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April 30, 2004

Norman Shopay
Project Manager
California Department of Toxic Substances Control
Geology and Corrective Action Branch
700 Heinz Avenue
Berkeley, California 94710

Subject: Performance Monitoring Report No. 2
Interim Measure No. 2
PG&E Topock Compressor Station, Needles, California

Dear Mr. Shopay:

Enclosed is the second performance monitoring report for Interim Measure No. 2 for the Topock project. This report was prepared in conformance with Final Interim Measures Work Plan No. 2, and describes the activities performed and monitoring data collected during the period April 1 through 15, 2004. Please contact me at (805) 546-5243 if you have any questions or if you need additional information.

Sincerely,

*Terrie Herson
For Yvonne Meeks*

Enclosure

cc: CWG Members

Final Report

**Performance Monitoring Report No. 2,
PG&E Topock Compressor Station,
Interim Measure No. 2,
April 1 through 15, 2004**

Prepared for
Pacific Gas and Electric Company

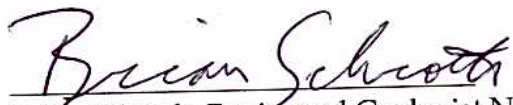
May 1, 2004

CH2MHILL

Performance Monitoring Report No. 2
PG&E Topock Compressor Station, Interim Measures No. 2
April 1 through 15, 2004

Prepared for
Pacific Gas & Electric Company

This work plan was prepared under supervision of a
California Registered Geologist,

A handwritten signature in cursive script that reads "Brian Schroth".

Brian Schroth, Registered Geologist No. 7423
Senior Hydrogeologist

Performance Monitoring Report No. 2, PG&E Topock Compressor Station, Interim Measure No. 2 April 1 through 15, 2004

Pacific Gas and Electric Company (PG&E) is implementing Interim Measure (IM) No. 2 at the Topock Compressor Station in Needles, California, as described in the *Final Interim Measures Work Plan No. 2* prepared by CH2M HILL on March 2, 2004 and *Addenda to Interim Measures Work Plan No. 2*, prepared by CH2M HILL on March 1, 2004. This performance monitoring report describes operational and monitoring information for IM No. 2 for the period between April 1 and April 15, 2004.

This Performance Monitoring Report has been prepared in compliance with the *Final Interim Measures Work Plan No. 2*, which requires reporting of system operations and performance monitoring data. Future reports will be submitted to the Department of Toxic Substances Control (DTSC) on the 1st (for the first half of the preceding month) and the 15th (for the last half of the preceding month) of each month, with the schedule subject to reevaluation and adjustment by DTSC.

System Operations

The groundwater extraction system is located within an approximate 10,000-square-foot secured area on the monitoring well MW-20 bench. Existing monitoring wells MW-20-70, MW-20-100, and MW-20-130 were equipped with submersible pumps, piping, instrumentation, and controls to operate as temporary extraction wells. The piping conveys the extracted groundwater to holding tanks for temporary accumulation before transport to an off-site permitted treatment and disposal facility. System operations for the reporting period are documented below.

Table 1 summarizes the pumping data for the reporting period. A total of 356,341 gallons of groundwater were extracted during the reporting period. Extraction well MW-20-70 was shut down for approximately 6 hours on April 15, 2004. The shutdown was attributed to a low water level in the well, which resulted in the pump automatically shutting down to protect the pump motor from overheating. The pump was restarted after allowing the aquifer to recover with no operational difficulties.

TABLE 1

Pump Data (April 1 through April 15, 2004)

Performance Monitoring Report No. 2, Topock Compressor Station, Interim Measure No. 2, April 1 through 15, 2004

Extraction Well	Reporting Period		Project To Date	
	Average Pumping Rate (gpm)	Volume Pumped (gal)	Average Pumping Rate (gpm)	Volume Pumped (gal)
MW-20-70	3.3	73,552	3.4	180,242
MW-20-100	3.1	64,461	3.1	158,621
MW-20-130	10.0	218,328	9.9	502,978
Total	16.4	356,341	16.4	841,841

gpm: gallons per minute.

gal: gallons.

Note: "Average Pumping Rate" is an average of the periodic flow meter readings over the reporting period, whereas "Volume Pumped" is based on flow totalizer readings from the beginning and end of the reporting period.

The extracted groundwater was manifested as a hazardous waste and transported to United States Filter Corporation in Los Angeles, California for treatment and disposal. Copies of field notes, field logs, and waste manifests are maintained on site. Completed waste manifests from the treatment and disposal facility are sent back to the Topock Station.

Extraction wells TW-2S and TW-2D were installed from March 30 to April 10, 2004. The extraction wells were installed as a cluster in alluvial aquifer approximately 150 feet north of the MW-20 cluster. TW-2D is screened from 115 feet to 150 feet below ground surface. TW-2S is screened from 45 feet to 95 feet below ground surface. Installation of piping from the new extraction wells to the holding tanks commenced on April 14, 2004. The perimeter fence on the north side of the compound was extended to secure the new extraction wells.

Daily inspections include tank inspections, flow measurements, site security, and desert tortoise sitings. Daily logs with documentation of inspections are maintained on site. One rainfall event occurred at the site on April 2 and 3, 2004. Approximately 2,400 gallons of stormwater that accumulated in the secondary containment system was pumped into the holding tanks for off-site disposal. No other operational changes were noted during the reporting period.

Monitoring Data

Chemical Data

Groundwater samples were collected from each extraction well and a from the combined effluent on April 7, 2004 and April 14, 2004. The samples were analyzed for total chromium, hexavalent chromium, and total dissolved solids (TDS). Table 2 and Figures 1 and 2 (provided at the end of this report) show the time-series concentrations of total chromium

and TDS for the reporting period. Detected concentrations during pumping operations remain within historical ranges for these wells. The figures show both measured and combined MW-20 chromium and TDS values. The measured value represents a composite from all three wells, analyzed separately from the three wellhead samples.

Hydraulic Data

Water levels were recorded with pressure transducers placed in 18 wells and one river monitoring station (I-3). The wells monitored were: MW-19, MW-20 cluster (3), MW-25, MW-26, MW-27, MW-28, MW-29, MW-30 cluster (2), MW-31, MW-32 cluster (2), MW-33 cluster (2), and MW-34 cluster (2). Water level data were continuously collected, with slight interruptions for sampling. The transducer in Well MW-20-70 was replaced during the week of April 12.

Effects of individual well pumping from each of the MW-20 cluster during March 8-10 were further examined during early April. After taking river fluctuation effects into account, no drawdown effects could be discerned from any observation well for all three individual tests. This includes the two non-pumping wells of the MW-20 cluster, suggesting at least some degree of confinement between the screened zones of the cluster. Quantification of vertical hydraulic properties will be more feasible during TW-2 testing, which will involve a greater pumping rate.

