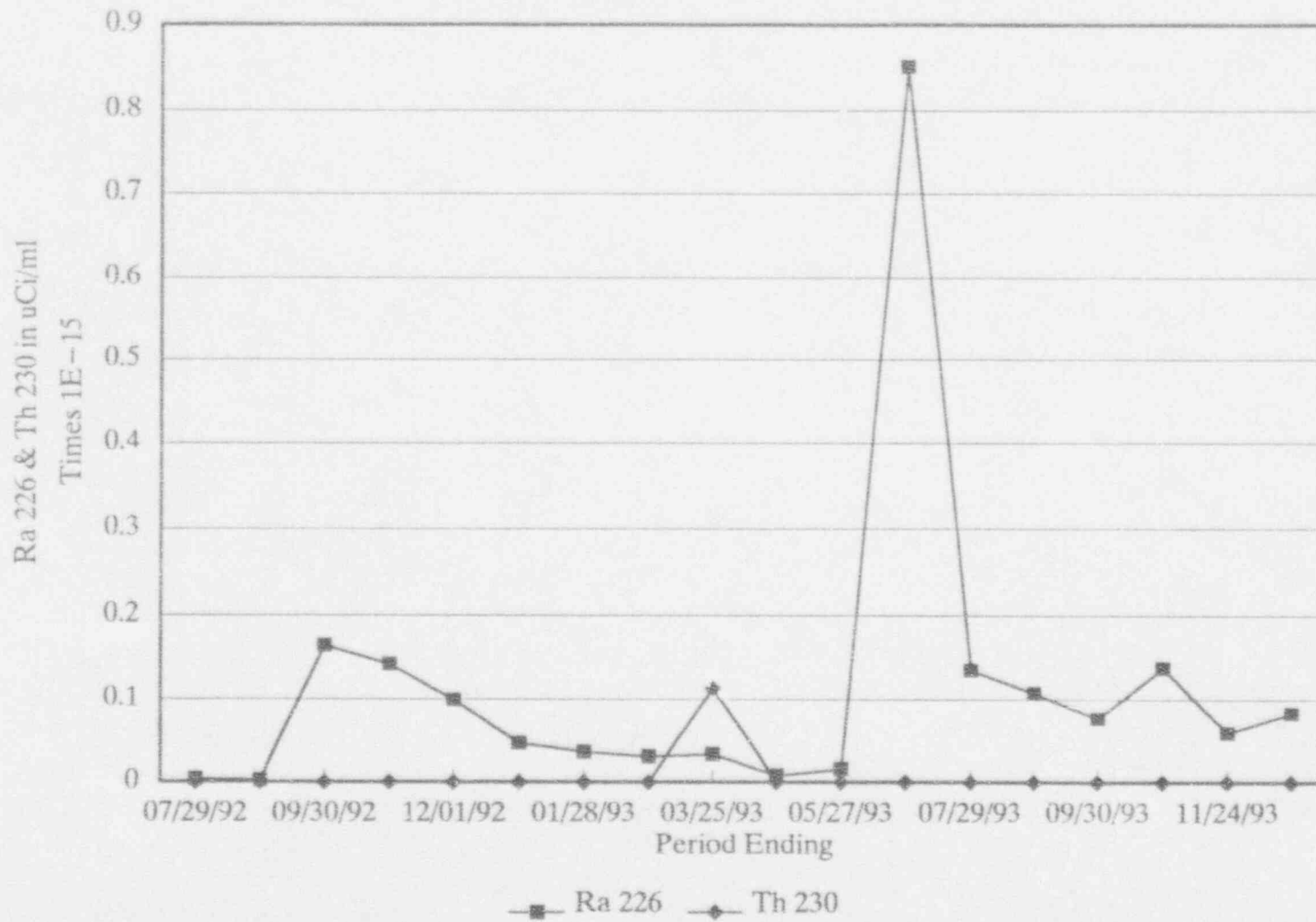
AIR PARTICULATE DATA FOR TOWER 6

PERIOD ENDING	Ra 226 uCi/ml	Ra 226 ERROR uCi/ml	Ra 226 MPC in %	Ra 226 LLD uCi/ml	Th 230 uCi/ml	Th 230 ERROR uCi/ml	Th 230 MPC in %	Th 230 LLD uCi/ml	Pb 210 uCi/ml	Pb 210 ERROR uCi/ml	Pb 210 MPC in %	Pb 210 LLD uCi/ml	U-Nat uCi/ml	U-Nat MPC in %	U-Nat LLD uCi/ml
07/29/93	2.3E-17	4.2E-18	0.001	1.5E-17	0	0	0.000	2.1E-18	6.2E-15	4.2E-16	0.155	2.1E-18	0	0.000	4.2E-18
08/26/93	2.4E-17	9.6E-18	0.001	1.5E-17	0	0	0.000	2.2E-18	7.0E-15	4.1E-16	0.174	2.2E-18	8.6E-17	0.002	4.3E-18
09/30/93	3.5E-17	5.0E-18	0.001	1.2E-17	0	0	0.000	1.7E-18	8.5E-15	3.8E-16	0.213	1.7E-18	1.7E-17	0.000	3.3E-18
10/28/93	9.4E-17	8.6E-18	0.003	1.3E-17	0	0	0.000	1.9E-18	7.0E-15	3.7E-16	0.175	1.9E-18	4.0E-17	0.001	3.8E-18
11/24/93	1.1E-17	6.7E-18	0.000	1.3E-17	0	0	0.000	1.9E-18	9.6E-15	4.5E-16	0.240	1.9E-18	3.0E-17	0.001	3.7E-18
12/29/93	1.5E-16	9.0E-18	0.005	1.0E-17	0	0	0.000	1.4E-18	8.7E-15	3.3E-16	0.217	1.4E-18	4.8E-17	0.001	2.8E-18

