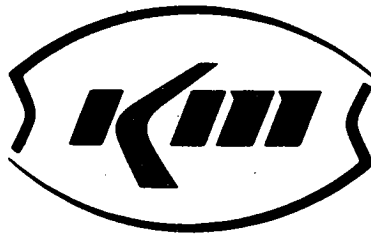


# ***KERR-McGEE CORPORATION***

**SEMI-ANNUAL PERFORMANCE REPORT  
CHROMIUM MITIGATION PROGRAM  
KERR-McGEE CHEMICAL CORPORATION  
HENDERSON, NEVADA**

**July 26, 1991**



**Environmental Technology**

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CHROMIUM MITIGATION PROGRAM  
KERR-McGEE CHEMICAL CORPORATION  
HENDERSON, NEVADA**

**JANUARY - JUNE, 1991**

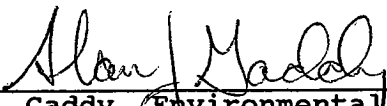
Submitted in Accordance with:

Chromium Mitigation Program  
Consent Order  
September 9, 1986

Prepared by:

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**JULY 26, 1991**

  
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CHROMIUM MITIGATION PROGRAM  
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HENDERSON, NEVADA*

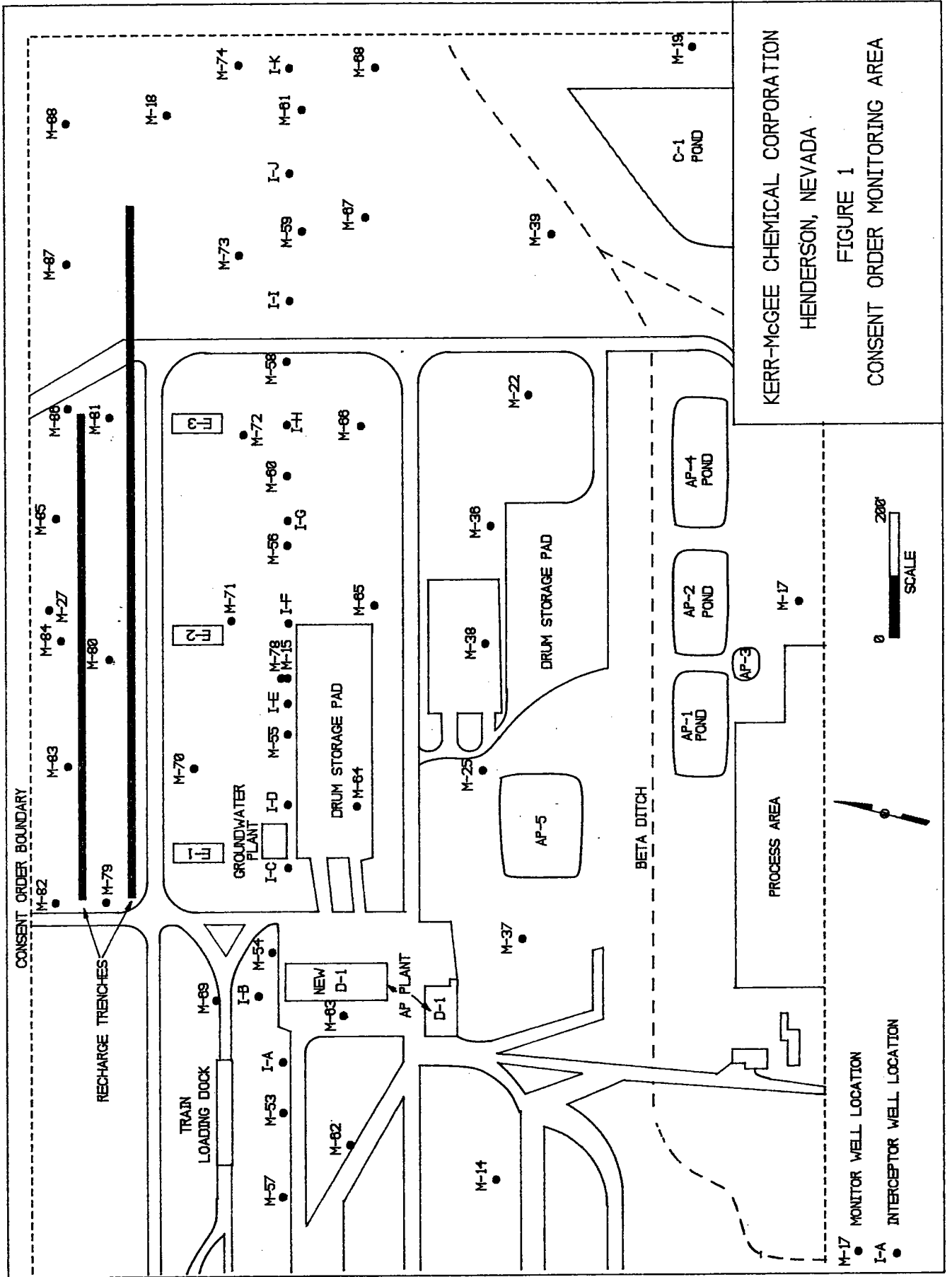
*INTRODUCTION*

In accordance with the Consent Order for cleanup of chromium contaminated groundwater at the Henderson facility, finalized September 9, 1986, Kerr-McGee Chemical Corporation (KMCC) submits this semi-annual performance report to the Nevada Department of Environmental Protection. This report, covering January through June, 1991, summarizes performance data for the groundwater treatment plant and evaluates the effectiveness of the groundwater interception and treatment system installed to carry out the chromium mitigation program.

## *GROUNDWATER SURFACE CONFIGURATION*

Figure 1 illustrates the Consent Order Monitoring Area as defined in Appendix D of the Consent Order, and shows the locations of all groundwater interceptor and monitor wells installed by KMCC within this area. Appendix A lists monthly groundwater elevations recorded since January 1988 in wells within the Consent Order area. Appendix B presents the water table configuration in two formats for the first half of 1991, reflecting quarterly groundwater level measurements.

Figure B-1 in Appendix B illustrates the potentiometric surface within the consent order monitoring area for the first quarter of 1991. Groundwater elevation data was recorded on February 15, 1991. Figure B-2 presents a cross-section of the groundwater interceptor line for the same date. Figures B-3 and B-4 present the same type maps for the second quarter of 1991, based on groundwater elevation data recorded June 28, 1991. The static water level shown on the cross-sections represents the Consent Order reference groundwater elevation, established September 14, 1987, prior to startup of the interception system. Groundwater elevations (Appendix A) continue to confirm that water levels in the Consent Order monitoring area have stabilized since the discharge of cooling water to the beta ditch was discontinued in November, 1987. Figures B-1 through B-4 show that groundwater interception has been optimized with the existing groundwater interception system.



KERR-MCGEE CHEMICAL CORPORATION  
 HENDERSON, NEVADA

FIGURE 1  
 CONSENT ORDER MONITORING AREA



M-17 MONITOR WELL LOCATION  
 I-A INTERCEPTOR WELL LOCATION

## *CONTINUOUS WATER LEVEL RECORDERS*

Wells M-78 and M-80 (Figure 1) are equipped with continuous water level recorders. Appendix C contains copies of the recorder charts generated during the first half of 1991. The current hydrologic configuration has stabilized throughout both the interception and recharge areas.

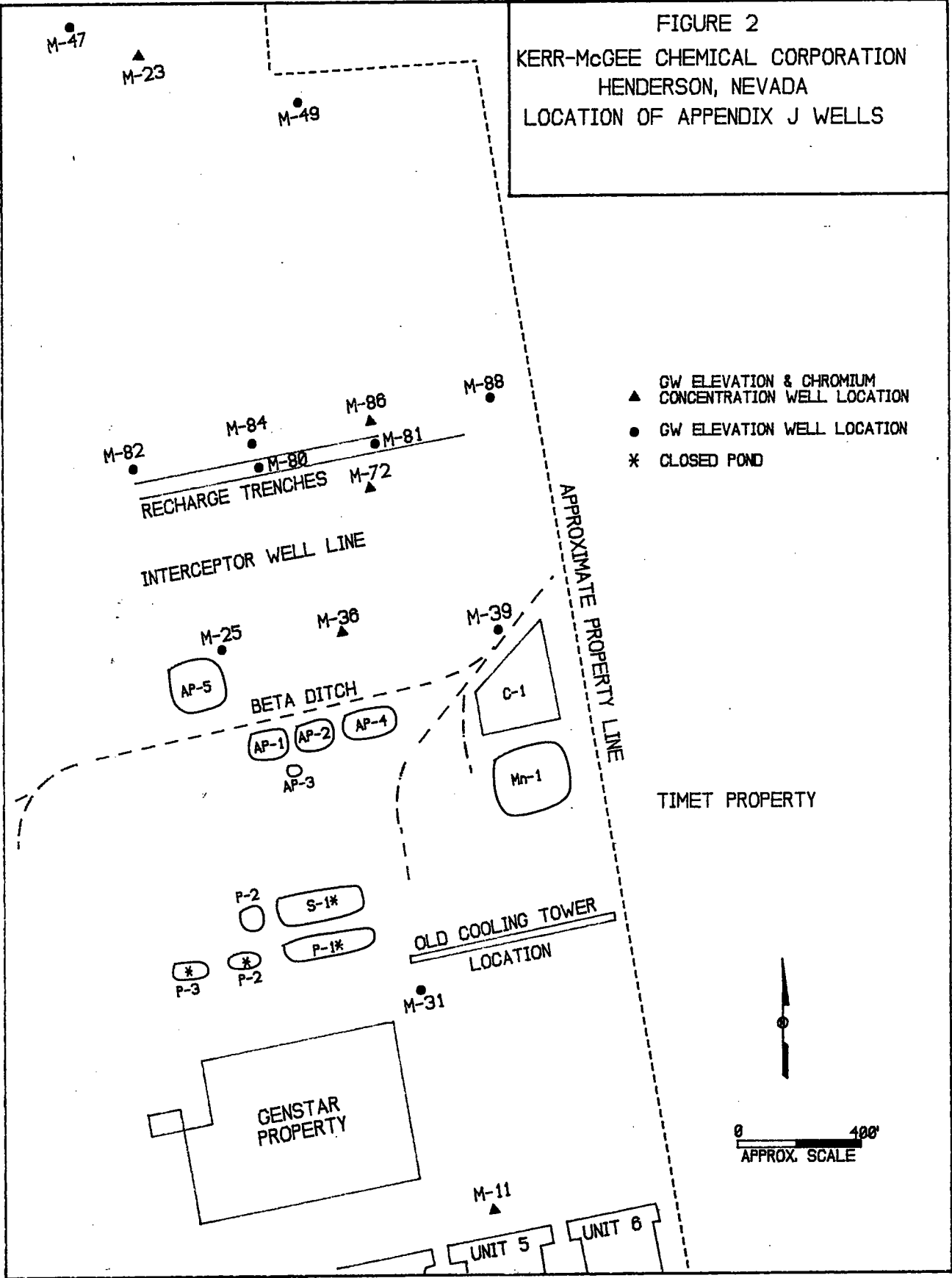
## *INTERCEPTOR SYSTEM PERFORMANCE*

Figures B-1 through B-4, attached as Appendix B, show the potentiometric surface configuration in the interceptor area during the first half of 1991. Cross-sections show that drawdown consistently exceeded the one foot below reference water level criterion across the entire interceptor well line.

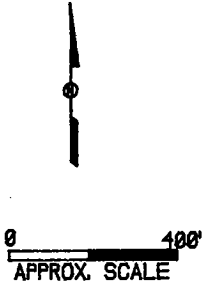
Although the potentiometric surface maps (Figures B-1 and B-3) do not appear to show overlapping drawdown cones along the interceptor line, the cross-sections show that all interceptor wells are drawn down to the Muddy Creek Clay. Drawdowns to this degree indicate that the alluvial aquifer is locally being depleted of water. This provides evidence that interception of groundwater has been maximized with this recovery system. Any groundwater flow through the interceptor line is rapidly diluted and meets the release concentration limits by the time it reaches the recharge line.

The effectiveness of the groundwater interception and treatment system in reducing chromium levels in the groundwater is also demonstrated by review of chemical analyses of groundwater samples taken from downgradient monitor wells (M-86 and M-23). KMCC is monitoring chromium concentrations in five wells specified in Appendix J of the Consent Order. These wells are located both up and downgradient from the plume interceptor line (Figure 2). Hexavalent chromium concentrations in the five Appendix J wells

FIGURE 2  
 KERR-McGEE CHEMICAL CORPORATION  
 HENDERSON, NEVADA  
 LOCATION OF APPENDIX J WELLS



- ▲ GW ELEVATION & CHROMIUM CONCENTRATION WELL LOCATION
- GW ELEVATION WELL LOCATION
- ✱ CLOSED POND



sampled and analyzed for chromium are displayed in Table 1. Figure D-1 in Appendix D portrays this data graphically.

KMCC instituted a management program to assure maximization of groundwater removal at the individual well locations along the interceptor line that exhibit the highest chromium concentrations. Figure D-2 portrays historical chromium concentration for each interceptor well. Discharge rates for each well are continually monitored and adjusted to provide maximum recovery of chromium based on the potentiometric surface configuration, chromium concentration, and well production capability. Table 2 lists the pumping rate of each interceptor well, measured in December, 1990.

In May, 1990, KMCC began monthly analysis for chromium in several other wells located both upgradient and downgradient from the recharge trench. The data is shown in Table 3, and is presented graphically as Figures D-3 and D-4. The M-70 series wells presented in Figure D-3 are located upgradient from the recharge trench. The M-80 series wells presented in Figure D-4 are located downgradient from the recharge trench. These data show that the groundwater interception and treatment system are reducing chromium concentrations in groundwater to well below discharge criteria.

**TABLE 1**  
**TOTAL CHROMIUM CONCENTRATION (mg/l)**  
**IN APPENDIX J WELLS**

MONTH	M-11	M-36	WELL # M-72	M-86	M-23
DEC 1988	46.00	0.47	1.20	0.83	5.40
JAN 1988	20.00	0.65	1.20	0.40	5.50
FEB 1988	17.00	0.75	1.10	0.35	5.40
MAR 1988	55.00	1.00	1.10	0.17	5.10
APR 1988	55.00	1.80	1.00	0.29	5.00
MAY 1988	44.00	2.20	1.00	0.21	5.40
JUN 1988	44.00	2.50	1.00	0.21	5.40
JUL 1988	43.00	2.80	0.89	0.18	5.00
AUG 1988	39.00	2.80	0.91	0.21	5.10
SEP 1988	46.00	2.60	0.82	0.30	5.00
OCT 1988	46.00	8.80	1.00	0.31	4.60
NOV 1988	40.00	12.40	1.20	0.20	4.80
DEC 1988	54.00	2.90	1.40	0.12	4.90
JAN 1989	6.70	2.90	1.40	0.31	4.60
FEB 1989	40.00	3.10	1.20	0.06	4.10
MAR 1989	42.00	3.80	1.40	0.19	3.80
APR 1989	43.00	3.50	1.40	0.42	3.30
MAY 1989	44.00	3.60	1.40	0.27	3.20
JUN 1989	35.00	3.90	1.16	0.20	2.70
JUL 1989	34.00	4.00	1.28	0.13	2.70
AUG 1989	36.00	4.20	1.40	0.38	2.70
SEP 1989	35.00	3.80	1.30	0.17	2.30
OCT 1989	35.00	4.30	1.60	0.12	2.40
NOV 1989	33.00	4.00	1.80	0.13	2.30
DEC 1989	35.00	4.40	1.90	0.14	2.10
JAN 1990	34.00	4.50	2.60	0.14	2.00
FEB 1990	32.00	4.90	2.90	0.10	2.00
MAR 1990	31.00	5.00	3.00	0.25	1.80
APR 1990	30.00	5.10	3.20	0.12	1.70
MAY 1990	34.00	4.90	3.50	0.07	1.60
JUN 1990	33.00	5.10	3.50	0.06	1.50

M-11 is 2500 ft. upgradient of the interceptor line.  
M-36 is 550 ft. upgradient of the interceptor line.  
M-72 is between the interceptor line and the recharge trenches.  
M-86 is immediately downgradient of the recharge trenches.  
M-23 is 1350 ft. downgradient of the recharge trenches.

**TABLE 1**  
**TOTAL CHROMIUM CONCENTRATION (mg/l)**  
**IN APPENDIX J WELLS (cont.)**

MONTH	M-11	M-36	WELL # M-72	M-86	M-23
JUL 1990	34.00	5.50	4.30	0.04	1.50
AUG 1990	37.00	5.02	4.60	0.19	1.40
SEP 1990	36.00	5.05	5.00	0.21	1.40
OCT 1990	36.00	5.04	5.30	0.12	1.30
NOV 1990	38.00	5.04	5.30	0.14	1.40
DEC 1990	37.00	5.50	5.30	0.13	1.30
JAN 1991	41.00	5.50	5.70	0.13	1.20
FEB 1991	42.00	11.60	6.20	0.20	1.10
MAR 1991	44.00	5.70	6.20	0.27	1.10
APR 1991	43.00	5.80	6.40	0.29	1.10
MAY 1991	36.00	5.40	6.40	0.32	1.00
JUN 1991	36.00	5.40	6.40	0.32	1.00

M-11 is 2500 ft. upgradient of the interceptor line.  
M-36 is 550 ft. upgradient of the interceptor line.  
M-72 is between the interceptor line and the recharge trenches.  
M-86 is immediately downgradient of the recharge trenches.  
M-23 is 1350 ft. downgradient of the recharge trenches.