Pumping continued at the MW-20 cluster during April 1-15 at an average rate of approximately 16.4 gpm. Attachment 1 contains hydrographs for all transducer data collected between February 29 and April 18. A hydrograph of water levels in the Colorado River at station I-3 shows the daily fluctuations in river levels due to the release of water from Davis Dam. Beginning on March 9, the river levels began increasing. United States Bureau of Reclamation records confirm that releases from the dam increased on this date. Hydrographs of the river levels may be compared to individual wells to show that average river heads are higher, indicating a gradient away from the river.

Methods are being tested to separate river effects from MW-20 pumping effects. Separating the two effects requires additional analysis given the increasing river influence during March and April. Planned pumping tests at the TW-2 cluster will have several times the MW-20 pumping rate. The addition of new monitoring wells combined with this increased pump test rate is anticipated to produce significant drawdown and enable better quantification of aquifer properties in the area. New geologic data obtained from the new well borings will be combined with the hydraulic data so that assessment of target volume capture may be improved.

Future Activities

Reporting of IM No. 2 activities will continue as described in the *Final Interim Measures Work Plan No. 2*. The next status report will be submitted on May 15, 2004 and will cover activities between April 16 to April 30, 2004. System operation is planned to continue at the MW-20 cluster at the current pumping rate (16 to 18 gpm). Step-drawdown tests on the new TW-2 wells are scheduled for April 24 and 25, 2004. Constant-rate pump tests are scheduled to begin on April 30, 2004. The new extraction wells will be brought online after aquifer tests are completed. Chromium (total and hexavalent) and TDS concentrations will be monitored

weekly. During system operation and pumping of groundwater from the TW-2 wells, the MW-20 cluster will serve as observation wells to collect hydraulic data.

Extracted groundwater from TW-2S and TW-2D will be piped to a common manifold equipped with a secondary containment sleeve. The pipe manifold will be equipped with flow meters, flow-control valves and sample ports, consistent with the extraction well completion and piping from the MW-20 cluster. Installation of piping and connections will be completed by April 23, 2004.

To accommodate continuous operations, up to two new 19,500-gallon steel holding tanks will be installed by early May. The first new holding tank is scheduled to be installed on April 23, 2004. Extension of the secondary containment area will be provided, as appropriate to meet requirements for hazardous waste tanks (22 CCR Part 66265.193).

Tables

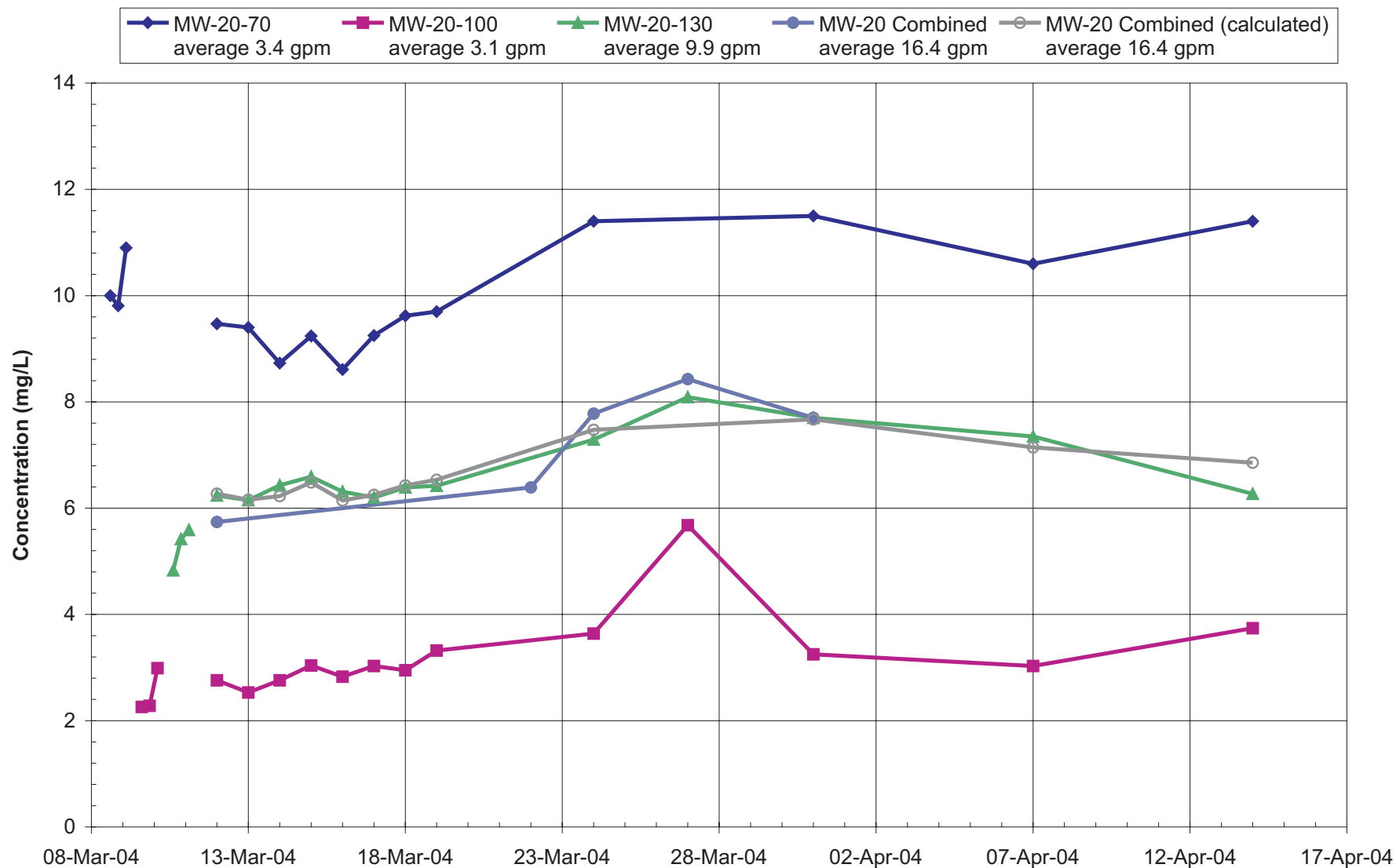
Table 2
Analytical Results - MW-20 Extraction Wells
Topock Interim Measures No. 2