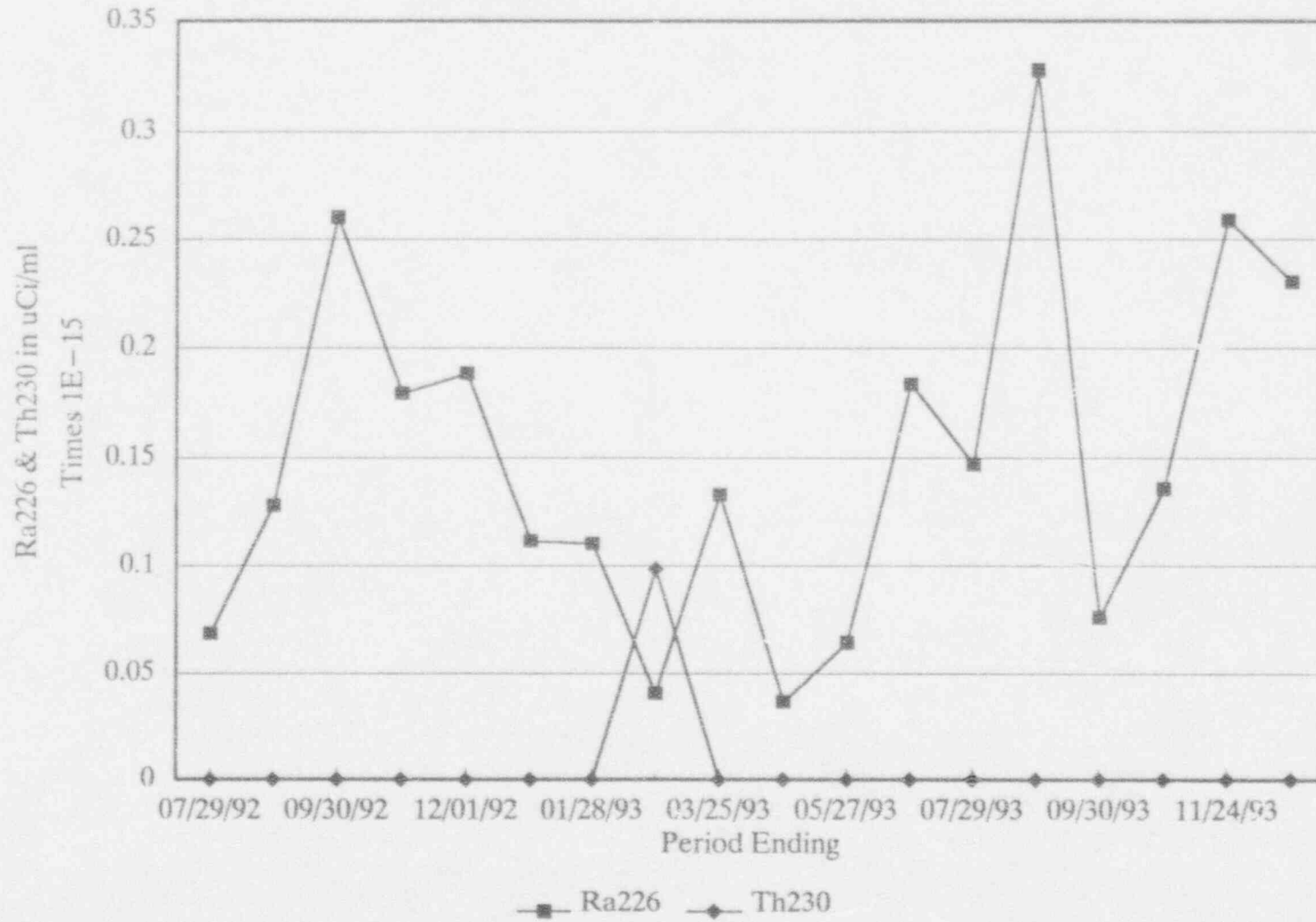
Tower 1 Ra226 and Th230



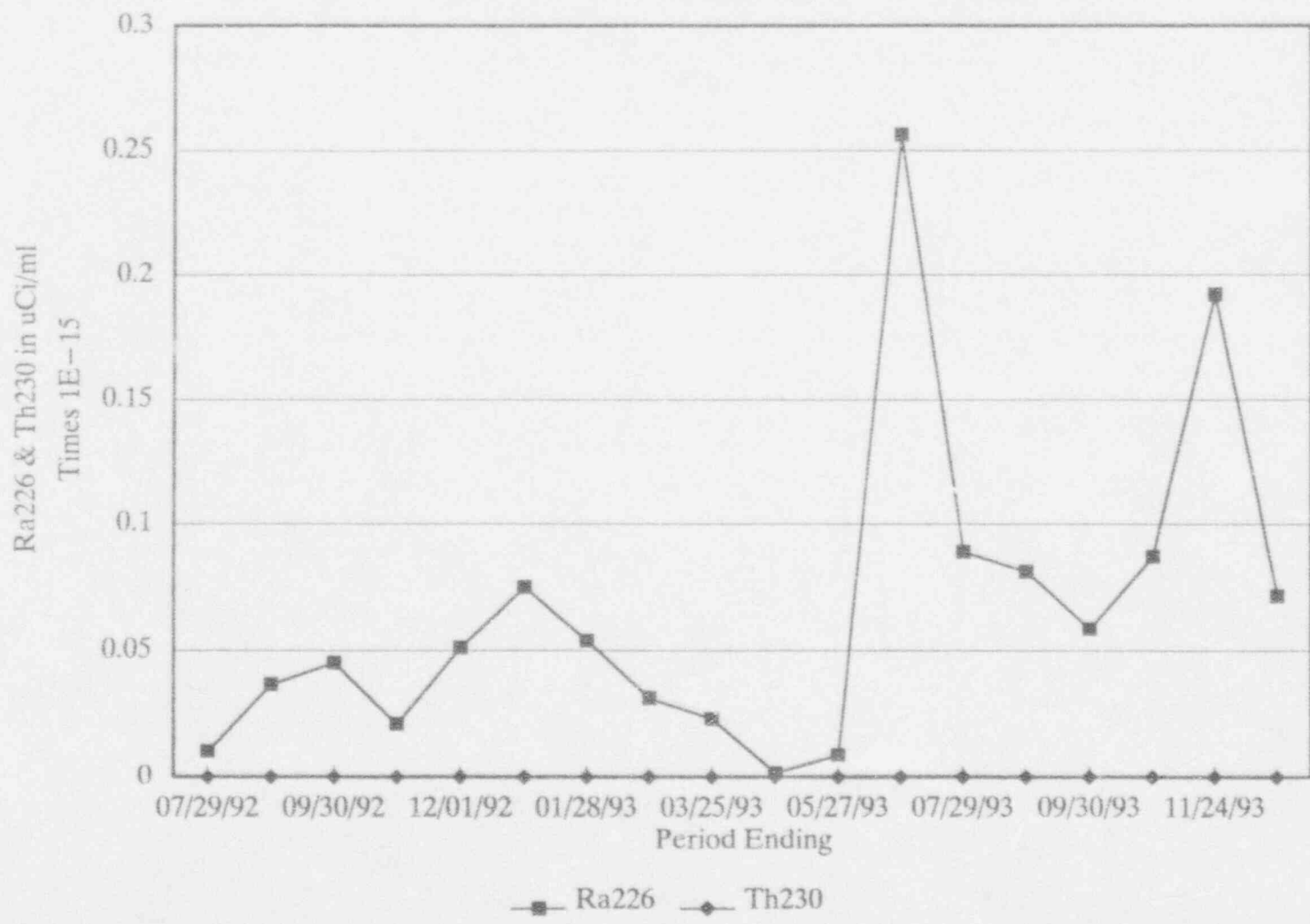
Tower 2 Ra226 and Th230



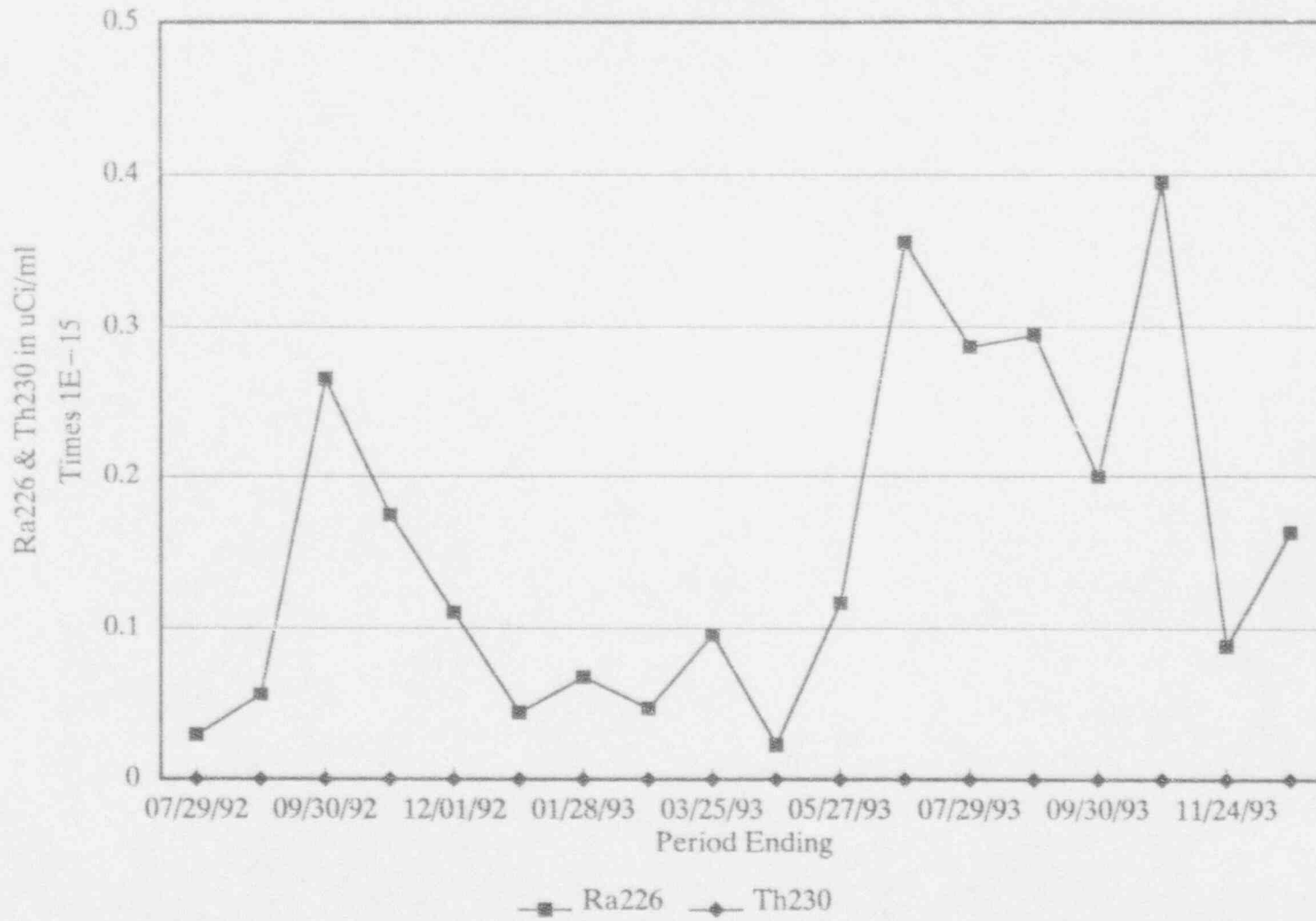
Tower 3 Ra226 and Th230



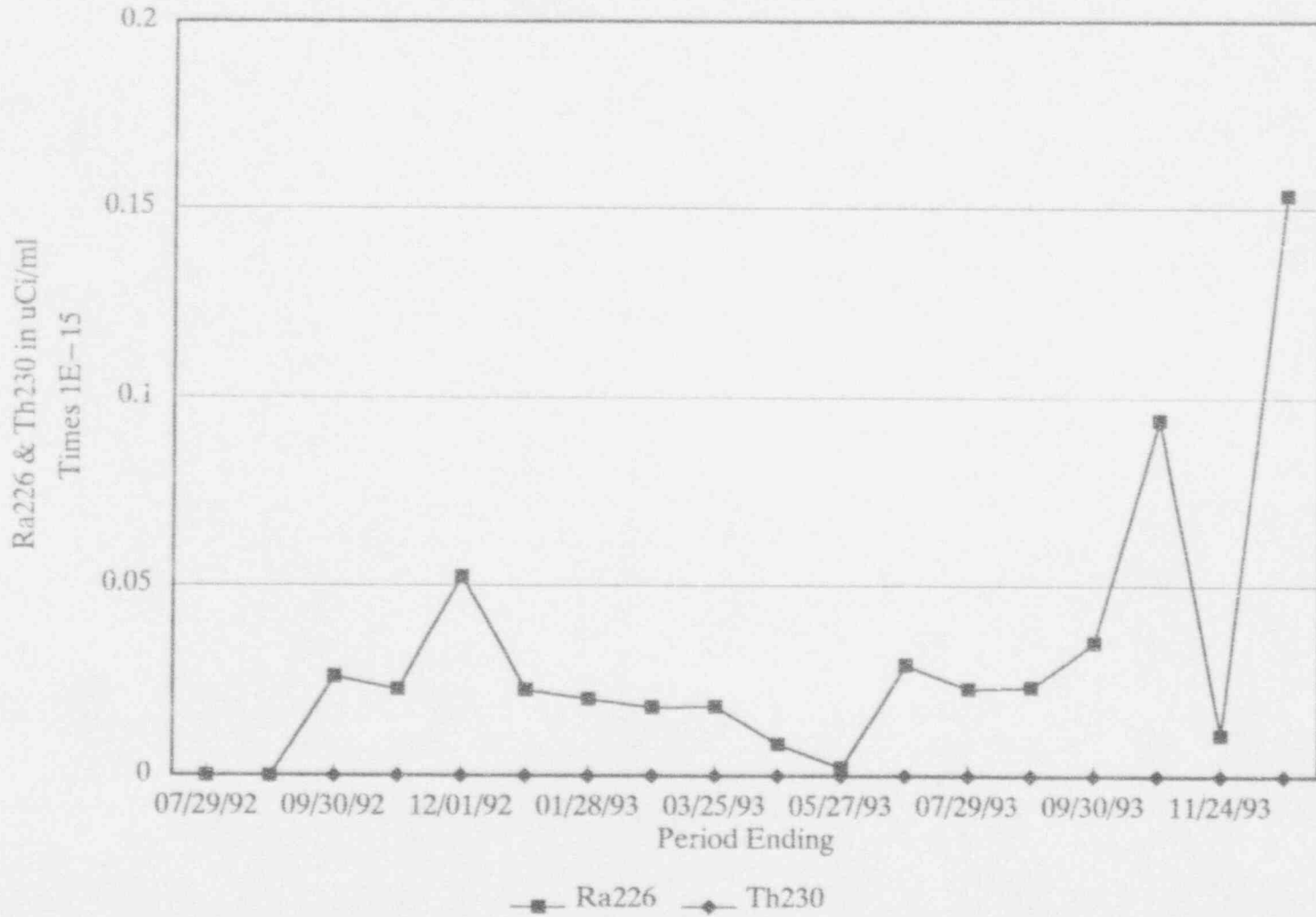
Tower 4 Ra226 and Th230



Tower 5 Ra226 and Th230



Tower 6 Ra226 and Th230



SECTION 6.0
RADON SAMPLING

6.0 RADON SAMPLING

Radon concentrations are monitored by Terradex Track Etch Type DRNF detectors at each of the air particulate monitoring sites. The results of the sampling is presented in this section. Quality control of the radon sampling consists of a duplicate sampling detector being placed at a sample point for one sample period and then rotated to next sample point at the start of the next sample period. The duplicate detector is labeled "control". The results of the sampling for the control and the tower detector are presented below.

<u>SAMPLE PERIOD</u>	<u>SAMPLE LOCATION</u>	<u>SAMPLE RESULTS</u>	
		Tower	Control
1st. Qtr. 1993	Tower No. 5	1.2 pCi/l	1.3 pCi/l
2nd. Qtr. 1993	Tower No. 6	0.4 pCi/l	0.4 pCi/l
3rd. Qtr. 1993	Tower No. 1	2.1 pCi/l	2.0 pCi/l
4th. Qtr. 1993	Tower No. 2	1.5 pCi/l	1.1 pCi/l

These results are acceptable. Background values (Tower No. 4) have not been subtracted from the results as in most cases it would yield a negative value. The highest % MPC for the second half of 1993 was obtained at Tower no. 3, during the 3rd. quarter of 1993. The highest value was 80 % of MPC. The remaining values were all 70 % of MPC or less for all sample locations. These sample results continue to indicate no radon hazard present with regard to Umetco Mineral's Gas Hills operations. Two additional sample locations were incorporated into Umetco's sampling program. These are the Umetco clay mine, approximately 4 miles west of the East Gas Hills location, and the Carol Shop Facility, approximately 2.5 miles to the south of Umetco's East Gas Hills location. The results from this sampling is also presented. The highest % MPC for all sample locations, was recorded at the Carol Shop during the 3rd. quarter of 1993.