**TABLE 2**  
**INTERCEPTOR WELL DISCHARGE RATES**  
**DISCHARGE RATE (GPM)**

WELL #	SEP. 1987	DEC. 1988	DEC. 1989	DEC. 1990
I-A	2.0	3.0	3.0	2.1
I-B	2.0	3.0	2.9	2.0
I-C*	2.5	8.8	5.5	3.8
I-D*	20.0	18.0	8.0	1.2
I-E*	5.0	2.4	5.2	1.2
I-F*	30.0	26.0	13.4	12.6
I-G	7.0	5.0	4.0	3.1
I-H*	8.0	3.0	7.8	2.0
I-I	15.0	15.0	16.0	9.5
I-J	10.0	8.0	8.0	5.8
I-K	10.0	8.2	7.5	4.9
TOTAL	111.5	100.4	81.3	48.2

\* - Wells containing relatively high chromium concentrations (see Figure D-2 in Appendix D).

**TABLE 3**  
**TOTAL CHROMIUM CONCENTRATION (mg/l)**  
**IN SELECTED GROUNDWATER MONITOR WELLS**

DATE	M-71	M-73	M-84	M-88
MAY 1990	0.22	0.65	0.78	0.28
JUL 1990	0.18	0.64	0.78	0.28
AUG 1990	0.18	0.64	0.31	0.30
SEP 1990	0.19	0.64	0.21	0.33
OCT 1990	0.24	0.68	0.07	0.34
NOV 1990	0.24	0.69	0.14	0.36
DEC 1990	0.27	0.74	0.12	0.38
JAN 1991	0.30	0.67	0.09	0.32
FEB 1991	0.39	0.71	0.22	0.45
MAR 1991	0.44	0.71	0.23	0.38
APR 1991	0.59	0.72	0.27	0.43
MAY 1991	5.50	0.73	0.34	0.43
JUN 1991	6.88	0.73	0.34	0.43

## *IMPACT OF DISPOSAL SYSTEM ON DOWNGRAIENT WATER LEVELS*

Appendix J of the Consent Order, the Disposal System Contingency Plan, identifies specific monitor wells that are to be utilized to evaluate any impact from recharge of treated water into the alluvium. Fifteen wells are monitored monthly for groundwater levels. Kerr-McGee Chemical Corporation selected 5 of these wells in Appendix J of the Consent Order for quarterly chromium analysis. These wells have been sampled and analyzed monthly. Figure 2 illustrates the location of the Consent Order Appendix J wells.

Appendix A of this report shows that groundwater elevations have stabilized in that portion of the facility that lies downgradient from the recharge system (evidenced by wells M-47, M-23, and M-49), and are lower than in January, 1988. No surface wetting downgradient from the recharge trenches has been observed. KMCC is confident that no undesirable impact to groundwater levels exists downgradient from the recharge trench.

## *CHROMIUM TREATMENT SYSTEM EFFECTIVENESS*

The Consent Order specifies the following effluent concentration limits for the treatment plant discharge water: Total Chromium 1.7 mg/l and Hexavalent Chromium 0.05 mg/l as a monthly average; Total Chromium 3.4 mg/l and Hexavalent Chromium 0.1 mg/l as a maximum single value on a composite sample. Table 4 lists treatment plant feed and discharge chromium concentration data for January through June, 1991.

**TABLE 4**  
**GROUNDWATER TREATMENT ANALYSIS**

WEEK OF	VOLUME TREATED (M gal.)	FEED CHROMIUM (mg/l)	TREATED TOTAL (mg/l)	EFFLUENT HEXAVALENT (mg/l)
Jan. 1 - Jan. 6	405	3.70	1.050	<1.05
Jan. 7 - Jan. 13	392	3.75	0.593	0.21
Jan. 14 - Jan. 20	377	3.75	0.088	0.0035
Jan. 21 - Jan. 27	377	3.80	0.028	0.0022
Jan. 28 - Feb. 3	398	3.55	0.028	0.0063
January, 1991 Average		3.71	0.357	0.0555
Feb. 4 - Feb. 10	385	3.10	0.124	0.014
Feb. 11 - Feb. 17	450	4.10	0.074	0.0018
Feb. 18 - Feb. 24	414	3.90	0.040	0.0023
Feb. 25 - Mar. 3	314	2.80	0.055	0.0020
February, 1991 Average		3.475	0.073	0.0050
Mar. 4 - Mar. 10	426	5.35	0.045	0.0155
Mar. 11 - Mar. 17	410	3.95	0.026	0.0042
Mar. 18 - Mar. 24	405	3.60	0.030	0.0034
Mar. 25 - Mar. 31	406	4.00	0.150	0.0075
March, 1991 Average		4.263	0.063	0.0077

**TABLE 4 (cont.)**  
**GROUNDWATER TREATMENT ANALYSIS**

WEEK OF	VOLUME TREATED (M gal.)	FEED CHROMIUM (mg/l)	TREATED TOTAL (mg/l)	EFFLUENT HEXAVALENT (mg/l)
Apr. 1 - Apr. 7	400	4.00	0.030	0.0095
Apr. 8 - Apr. 14	381	4.00	0.034	0.0028
Apr. 15 - Apr. 21	398	3.80	0.036	0.0048
Apr. 22 - Apr. 28	397	2.90	0.112	0.0170
April, 1991 Average		3.675	0.053	0.0085
Apr. 29 - May 5	322	4.23	0.036	0.0052
May 6 - May 12	417	3.50	0.033	0.00057
May 13 - May 19	391	3.66	0.108	0.0314
May 20 - May 26	401	3.55	0.026	0.0084
May 27 - Jun. 2	397	3.80	0.020	0.0010
May, 1991 Average		3.75	0.045	0.0103
Jun. 3 - Jun. 9	391	4.00	0.035	0.0150
Jun. 10 - Jun. 16	398	4.50	0.084	0.0034
Jun. 17 - Jun. 23	390	3.65	0.020	0.0040
Jun. 24 - Jun. 30	396	3.87	0.036	0.0010
June, 1991 Average		4.01	0.044	0.0059

## *ADDITIONAL WORK PERFORMED*

Approximately every twenty days, the electrodes in the treatment plant's electrolytic cells deteriorate to the point they require replacement. During the first half of 1991, electrodes were replaced January 4, February 4, March 5, April 1, May 7, and June 6, 1991. Each time, the cell that was on standby replaced the disconnected cell in the treatment circuit.

Engine hour meters are being used to determine the average number of hours per day individual pumps are running. Six of the interceptor wells utilize a time-marking device that shuts the pump off for a pre-determined amount of time if the well runs dry. If a pump spends a significant amount of time shut down, recovery can be increased by decreasing the pump rate, allowing discharge to occur a greater percentage of the time. Well discharge rates are adjusted periodically, as engine hour meters show either continuous pumping or a low percentage of pumping time.

All interceptor wells are checked for operation each day; flow rates are recorded for each well twice weekly. Flowmeter readings (total volume) are recorded for each time-marking well twice weekly. These records indicate when a pump needs to be replaced or a flowrate adjusted. Four pumps were replaced during the first half of 1991. In addition, other maintenance associated with maintaining treatment plant operations were performed.

## *PROPOSED FUTURE ACTIVITIES*

KMCC will continue to record all water levels in the consent order area on a quarterly basis. Quarterly potentiometric surface maps and cross-sections will be developed, and the water level recorders on monitor wells M-78 and M-80 will continue to operate.

Electronic pressure transducers are being placed in a number of groundwater monitor wells stationed between recovery wells. A telephone-addressable datalogger will record the pressure head in each of the wells at a regular interval and convert the pressure head to groundwater elevation. KMCC anticipates that this format of groundwater elevation monitoring will provide more accurate data and will replace the continuous water level recorder currently used in well M-78. This water level monitoring system will also yield the same data as the current monthly manual recording of groundwater elevations throughout the consent order monitoring area. Provisions for discontinuing the use of the continuous water level recorder are given in Section 6 of the Consent Order.

## *CONCLUSIONS*

KMCC is confident that effective groundwater interception and treatment are being attained. The effect of changing the pumping rates of the interceptor wells will continue to be monitored, and appropriate responses (i.e.- future pump rate adjustments) will be taken to assure optimal drawdown and plume interception.

Discharge chromium concentrations for the treatment facility are below established requirements. Groundwater samples obtained from monitor wells downgradient of the recharge trenches show that groundwater is being remediated. No adverse impacts to downgradient groundwater levels have been observed as a result of returning treated groundwater to the near-surface aquifer via the recharge trenches. No other design modifications to the treatment plant facility are contemplated at this time.

*APPENDIX A*  
*GROUNDWATER ELEVATIONS*

KEPP-KOGER CHEMICAL CORPORATION  
 BENDERSON, NEVADA FACILITY  
 GROUNDWATER MONITORING

TOC-->	M-11		M-14		M-15		M-17		M-18		M-19		M-22E		M-23		M-25		M-27	
	DYN	ELV.	DYN	ELV.	DYN	ELV.	DYN	ELV.	DYN	ELV.	DYN	ELV.	DYN	ELV.	DYN	ELV.	DYN	ELV.	DYN	ELV.
120-Jan-88	44.78	1768.68	28.58	1730.27	23.29	1726.40	38.64	1738.30	11.73	1728.55	27.60	1738.95			14.56	1698.20	26.83	1731.52	15.36	1725.11
105-Feb-88	44.78	1768.68	28.70	1730.13	23.59	1726.10	31.12	1738.42	11.87	1728.41	27.88	1738.67			14.52	1698.26	27.07	1731.08	15.70	1724.77
101-Mar-88	44.76	1768.70	29.38	1729.47	24.03	1725.86	31.72	1737.82	12.13	1728.15	28.38	1738.19			14.67	1698.11	28.33	1729.82	16.45	1724.02
119-Apr-88	45.17	1768.29	30.14	1728.69	24.82	1725.07	32.42	1737.12	12.73	1725.55	28.92	1737.63			14.94	1697.84	28.75	1729.40	16.95	1723.52
118-May-88	45.13	1768.33	30.48	1728.35	25.05	1724.84	32.90	1736.84	13.08	1725.20	29.34	1737.21			15.05	1697.73	29.00	1729.15	17.21	1723.26
107-Jun-88	45.39	1768.07	30.87	1728.16	25.24	1724.45	33.03	1736.51	13.30	1724.98	29.64	1736.91			15.29	1697.49	29.60	1728.55	17.52	1722.95
114-Jul-88	46.16	1767.30	31.08	1727.77	25.83	1723.86	33.96	1735.68	13.73	1724.55	29.98	1736.57			15.73	1697.05	29.65	1728.50	17.87	1722.80
106-Aug-88	46.20	1767.26	31.38	1727.47	25.94	1723.75	34.18	1735.38	13.91	1724.37	29.24	1737.31			15.45	1697.33	30.10	1728.05	16.86	1723.81
103-Sep-88	46.12	1767.34	31.32	1727.51	25.95	1723.74	34.30	1735.14	14.30	1723.98	29.70	1736.85	26.50	1732.18	15.50	1697.28	30.15	1728.09	18.30	1722.17
110-Oct-88	45.40	1768.06	31.50	1727.33	26.00	1723.69	34.40	1735.14	14.30	1723.98	29.90	1736.65	26.20	1722.48	15.55	1697.23	30.70	1727.45	18.60	1721.87
126-Nov-88	41.65	1771.81	31.65	1727.18	27.10	1722.59	34.30	1735.24	14.40	1723.88	29.40	1736.15	26.90	1731.78	16.85	1695.93	30.70	1727.45	19.30	1721.17
119-Jan-89	46.10	1767.38	31.70	1727.13	30.18	1719.51	33.75	1735.79	14.00	1724.28	30.40	1736.15	26.90	1731.78	15.10	1697.68	30.95	1727.20	18.75	1721.72
115-Dec-88	46.15	1767.31	31.80	1727.03	25.05	1724.64	34.75	1734.79	14.80	1723.48	30.60	1735.95	27.13	1731.55	16.45	1696.33	32.10	1726.85	19.75	1720.72
123-Feb-89	45.27	1768.19	32.15	1726.88	28.35	1721.34	35.00	1734.54	15.35	1722.93	30.80	1735.75	27.95	1730.73	16.50	1696.26	32.10	1726.85	19.75	1720.72
123-Mar-89	45.90	1767.58	32.20	1726.83	28.40	1721.29	35.10	1734.44	15.70	1722.58	31.00	1735.55	27.85	1730.83	18.80	1696.18	32.20	1725.95	19.65	1720.82
109-Apr-89	44.95	1768.51	32.40	1726.43	27.80	1721.89	35.00	1734.54	16.00	1722.28	31.00	1735.55	27.95	1730.73	16.00	1696.68	32.30	1725.85	19.70	1720.77
101-May-89	45.00	1768.46	32.60	1726.23	27.60	1722.09	35.35	1734.19	16.55	1721.73	31.45	1735.10	29.35	1729.33	16.20	1696.58	32.10	1726.85	19.85	1720.82
112-Jun-89	45.00	1768.46	32.70	1726.13	28.30	1721.39	35.50	1734.04	16.85	1721.43	31.55	1734.70	28.30	1730.38	21.70	1696.88	32.00	1726.15	20.25	1720.22
116-Jul-89	46.00	1767.46	32.55	1726.28	28.55	1721.14	35.55	1733.99	16.80	1721.48	36.80	1729.75	28.60	1730.08	21.90	1698.88	32.65	1725.58	20.50	1719.97
125-Aug-89	45.00	1768.16	32.60	1726.23	28.40	1721.29	35.35	1734.19	17.10	1721.18	31.20	1734.95	28.55	1730.13	21.30	1691.48	32.80	1725.35	20.75	1719.72
125-Sept-89	45.00	1768.46	32.00	1726.83	30.00	1719.69	35.15	1734.39	17.10	1721.18	31.20	1734.95	28.70	1729.98	16.85	1695.93	32.80	1725.35	21.10	1719.37
117-Nov-89	44.10	1769.38	32.00	1726.83	30.00	1721.39	35.35	1734.19	17.25	1721.03	31.85	1734.70	28.65	1730.03	16.95	1695.83	32.55	1725.60	20.80	1719.87
107-Dec-89	45.00	1768.46	32.85	1725.98	28.30	1721.39	35.35	1734.19	17.55	1720.73	31.70	1734.85	28.90	1729.78	17.10	1695.68	32.75	1725.40	21.00	1719.47
112-Jan-90	45.05	1768.41	32.95	1725.88	28.40	1721.29	35.55	1733.99	17.55	1720.73	31.70	1734.85	28.90	1729.78	17.10	1695.68	32.90	1725.25	21.10	1719.37
123-Feb-90	45.38	1768.16	32.90	1725.93	28.50	1721.19	34.90	1734.64	17.60	1720.68	31.15	1735.11	28.00	1730.68	17.10	1695.68	33.30	1724.85	22.85	1718.42
111-Mar-90	44.70	1768.88	33.45	1725.38	29.45	1720.24	37.00	1732.54	18.20	1720.08	32.20	1734.88	28.60	1730.08	16.85	1696.13	33.30	1724.85	22.30	1718.17
111-Apr-90	44.70	1768.78	33.50	1725.33	30.20	1719.49	36.15	1733.39	18.40	1719.88	32.40	1733.88	28.70	1729.98	16.70	1696.08	33.70	1724.45	22.30	1718.17
111-May-90	44.90	1768.58	33.70	1725.13	31.00	1718.89	36.10	1733.44	18.75	1719.53	32.90	1733.86	29.05	1729.63	18.35	1694.43	34.10	1724.05	23.50	1716.97
102-Jun-90	44.50	1768.96	33.65	1725.18	31.49	1718.29	35.70	1733.84	19.50	1718.78	33.35	1732.91	29.70	1728.98	18.85	1693.93	33.90	1724.25	24.40	1716.07
115-Feb-91	44.00	1714.83	33.65	1725.18	31.85	1717.84	36.20	1733.34	19.90	1718.38	34.50	1731.76	29.45	1728.23	19.35	1693.43	34.00	1724.15	25.08	1715.47