Updated: 04/30/2004

Sample Time Relative to Pumping Start	MW-20-70 average 3.4 gpm				MW-20-100 average 3.1 gpm				MW-20-130 average 9.9 gpm				MW-20 Combined average 16.4 gpm				MW-20 Combined (calculated) average 16.4 gpm			
	Sample Date	Total Dissolved Chromium mg/L	Hexavalent Chromium mg/L	Total Dissolved Solids mg/L	Sample Date	Total Dissolved Chromium mg/L	Hexavalent Chromium mg/L	Total Dissolved Solids mg/L	Sample Date	Total Dissolved Chromium mg/L	Hexavalent Chromium mg/L	Total Dissolved Solids mg/L	Sample Date	Total Dissolved Chromium mg/L	Hexavalent Chromium mg/L	Total Dissolved Solids mg/L	Sample Date	Total Dissolved Chromium mg/L	Hexavalent Chromium mg/L	Total Dissolved Solids mg/L
Startup 12-hr Well Tests																				
3 casing vol.	08-Mar-04	10.00	--	2,240	09-Mar-04	2.26	--	3,440	10-Mar-04	4.83	--	11,000	--	--	--	--	--	--	--	--
6-hour	08-Mar-04	9.81	--	2,210	09-Mar-04	2.28	--	3,440	10-Mar-04	5.42	--	10,600	--	--	--	--	--	--	--	--
12-hour	09-Mar-04	10.90	--	2,200	10-Mar-04	2.99	--	3,410	11-Mar-04	5.59	--	10,600	--	--	--	--	--	--	--	--
Ongoing Extraction																				
1 day	12-Mar-04	9.47	--	2,170	12-Mar-04	2.76	--	3,440	12-Mar-04	6.24	--	9,930	12-Mar-04	5.74	--	7,000	12-Mar-04	6.27	--	7,065
2 days	13-Mar-04	9.40	--	2,240	13-Mar-04	2.53	--	3,420	13-Mar-04	6.15	--	9,750	13-Mar-04	--	--	--	13-Mar-04	6.16	--	6,968
3 days	14-Mar-04	8.73	--	2,230	14-Mar-04	2.76	--	3,410	14-Mar-04	6.43	--	9,540	14-Mar-04	--	--	--	14-Mar-04	6.23	--	6,838
4 days	15-Mar-04	9.24	--	2,230	15-Mar-04	3.04	--	3,420	15-Mar-04	6.59	--	9,420	15-Mar-04	--	--	--	15-Mar-04	6.49	--	6,768
5 days	16-Mar-04	8.61	--	2,230	16-Mar-04	2.83	--	3,420	16-Mar-04	6.31	--	9,160	16-Mar-04	--	--	--	16-Mar-04	6.14	--	6,612
6 days	17-Mar-04	9.25	--	2,210	17-Mar-04	3.03	--	3,410	17-Mar-04	6.20	--	9,160	17-Mar-04	--	7.98	--	17-Mar-04	6.25	--	6,605
7 days	18-Mar-04	9.62	--	2,230	18-Mar-04	2.95	--	3,400	18-Mar-04	6.39	--	9,000	18-Mar-04	--	--	--	18-Mar-04	6.43	--	6,512
8 days	19-Mar-04	9.7	--	2,260	19-Mar-04	3.32	--	3,430	19-Mar-04	6.42	--	9,090	19-Mar-04	--	--	--	19-Mar-04	6.53	--	6,578
9 days	20-Mar-04	--	--	2,210	20-Mar-04	--	--	3,400	20-Mar-04	--	--	8,940	20-Mar-04	--	--	--	20-Mar-04	--	--	6,472
10 days	21-Mar-04	--	--	2,260	21-Mar-04	--	--	3,390	21-Mar-04	--	--	8,600	21-Mar-04	--	--	--	21-Mar-04	--	--	6,276
11 days	22-Mar-04	--	--	--	22-Mar-04	--	--	--	22-Mar-04	--	--	--	22-Mar-04	6.39	8.01	6,420	22-Mar-04	--	--	--
13 days	24-Mar-04	11.4	--	2,210	24-Mar-04	3.64	--	3,400	24-Mar-04	7.29	--	8,350	24-Mar-04	7.78	--	6,260	24-Mar-04	7.48	--	6,118
16 days	27-Mar-04	--	--	2,360	27-Mar-04	5.68	--	3,310	27-Mar-04	8.09	--	8,520	27-Mar-04	8.43	--	6,060	27-Mar-04	--	--	6,234
20 days	31-Mar-04	11.5	11.4	2,240	31-Mar-04	3.25	3.43	3,440	31-Mar-04	7.70	7.82	8,220	31-Mar-04	7.70	7.71	6,120	31-Mar-04	7.67	7.75	6,053
27 days	07-Apr-04	10.6	11.7	2,330	07-Apr-04	3.03	3.49	3,430	07-Apr-04	7.35	7.79	8,100	07-Apr-04	7.49	7.88	6,040	07-Apr-04	7.14	7.72	6,020
34 days	14-Apr-04	11.4	12.4	2,260	14-Apr-04	3.74	3.65	3,260	14-Apr-04	6.27	7.77	8,330	14-Apr-04	6.44	7.88	6,090	14-Apr-04	6.86	7.87	6,113

Notes:
Calculated combined concentrations may vary slightly due to minor variations in flow rates.