RADON GAS (Rn 222) SAMPLE DATA
FROM TERRADDEX CANISTERS

SAMPLE PERIOD	TOWER NUMBER	Rn CONC. pCi/l	Rn CONC. uCi/ml	% STD. DEV.	% MPC	LLD uCi/ml
1ST. QTR. '93	1	1.1	1.10E-09	9.2	36.67	2.0E-10
	2	0.9	9.00E-10	9.9	30.00	2.0E-10
	3	1.4	1.40E-09	8.3	46.67	2.0E-10
	4	1.1	1.10E-09	9.2	36.67	2.0E-10
	5 *	1.2	1.20E-09	9.1	40.00	2.0E-10
	6	0.5	5.00E-10	12.2	16.67	2.0E-10
	CONTROL	1.3	1.30E-09	8.8	43.33	2.0E-10

* Control tower

2ND. QTR. '93	1	1.8	1.80E-09	7.9	60.00	2.0E-10
	2	1.2	1.20E-09	9.2	40.00	2.0E-10
	3	1.3	1.30E-09	8.9	43.33	2.0E-10
	4	1.3	1.30E-09	9.0	43.33	2.0E-10
	5	1.8	1.80E-09	7.8	60.00	2.0E-10
	6 *	0.4	4.00E-10	14.0	13.33	2.0E-10
	CONTROL	0.4	4.00E-10	13.5	13.33	2.0E-10

* Control tower

3RD. QTR. '93	1 *	2.1	2.10E-09	8.2	70.00	2.0E-10
	2	1.6	1.60E-09	9.1	53.33	2.0E-10
	3	2.4	2.40E-09	7.8	80.00	2.0E-10
	4	2.1	2.10E-09	8.2	70.00	2.0E-10
	5	2.1	2.10E-09	8.2	70.00	2.0E-10
	6	0.7	7.00E-10	11.8	23.33	2.0E-10
	CARROLL SHOP	2.5	2.50E-09	6.4	83.33	2.0E-10
	CLAY BORROW	1.9	1.90E-09	7.3	63.33	2.0E-10
CONTROL	2.0	2.00E-09	8.4	66.67	2.0E-10	

* Control tower

4TH. QTR. '93	1	1.4	1.40E-09	9.4	46.67	2.0E-10
	2 *	1.5	1.50E-09	9.1	50.00	2.0E-10
	3	1.4	1.40E-09	9.5	46.67	2.0E-10
	4	1.1	1.10E-09	10.6	36.67	2.0E-10
	5	1.2	1.20E-09	10.2	40.00	2.0E-10
	6	0.5	5.00E-10	14.4	16.67	2.0E-10
	CARROLL SHOP	0.9	9.00E-10	11.5	30.00	2.0E-10
	CLAY BORROW	1.0	1.00E-09	11.2	33.33	2.0E-10
CONTROL	1.1	1.10E-09	10.7	36.67	2.0E-10	

* Control tower

SECTION 7.0
DIRECT RADIATION SAMPLING

7.0 DIRECT RADIATION

TLD badges from Eberline Instruments Company are used to monitor direct radiation at eight locations. Five of these are the air particulate sampling locations. The remaining three sample locations are the mill building, a control in the laboratory in the office building and a residence in Riverton. The mill building has been dismantled and buried, therefore no sampling occurred after the third quarter of 1993. Sampling is continuous, with the TLD badges changed on a quarterly basis. Quality assurance of the monitoring program is provided by a duplicate TLD badge (Tower 100) placed at a sample location for a sample period and then rotated to the next sample location at the start of the next sample period. The results of the monitoring for the control badge and the corresponding sample badge are compared to insure accuracy. The location of the Tower 100 badge and the corresponding sample period and analytical results are presented below in the following table.

<u>SAMPLE PERIOD</u>	<u>SAMPLE LOCATION</u>	<u>TOWER</u>	<u>CONTROL</u>
1st. Qtr. 1993	Tower No. 4	54.0 mRem/qtr.	53.8 mRem/qtr.
2nd. Qtr. 1993	Tower No. 5	67.6 mRem/qtr.	61.4 mRem/qtr.
3rd. Qtr. 1993	Tower No. 6	31.4 mRem/qtr.	36.8 mRem/qtr.
4th. Qtr. 1993	Tower No. 1	55.2 mRem/qtr.	61.8 mRem/qtr.

These results are satisfactory. All sample results are well below the 5000 mRem per year allowed at a work place. The highest reading recorded during the second half of 1993 was 68.2 mRem/qtr. at Tower no. 5 sample location during the 3rd. qtr. of 1993.

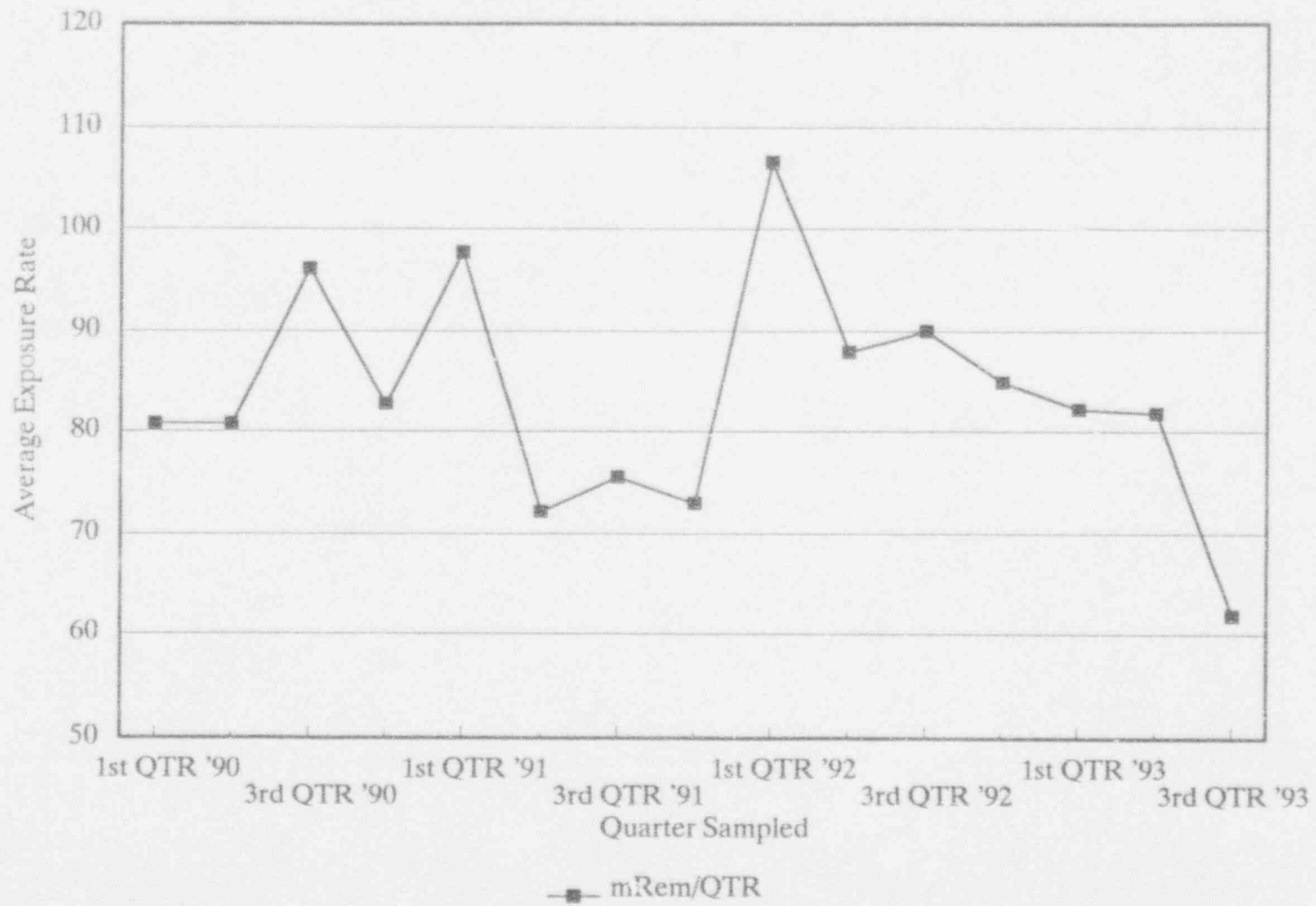
The exposure rates recorded at the off-site air particulate sample locations were all well less than the 5000 mRem per year limit. The highest reading was 263.4 mRem per year at Tower No. 5. These values indicate there are no hazards associated with direct radiation off-site of Umetco Mineral's Gas Hills location.

A graphed presentation of the sampling results for the previous three years, for each tower and the mill location, are included in this section.

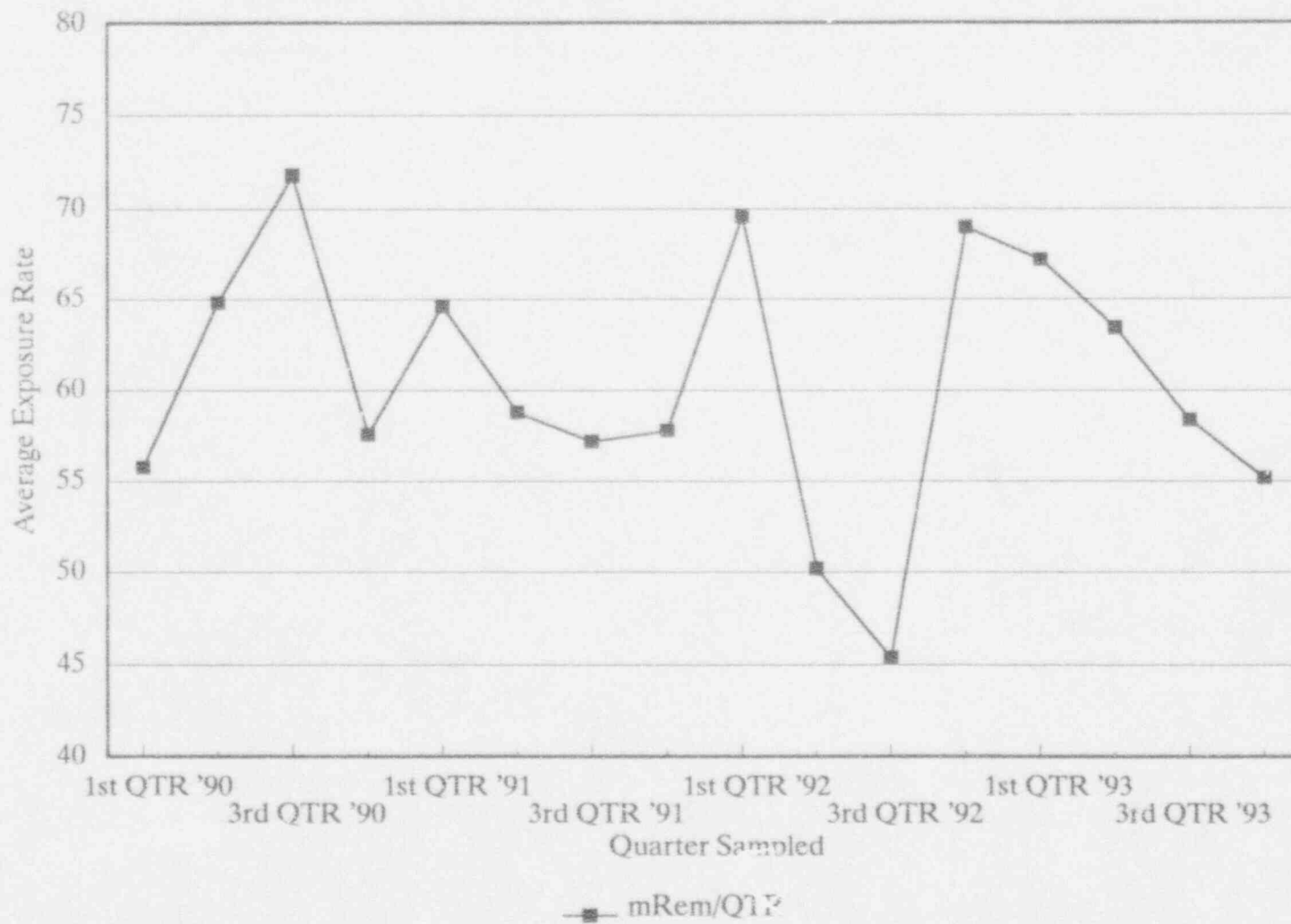
DIRECT RADIATION SAMPLE DATA (TLD'S)
mRei /qtr

TOWER NUMBER	1st QTR '93 EXPOSURE RATE	ERROR EST.	2nd QTR '93 EXPOSURE RATE	ERROR EST.	3rd QTR '93 EXPOSURE RATE	ERROR EST.	4th QTR '93 EXPOSURE RATE	ERROR EST.
1	67.2	13.9	63.4	15.1	58.4	9.7	55.2	11.8
2	58.0	16.4	54.6	6.4	47.8	9.6	45.8	11.5
3	60.2	17.2	64.2	14.2	54.6	3.6	48.6	7.0
4	54.0	18.0	51.8	3.3	55.8	13.1	33.8	10.6
5	70.2	9.6	67.6	3.6	68.2	12.8	57.4	7.0
6	43.0	15.6	25.4	7.0	31.4	3.6	35.8	6.5
MILL	82.2	15.6	81.8	15.2	61.8	14.5	n/a	n/a
RIVERTON	37.6	12.9	30.6	5.9	34.4	4.1	30.6	3.9
CONTROL	41.2	5.0	38.6	11.7	43.8	5.5	39.6	3.0