LEER-ROCK CHEMICAL CORPORATION  
 HENDERSON, NEVADA FACILITY  
 GROUNDWATER ELEVATIONS

TOC-->	M-31		M-36		M-37		M-38		M-39		M-47		M-49		M-53		M-54		M-55	
	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.
20-Jan-86	39.34	1749.05	25.62	1732.32	26.98	1732.30	26.04	1731.84	23.80	1735.51	13.08	1703.43	12.53	1706.25	25.60	1725.96	22.14	1726.79	23.27	1726.08
05-Feb-88	39.53	1748.86	25.95	1731.99	27.28	1732.00	26.37	1731.51	24.32	1734.99	13.04	1703.47	12.49	1706.29	25.73	1725.83	22.31	1726.62	23.74	1725.61
01-Mar-88	39.68	1748.71	26.50	1731.44	27.87	1731.41	26.99	1730.89	24.81	1734.50	13.00	1703.51	12.47	1706.31	26.21	1725.35	22.88	1726.05	24.15	1725.20
19-Apr-88	40.08	1746.31	27.14	1730.80	28.62	1730.66	27.60	1730.28	25.42	1733.89	13.10	1703.41	12.60	1706.18	26.75	1724.81	23.50	1725.43	24.75	1724.60
10-May-88	40.36	1748.03	27.50	1730.44	28.90	1730.38	28.00	1729.88	25.83	1733.48	13.29	1703.22	12.94	1705.84	27.09	1724.47	23.60	1725.33	25.05	1724.30
07-Jun-88	40.50	1747.69	27.73	1730.21	29.16	1730.12	28.27	1729.61	26.97	1733.24	13.47	1703.04	13.09	1705.69	27.25	1724.31	23.83	1725.10	25.37	1724.08
14-Jul-88	40.70	1747.69	28.60	1729.34	29.60	1729.68	28.75	1729.13	26.50	1732.61	13.72	1702.79	13.35	1705.43	27.60	1723.98	24.50	1724.43	25.78	1723.57
06-Aug-88	40.53	1747.86	28.45	1729.48	29.86	1729.42	28.94	1728.94	26.77	1732.54	14.07	1702.44	13.81	1704.97	27.94	1723.62	24.52	1724.41	25.91	1723.44
03-Sep-88	40.52	1747.87	29.50	1728.44	29.80	1729.40	29.20	1728.68	26.71	1732.60	13.72	1702.79	13.60	1705.18	28.30	1723.26	24.90	1724.93	26.40	1723.95
10-Oct-88	40.15	1748.24	28.80	1729.14	30.10	1729.18	29.50	1728.36	26.80	1732.51	13.65	1702.66	13.60	1705.88	28.10	1723.46	25.10	1723.83	26.80	1722.55
26-Nov-88	40.30	1748.09	29.00	1728.94	29.90	1729.38	29.30	1728.58	26.90	1732.41	13.80	1702.71	13.10	1705.68	28.10	1723.46	25.10	1723.83	26.80	1722.55
15-Dec-88	39.83	1748.56	29.40	1728.54	31.90	1727.38	29.70	1728.18	26.75	1732.56	13.75	1702.76	13.75	1705.03	28.60	1722.96	26.60	1726.33	28.75	1720.60
19-Jan-89	40.15	1748.24	28.60	1731.34	30.40	1728.88	29.90	1727.46	26.85	1732.46	14.10	1702.41	14.10	1704.68	28.85	1722.71	24.45	1724.46	24.20	1725.15
23-Feb-89	40.47	1747.92	29.80	1728.14	30.65	1728.63	32.70	1725.18	27.85	1731.68	14.45	1702.08	14.23	1704.55	28.90	1722.66	25.90	1723.03	27.80	1721.55
23-Apr-89	40.80	1747.59	30.50	1727.44	30.70	1728.58	30.30	1727.58	27.85	1731.46	14.65	1701.86	14.30	1704.48	28.40	1721.16	26.30	1722.63	28.80	1722.55
09-May-89	39.90	1748.49	30.20	1727.74	30.70	1728.58	30.40	1727.48	27.90	1731.41	14.70	1701.81	14.60	1704.38	29.40	1722.16	26.40	1722.53	27.85	1721.50
01-Jun-89	40.35	1748.04	30.35	1727.59	31.60	1744.68	30.45	1727.43	28.20	1731.11	14.80	1701.91	14.50	1704.28	29.75	1721.81	26.40	1722.33	27.85	1721.45
03-Jul-89	40.30	1748.09	31.70	1726.24	30.80	1728.48	30.40	1727.48	28.30	1731.01	15.00	1701.51	14.60	1704.18	30.00	1721.56	26.55	1722.38	27.85	1721.50
16-Aug-89	41.00	1747.39	30.50	1727.44	30.90	1728.38	30.65	1727.23	28.30	1731.01	15.80	1696.01	20.25	1698.53	30.10	1721.46	26.75	1722.18	28.35	1721.00
12-Sep-89	40.55	1747.84	30.70	1727.24	30.99	1728.38	30.65	1727.23	28.50	1730.81	19.50	1697.01	20.30	1698.48	30.10	1721.46	26.75	1722.18	28.35	1721.00
25-Oct-89	39.20	1748.19	30.80	1727.14	31.00	1728.28	30.55	1727.33	28.50	1730.81	26.50	1696.01	20.60	1698.18	30.35	1721.21	27.25	1721.68	28.45	1720.90
17-Nov-89	39.80	1748.59	30.40	1727.54	31.00	1728.28	30.55	1727.33	28.75	1730.56	15.80	1700.71	15.35	1703.43	29.00	1722.56	27.10	1721.83	28.30	1721.05
07-Dec-89	40.25	1748.14	30.55	1727.39	31.05	1728.23	30.60	1727.28	28.60	1730.71	15.70	1700.81	15.50	1703.28	30.50	1721.06	27.40	1721.53	28.45	1720.90
12-Jan-90	41.05	1747.34	30.60	1727.34	31.10	1728.18	30.65	1727.23	28.75	1730.56	15.85	1700.66	15.65	1703.13	30.60	1720.96	28.50	1720.43	28.55	1720.60
23-Feb-90	40.75	1747.64	31.50	1726.44	31.20	1728.08	30.70	1727.18	28.50	1730.81	15.80	1700.71	15.65	1703.13	30.65	1720.91	27.60	1721.33	28.65	1720.70
11-Jul-90	41.10	1747.29	32.20	1725.74	31.60	1727.86	31.10	1726.78	29.30	1730.01	16.35	1700.16	16.05	1702.73	31.05	1720.51	28.30	1720.83	29.45	1719.90
11-Aug-90	41.15	1747.24	32.00	1725.94	31.70	1727.58	31.10	1726.63	29.45	1729.86	16.35	1700.16	16.10	1702.68	31.10	1720.41	28.35	1720.58	29.70	1719.65
192-Nov-90	41.30	1747.09	31.90	1727.38	31.90	1727.38	31.25	1726.83	29.50	1729.81	16.80	1699.71	16.75	1702.03	31.40	1720.18	28.65	1720.28	30.25	1719.10
15-Feb-91	41.60	1748.79	32.40	1725.54	31.70	1727.58	31.30	1726.58	30.10	1729.21	17.50	1699.01	17.45	1701.33	31.45	1720.11	28.80	1720.13	30.65	1718.70
28-Jun-91	41.25	1747.14	30.80	1727.14	31.71	1727.57	31.40	1726.48	30.35	1728.96	18.85	1697.46	17.85	1700.93	31.50	1720.06	29.05	1719.88	31.05	1718.30

KERR-MCGEE CHEMICAL CORPORATION  
 BENDERSON, NEVADA FACILITY  
 GEOWATER ELEVATIONS

TOC-->	M-56		M-57		M-58		M-59		M-60		M-61		M-62		M-63		M-64		M-65	
	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.
20-Jan-88	22.46	1727.12	26.44	1725.85	20.56	1728.67	14.22	1728.79	21.06	1728.07	16.60	1728.95	25.51	1727.41	22.54	1728.05	22.91	1728.85	24.97	1727.91
05-Feb-88	22.87	1726.73	26.67	1725.62	20.80	1728.45	14.48	1728.53	22.38	1727.75	17.12	1728.43	25.74	1727.18	22.78	1727.81	23.15	1728.61	25.24	1727.84
01-Mar-88	23.35	1726.25	27.10	1725.19	21.09	1728.16	14.86	1728.15	22.80	1727.33	17.34	1728.21	26.16	1726.74	23.43	1727.16	23.87	1725.89	25.89	1726.99
19-Apr-88	24.04	1725.56	27.50	1724.71	21.87	1727.58	15.54	1727.47	23.54	1726.59	17.81	1727.74	26.77	1726.15	24.08	1726.51	24.52	1725.24	26.58	1726.30
18-May-88	24.57	1725.03	27.88	1724.41	22.12	1727.13	15.83	1727.18	23.82	1726.31	18.16	1727.39	27.05	1725.87	24.40	1726.19	24.74	1725.82	27.00	1725.86
07-Jun-88	24.86	1724.97	27.97	1724.32	22.35	1726.90	16.08	1726.93	24.01	1726.12	18.35	1727.20	27.25	1725.67	24.55	1726.04	25.00	1724.76	27.24	1725.64
14-Jul-88	25.14	1724.46	28.32	1723.97	22.90	1726.35	16.57	1726.44	24.48	1725.85	18.78	1726.77	27.63	1725.29	24.88	1725.71	25.50	1724.26	27.85	1725.03
06-Aug-88	25.33	1724.27	28.61	1723.68	23.24	1726.01	16.78	1726.23	24.69	1725.44	19.05	1726.50	27.99	1724.93	25.20	1725.39	25.66	1724.10	27.97	1724.91
03-Sep-88	25.30	1724.30	28.62	1723.67	23.15	1726.10	16.57	1726.41	24.80	1729.33	16.50	1726.05	28.10	1724.82	25.30	1725.29	25.90	1723.96	28.25	1724.63
10-Oct-88	25.65	1723.95	28.75	1723.54	23.30	1725.95	16.60	1726.41	25.00	1725.13	19.20	1726.35	28.10	1724.72	25.20	1725.39	26.28	1723.56	28.90	1723.96
26-Nov-88	25.80	1723.80	28.85	1723.44	23.30	1725.44	16.90	1726.11	25.00	1725.13	19.60	1725.95	28.20	1724.72	25.20	1725.39	26.28	1723.56	28.90	1723.96
15-Dec-88	26.50	1723.10	29.10	1723.19	24.10	1725.15	17.70	1725.31	25.00	1725.13	19.70	1725.85	28.75	1724.17	25.85	1724.74	26.65	1723.11	30.00	1722.88
19-Jan-89	26.50	1722.45	29.40	1722.89	24.10	1724.15	18.40	1724.61	26.15	1723.83	20.60	1724.95	29.00	1723.92	26.55	1724.04	27.40	1722.36	30.30	1722.58
23-Feb-89	27.00	1722.60	29.60	1722.69	25.00	1724.25	18.80	1724.21	26.40	1723.73	20.70	1724.85	29.10	1723.82	26.40	1724.19	27.50	1722.26	30.55	1722.33
23-Mar-89	27.15	1722.45	29.65	1722.64	24.95	1724.30	18.80	1724.31	26.40	1723.73	20.70	1724.85	29.10	1723.82	26.40	1724.19	27.50	1722.26	30.55	1722.33
09-Apr-89	27.15	1722.45	29.65	1722.64	24.95	1724.30	18.80	1724.31	26.40	1723.73	20.70	1724.85	29.10	1723.82	26.40	1724.19	27.50	1722.26	30.55	1722.33
01-May-89	27.15	1722.45	29.65	1722.64	24.95	1724.30	18.80	1724.31	26.40	1723.73	20.70	1724.85	29.10	1723.82	26.40	1724.19	27.50	1722.26	30.55	1722.33
03-Jun-89	27.15	1722.45	29.65	1722.64	24.95	1724.30	18.80	1724.31	26.40	1723.73	20.70	1724.85	29.10	1723.82	26.40	1724.19	27.50	1722.26	30.55	1722.33
16-Aug-89	27.60	1722.00	30.15	1722.14	25.90	1723.45	19.55	1723.46	26.95	1723.16	21.50	1724.05	29.55	1723.37	26.90	1723.69	27.90	1721.86	31.10	1721.78
23-Sep-89	27.70	1721.90	30.15	1722.04	26.10	1723.15	19.65	1723.36	27.15	1722.98	21.55	1724.00	29.70	1723.22	27.15	1723.49	28.00	1721.76	29.80	1723.28
25-Oct-89	27.65	1721.95	30.25	1722.04	26.10	1723.15	19.65	1723.36	27.15	1722.98	21.55	1724.00	29.70	1723.22	27.15	1723.49	28.00	1721.76	29.80	1723.28
17-Nov-89	27.20	1722.40	31.00	1721.28	26.10	1723.15	19.50	1723.51	26.90	1723.23	21.40	1724.15	30.20	1722.72	27.10	1723.49	28.00	1721.76	30.70	1722.10
07-Dec-89	27.75	1721.85	30.40	1721.88	26.15	1723.10	19.90	1723.11	27.30	1722.83	21.85	1723.70	29.85	1723.07	27.30	1723.29	28.10	1721.66	30.70	1722.10
12-Jan-90	27.65	1721.95	30.50	1721.79	26.30	1722.95	20.15	1722.86	27.30	1722.83	22.15	1723.40	29.95	1722.97	27.40	1723.19	28.20	1721.56	30.75	1722.13
23-Feb-90	28.00	1721.60	30.90	1721.39	26.95	1722.30	20.05	1722.98	27.50	1722.63	21.85	1723.70	30.00	1722.92	27.50	1723.09	28.35	1721.41	30.95	1721.93
11-Jul-90	28.60	1721.00	30.90	1721.39	26.95	1722.30	20.05	1722.98	27.50	1722.63	21.85	1723.70	30.00	1722.92	27.50	1723.09	28.35	1721.41	30.95	1721.93
11-Aug-90	28.95	1720.65	31.05	1721.24	27.10	1722.15	20.75	1722.28	28.25	1721.88	22.70	1722.85	30.50	1722.42	28.10	1722.49	29.10	1720.66	32.48	1720.46
02-Sep-90	29.40	1720.20	31.30	1720.99	27.40	1721.85	21.00	1722.01	28.60	1721.53	23.00	1722.55	30.75	1722.17	28.30	1722.29	29.45	1720.31	32.98	1719.98
15-Feb-91	29.90	1719.70	31.30	1720.99	27.40	1721.85	21.00	1722.01	28.60	1721.53	23.00	1722.55	30.75	1722.17	28.30	1722.29	29.50	1720.26	33.10	1719.78
28-Jun-91	30.40	1719.20	31.30	1720.99	28.20	1721.05	21.75	1721.26	28.50	1720.83	23.65	1721.90	30.60	1722.12	28.40	1722.19	29.85	1719.91	33.30	1719.58

LEPP-ROGEE CHEMICAL CORPORATION  
 HENDERSON, NEVADA FACILITY  
 GROUNDWATER ELEVATIONS

YOC	H-66 1752.33 DTW	H-67 1744.96 DTW	H-68 1747.44 DTW	H-69 1748.77 DTW	H-70 1746.96 DTW	H-71 1745.88 DTW	H-72 1745.49 DTW	H-73 1740.05 DTW	H-74 1743.42 DTW	H-78 1751.01 DTW				
20-Jan-88	22.69	1729.64	16.12	1731.92	23.61	1724.93	23.61	1724.93	17.22	1728.27	15.40	1728.82	24.94	1726.07
05-Feb-88	22.97	1729.36	16.53	1730.91	23.84	1724.93	23.84	1724.93	17.46	1728.03	15.63	1727.79	25.24	1725.77
01-Mar-88	23.54	1728.79	16.96	1730.48	24.31	1724.46	24.31	1724.46	17.77	1727.72	16.00	1727.42	25.66	1725.33
19-Apr-88	23.92	1728.41	17.50	1729.94	24.82	1723.95	24.82	1723.95	18.31	1727.18	16.58	1726.86	24.75	1726.26
18-May-88	24.33	1728.00	17.84	1729.60	25.07	1723.70	25.07	1723.70	18.73	1726.76	13.55	1726.50	26.23	1724.78
07-Jun-88	24.52	1727.81	16.44	1728.54	25.34	1723.43	25.34	1723.43	18.97	1726.52	17.05	1726.37	26.23	1724.78
14-Jul-88	25.05	1727.20	18.46	1728.98	24.54	1724.23	24.54	1724.23	19.49	1726.09	14.30	1725.75	26.90	1724.21
06-Aug-88	25.20	1727.13	17.29	1727.78	26.02	1722.75	26.02	1722.75	19.70	1725.79	17.71	1725.54	26.97	1724.04
03-Sep-88	25.35	1726.96	17.95	1729.49	25.90	1722.87	25.90	1722.87	19.70	1725.79	17.00	1725.75	27.10	1723.91
10-Oct-88	25.40	1726.93	17.10	1727.88	26.00	1722.77	26.00	1722.77	20.25	1725.24	14.85	1725.24	27.62	1723.39
28-Nov-88	25.70	1726.63	17.80	1727.16	26.25	1722.52	26.25	1722.52	20.10	1725.39	15.00	1725.05	23.20	1727.81
15-Dec-88	25.95	1726.30	18.75	1728.69	29.55	1719.22	29.55	1719.22	21.55	1723.94	14.60	1725.45	28.65	1722.36
19-Jan-89	26.10	1726.23	18.00	1728.44	26.00	1722.77	26.00	1722.77	20.00	1725.49	14.70	1725.35	29.05	1721.96
22-Feb-89	26.70	1725.63	16.45	1726.53	19.40	1728.04	26.50	1722.27	21.40	1724.09	16.30	1723.75	29.40	1721.61
23-Apr-89	26.90	1725.43	18.78	1726.20	19.85	1727.59	26.35	1720.42	21.70	1723.79	16.60	1723.45	29.40	1721.61
09-May-89	27.15	1725.18	18.80	1726.16	20.00	1727.44	27.40	1721.37	21.80	1723.69	16.80	1723.25	29.50	1721.51
11-Jun-89	27.35	1724.98	19.10	1725.86	20.15	1727.29	27.70	1721.02	22.20	1723.29	17.10	1722.95	29.40	1721.61
03-Jul-89	27.55	1724.78	19.35	1725.63	20.60	1726.84	27.95	1720.82	22.55	1722.94	17.50	1722.55	29.50	1721.51
16-Aug-89	27.70	1724.63	19.45	1725.53	20.70	1726.74	28.20	1720.57	22.65	1722.84	17.60	1722.45	30.05	1720.96
12-Sep-89	27.75	1724.58	19.45	1725.53	20.30	1727.14	28.00	1720.77	22.85	1722.84	17.70	1722.35	30.10	1720.91
25-Oct-89	PLUGGED		19.55	1725.43	20.65	1726.59	28.65	1720.12	23.05	1722.44	17.90	1722.15	29.80	1721.21
17-Nov-89	PLUGGED		19.40	1725.58	20.85	1726.59	28.00	1720.06	23.05	1722.44	17.85	1722.20	29.40	1721.61
07-Dec-89	27.60	1724.73	19.65	1725.33	21.00	1726.44	28.95	1719.82	23.15	1722.34	18.05	1722.00	29.00	1722.01
12-Jan-90	27.75	1724.58	20.00	1724.96	21.20	1726.24	29.10	1719.67	23.30	1722.19	18.30	1721.75	29.00	1721.01
23-Feb-90	27.80	1724.53	19.75	1725.23	20.70	1726.74	29.30	1719.47	23.50	1721.98	18.35	1721.70	29.40	1720.91
11-Jul-90	28.40	1723.93	20.40	1724.58	21.70	1725.74	30.15	1718.82	24.15	1721.34	18.90	1721.15	31.40	1719.61
11-Aug-90	28.50	1723.83	20.55	1724.43	20.25	1718.52	27.30	1718.58	24.70	1720.79	19.10	1720.95	31.60	1719.41
02-Nov-90	28.60	1723.53	20.70	1724.28	20.75	1718.02	28.30	1718.66	25.40	1720.09	19.40	1720.65	32.40	1718.56
15-Feb-91	29.10	1723.23	21.20	1723.78	31.65	1717.72	29.00	1717.96	25.40	1720.09	19.90	1720.15	32.90	1718.11
28-Jun-91	29.55	1722.78	21.45	1723.53	31.35	1717.42	29.60	1717.36	25.75	1719.74	20.20	1719.85	33.30	1717.71