Figures



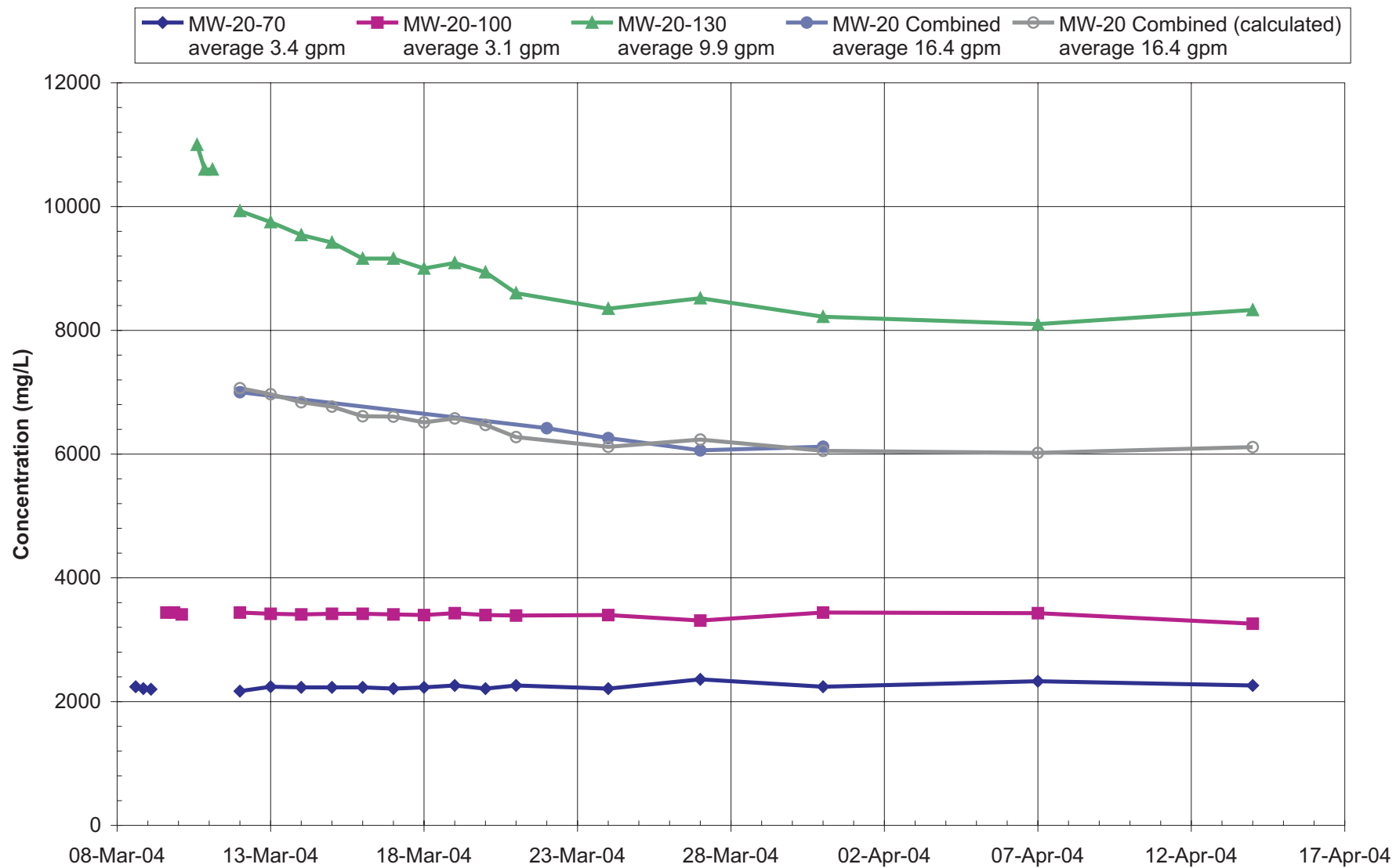
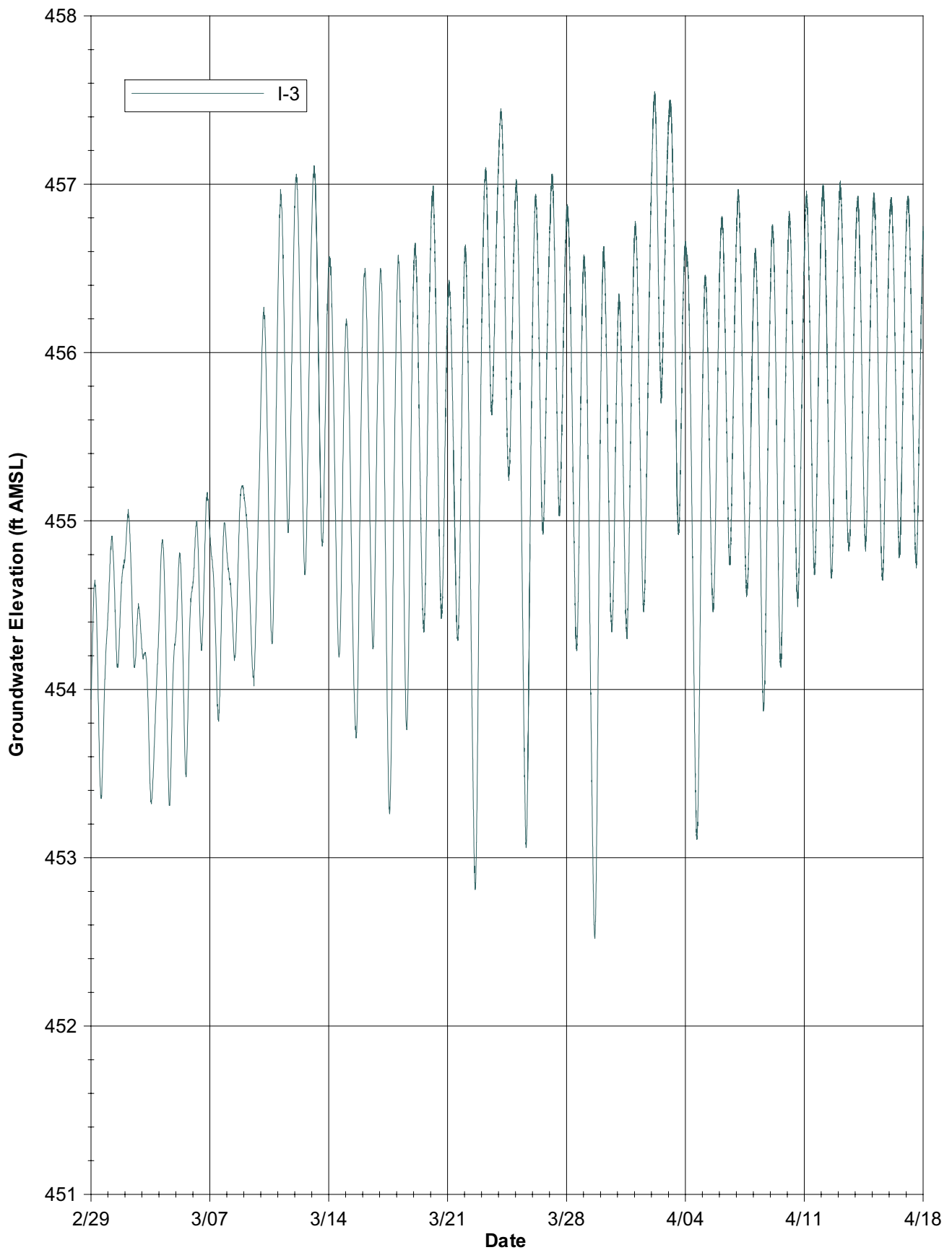