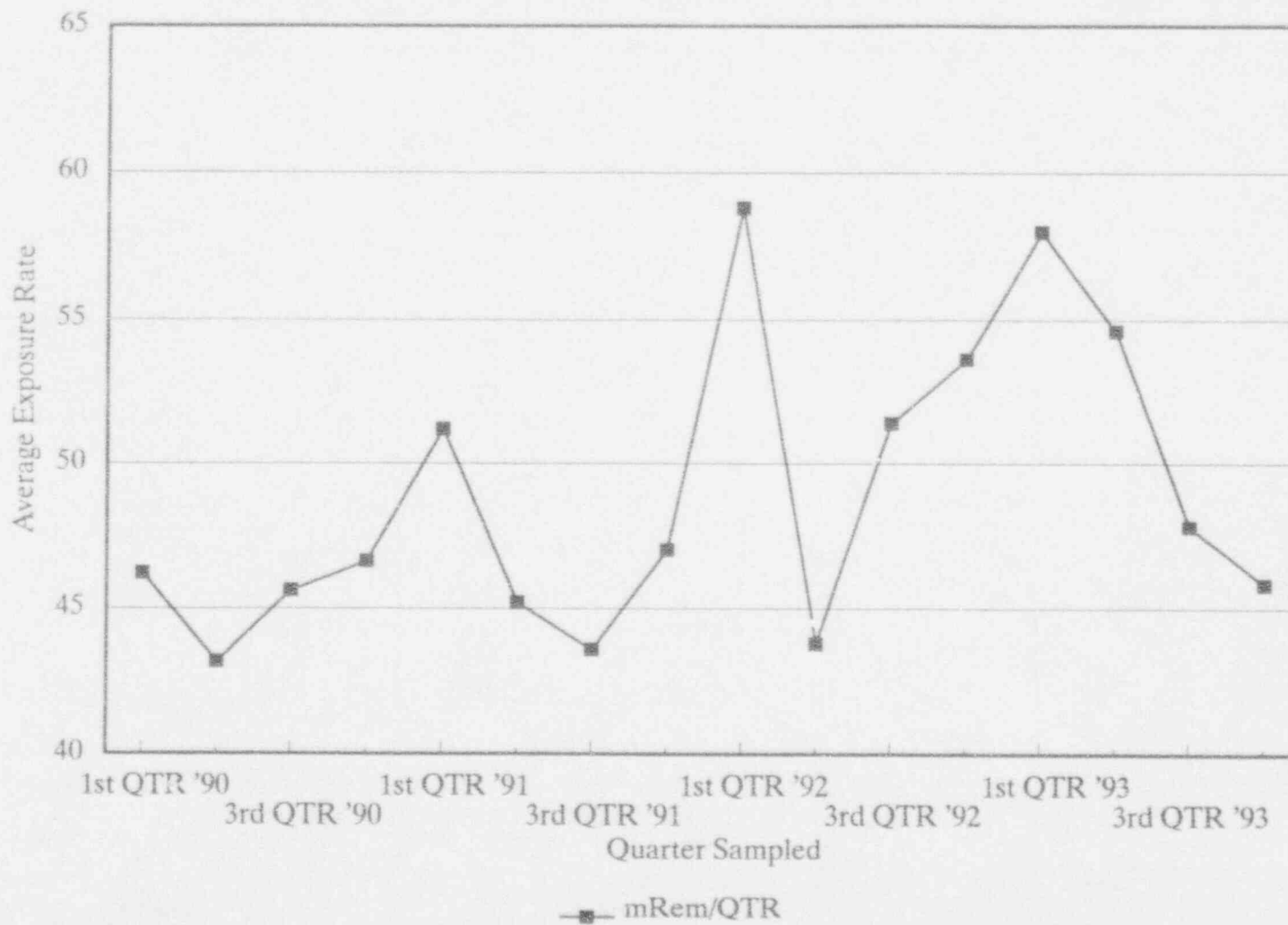
Direct Radiation from TLD's for Mill



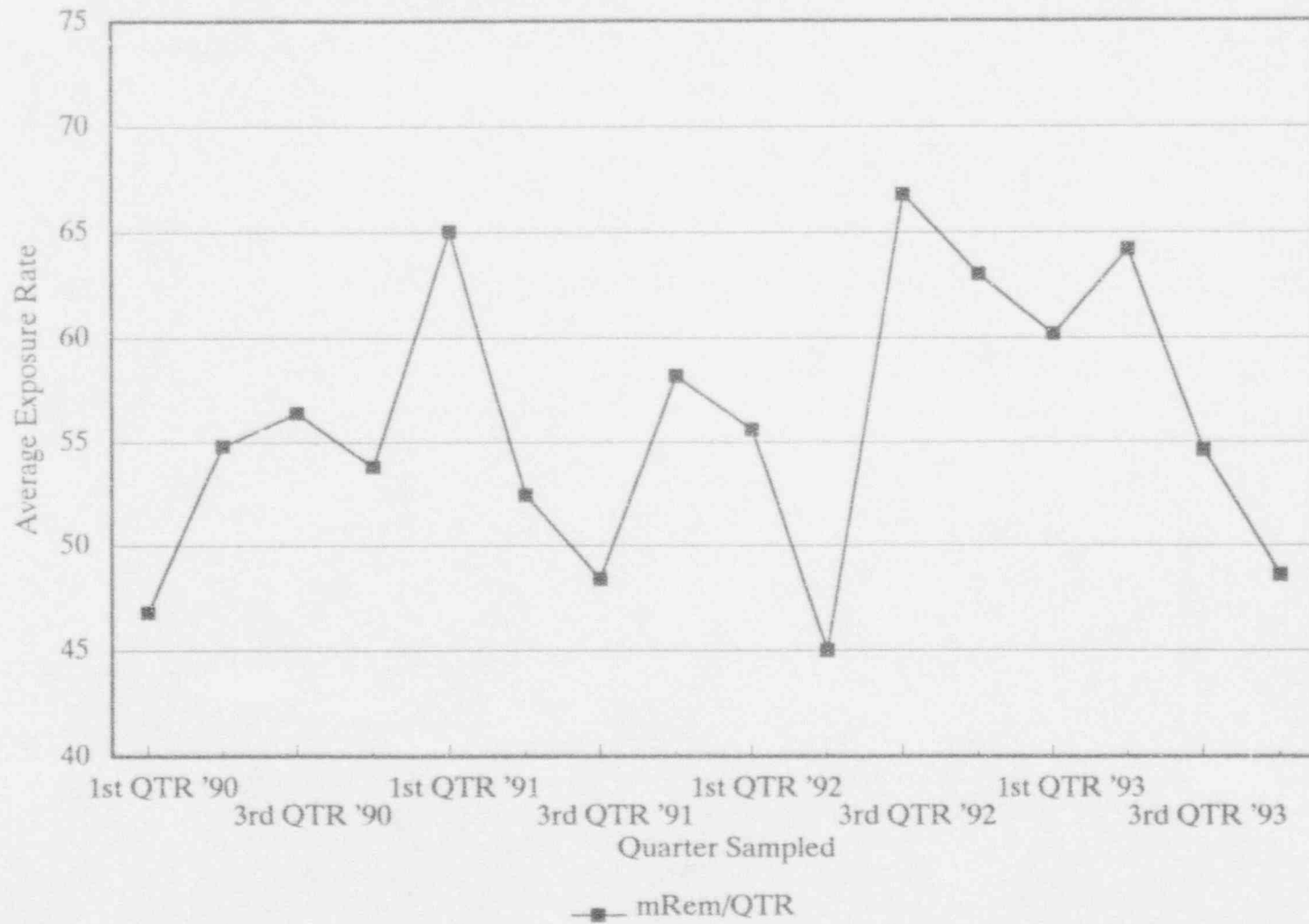
Direct Radiation from TLD's for Tower 1



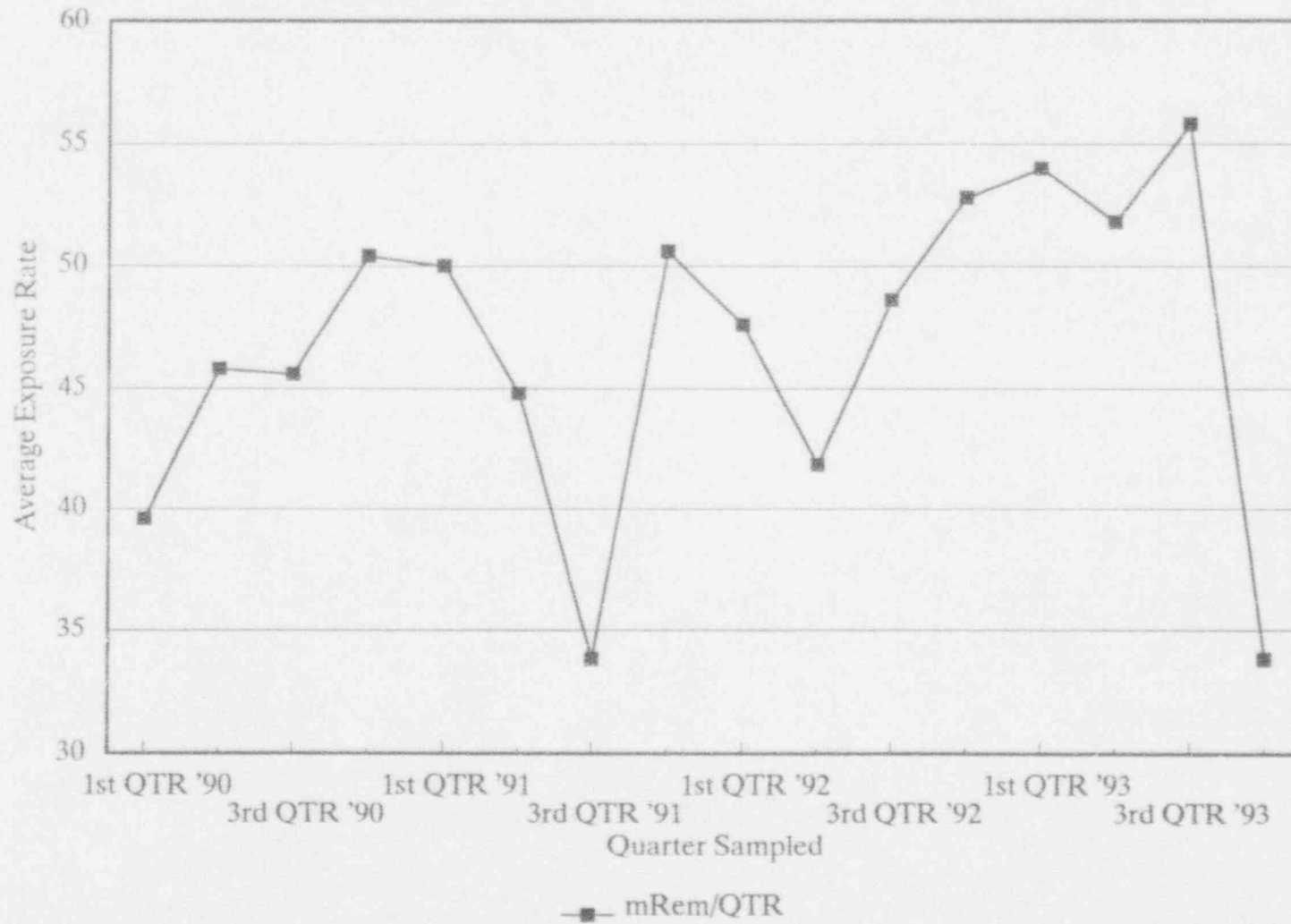
Direct Radiation from TLD's for Tower 2



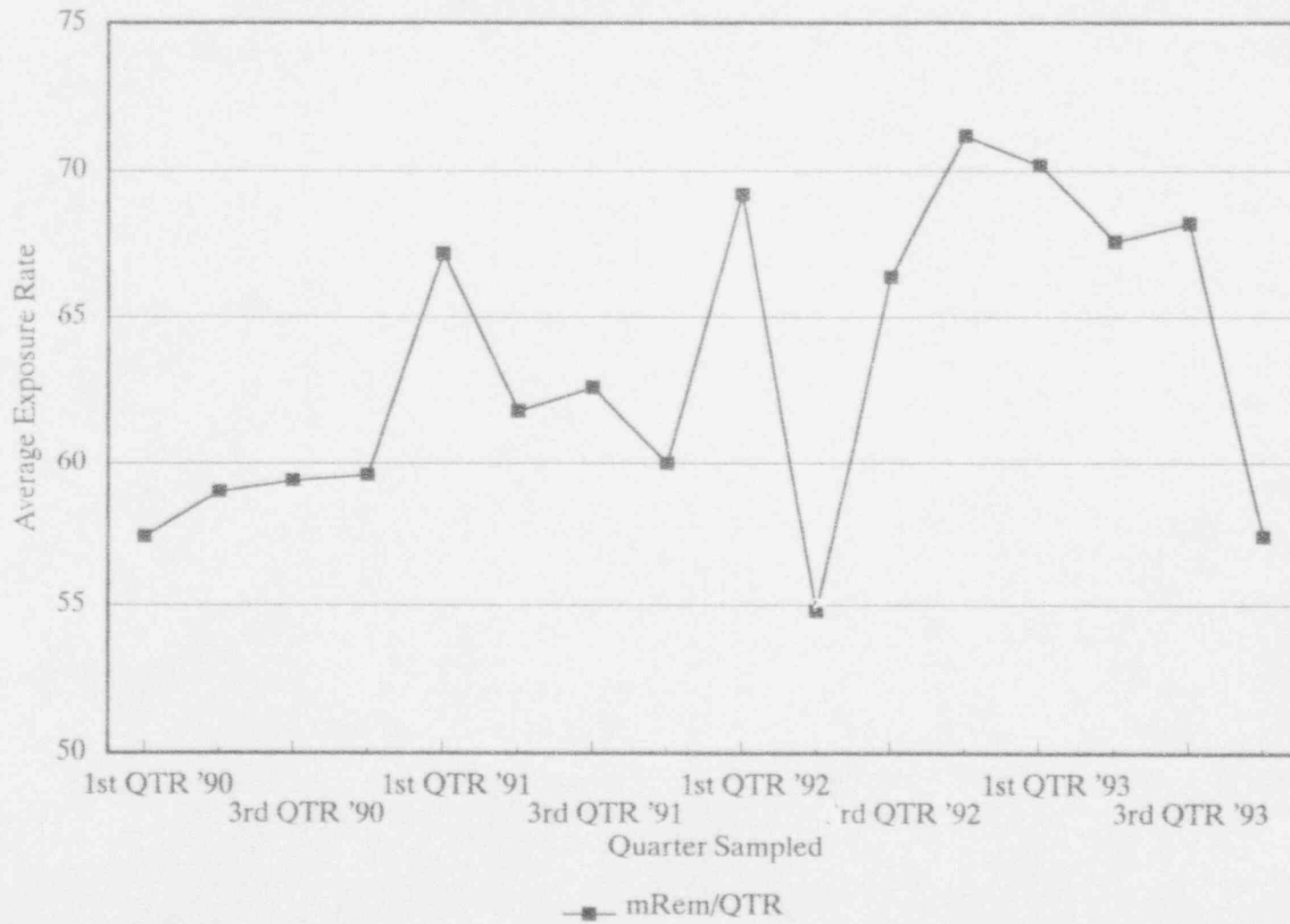
Direct Radiation from TLD's for Tower 3



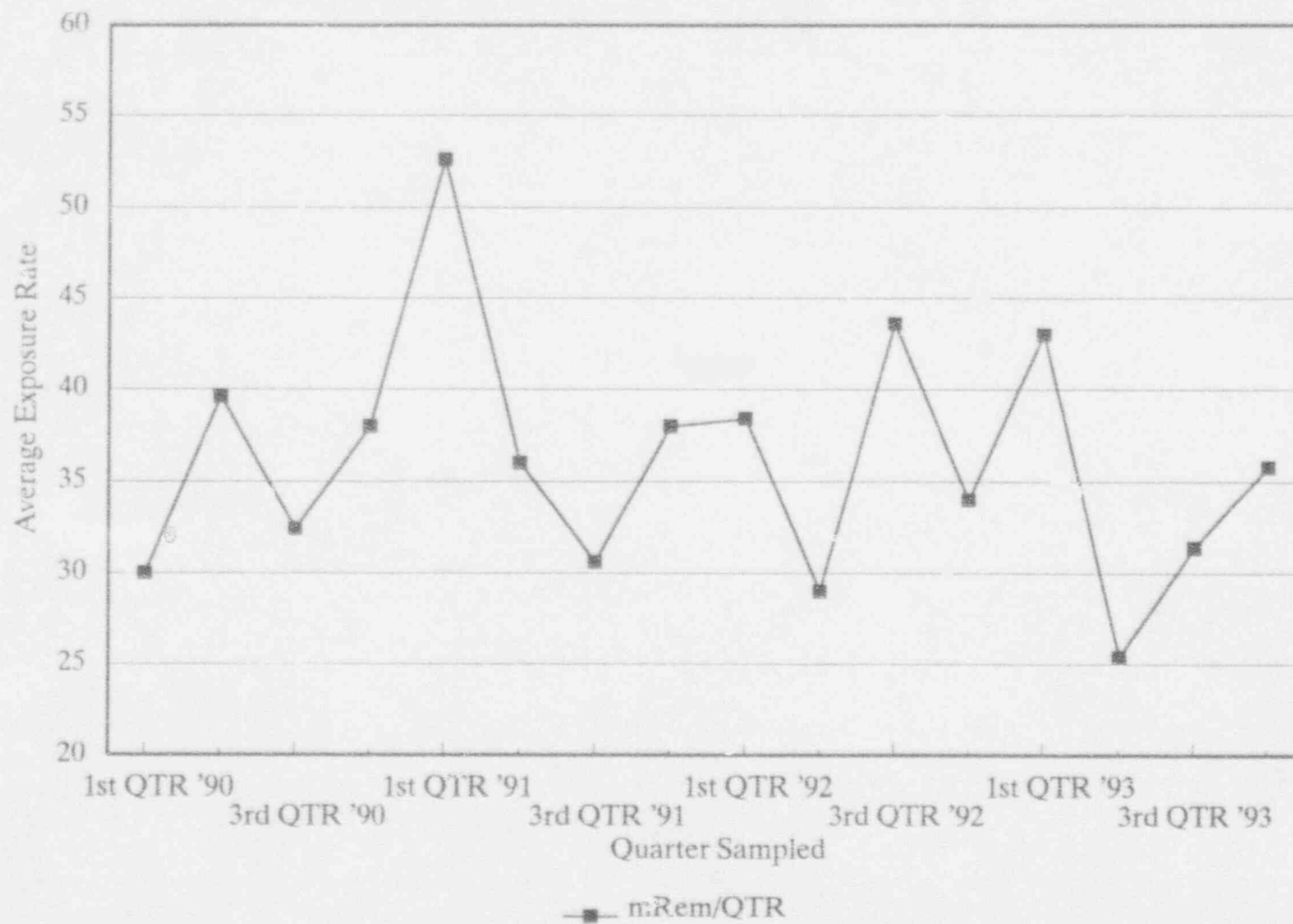
Direct Radiation from TLD's for Tower 4



Direct Radiation from TLD's for Tower 5



Direct Radiation from TLD's for Tower 6



SECTION 8.0
SOIL SAMPLING

8.0 SOIL SAMPLING

Soil samples are collected annually at each of the air particulate sampling locations with the exception of Tower no. 6. Samples were collected on July 7, 1993. The results of this sampling is presented in the first half of 1993, 40.65 report.

SECTION 9.0
VEGETATION SAMPLING

Vegetation samples are collected annually at four sample locations. Three of these are off-site air particulate sample locations; Tower 1, Tower 2 and Tower 4. The remaining sample point is at sample point 1; East Canyon Creek. The sampling for 1993 was conducted on July 7, 1993. The results of this sampling had not been obtained from the laboratory doing the analyses in time to be included in the first half of 1993 report. The results are included in this 40.65 report, and indicate no hazard exists for grazing animals near Umetco's location. The sample point locations are shown on map no. NRC-DEQ 1202-83-1 found in section 5.0 of the First Half of 1993 report.

VEGETATION SAMPLING

SAMPLE LOCATION	DATE	Ra226 Total uCi/kg	Ra226 Error uCi/kg	Ra226 LLD uCi/kg	Pb210 Total uCi/kg	Pb210 Error uCi/kg	Pb210 LLD uCi/kg
TOWER 1	07/07/93	6.7E-05	7.1E-06	7.6E-07	6.7E-05	1.5E-05	3.8E-06
TOWER 2	07/07/93	2.8E-05	4.9E-06	7.6E-07	4.4E-05	1.4E-05	3.8E-06
TOWER 4	07/07/93	3.0E-05	0.49E-05	7.6E-07	6.4E-05	1.5E-05	3.8E-06
EAST CANYON CR.	07/07/93	8.2E-05	0.78E-05	7.6E-07	2.9E-05	1.2E-05	3.8E-06

SECTION 10.0
SEDIMENT SAMPLING

10.0 SEDIMENT SAMPLING

Sediment samples are collected annually. The samples for 1993 were collected on April 27, 1993. The results of this sampling were presented in the First Half of 1993, 40.65 report.

SECTION 11.0
PIEZOMETER DATA for A-9 TAILINGS AREA

The pneumatic piezometers in the A-9 Tailings area are monitored quarterly. The data from this monitoring is presented in this section. There are no significant changes indicated by this sampling with regard to previous measurements.