**KERR-MCGEE CHEMICAL CORPORATION  
HENDERSON, NEVADA FACILITY  
GROUNDWATER ELEVATIONS**

TOC-->	M-79		M-80		M-81		M-82		M-83		M-84		M-85		M-86		M-87		M-88	
	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.	DYW	ELEV.
120-Jan-88	17.54	1725.39	20.00	1724.93	15.13	1728.60	15.74	1723.64	16.52	1724.31	14.42	1725.21	15.14	1726.05	15.71	1727.02	16.19	1726.17	13.02	1724.97
105-Feb-88	17.86	1725.05	21.23	1724.50	15.18	1728.55	15.98	1723.40	16.64	1724.19	14.82	1724.81	15.38	1725.83	15.96	1726.77	16.15	1726.12	13.19	1724.60
01-Mar-88	18.37	1724.56	19.72	1726.01	15.46	1728.27	16.37	1723.01	17.05	1723.78	15.00	1724.63	15.63	1725.56	16.00	1726.73	16.32	1725.95	13.41	1724.58
19-Apr-88	18.87	1724.06	20.41	1725.32	16.06	1727.65	16.85	1722.53	17.54	1723.29	15.56	1724.97	16.23	1724.96	16.62	1726.11	16.97	1725.49	13.93	1724.06
10-May-88	19.47	1723.46	21.05	1724.66	16.80	1726.93	17.28	1722.10	18.00	1722.63	16.00	1723.63	16.00	1724.39	16.23	1726.50	17.31	1724.96	14.41	1723.50
07-Jun-88	19.70	1723.23	21.20	1724.53	17.11	1726.62	17.47	1721.91	18.24	1722.59	16.32	1723.31	17.11	1724.00	17.50	1725.23	17.63	1724.64	14.57	1723.42
14-Jul-88	20.00	1722.93	21.50	1724.23	17.55	1726.18	17.67	1721.71	18.45	1722.38	16.62	1723.01	17.42	1723.77	17.93	1724.12	18.15	1724.12	14.97	1723.02
06-Aug-88	20.42	1722.51	21.53	1724.20	17.40	1726.33	17.50	1721.86	17.87	1722.96	15.60	1723.83	16.90	1724.29	17.74	1724.99	17.80	1724.47	14.56	1723.43
03-Sep-88	20.10	1722.63	21.02	1724.71	17.40	1726.33	18.07	1721.31	19.00	1721.63	17.03	1722.60	17.80	1723.39	18.21	1724.52	18.20	1724.07	15.06	1722.91
10-Oct-88	20.50	1722.43	22.50	1723.23	18.15	1725.58	18.30	1721.08	19.20	1721.63	17.30	1722.33	18.30	1722.89	18.90	1723.83	18.60	1723.67	15.60	1722.39
26-Nov-88	20.75	1722.18	23.10	1717.83	17.75	1725.96	18.50	1720.66	19.30	1721.53	17.95	1721.66	18.35	1722.64	18.10	1724.63	18.25	1724.02	15.75	1722.24
15-Dec-88	22.45	1720.48	23.60	1722.13	18.25	1725.46	23.40	1715.96	24.10	1716.73	23.00	1715.83	19.05	1722.14	18.55	1724.16	18.85	1723.42	15.60	1722.39
19-Jan-89	20.15	1722.76	23.90	1722.23	18.80	1724.93	17.90	1721.46	19.65	1720.98	18.30	1721.33	19.10	1722.09	16.30	1726.43	19.35	1722.92	15.30	1722.69
23-Feb-89	21.25	1721.66	23.03	1721.90	19.90	1723.03	18.70	1720.66	20.25	1720.56	18.77	1720.86	19.60	1721.59	20.15	1722.58	24.35	1717.92	16.70	1721.29
23-Mar-89	21.20	1721.73	23.85	1721.88	20.00	1723.73	18.65	1720.53	20.30	1720.53	18.75	1720.86	19.55	1721.64	21.50	1721.23	20.60	1721.67	17.00	1720.99
09-Apr-89	21.85	1721.06	24.00	1721.73	20.35	1723.38	19.30	1720.08	20.45	1720.36	18.90	1720.73	19.75	1721.44	20.40	1722.13	20.70	1721.97	17.25	1720.74
01-Jan-89	22.00	1720.93	23.85	1721.86	20.50	1723.23	19.40	1719.98	20.40	1720.43	18.75	1720.86	19.65	1721.54	20.50	1722.23	21.20	1721.97	17.55	1720.44
16-Aug-89	22.58	1720.43	24.50	1721.23	21.00	1722.73	19.65	1719.53	20.75	1720.06	19.30	1720.33	20.15	1721.04	21.00	1721.73	21.70	1720.57	16.10	1719.89
12-Sep-89	22.85	1720.06	24.70	1721.03	21.40	1722.03	20.15	1719.23	21.00	1719.83	19.55	1720.86	20.50	1720.69	21.50	1721.23	21.95	1720.32	18.20	1719.79
25-Oct-89	23.00	1719.93	25.10	1720.63	21.70	1722.03	20.35	1719.03	21.40	1719.43	19.00	1719.83	20.75	1720.44	21.65	1721.06	22.35	1719.92	16.46	1719.59
17-Nov-89	23.00	1719.93	24.50	1721.23	22.00	1721.73	20.00	1718.36	21.90	1718.93	20.00	1719.63	20.50	1720.69	22.00	1720.73	22.30	1719.97	18.50	1719.49
07-Dec-89	23.15	1719.76	25.15	1720.58	21.75	1721.98	20.50	1718.66	21.55	1719.26	19.90	1719.73	20.70	1720.49	21.75	1720.98	22.45	1719.82	18.60	1719.39
12-Jan-90	23.35	1719.58	25.25	1720.48	22.00	1721.73	20.70	1718.66	21.65	1719.16	20.05	1719.58	20.65	1720.34	22.00	1720.73	22.65	1719.62	18.85	1719.14
23-Feb-90	23.15	1719.76	25.30	1720.43	22.10	1721.63	20.80	1718.56	21.65	1719.16	20.05	1719.58	21.00	1720.19	22.10	1720.63	22.75	1719.52	18.95	1719.04
11-Jul-90	24.80	1718.13	26.15	1719.56	23.10	1720.43	22.00	1717.36	22.80	1718.03	21.10	1718.53	22.10	1719.09	22.90	1719.63	23.40	1718.67	19.00	1718.39
11-Aug-90	24.60	1718.39	26.45	1719.26	22.95	1720.78	22.00	1717.36	22.85	1717.98	21.35	1718.28	22.20	1719.93	22.80	1719.93	23.60	1718.67	19.75	1718.24
02-Nov-90	24.90	1718.63	27.70	1718.83	24.35	1719.36	22.30	1717.08	23.40	1717.43	23.35	1717.28	23.85	1718.28	24.00	1718.73	24.10	1718.17	20.95	1717.94
15-Feb-91	26.00	1716.93	28.45	1717.28	25.25	1718.46	23.35	1716.03	24.45	1716.38	23.35	1716.28	24.75	1716.44	25.00	1717.73	24.85	1717.42	21.00	1716.99
20-Jun-91	26.15	1716.76	29.20	1716.53	26.00	1717.73	23.50	1715.66	25.15	1715.66	24.00	1715.63	25.50	1715.69	25.70	1717.03	25.25	1717.02	21.40	1716.59

**KIPP-MCGEE CHEMICAL CORPORATION  
HELDRESON, NEVADA FACILITY  
GROUNDWATER ELEVATIONS**

TOC----	I-A		I-B		I-C		I-D		I-E		I-F	
	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.	DTW	ELEV.
20-Jan-88	25.63	1724.43	25.66	1724.83	26.06	1724.38	28.29	1722.25	45.76	1704.46	23.81	1723.77
05-Feb-88	25.42	1725.84	25.40	1725.29	26.46	1723.98	28.72	1721.82	46.20	1704.02	23.99	1723.59
01-Mar-88	27.70	1723.36	27.38	1723.31	26.99	1723.45	29.16	1721.38	45.66	1704.54	24.55	1723.83
18-Apr-88	28.42	1722.64	27.89	1722.86	27.75	1722.69	29.78	1720.75	29.69	1720.53	25.21	1722.37
10-May-88	28.83	1722.23	28.87	1722.82	26.83	1724.41	30.06	1720.46	32.22	1718.00	25.74	1721.84
07-Jun-88	29.12	1721.84	28.30	1722.39	26.25	1724.19	30.43	1720.11	32.76	1717.46	25.87	1721.71
14-Jul-88	29.68	1721.37	27.92	1723.87	26.37	1724.87	33.12	1717.42	34.60	1715.62	26.50	1721.08
06-Aug-88	29.80	1721.26	28.94	1721.75	26.49	1723.95	32.06	1718.48	33.10	1717.12	26.60	1720.98
03-Sep-88	31.10	1719.96	28.90	1721.79	26.60	1723.84	35.10	1715.44	32.70	1717.52	26.75	1720.83
10-Oct-88	26.75	1724.31	27.60	1723.89	26.80	1723.64	27.35	1723.19	29.00	1721.22	25.80	1720.78
26-Nov-88	25.60	1725.46	29.40	1721.29	36.20	1714.74	32.20	1718.34	38.10	1712.12	27.80	1719.78
15-Dec-88	30.00	1721.86	29.65	1721.84	37.75	1712.69	45.40	1705.14	41.50	1708.72	33.65	1713.93
19-Jan-89	28.10	1722.96	27.70	1722.99	42.90	1707.54	39.55	1710.99	48.65	1709.57	28.20	1719.38
23-Feb-89	28.20	1722.86	28.00	1722.69	44.10	1706.34	44.55	1705.99	45.70	1704.57	31.00	1716.58
23-Mar-89	31.00	1720.06	30.60	1720.89	41.00	1709.44	32.20	1718.34	30.80	1719.42	29.10	1718.48
23-Apr-89	30.70	1720.36	29.00	1721.69	28.90	1721.54	40.00	1710.54	35.70	1714.52	29.90	1717.88
09-May-89	38.78	1712.36	28.60	1721.84	28.60	1721.84	37.20	1713.34	39.10	1711.12	29.00	1718.58
01-Jun-89	29.25	1721.81	29.00	1721.44	29.00	1721.44	39.40	1711.14	40.35	1709.87	29.00	1718.58
03-Jul-89	29.30	1721.76	29.10	1721.34	29.10	1721.34	40.30	1710.24	42.90	1707.32	29.10	1718.40
16-Aug-89	30.30	1720.76	28.60	1721.84	28.60	1721.84	44.10	1706.44	33.55	1716.67	30.60	1716.88
12-Sep-89	30.70	1720.36	29.00	1721.44	29.00	1721.44	44.20	1706.34	34.00	1716.22	30.85	1716.73
25-Oct-89	31.25	1719.81	42.00	1708.69	43.85	1706.59	44.20	1706.34	36.25	1713.97	28.75	1718.83
17-Nov-89	32.80	1719.86	41.00	1709.69	42.00	1708.44	31.95	1718.59	37.80	1713.22	28.00	1718.58
07-Dec-89	42.00	1709.86	46.00	1702.69	50.00	1700.44	31.60	1718.94	39.00	1711.22	28.00	1718.78
12-Jan-90	44.00	1707.06	36.00	1714.69	36.20	1714.24	31.60	1718.84	45.50	1704.72	28.45	1719.13
23-Feb-90	44.00	1707.86	46.00	1702.69	44.00	1708.44	36.85	1713.69	34.95	1715.27	28.85	1718.73
11-Mar-90	45.00	1705.86	47.00	1702.69	37.20	1713.24	34.20	1716.34	40.00	1710.22	29.00	1718.58
11-Apr-90	44.15	1706.91	48.00	1702.69	44.05	1706.39	44.15	1706.39	45.30	1704.92	44.60	1702.98
02-May-90	43.05	1708.01	46.00	1710.69	35.90	1714.54	44.15	1706.39	45.85	1704.37	45.10	1702.48
15-Jun-91	41.18	1708.96	42.05	1708.64	44.00	1706.44	44.15	1706.39	45.25	1704.97	44.50	1703.08
28-Jul-91	41.88	1718.06	42.10	1708.59	44.10	1706.34	44.15	1706.39	38.00	1712.22	42.80	1704.78

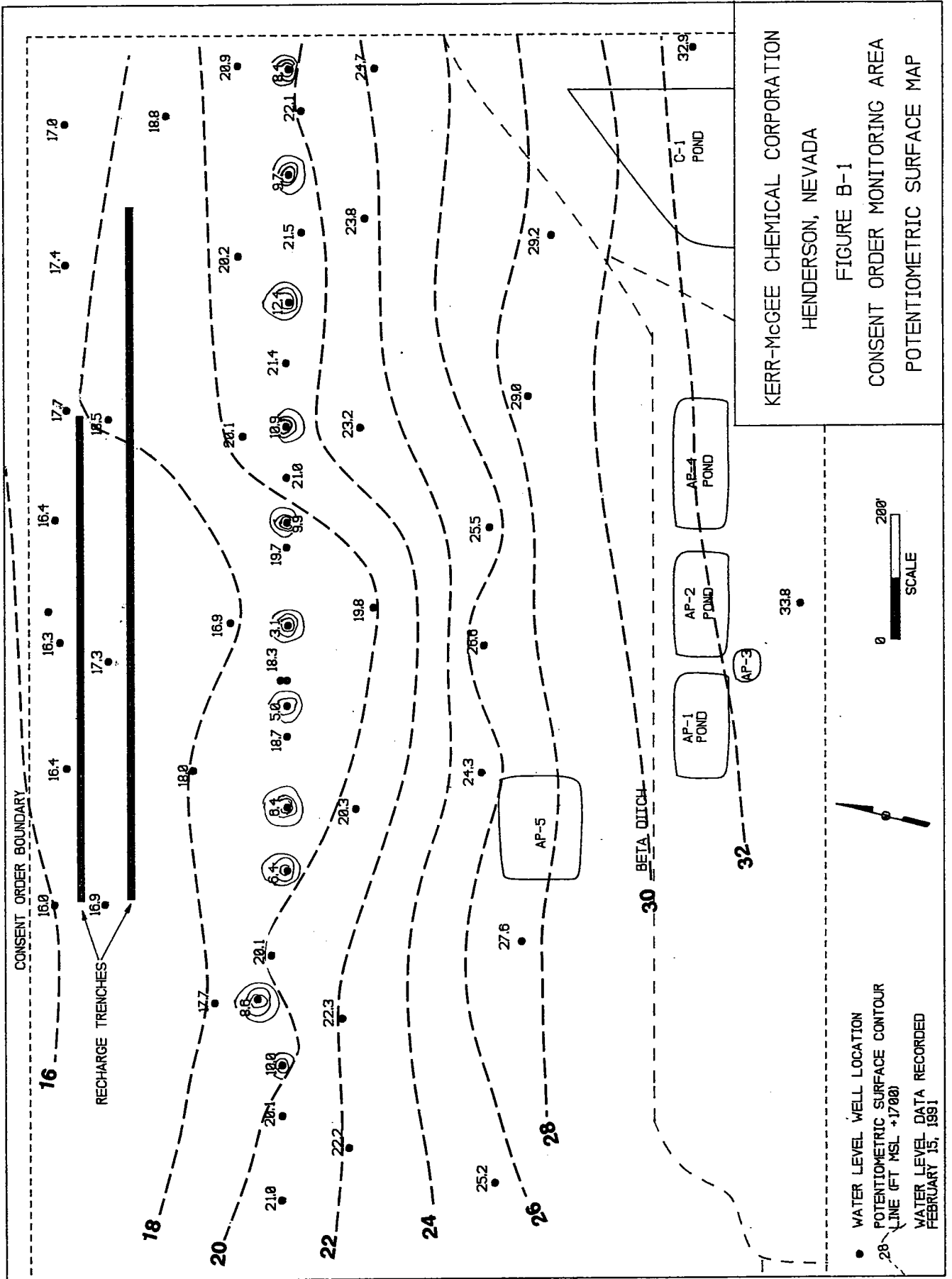
KERR-MCGEE CHEMICAL CORPORATION  
 RENDERSON, NEVADA FACILITY  
 GROUNDWATER ELEVATIONS