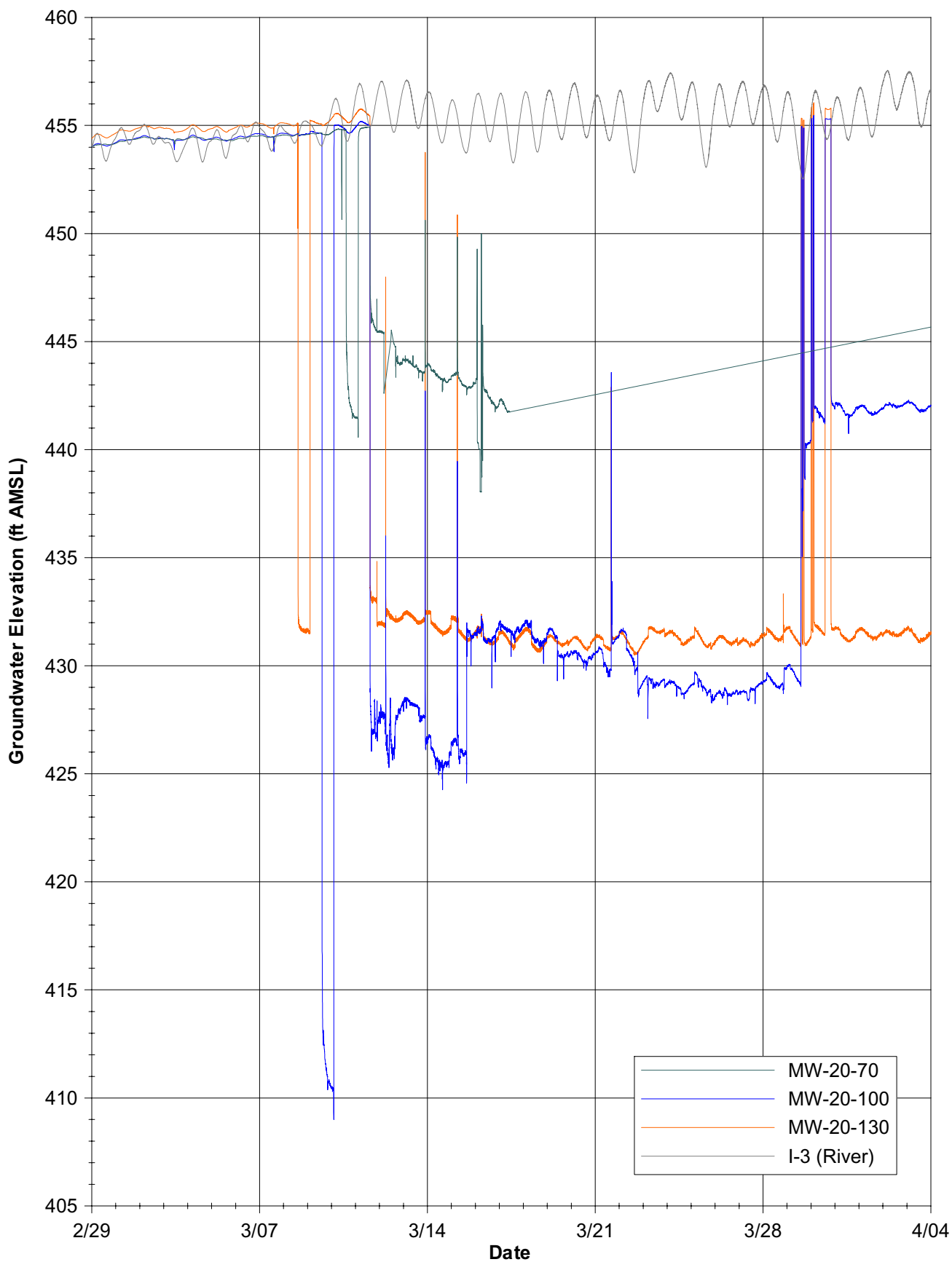
FIGURE 2
TOTAL DISSOLVED SOLIDS
CONCENTRATIONS DURING IM2 PUMPING
TOPOCK INTERIM MEASURE NO. 2
NEEDLES, CALIFORNIA