Three piezometer wells were established in the A-9 Tailings area in May of 1990. These wells are monitored weekly for water level elevation. The results of this monitoring is also presented in this section. A9WP2 piezometer well showed a decrease in water level elevation during the first 8 months of 1993. During the last quarter of 1993, the trend reversed and the water level elevation increased to slightly less than the elevation measured in the first quarter of 1993. The remaining two piezometers remained unchanged during 1993. The well locations are shown on Figure 1 located at the back of this section.

PIEZOMETER DATA RECORD FOR BELOW GRADE TAILINGS (A-9 PIT)

DATE	03/16/93	06/24/93	09/30/93	12/28/93
P.Z. NO. 1				
P.S.I.	4.00	3.10	3.00	3.70
Ft. Head	9.06	7.02	6.79	8.38
Water Elev.	6862.87	6860.83	6860.60	6862.19
P.Z. NO. 2				
P.S.I.	4.10	4.40	3.00	3.30
Ft. Head	9.29	9.96	6.79	7.47
Water Elev.	6864.27	6864.94	6861.77	6862.45
P.Z. NO. 3				
P.S.I.	3.90	3.30	3.10	3.60
Ft. Head	8.83	7.47	7.02	8.15
Water Elev.	6864.89	6863.53	6863.08	6864.21
P.Z. NO. 4				
P.S.I.	3.00	2.60	2.30	2.70
Ft. Head	6.79	5.89	5.21	6.11
Water Elev.	6860.95	6860.05	6859.37	6860.27
P.Z. NO. 5				
P.S.I.	2.90	2.30	2.50	2.40
Ft. Head	6.57	5.21	5.66	5.44
Water Elev.	6861.35	6859.99	6860.44	6860.22
P.Z. NO. 6				
P.S.I.	3.80	3.50	3.30	3.50
Ft. Head	8.61	7.93	7.47	7.93
Water Elev.	6864.01	6863.33	6862.87	6863.33
P.Z. NO. 7				
P.S.I.	4.20	3.90	3.70	3.90
Ft. Head	9.51	8.83	8.38	8.83
Water Elev.	6865.13	6864.45	6864.00	6864.45
P.Z. NO. 8				
P.S.I.	6.60	6.50	5.90	6.30
Ft. Head	14.95	14.72	13.36	14.27
Water Elev.	6870.74	6870.51	6869.15	6870.06

A-9 TAILINGS
 WATER LEVEL PIEZOMETER DATA
 FOR A9WP-1

Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	27.10	6901.49	-12.16
07/08/93	27.08	6901.51	-12.14
07/15/93	27.26	6901.33	-12.32
07/22/93	27.27	6901.32	-12.33
07/29/93	27.51	6901.08	-12.57
08/05/93	27.67	6900.92	-12.73
08/12/93	27.89	6900.70	-12.95
08/19/93	27.93	6900.66	-12.99
08/26/93	28.00	6900.59	-13.06
09/02/93	27.63	6900.96	-12.69
09/10/93	27.44	6901.15	-12.50
09/16/93	27.61	6900.98	-12.67
09/23/93	27.46	6901.13	-12.52
09/30/93	27.35	6901.24	-12.41
10/07/93	27.20	6901.39	-12.26
10/15/93	27.14	6901.45	-12.20
10/21/93	27.24	6901.35	-12.30
10/28/93	27.07	6901.52	-12.13
11/04/93	26.62	6901.97	-11.68
11/18/93	26.11	6902.48	-11.17
11/24/93	26.05	6902.54	-11.11
12/02/93	25.92	6902.67	-10.98
12/09/93	25.73	6902.86	-10.79
12/17/93	25.75	6902.84	-10.81
12/24/93	25.90	6902.69	-10.96