TOC-->	I-6		I-H		I-I		I-J		I-K	
	DWN	ELEV.	DWN	ELEV.	DWN	ELEV.	DWN	ELEV.	DWN	ELEV.
120-Jan-88	25.62	1724.80	30.87	1721.00	16.65	1724.71	22.62	1725.33	21.48	1722.49
103-Feb-88	26.06	1724.36	33.08	1717.99	18.87	1724.49	22.90	1725.05	22.75	1721.22
101-Mar-88	26.59	1723.83	33.20	1717.87	19.30	1724.06	23.39	1724.36	24.02	1719.95
119-Apr-88	27.83	1722.59	28.54	1722.53	20.02	1723.34	23.50	1724.45	22.17	1721.80
118-May-88	29.13	1721.29	30.12	1720.95	20.30	1723.06	23.62	1724.33	22.79	1721.18
107-Jun-88	37.40	1713.02	30.85	1720.22	19.80	1723.56	23.87	1724.08	25.20	1718.77
114-Jul-88	37.50	1712.92	32.97	1718.10	21.40	1721.96			25.00	1718.97
106-Aug-88	38.01	1712.41	31.45	1719.62	21.48	1721.88	24.65	1723.30	27.40	1716.57
103-Sep-88	46.50	1709.92	38.80	1712.27	21.12	1722.24	23.54	1724.41	23.75	1720.22
110-Oct-88	30.30	1720.12	27.90	1723.17	20.25	1723.11	24.00	1723.95	24.25	1719.72
126-Nov-88	27.50	1722.92	26.70	1724.37	21.60	1721.76	25.60	1722.35	28.00	1715.97
113-Dec-88	40.65	1709.77	34.90	1716.17	21.68	1721.76	26.70	1721.25	22.35	1721.62
119-Jan-89	28.00	1722.42	29.65	1721.42	23.40	1717.96	26.00	1715.36	26.57	1721.38
120-Feb-89	28.00	1722.42	31.00	1720.07	28.00	1715.36	26.57	1721.38	25.35	1719.62
123-Mar-89	29.00	1721.42	30.60	1720.47	24.80	1718.56	23.20	1722.75	27.00	1716.97
109-Apr-89	27.60	1722.82	22.00	1729.07	29.80	1713.56	24.00	1723.95	29.50	1714.47
101-May-89	27.90	1722.82	42.00	1709.87	28.40	1714.96	22.00	1725.95	30.50	1713.47
103-Jun-89	27.95	1722.47	28.80	1722.17	27.80	1715.56	26.00	1721.15	30.50	1713.47
103-Jul-89	29.70	1720.72	28.20	1721.87	31.00	1712.36	29.35	1718.60	34.00	1709.97
116-Aug-89	38.45	1719.37	29.00	1722.07	30.80	1713.36	27.35	1720.60	18.55	1725.42
125-Sep-89	30.25	1720.17	28.65	1722.42	26.80	1716.56	26.30	1721.65	31.10	1712.87
117-Oct-89	32.80	1717.62	31.85	1719.22	25.00	1718.36	24.20	1723.75	32.60	1711.37
107-Nov-89	37.00	1713.42	43.30	1707.77	28.10	1715.26	36.10	1711.85	34.40	1709.57
112-Dec-89	28.40	1722.02	42.60	1708.47	34.80	1709.36	39.00	1708.95	33.00	1710.97
123-Jan-90	35.00	1715.42	37.45	1715.62	32.10	1711.26	41.60	1706.35	32.20	1711.77
111-Feb-90	35.10	1715.32	44.50	1706.57	32.90	1710.46	36.20	1711.75	36.00	1707.97
111-Mar-90	35.65	1714.77	44.50	1706.57	33.10	1710.26	48.10	1699.85	37.00	1706.97
102-Apr-90	30.70	1719.72	33.45	1717.62	30.50	1712.86	48.00	1699.35	38.60	1705.37
115-May-90	40.50	1709.92	40.10	1718.97	31.00	1712.36	38.30	1709.65	35.60	1708.37
120-Jun-91	39.50	1710.92	44.55	1706.52	32.00	1711.36	42.10	1705.85	33.00	1710.97

***APPENDIX B***

***POTENTIOMETRIC SURFACE MAPS***

***INTERCEPTOR AREA CROSS-SECTIONS***

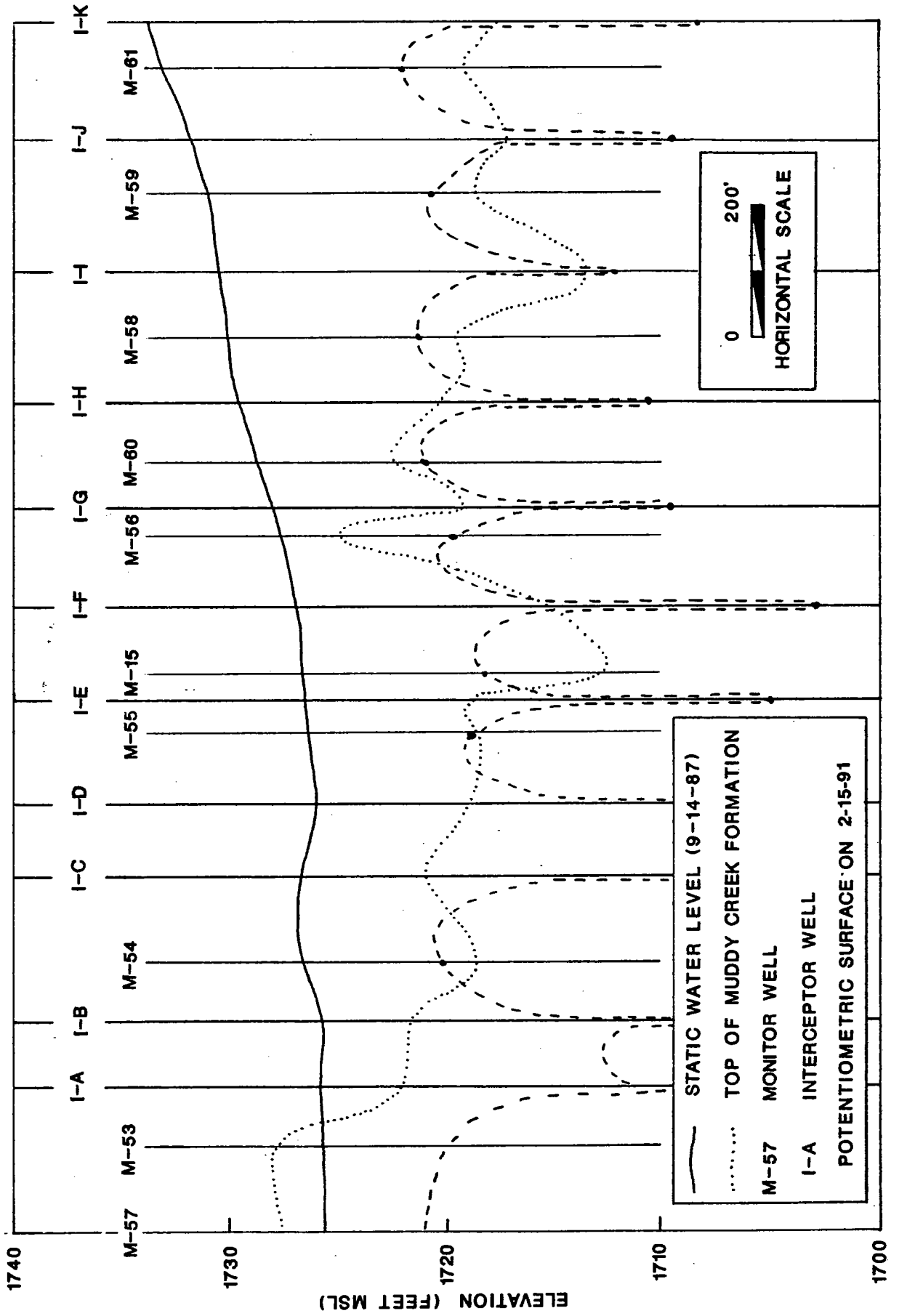


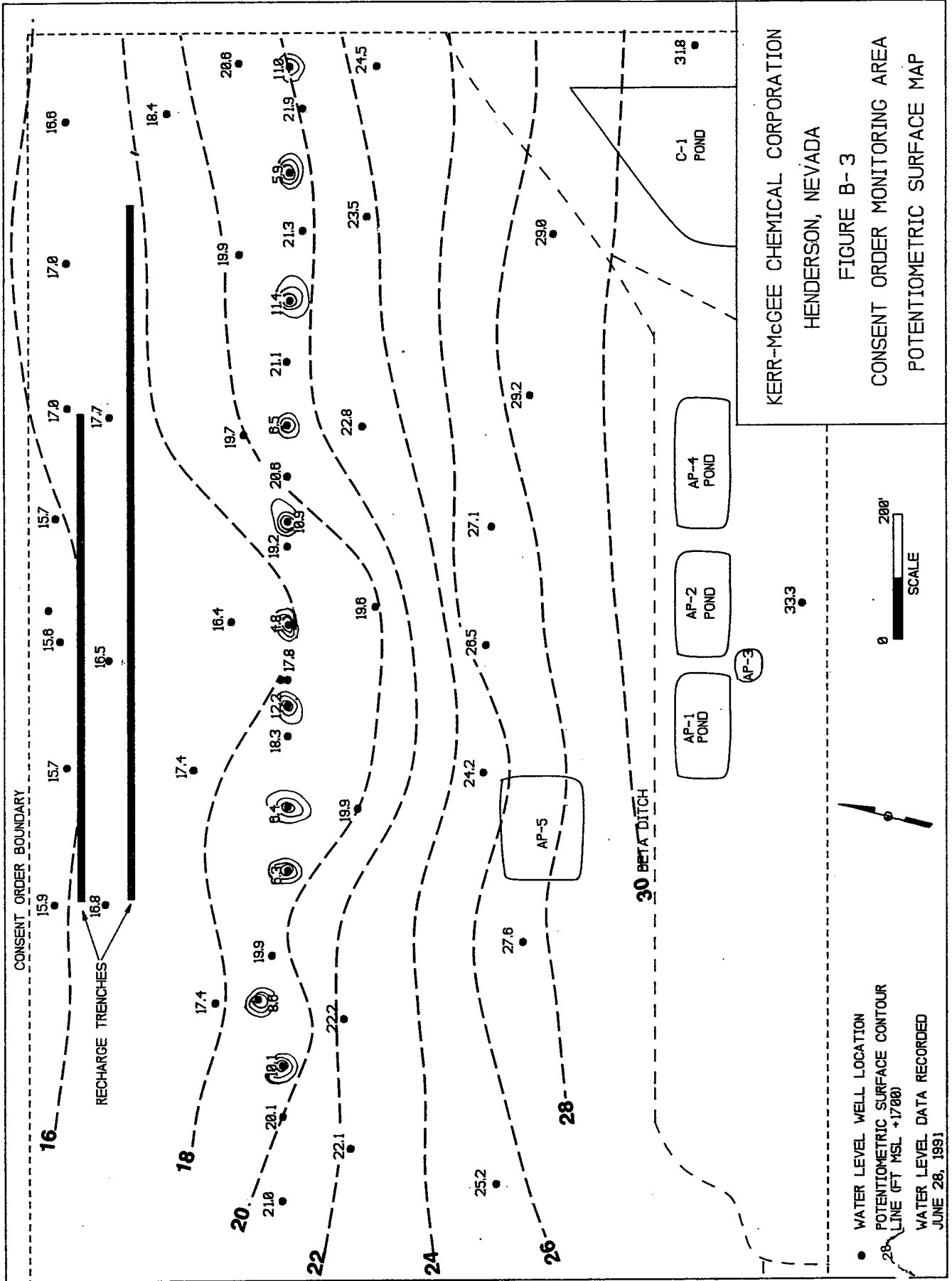
KERR-McGEE CHEMICAL CORPORATION  
 HENDERSON, NEVADA  
 FIGURE B-1  
 CONSENT ORDER MONITORING AREA  
 POTENTIOMETRIC SURFACE MAP

● WATER LEVEL WELL LOCATION  
 --- POTENTIOMETRIC SURFACE CONTOUR  
 --- RECHARGE TRENCH  
 --- CONSENT ORDER BOUNDARY  
 WATER LEVEL DATA RECORDED  
 FEBRUARY 15, 1991



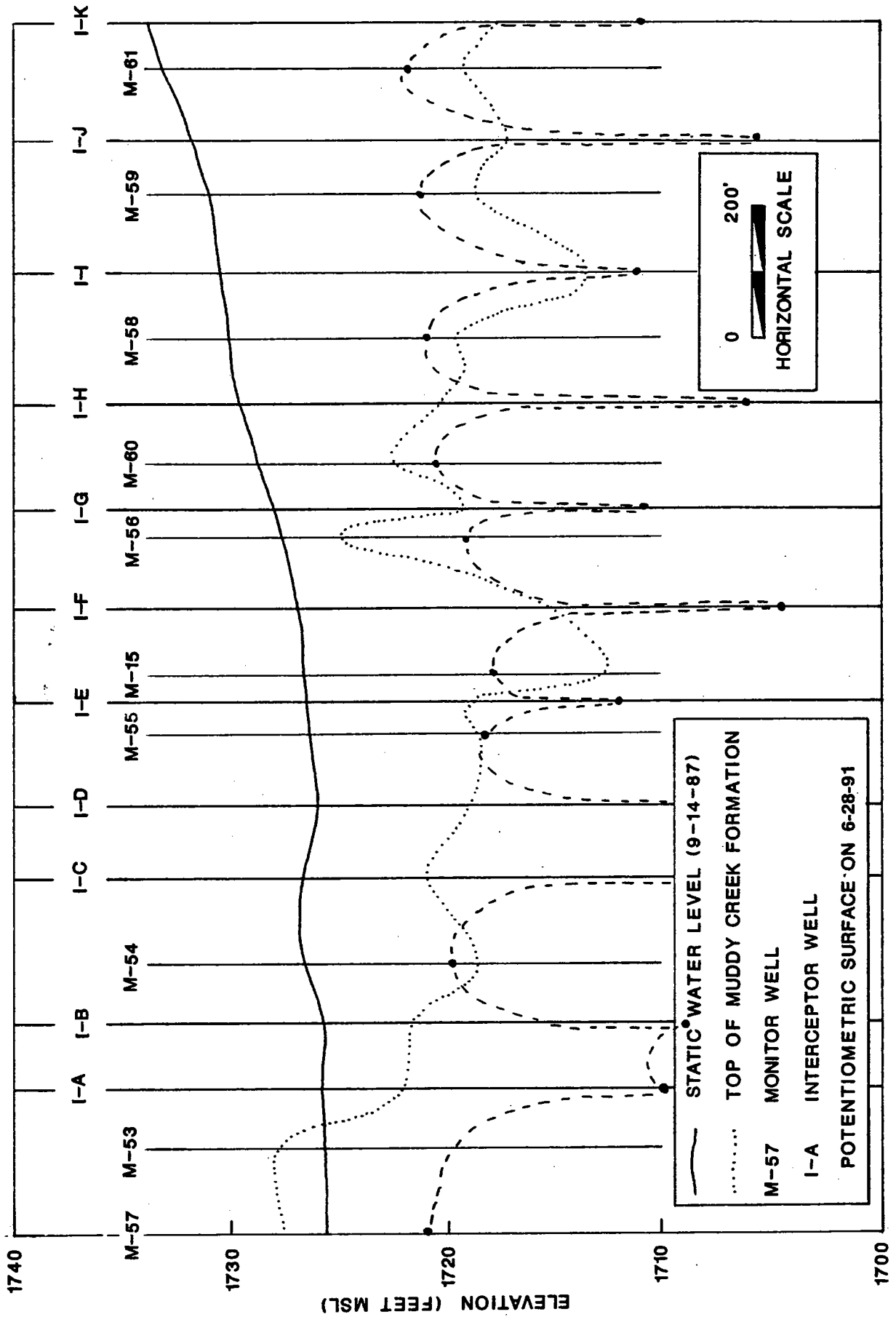
KERR-McGEE CHEMICAL CORPORATION - HENDERSON, NEVADA  
 GROUNDWATER INTERCEPTOR LINE CROSS-SECTION  
 FIGURE B-2