Attachment 1

Hydrographs

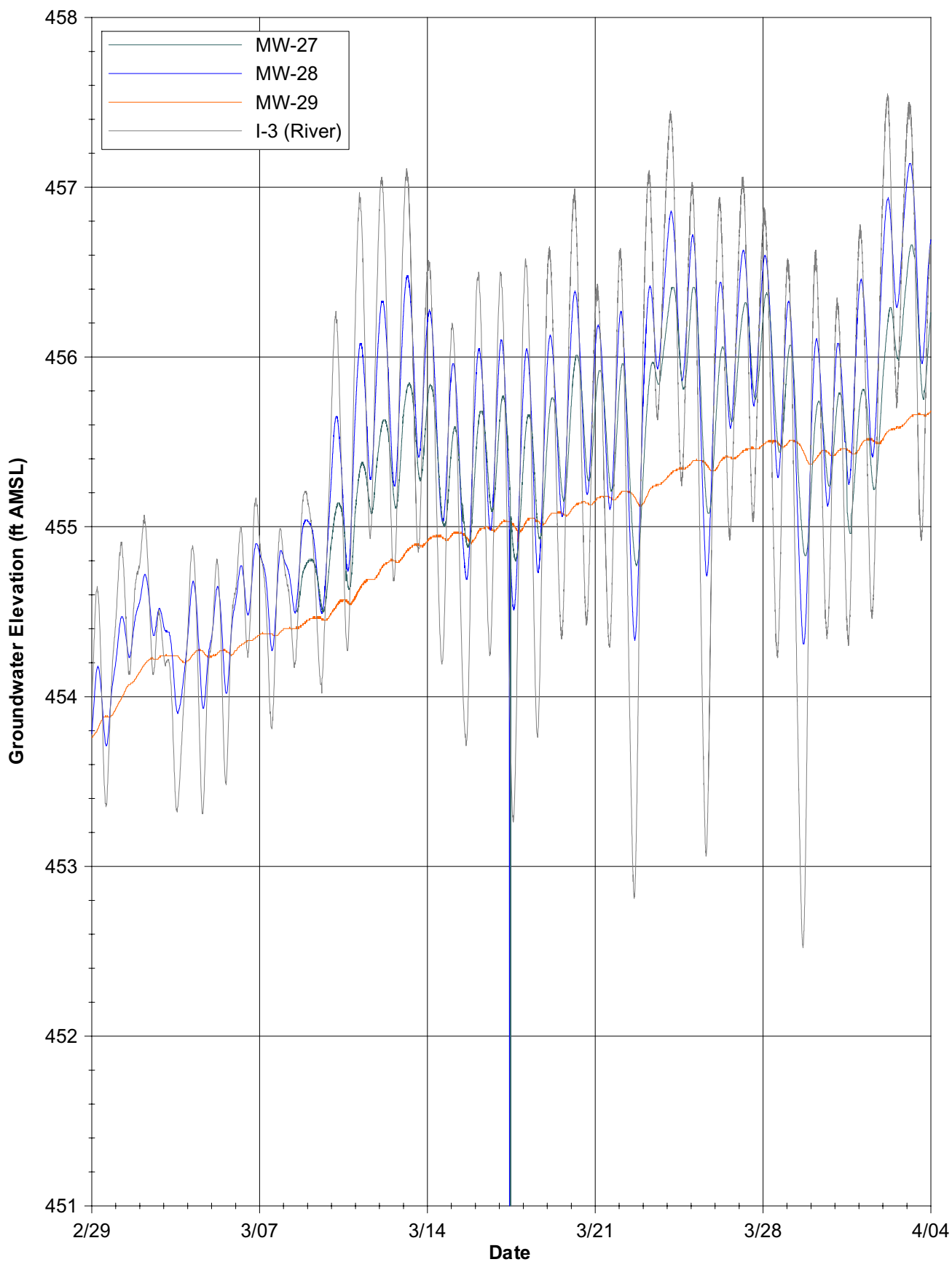


Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA



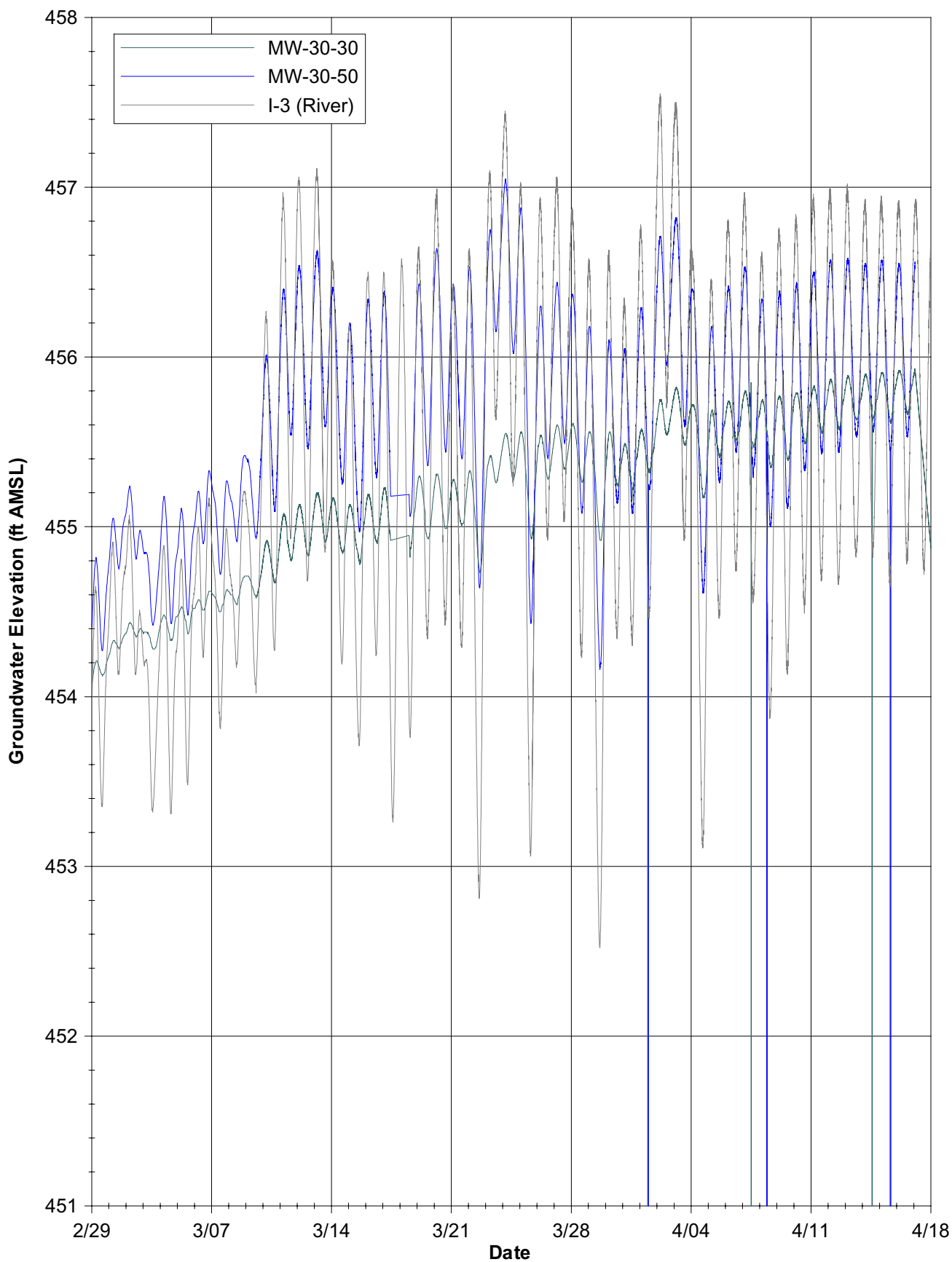
Note: Data subject to review.

Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA



Note: Data subject to review.

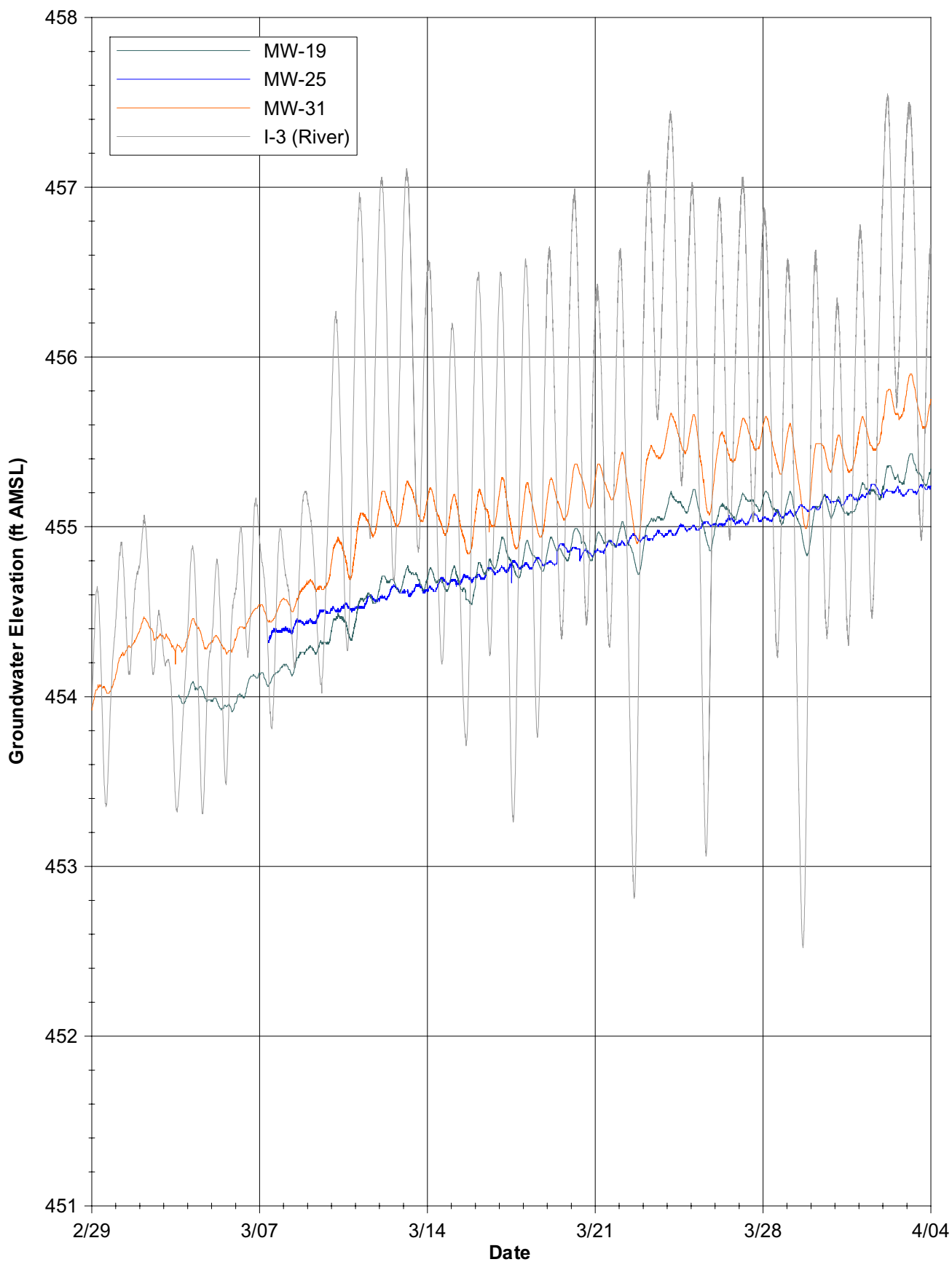
Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA



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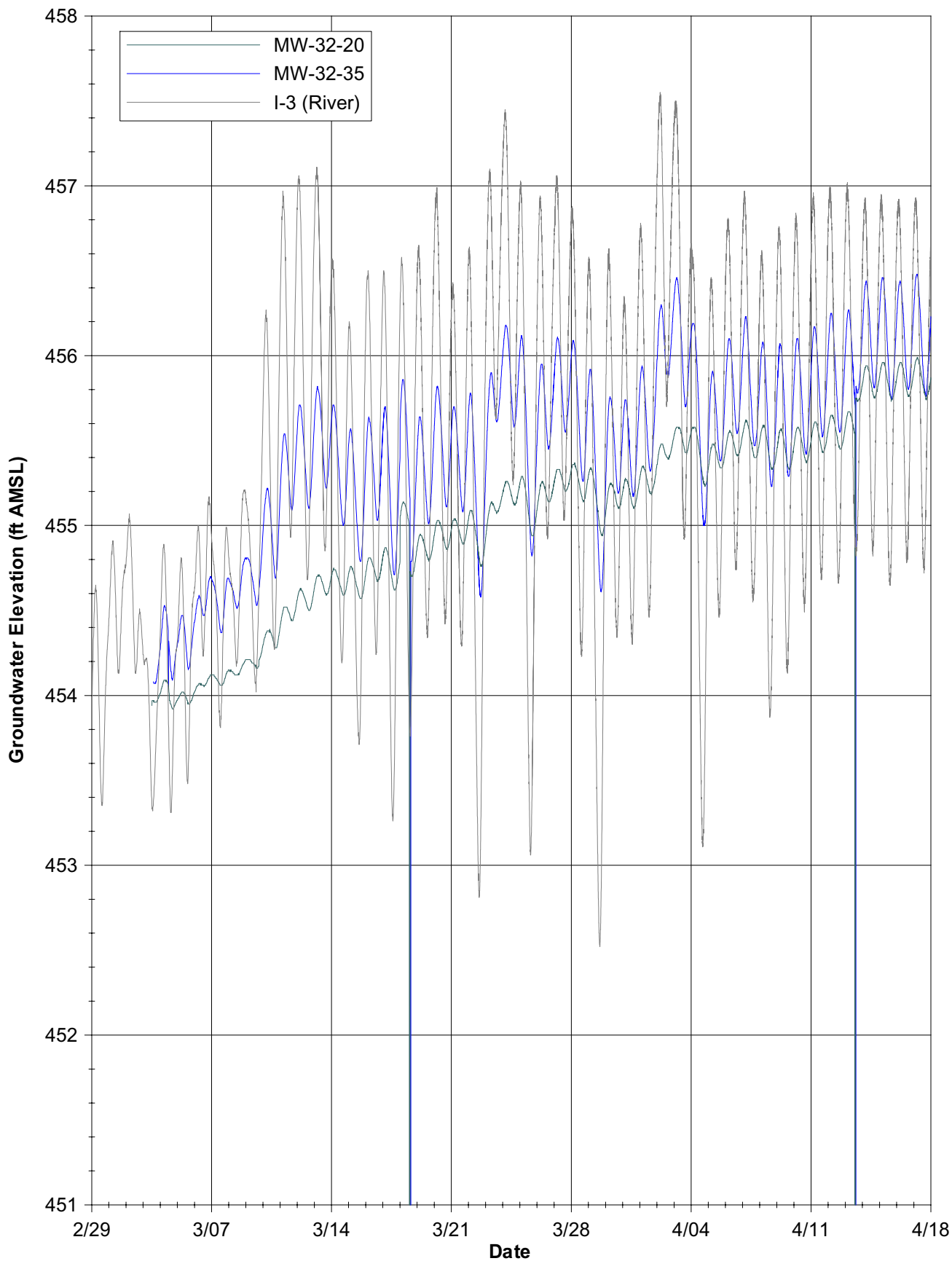
Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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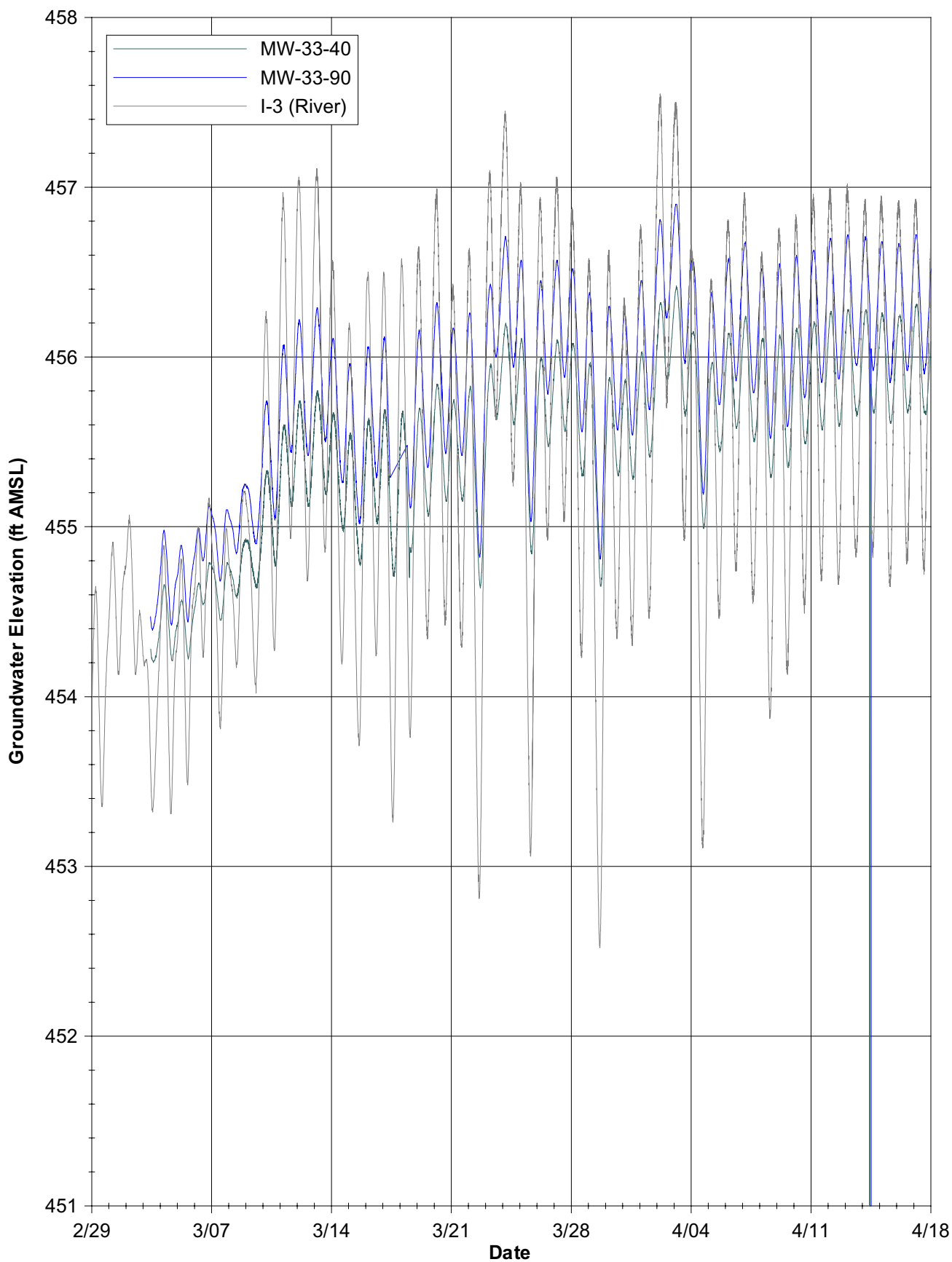
Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA



Note: Data subject to review.

Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

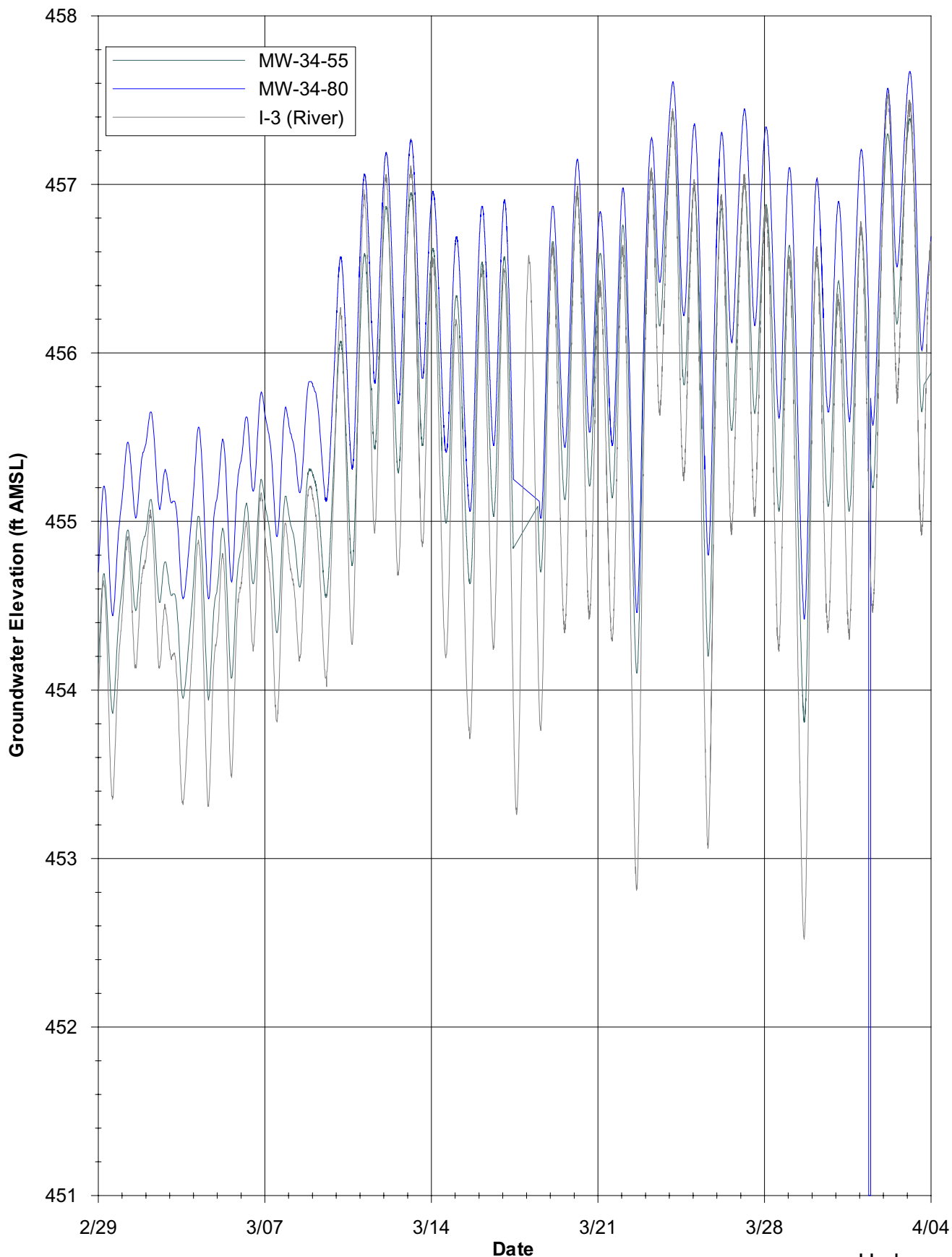
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Note: Data subject to review.

Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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Note: Data subject to review.

Hydrograph
PG&E TOPOCK COMPRESSOR STATION
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