A-9 TAILINGS
WATER LEVEL PIEZOMETER DATA
FOR A9WP-2

Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	19.67	6905.97	-9.31
07/08/93	19.62	6906.02	-9.26
07/15/93	19.71	6905.93	-9.35
07/22/93	19.73	6905.91	-9.37
07/29/93	19.81	6905.83	-9.45
08/05/93	19.83	6905.81	-9.47
08/12/93	19.53	6906.11	-9.17
08/19/93	18.17	6907.47	-7.81
08/26/93	17.66	6907.98	-7.30
09/02/93	17.22	6908.42	-6.86
09/10/93	17.15	6908.49	-6.79
09/16/93	16.90	6908.74	-6.54
09/23/93	16.83	6908.81	-6.47
09/30/93	16.64	6909.00	-6.28
10/07/93	16.52	6909.12	-6.16
10/15/93	16.37	6909.27	-6.01
10/21/93	16.61	6909.03	-6.25
10/28/93	16.40	6909.24	-6.04
11/04/93	16.32	6909.32	-5.96
11/18/93	16.43	6909.21	-6.07
11/24/93	16.46	6909.18	-6.10
12/02/93	16.49	6909.15	-6.13
12/09/93	16.40	6909.24	-6.04
12/17/93	16.61	6909.03	-6.25
12/24/93	16.56	6909.08	-6.20

A-9 TAILINGS
 WATER LEVEL PIEZOMETER DATA
 FOR A9WP-3

Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	58.91	Trace	0
07/08/93	58.92	Trace	0
07/15/93	58.90	Trace	0
07/22/93	58.91	Trace	0
07/29/93	58.90	Trace	0
03/05/93	58.92	Trace	0
08/12/93	58.90	Trace	0
08/19/93	58.92	Trace	0
08/26/93	58.92	Trace	0
09/02/93	58.92	Trace	0
09/09/93	Dry	No Water	0
09/16/93	Dry	No Water	0
09/23/93	Dry	No Water	0
09/30/93	Dry	No Water	0
10/07/93	Dry	No Water	0
10/15/93	Dry	No Water	0
10/21/93	Dry	No Water	0
10/28/93	Dry	No Water	0
11/04/93	Dry	No Water	0
11/18/93	Dry	No Water	0
11/24/93	Dry	No Water	0
12/02/93	Dry	No Water	0
12/09/93	Dry	No Water	0
12/17/93	Dry	No Water	0
12/24/93	Dry	No Water	0

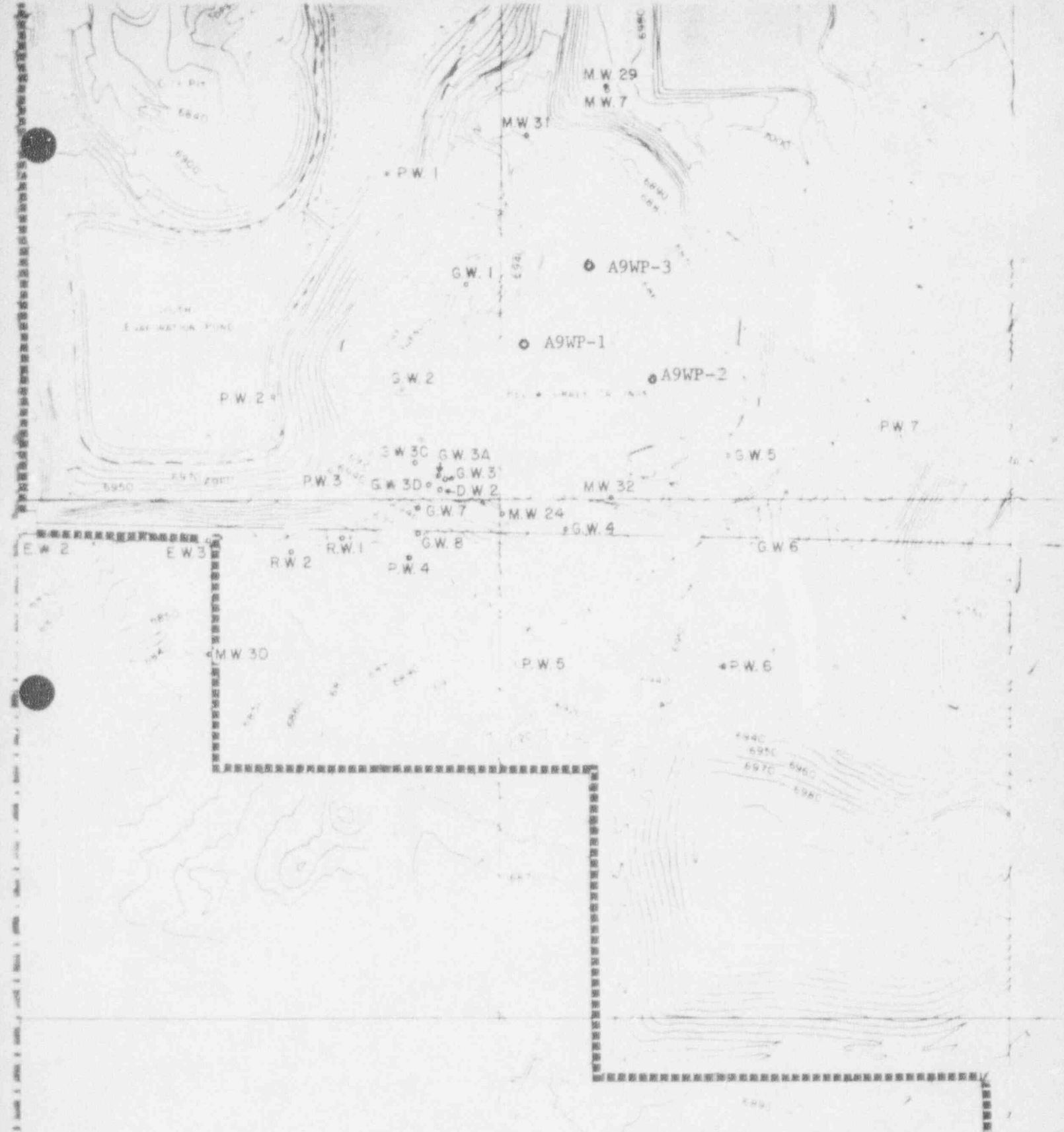


FIGURE 1. A-9 TAILINGS AREA
PIEZOMETER WELLS

1" = 500'
7/25/90

SECTION 12.0
PIEZOMETER DATA for INACTIVE TAILINGS AREA

12.0 INACTIVE TAILINGS PIEZOMETERS

The eight piezometers originally relating to this monitoring were removed during the re-contouring of the Inactive Tailings area.

Eight piezometer wells were established in the Inactive Tailings area in May of 1990 and are monitored on a quarterly basis with the data presented in this section. The piezometer wells remained basically unchanged during 1993, with the exception of WP3 and WP4, which showed a downward trend in water elevation, and WP8 that had erratic water level elevations over much of 1993. The locations of these wells are shown on Figure 2 located at the back of this section.

INACTIVE TAILINGS
WATER LEVEL PIEZOMETER DATA
FOR WP-1

Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	61.51	Trace	0.22
07/08/93	61.57	Trace	0.16
07/15/93	61.52	Trace	0.21
07/22/93	61.50	Trace	0.23
07/29/93	61.49	Trace	0.24
08/05/93	61.53	Trace	0.20
08/12/93	61.52	Trace	0.21
08/19/93	61.51	Trace	0.22
08/26/93	61.55	Trace	0.18
09/02/93	61.58	Trace	0.15
09/10/93	61.52	Trace	0.21
09/16/93	61.53	Trace	0.20
09/23/93	61.51	Trace	0.22
09/30/93	61.56	Trace	0.17
10/07/93	61.53	Trace	0.20
10/15/93	61.51	Trace	0.22
10/21/93	61.62	Trace	0.11
10/28/93	61.53	Trace	0.20
11/04/93	61.51	Trace	0.22
11/18/93	61.57	Trace	0.16
11/24/93	61.55	Trace	0.18
12/02/93	61.51	Trace	0.22
12/09/93	61.53	Trace	0.20
12/17/93	61.53	Trace	0.20
12/24/93	61.50	Trace	0.23

INACTIVE TAILINGS
 WATER LEVEL PIEZOMETER DATA
 FOR WP-2

Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	31.75	6946.76	-0.77
07/08/93	31.91	6946.60	-0.93
07/15/93	31.85	6946.66	-0.87
07/22/93	31.79	6946.72	-0.81
07/29/93	31.99	6946.52	-1.01
08/05/93	32.00	6946.51	-1.02
08/12/93	31.87	6946.64	-0.89
08/19/93	31.96	6946.55	-0.98
08/26/93	31.96	6946.55	-0.98
09/02/93	32.10	6946.41	-1.12
09/10/93	32.00	6946.51	-1.02
09/16/93	31.93	6946.58	-0.95
09/23/93	31.99	6946.52	-1.01
09/30/93	31.77	6946.74	-0.79
10/07/93	31.75	6946.76	-0.77
10/15/93	31.77	6946.74	-0.79
10/21/93	32.22	6946.29	-1.24
10/28/93	31.70	6946.81	-0.72
11/04/93	31.98	6946.53	-1.00
11/18/93	31.88	6946.63	-0.90
11/24/93	32.14	6946.37	-1.16
12/02/93	32.13	6946.38	-1.15
12/09/93	32.04	6946.47	-1.06
12/17/93	32.28	6946.23	-1.30
12/24/93	32.21	6946.30	-1.23

INACTIVE TAILINGS
WATER LEVEL PIEZOMETER DATA
FOR WP-3

Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	34.78	6996.09	-0.03
07/08/93	34.91	6995.96	-0.16
07/15/93	34.95	6995.92	-0.20
07/22/93	34.97	6995.90	-0.22
07/29/93	35.03	6995.84	-0.28
08/05/93	35.07	6995.80	-0.32
08/12/93	35.08	6995.79	-0.33
08/19/93	35.14	6995.73	-0.39
08/26/93	35.17	6995.70	-0.42
09/02/93	35.19	6995.68	-0.44
09/10/93	35.24	6995.63	-0.49
09/16/93	35.22	6995.65	-0.47
09/23/93	35.28	6995.59	-0.53
09/30/93	35.24	6995.63	-0.49
10/07/93	35.23	6995.64	-0.48
10/15/93	35.28	6995.59	-0.53
10/21/93	35.44	6995.43	-0.69
10/28/93	35.31	6995.56	-0.56
11/04/93	35.30	6995.57	-0.55
11/18/93	35.38	6995.49	-0.63
11/24/93	35.44	6995.43	-0.69
12/02/93	35.46	6995.41	-0.71
12/09/93	35.44	6995.43	-0.69
12/17/93	35.58	6995.29	-0.83
12/24/93	35.54	6995.33	-0.79

INACTIVE TAILINGS
 WATER LEVEL PIEZOMETER DATA
 FOR WP-4

Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	21.33	7005.70	-4.80
07/08/93	21.41	7005.62	-4.88
07/15/93	21.48	7005.55	-4.95
07/22/93	21.62	7005.41	-5.09
07/29/93	21.63	7005.40	-5.10
08/05/93	21.73	7005.30	-5.20
08/12/93	21.82	7005.21	-5.29
08/19/93	21.94	7005.09	-5.41
08/26/93	21.97	7005.06	-5.44
09/02/93	22.10	7004.93	-5.57
09/10/93	22.19	7004.84	-5.66
09/16/93	22.26	7004.77	-5.73
09/23/93	22.38	7004.65	-5.85
09/30/93	22.47	7004.56	-5.94
10/07/93	22.48	7004.55	-5.95
10/15/93	22.53	7004.50	-6.00
10/21/93	22.61	7004.42	-6.08
10/28/93	22.68	7004.35	-6.15
11/04/93	22.75	7004.28	-6.22
11/18/93	22.82	7004.21	-6.29
11/24/93	22.90	7004.13	-6.37
12/02/93	22.97	7004.06	-6.44
12/09/93	22.99	7004.04	-6.46
12/17/93	23.06	7003.97	-6.53
12/24/93	23.03	7004.00	-6.50