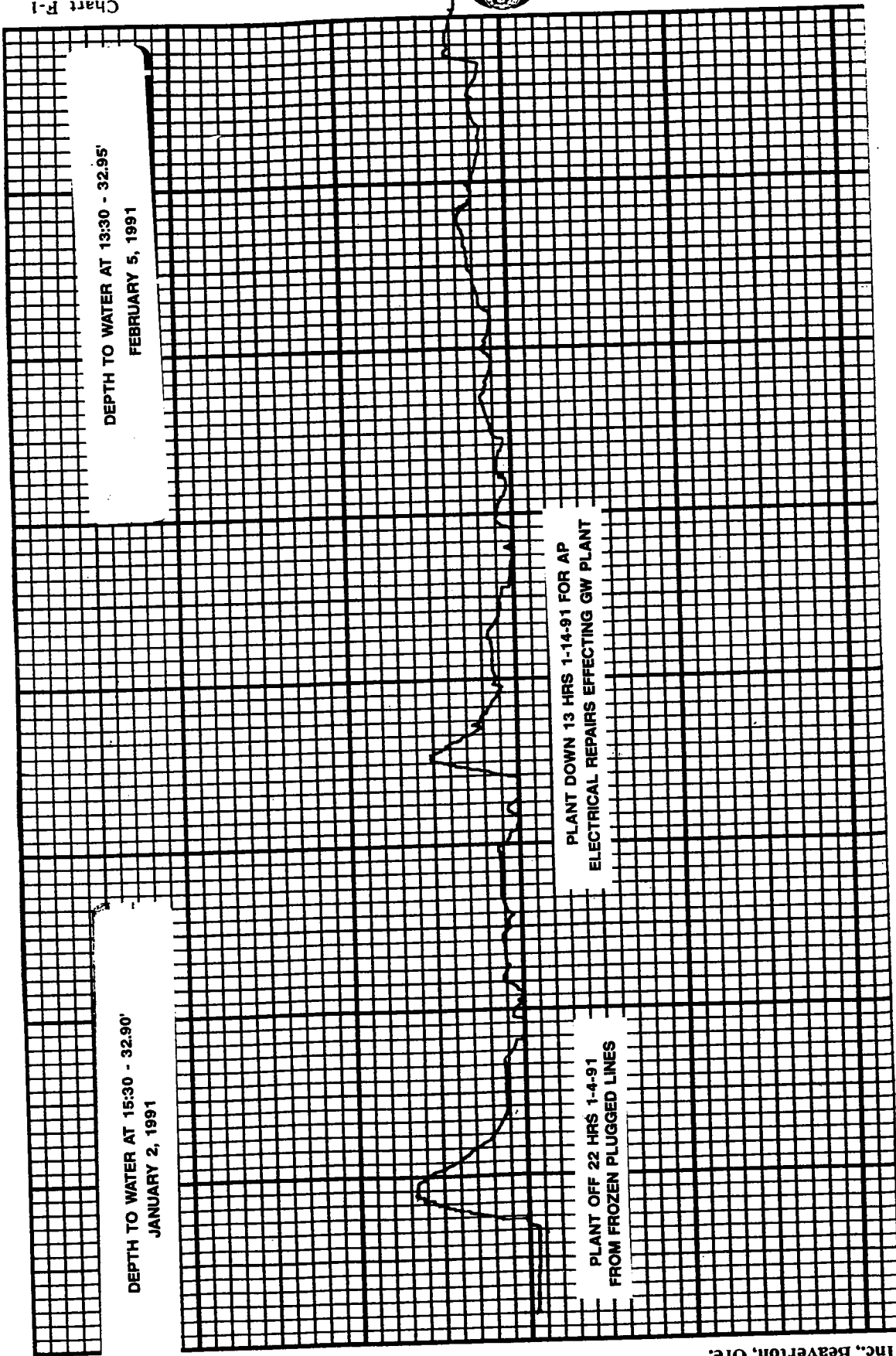
KERR-McGEE CHEMICAL CORPORATION  
 HENDERSON, NEVADA  
 FIGURE B-3  
 CONSENT ORDER MONITORING AREA  
 POTENTIOMETRIC SURFACE MAP

KERR-McGEE CHEMICAL CORPORATION - HENDERSON, NEVADA  
 GROUNDWATER INTERCEPTOR LINE CROSS-SECTION  
 FIGURE B-4



*APPENDIX C*

*CONTINUOUS WATER LEVEL RECORDER CHARTS*



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Inc., Beaverton, Ore.

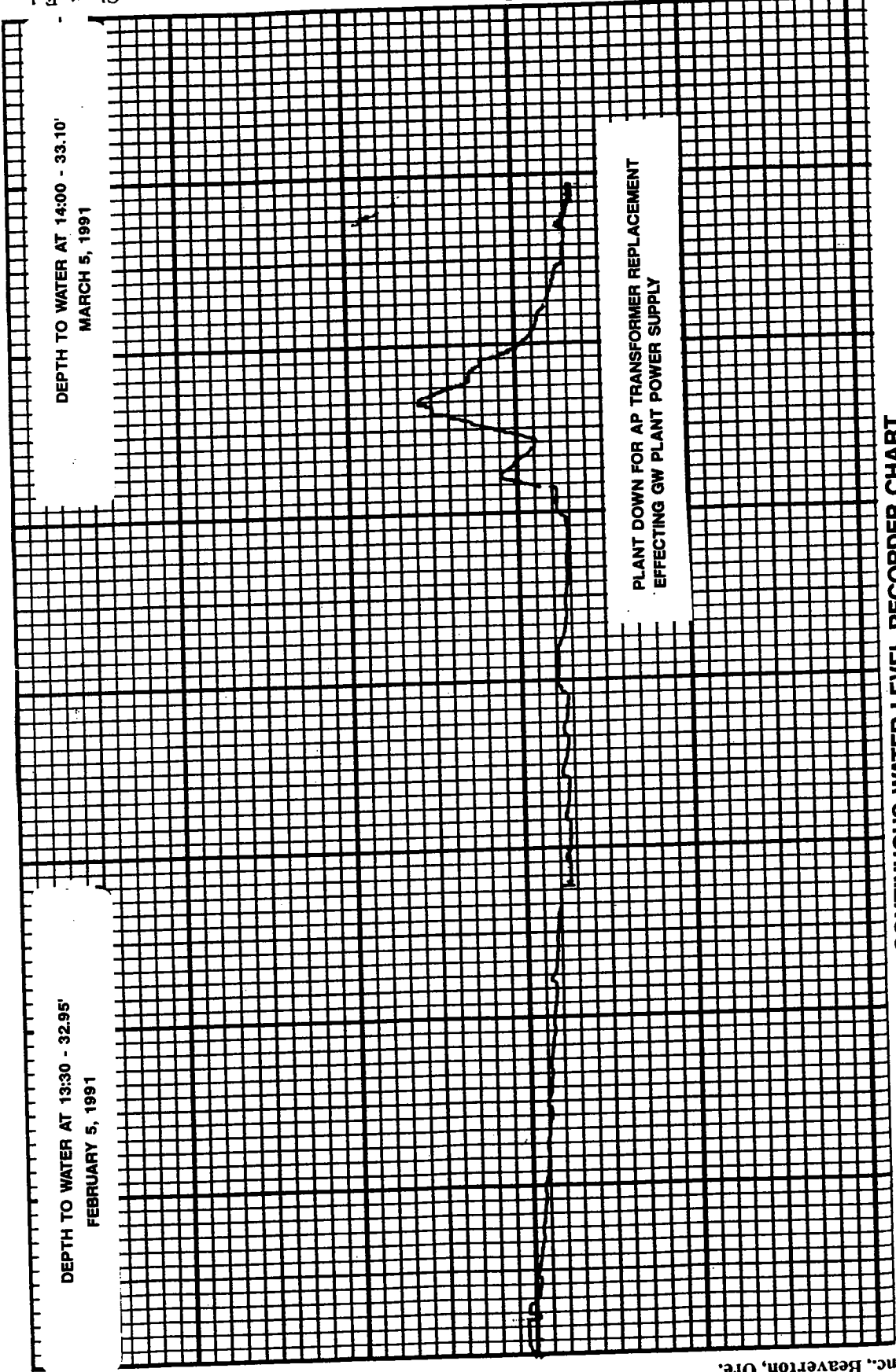
**CONTINUOUS WATER LEVEL RECORDER CHART**  
**WELL M-78**  
**1-2-91 TO 2-5-91**



DEPTH TO WATER AT 14:00 - 33.10'  
MARCH 5, 1991

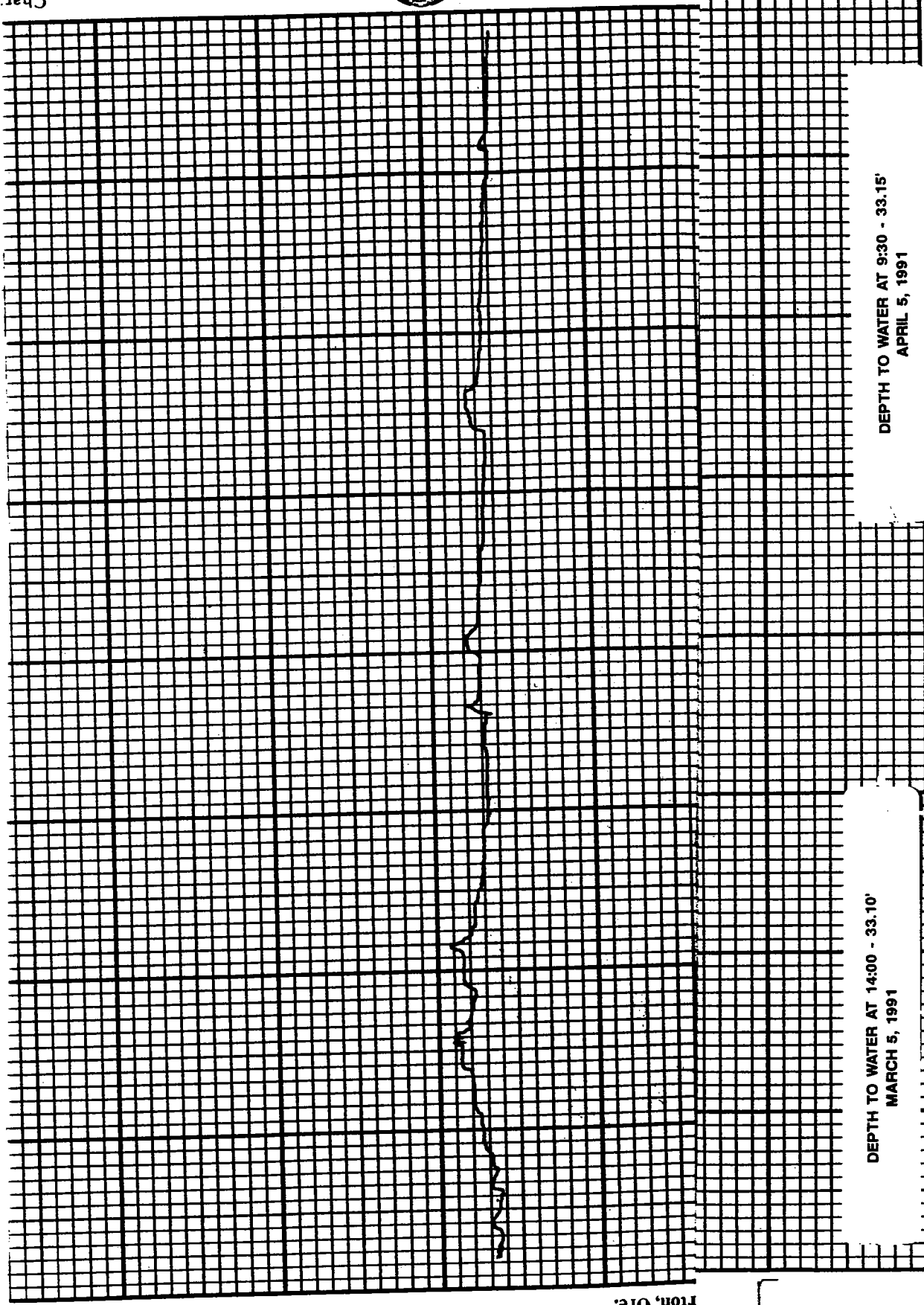
DEPTH TO WATER AT 13:30 - 32.95'  
FEBRUARY 5, 1991

PLANT DOWN FOR AP TRANSFORMER REPLACEMENT  
EFFECTING GW PLANT POWER SUPPLY



**CONTINUOUS WATER LEVEL RECORDER CHART**

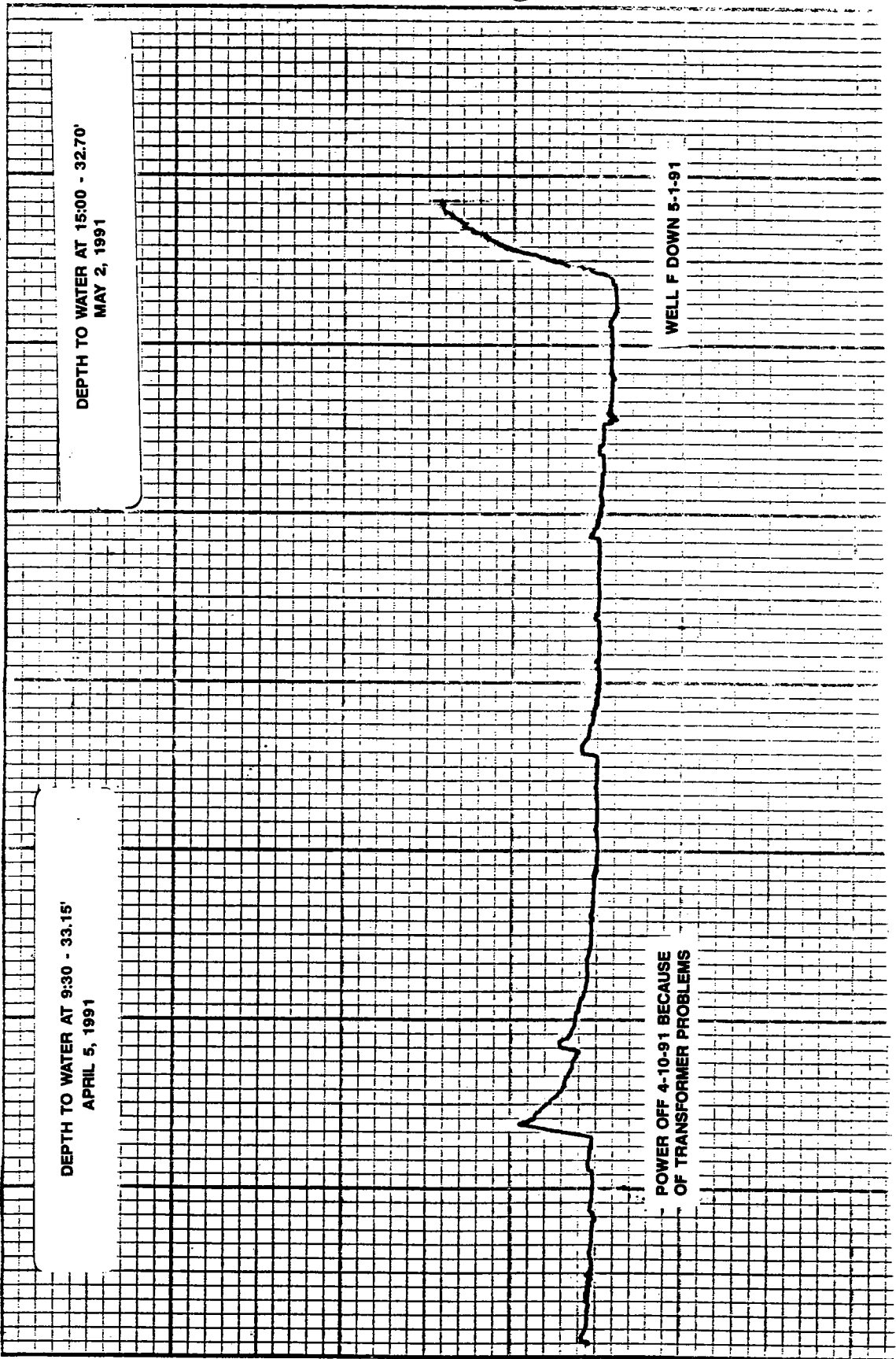
**WELL M-78  
2-5-91 TO 3-5-91**



DEPTH TO WATER AT 14:00 - 33.10'  
 MARCH 5, 1991

DEPTH TO WATER AT 9:30 - 33.15'  
 APRIL 5, 1991

**CONTINUOUS WATER LEVEL RECORDER CHART**  
**WELL M-78**  
**3-5-91 TO 4-5-91**



**CONTINUOUS WATER LEVEL RECORDER CHART**  
**WELL M-78**  
**4-5-91 TO 5-2-91**

33.15

**CONTINUOUS WATER LEVEL RECORDER CHART**  
**WELL M-78**  
**5-31-91 TO 6-28-91**

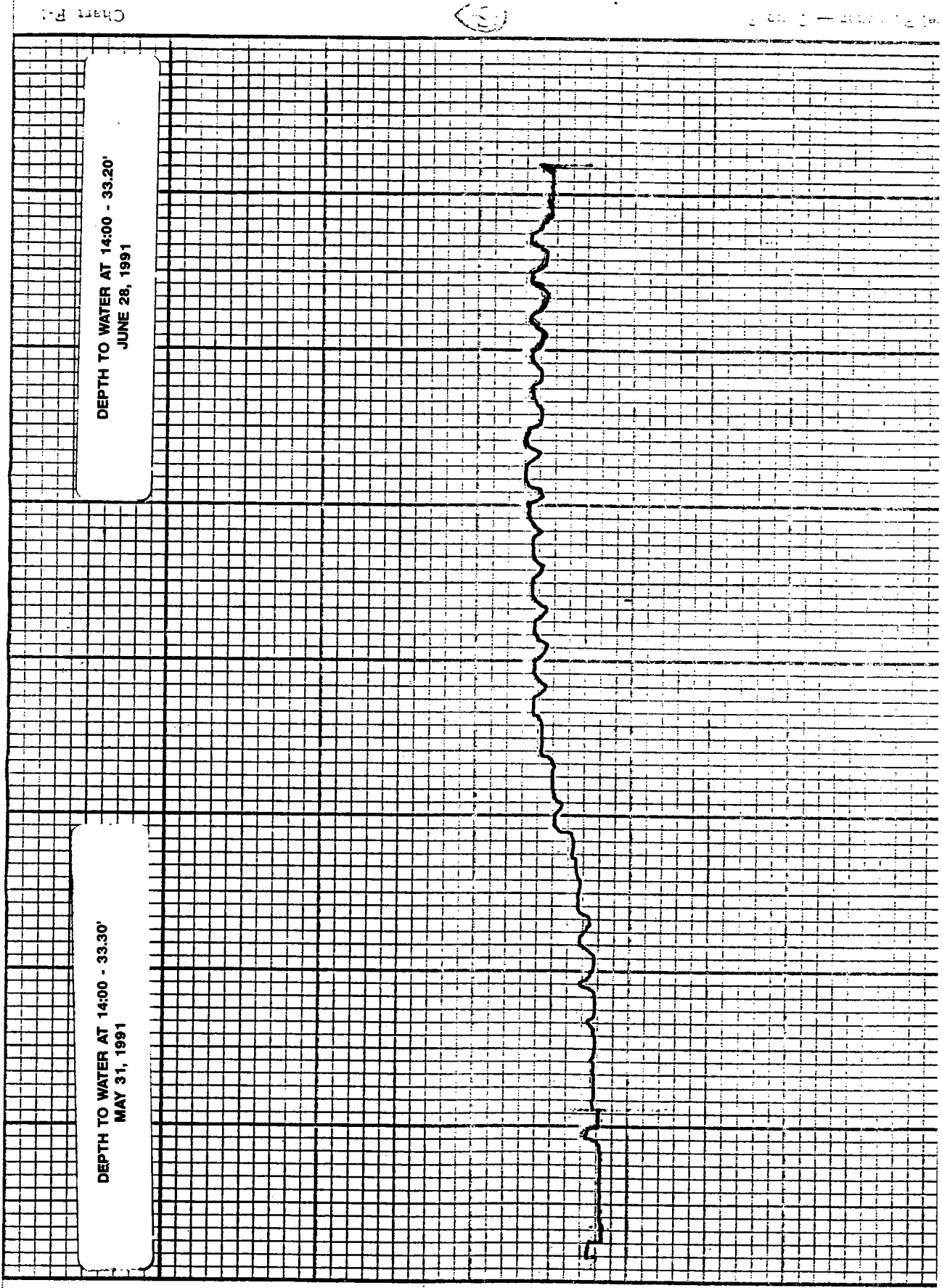
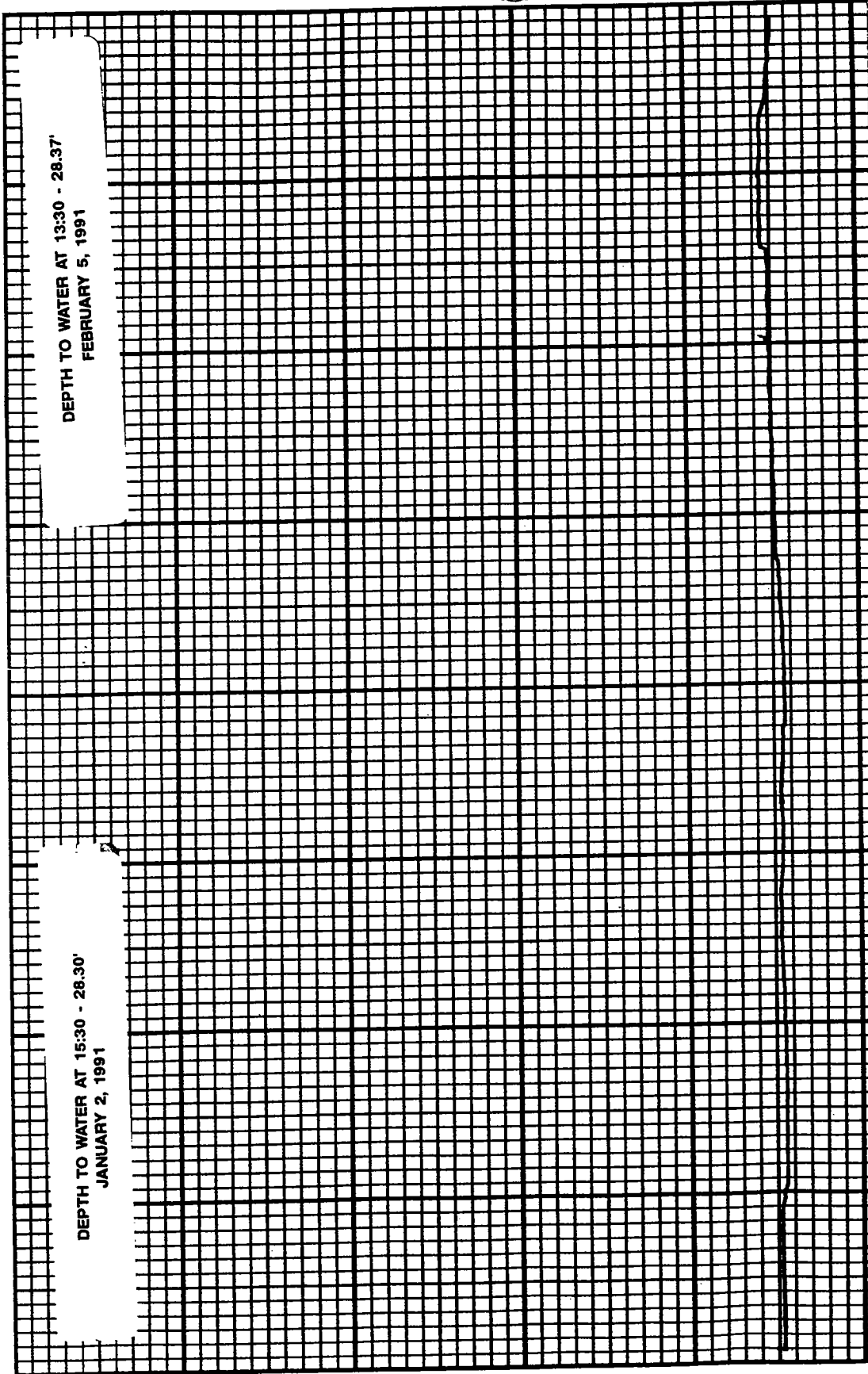


Chart M-78

Printed in U.S.A.

Gold & Stevens, Inc., Beaverton, Ore.



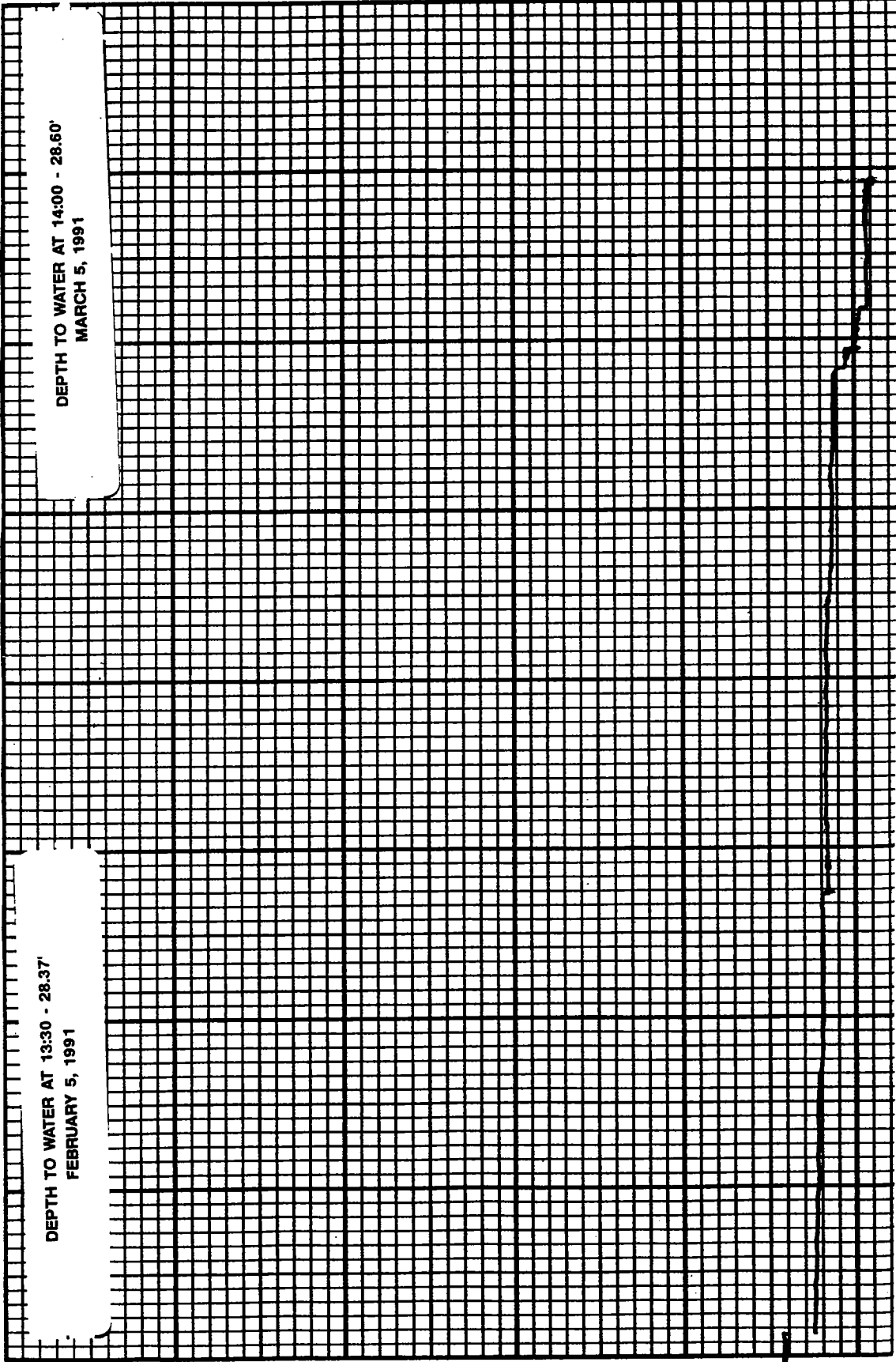
Printed in U.S.A.

Beaverton, Ore.

CONTINUOUS WATER LEVEL RECORDER CHART

WELL M-80

1-2-91 TO 2-5-91



**CONTINUOUS WATER LEVEL RECORDER CHART  
WELL M-80  
2-5-91 TO 3-5-91**

DEPTH TO WATER AT 14:00 - 28.60'  
MARCH 5, 1991

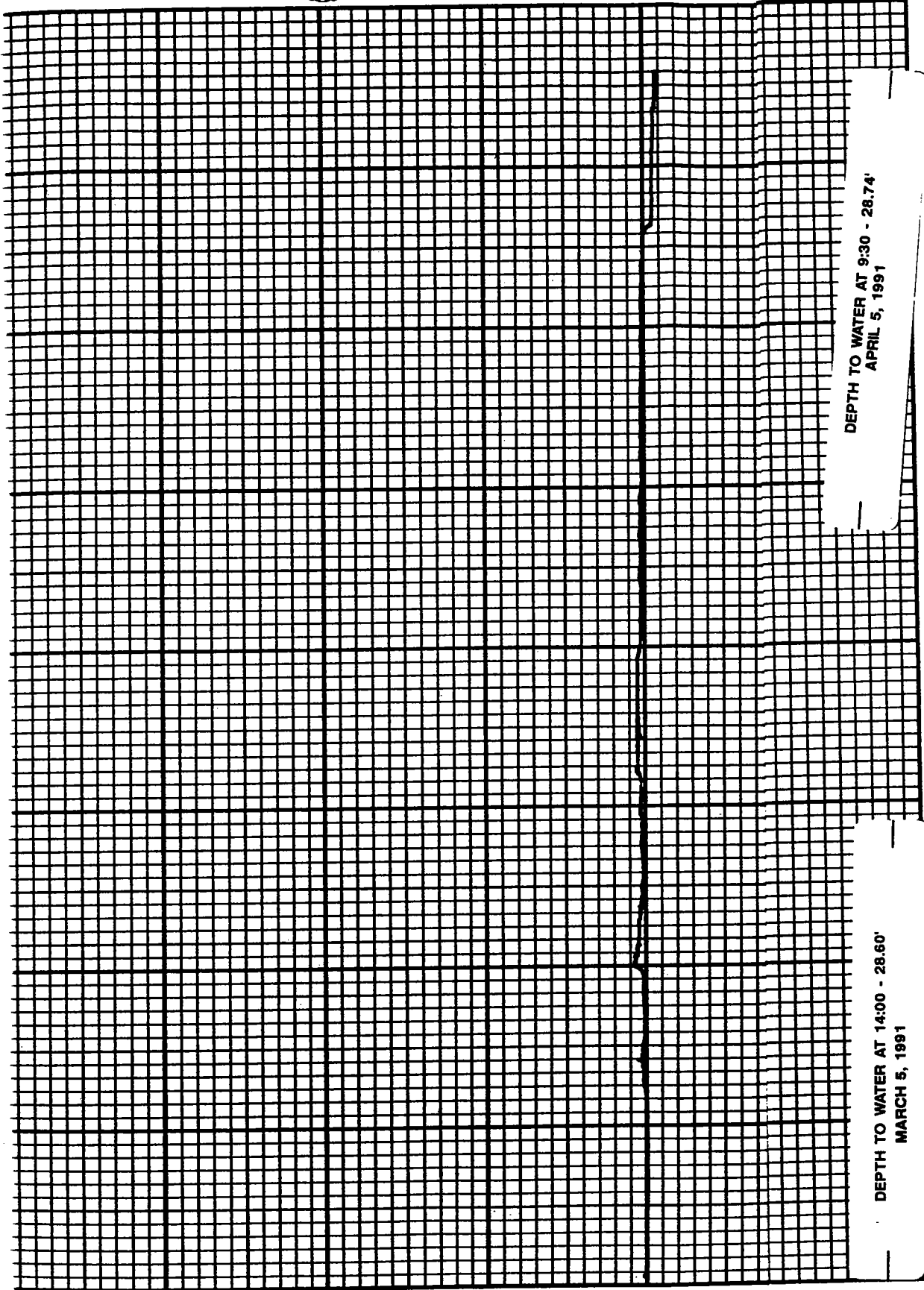
DEPTH TO WATER AT 9:30 - 28.74'  
APRIL 5, 1991

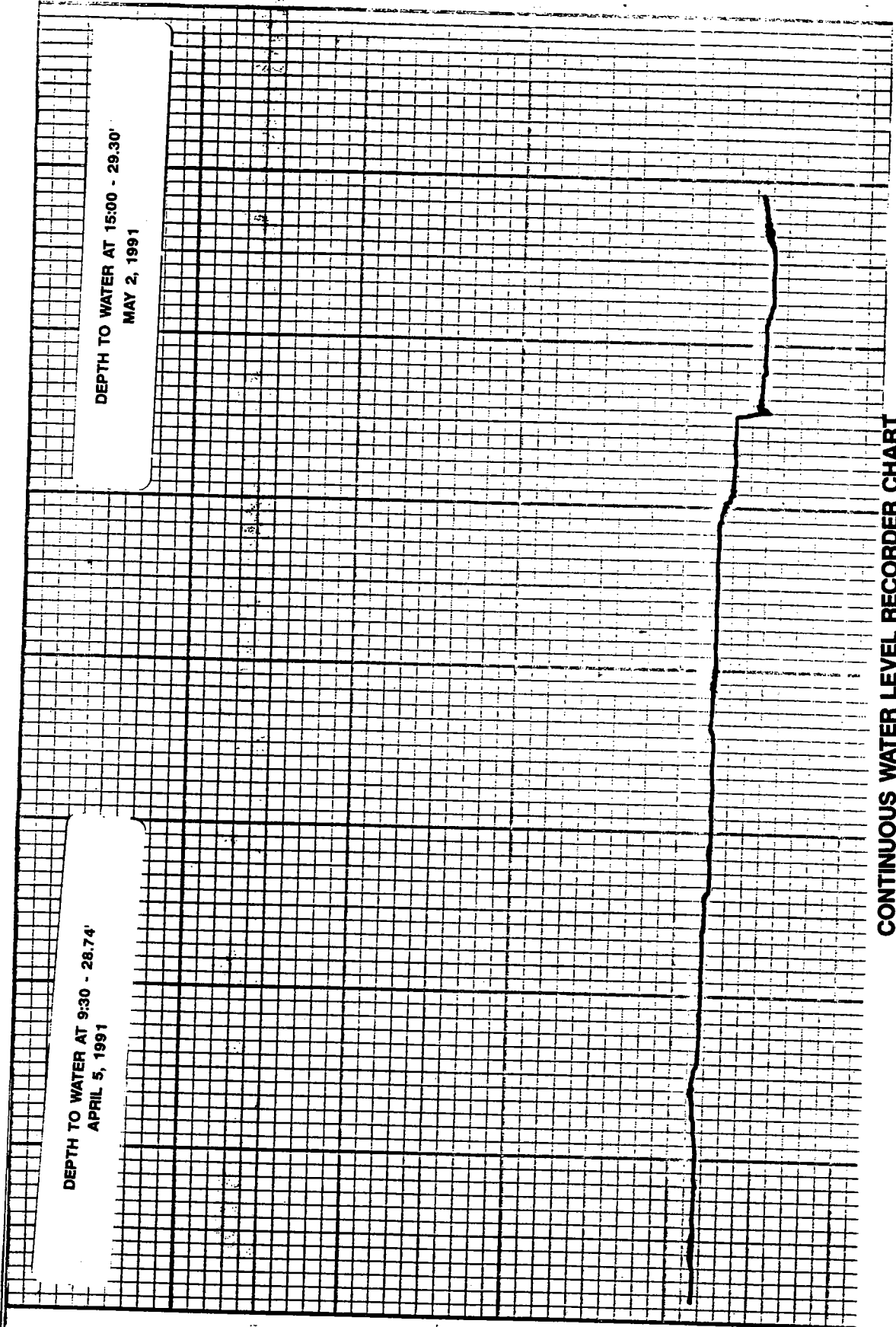
**CONTINUOUS WATER LEVEL RECORDER CHART**

**WELL M-80**

**3-5-91 TO 4-5-91**

Recorder - Type F





DEPTH TO WATER AT 9:30 - 28.74'  
APRIL 5, 1991

DEPTH TO WATER AT 15:00 - 29.30'  
MAY 2, 1991

CONTINUOUS WATER LEVEL RECORDER CHART  
WELL M-80  
4-5-91 TO 5-2-91

Printed in U.S.A.