INACTIVE TAILINGS
 WATER LEVEL PIEZOMETER DATA
 FOR WP-5

Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	24.73	7001.28	-5.05
07/08/93	24.83	7001.18	-5.15
07/15/93	24.73	7001.28	-5.05
07/22/93	24.74	7001.27	-5.06
07/29/93	24.81	7001.20	-5.13
08/05/93	24.82	7001.19	-5.14
08/12/93	24.67	7001.34	-4.99
08/19/93	24.68	7001.33	-5.00
08/26/93	24.62	7001.39	-4.94
09/02/93	24.70	7001.31	-5.02
09/10/93	24.54	7001.47	-4.86
09/16/93	24.46	7001.55	-4.78
09/23/93	24.40	7001.61	-4.72
09/30/93	24.32	7001.69	-4.64
10/07/93	24.14	7001.87	-4.46
10/15/93	24.19	7001.82	-4.51
10/21/93	24.47	7001.54	-4.79
10/28/93	24.05	7001.96	-4.37
11/04/93	24.27	7001.74	-4.59
11/18/93	24.18	7001.83	-4.50
11/24/93	24.42	7001.59	-4.74
12/02/93	24.39	7001.62	-4.71
12/09/93	24.35	7001.66	-4.67
12/17/93	24.52	7001.49	-4.84
12/24/93	24.54	7001.47	-4.86

INACTIVE TAILINGS
WATER LEVEL PIEZOMETER DATA
FOR WP-6

Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	26.97	Trace	0.53
07/08/93	26.97	Trace	0.53
07/15/93	26.94	Trace	0.56
07/22/93	26.97	Trace	0.53
07/29/93	26.93	Trace	0.57
08/05/93	26.95	Trace	0.55
08/12/93	26.94	Trace	0.56
08/19/93	26.95	Trace	0.55
08/26/93	26.94	Trace	0.56
09/02/93	26.96	Trace	0.54
09/10/93	26.96	Trace	0.54
09/16/93	26.95	Trace	0.55
09/23/93	26.94	Trace	0.56
09/30/93	26.94	Trace	0.56
10/07/93	26.95	Trace	0.55
10/15/93	26.95	Trace	0.55
10/21/93	26.97	Trace	0.53
10/28/93	26.95	Trace	0.55
11/04/93	26.94	Trace	0.56
11/18/93	26.94	Trace	0.56
11/24/93	Dry	Trace	0
12/02/93	Dry	Trace	0
12/09/93	Dry	Trace	0
12/17/93	Dry	Trace	0
12/24/93	Dry	Trace	0

INACTIVE TAILINGS
WATER LEVEL PIEZOMETER DATA
FOR WP-7

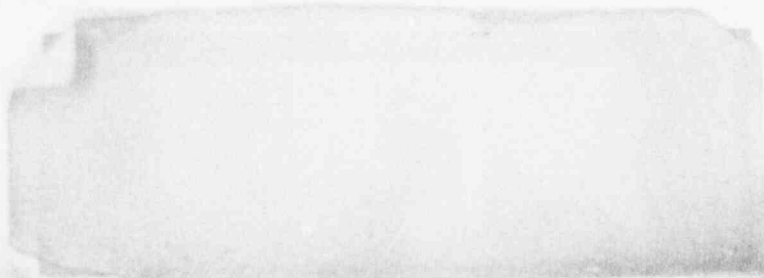
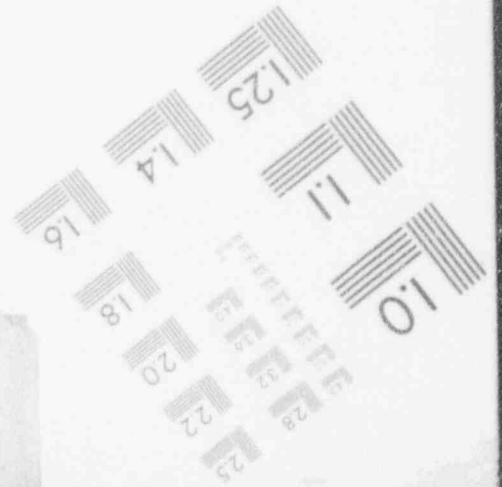
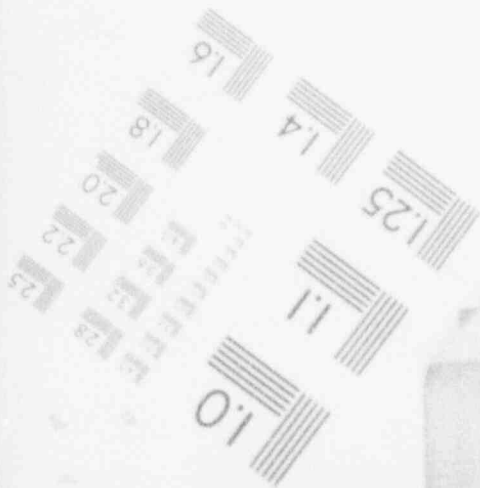
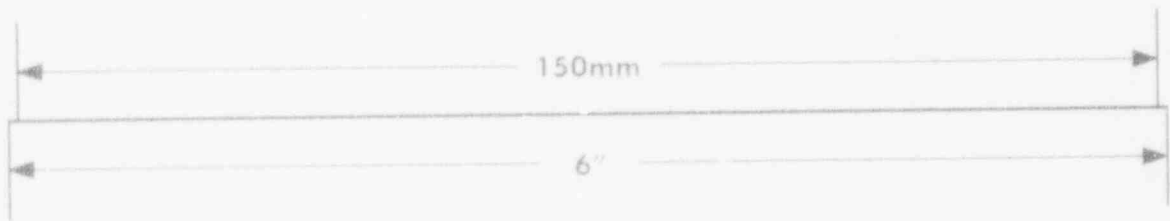
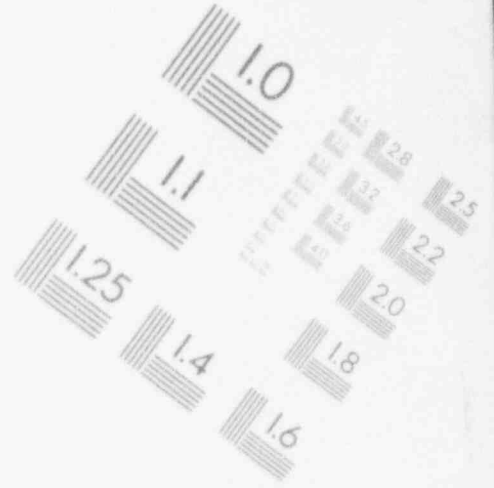
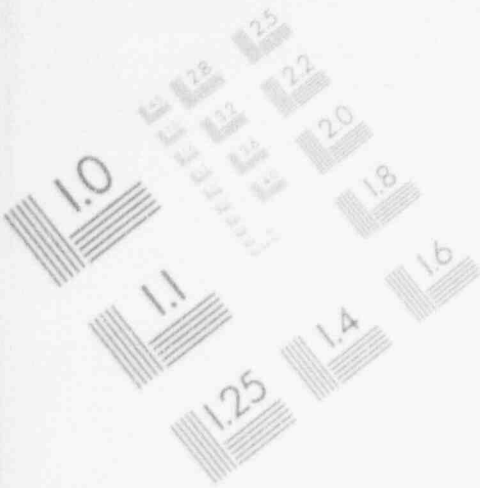
Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	29.95	6916.08	-1.57
07/08/93	30.00	6916.03	-1.62
07/15/93	29.64	6916.39	-1.26
07/22/93	30.02	6916.01	-1.64
07/29/93	30.04	6915.99	-1.66
08/05/93	30.05	6915.98	-1.67
08/12/93	30.12	6915.91	-1.74
08/19/93	30.04	6915.99	-1.66
08/26/93	30.04	6915.99	-1.66
09/02/93	30.18	6915.85	-1.80
09/10/93	30.11	6915.92	-1.73
09/16/93	30.24	6915.79	-1.86
09/23/93	30.09	6915.94	-1.71
09/30/93	30.26	6915.77	-1.88
10/07/93	30.06	6915.97	-1.68
10/15/93	30.20	6915.83	-1.82
10/21/93	30.08	6915.95	-1.70
10/28/93	30.25	6915.78	-1.87
11/04/93	30.24	6915.79	-1.86
11/18/93	30.30	6915.73	-1.92
11/24/93	30.10	6915.93	-1.72
12/02/93	30.14	6915.89	-1.76
12/09/93	30.34	6915.69	-1.96
12/17/93	30.39	6915.64	-2.01
12/24/93	30.37	6915.66	-1.99

INACTIVE TAILINGS
 WATER LEVEL PIEZOMETER DATA
 FOR WP-8

Date	Depth to Water	Water Level Elevation	Difference From Original
07/01/93	14.05	6955.63	2.58
07/08/93	13.92	6955.76	2.71
07/15/93	13.79	6955.89	2.84
07/22/93	13.69	6955.99	2.94
07/29/93	13.78	6955.90	2.85
08/05/93	13.72	6955.96	2.91
08/12/93	13.65	6956.03	2.98
08/19/93	13.45	6956.23	3.18
08/26/93	13.39	6956.29	3.24
09/02/93	13.36	6956.32	3.27
09/10/93	13.30	6956.38	3.33
09/16/93	13.08	6956.60	3.55
09/23/93	13.08	6956.60	3.55
09/30/93	12.95	6956.73	3.68
10/07/93	12.86	6956.82	3.77
10/15/93	12.92	6956.76	3.71
10/21/93	13.34	6956.34	3.29
10/28/93	12.94	6956.74	3.69
11/04/93	13.14	6956.54	3.49
11/18/93	13.31	6956.37	3.32
11/24/93	13.59	6956.09	3.04
12/02/93	13.70	6955.98	2.93
12/09/93	13.77	6955.91	2.86
12/17/93	14.12	6955.56	2.51
12/24/93	14.16	6955.52	2.47

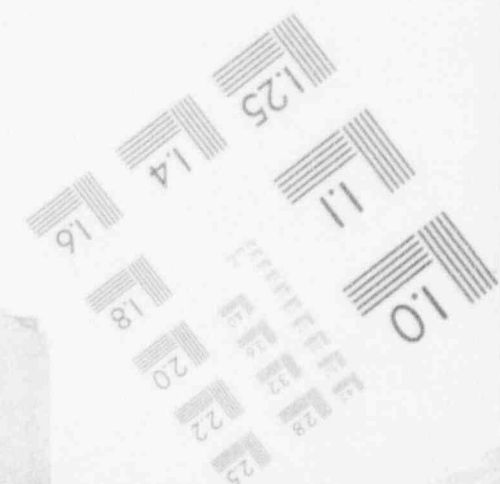
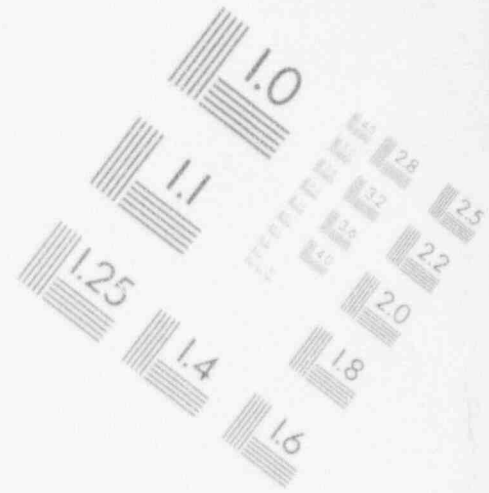
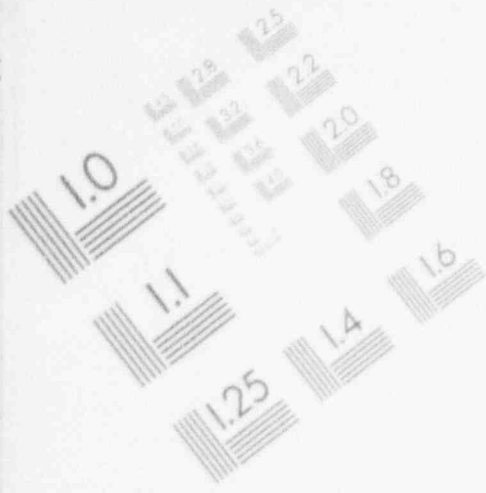
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IMAGE EVALUATION TEST TARGET (MT-3)