Inc., Beaverton, Ore.



DEPTH TO WATER AT 14:00 - 29.15'  
MAY 31, 1991

DEPTH TO WATER AT 15:00 - 29.30'  
MAY 2, 1991

**CONTINUOUS WATER LEVEL RECORDER CHART**

**WELL M-80**

**5-2-91 TO 5-31-91**

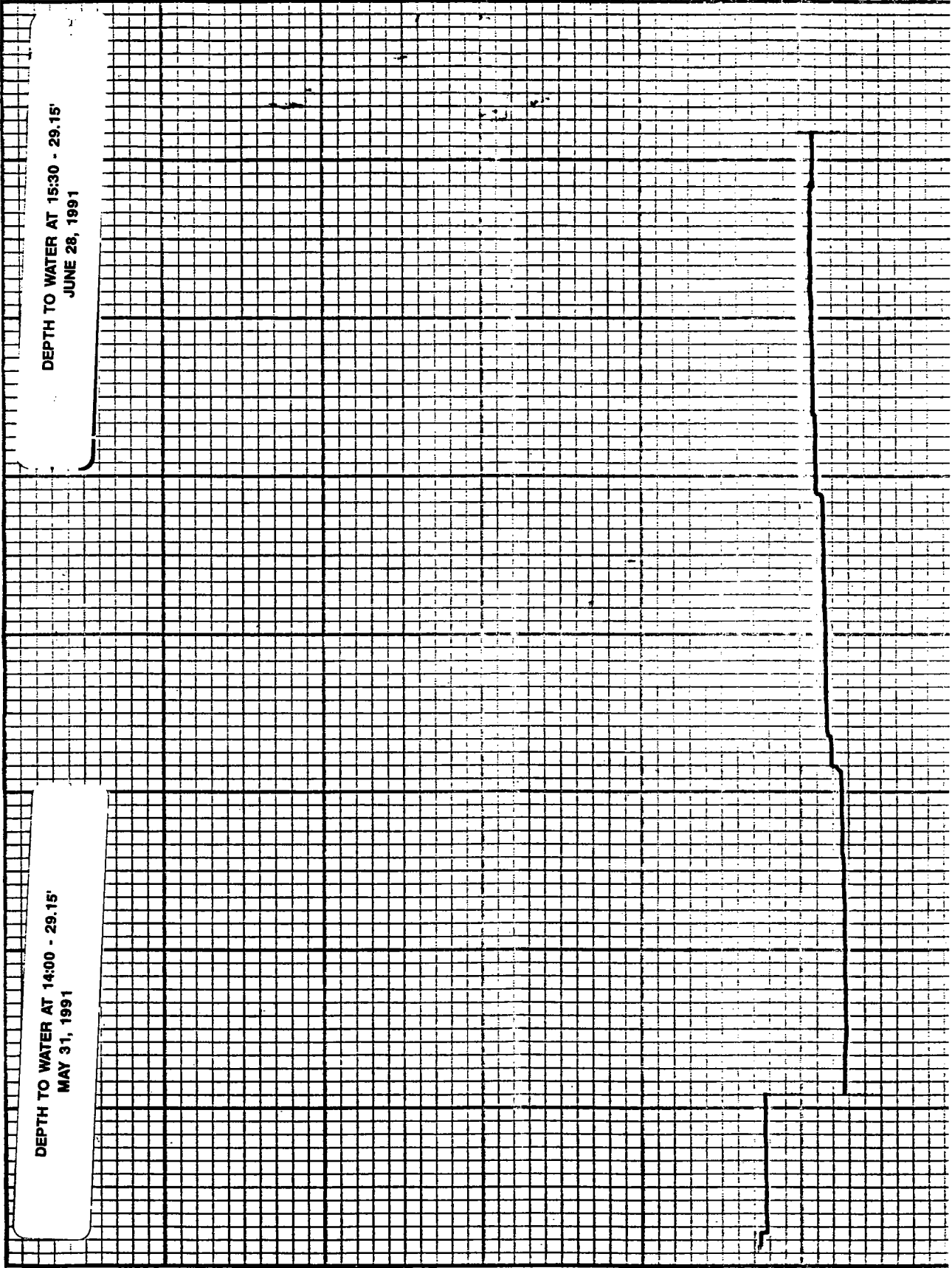
**CONTINUOUS WATER LEVEL RECORDER CHART**

**WELL M-80**

**5-31-91 TO 6-28-91**

DEPTH TO WATER AT 14:00 - 29.15'  
MAY 31, 1991

DEPTH TO WATER AT 15:30 - 29.15'  
JUNE 28, 1991



*APPENDIX D*

*CHROMIUM CONCENTRATIONS IN*

*MONITOR WELLS AND INTERCEPTOR WELLS*

FIGURE D--1  
APPENDIX J WELL CHROMIUM CONCENTRATION

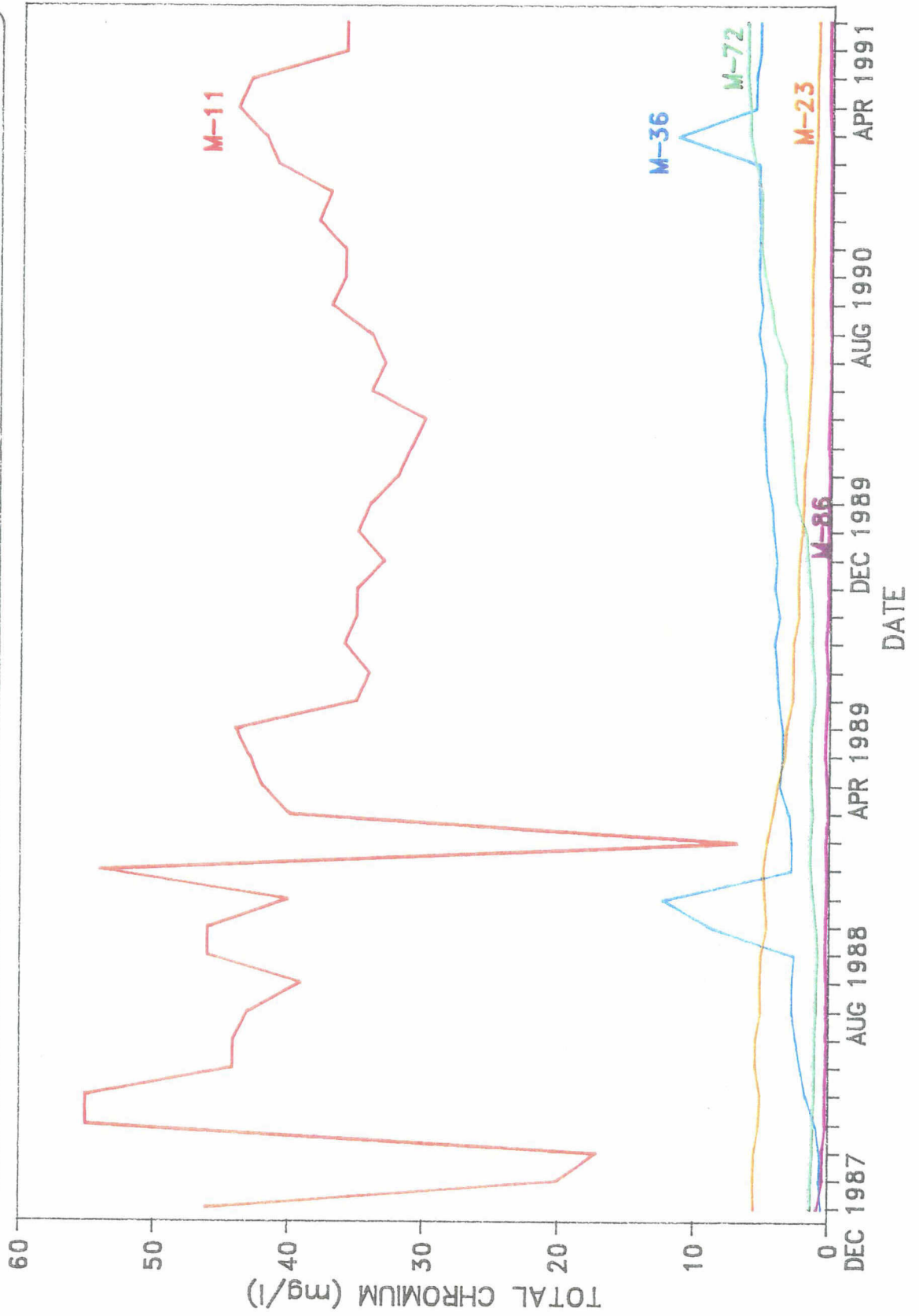


FIGURE D-2  
INTERCEPTOR LINE CHROMIUM CONCENTRATION

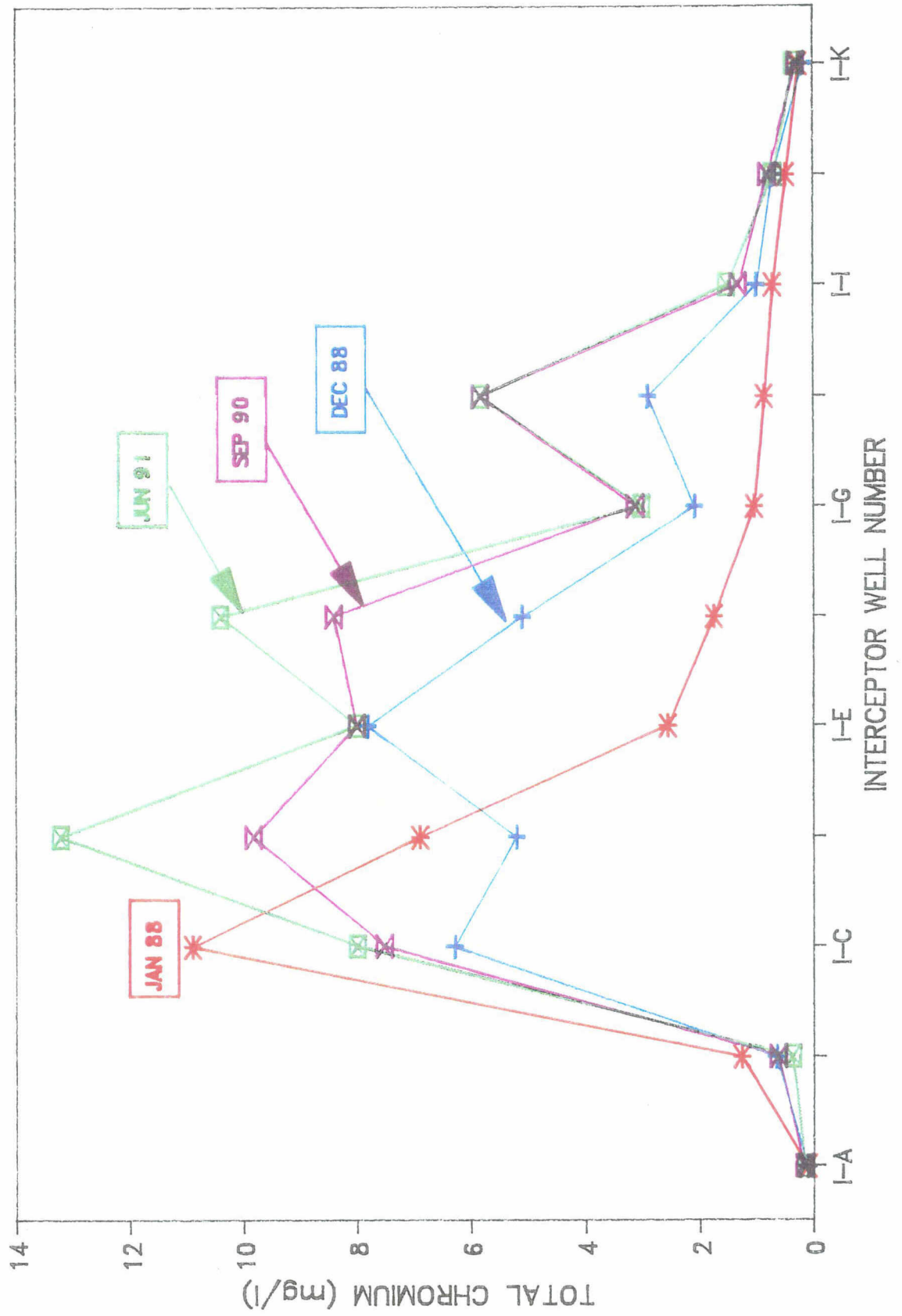


FIGURE D-3  
MONITOR WELL CHROMIUM CONCENTRATION

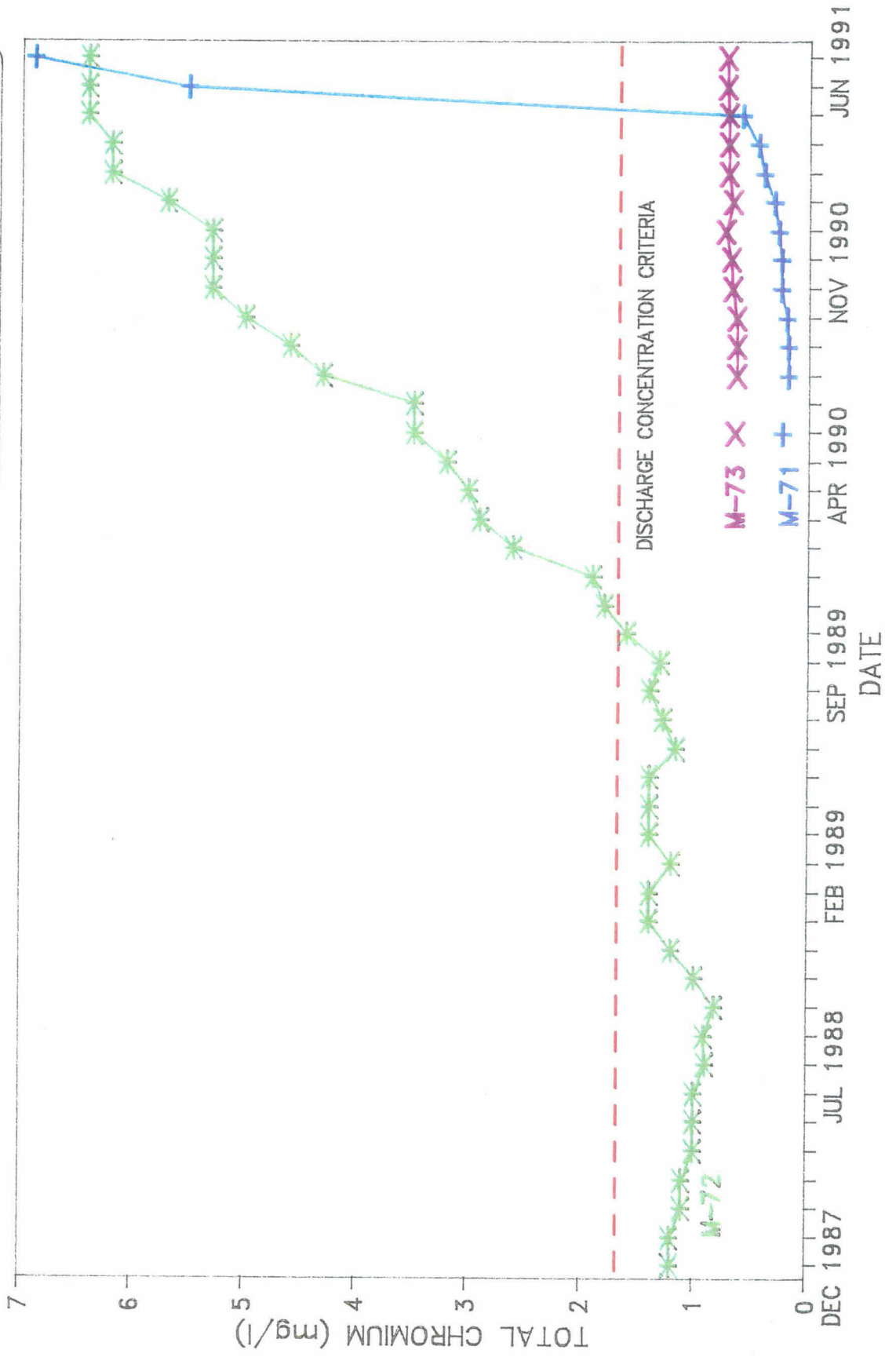


FIGURE D--4  
MONITOR WELL CHROMIUM CONCENTRATION