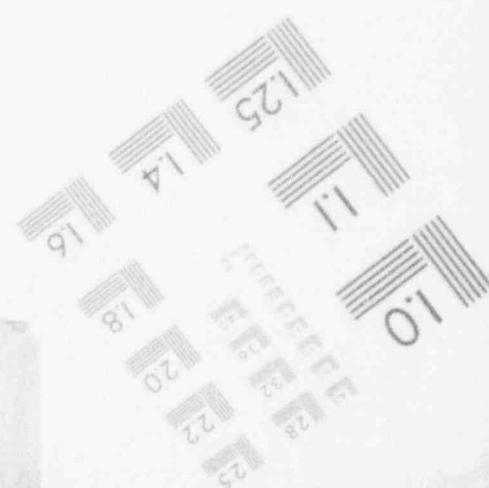
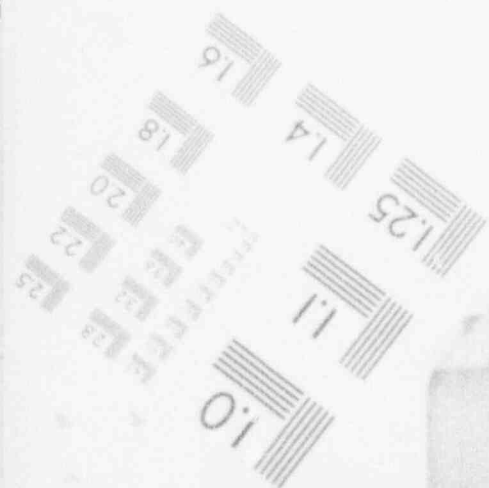
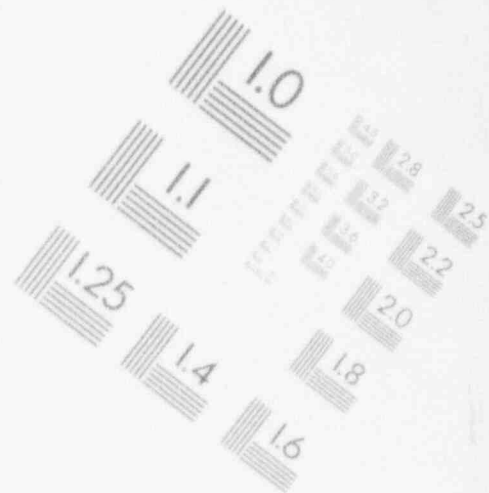
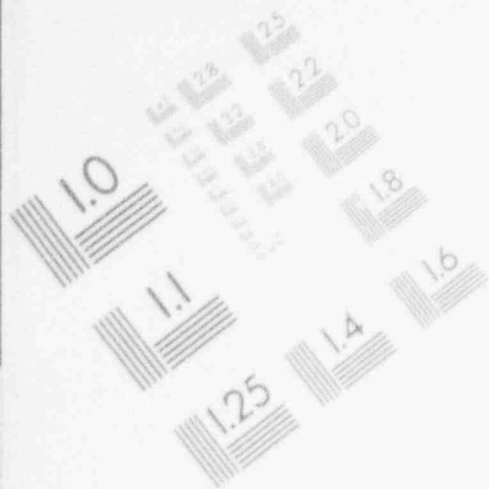
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IMAGE EVALUATION TEST TARGET (MT-3)



1

IMAGE EVALUATION TEST TARGET (MT-3)



SECTION 10



M.W. 26

M.W. 23

M.W. 18

M.W. 17

M.W. 4

M.W. 19

M.W. 10

TOWER 1

M.W. 27

INACTIVE TAILINGS

WP-2

WP-7

WP-1

INACTIVE WP-8

WP-5

SUMP 1

M.W. 20

TOWER 2

INACTIVE TAILINGS

WP-3

SECTION 15 WP-4

WP-4

FIGURE 2. INACTIVE TAILINGS
PIEZOMETER WELLS

1" = 500'
7/25/90

M.W. 10

TOWER 5
REJOB #2 WELL

SECTION 13.0
TOTALIZER READINGS for A-9 TAILINGS AREA

13.0 TOTALIZER READINGS FOR THE A-9 TAILINGS AREA

Totalizer readings pertaining to the various wells located in the A-9 Tailings area are presented in this section. The values presented are in gallons. Three additional wells were placed into production during the last half of 1993. These are MWC60 , MWC61, and MWC62.

TOTALIZER METER READINGS FOR FLOW FROM A-9 TAILINGS AREA WELLS

DATE	GW3C METER READING	GW3D METER READING	MW24 METER READING
01/07/93	8840420	6887540	79880
01/14/93	8862000	6891910	80280
01/21/93	8883580	6900250	92070
01/28/93	8904070	6906380	103950
02/04/93	8924690	6922230	119540
02/10/93	8941490	6928360	133350
02/18/93	8964130	6934700	153420
02/25/93	8976930	6959500	171180
03/04/93	8990300	6983910	186360
03/11/93	9003740	7008660	201870
03/18/93	9018930	7032880	219790
03/25/93	9026960	7056500	234170
04/01/93	9026970	7076080	234610
04/09/93	9037290	7103180	234610
04/16/93	9055790	7126310	240790
04/23/93	9067960	7142620	249920
04/30/93	9088800	7166800	266370
05/06/93	9101650	7185180	276760
05/13/93	9118140	7206790	288910
05/20/93	9134640	7228370	301080
05/27/93	9150120	7249520	313390
06/03/93	9165160	7270640	323440
06/10/93	9180060	7291590	333300
06/17/93	9190460	7309660	342960
06/24/93	9190460	7309670	342960
06/30/93	9190460	7309670	342960
07/07/93	9190460	7309670	342960
07/14/93	9190460	7309670	356950
07/22/93	9190460	7309670	374600
07/29/93	9190460	7309670	389950
08/05/93	9190460	7309670	405090
08/12/93	9190460	7309670	419920
08/19/93	9190460	7309670	428750
08/26/93	9190460	7309670	431580
09/02/93	9190460	7309670	431580
09/10/93	Injecting	7309670	
09/16/93	*	Injecting	919480
09/23/93	*	*	7090
09/30/93	*	*	22840
10/06/93	*	*	36930
10/13/93	*	*	52740
10/20/93	*	*	58890
10/27/93	*	*	85380
11/03/93	*	*	101750
11/10/93	*	*	118170
11/17/93	*	*	134070
11/24/93	*	*	150680
12/02/93	*	*	169920
12/09/93	*	*	179170
12/17/93	*	*	194820
12/21/93	*	*	204450
12/29/93	*	*	217940

Totalizer changed on MW 24 weeks of 09/10/93 and 09/23/93.

TOTALIZER METER READINGS FOR FLOW FROM A-9 TAILINGS AREA WELLS

DATE	MW29 METER READING	MW31 METER READING	MW32 METER READING
01/07/93	Injecting	Injecting	157350
01/14/93	*	*	158040
01/21/93	*	*	165880
01/28/93	*	*	171120
02/04/93	*	*	177630
02/10/93	*	*	183430
02/18/93	*	*	188610
02/25/93	*	*	198450
03/04/93	*	*	208690
03/11/93	*	*	218740
03/18/93	*	*	228290
03/25/93	*	*	237440
04/01/93	*	*	239840
04/09/93	*	*	249890
04/16/93	*	*	257180
04/23/93	*	*	257180
04/30/93	*	*	257180
05/06/93	*	*	258550
05/13/93	*	*	266660
05/20/93	*	*	268850
05/27/93	*	*	275360
06/03/93	*	*	280850
06/10/93	*	*	281990
06/17/93	*	*	285400
06/24/93	*	*	285400
06/30/93	*	*	288410
07/07/93	*	*	295780
07/14/93	*	*	301940
07/22/93	*	*	311830
07/29/93	*	*	318000
08/05/93	*	*	326920
08/12/93	*	*	335950
08/19/93	*	*	345240
08/26/93	*	*	353240
09/02/93	*	*	353260
09/10/93	*	*	353260
09/16/93	*	*	353270
09/23/93	*	*	1150
09/30/93	*	*	5700
10/06/93	*	*	10463
10/13/93	*	*	24290
10/20/93	*	*	34020
10/27/93	*	*	44002
11/03/93	*	*	54082
11/10/93	*	*	63540
11/17/93	*	*	72350
11/24/93	*	*	74470
12/02/93	*	*	74470
12/09/93	*	*	80030
12/17/93	*	*	88840
12/21/93	*	*	94270
12/29/93	*	*	96020

TOTALIZER METER READINGS FOR FLOW FROM A-9 TAILINGS AREA WELLS

DATE	A-9 TOWER METER READING	DEEP WELL No. 4 READING
01/07/93	3007000	1973170
01/14/93	3007000	
01/21/93	3007000	2260250
01/28/93	3007000	2404700
02/04/93	3007000	2551500
02/10/93	3007000	2671400
02/18/93	3007000	2832500
02/25/93	3007000	2973400
03/04/93	3007000	3117760
03/11/93	3007000	3260400
03/18/93	3007000	3406600
03/25/93	3007000	3547600
04/01/93	3089600	3691900
04/09/93	3188500	3853000
04/16/93	3297800	3999600
04/23/93	3322200	4139300
04/30/93	3366900	4284600
05/06/93	3381700	4401500
05/13/93	3428200	4542800
05/20/93	3428216	4686700
05/27/93	3494500	4829400
06/03/93	3494527	4967600
06/10/93	3496100	5107900
06/17/93	3496100	5228300
06/24/93	3496200	5371000
06/30/93	3496200	5514400
07/07/93	3516900	5634100
07/14/93	3642800	5770500
07/22/93	3642873	5926800
07/29/93	3711800	6066900
08/05/93	3755200	6203500
08/12/93	3893700	6343000
08/19/93	4042400	6477100
08/26/93	4080000	6611800
09/02/93	4080000	6745400
09/10/93	4080000	6898700
09/16/93	4080000	7012600
09/23/93	4080000	7114300
09/30/93	4080000	7200100
10/06/93	4166000	7236720
10/13/93	4282200	7294200
10/20/93	4282200	7382200
10/27/93	4282200	7458240
11/03/93	4282200	7508230
11/10/93	4282200	7564700
11/17/93	4282200	7605000
11/24/93	4282200	7649800
12/02/93	4282200	7684000
12/09/93	4282500	7689800
12/17/93	4379600	7760100
12/21/93	4379600	7809700
12/29/93	4379600	7911700

TOTALIZER METER READINGS FOR FLOW FROM A-9 TAILINGS AREA WELLS

DATE	COLLECTION WELL MWC60	COLLECTION WELL MWC61	COLLECTION WELL MWC62
08/06/93	251	40	
08/13/93	24340	1054	79780
08/20/93	45910	14540	100090
08/27/93	69766	32652	115540
09/04/93	98330	50070	135500
09/11/93	123470	55200	148540
09/18/93	133370	61940	155030
09/25/93	150284	65991	165089
10/02/93	167420	83570	178340
10/09/93	186522	96968	188086
10/16/93	204630	96970	197980
10/23/93	223450	96990	206910
10/28/93	236030	97210	212570
11/04/93	254050	114870	222680
11/12/93	271190	130290	228440
11/18/93	275650	131310	231350
11/24/93	283200	134990	235760
12/02/93	291100	139770	242310
12/09/93	299090	141420	245250
12/17/93	311940	143620	264590
12/21/93	323590	147010	278850
12/29/93	339450	152340	287620

SECTION 14.0
ANNUAL LAND USE SURVEY

14.0 ANNUAL LAND USE SURVEY

Private Residences: The JE Ranch residence, which is 5.5 miles from the mill site is not occupied.

Non-Residential Structures: TVA's Carol shop, approximately 2.5 miles south of the mill site is unoccupied. Pathfinder's uranium mill, approximately 6 miles to the west of the mill site, operated until the end of March, 1988. A skeleton crew continues to work at Pathfinder's operation.

Grazing: Cattle grazed within a 5 mile radius of the mill site during the report period. Grazing occurred primarily during the spring and summer months. Wildlife inhabit the area year around.

Water Rights: A current list of water rights within a 5 mile radius of the mill site was presented in the First Half of 1993, 40.65 report.