



**Pacific Gas and  
Electric Company®**

Yvonne J. Meeks  
Site Remediation - Portfolio Manager  
Environmental Affairs

6588 Ontario Road  
San Luis Obispo, CA 93405

*Mailing Address*  
4325 South Higuera Street  
San Luis Obispo, CA 93401

805.546.5243  
Internal: 664.5243  
Fax: 805.546.5232  
E-Mail: YJM1@pge.com

September 15, 2006

Mr. Chris Guerre  
Project Manager  
California Department of Toxic Substances Control  
5796 Corporate Avenue  
Cypress, CA 90630

Subject: August 2006 Performance Monitoring Report  
Interim Measures Performance Monitoring Program  
PG&E Topock Compressor Station, Needles, California

Dear Mr. Guerre:

Dear Mr. Guerre:

Enclosed is the *Performance Monitoring Report for August 2006* for the Interim Measure Performance Monitoring Program at the PG&E Topock Compressor Station. This monitoring report documents the performance monitoring results for August 1 through 31, 2006, and has been prepared in conformance with DTSC's letter dated February 14, 2005.

Please contact me at (805) 546-5243 if you have any questions on the performance monitoring program.

Sincerely,

*Paul Butler* for Yvonne Meeks

Enclosure

# **Performance Monitoring Report for August 2006**

## **Interim Measures Performance Monitoring Program PG&E Topock Compressor Station Needles, California**

Prepared for  
**California Department of Toxic Substances Control**

on behalf of  
**Pacific Gas and Electric Company**

September 15, 2006

**CH2MHILL**  
155 Grand Avenue, Suite 1000  
Oakland, California 94612

**Performance Monitoring Report  
for August 2006**

**Interim Measures Performance Monitoring Program**

**PG&E Topock Compressor Station  
Needles, California**

**Prepared for  
California Department of Toxic Substances Control**

**on behalf of  
Pacific Gas and Electric Company**

**September 15, 2006**

This report was prepared under the supervision of a  
California Certified Engineering Geologist

*Paul Bertucci*

Paul Bertucci, C.E.G. No. 1977  
Project Hydrogeologist



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# Acronyms and Abbreviations

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µg/L	micrograms per liter
cfs	cubic feet per second
Cr(T)	total chromium
Cr(VI)	hexavalent chromium
DTSC	Department of Toxic Substances Control
gpm	gallons per minute
IM	Interim Measure
PG&E	Pacific Gas and Electric Company
USBR	United States Bureau of Reclamation

# 1.0 Introduction

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Pacific Gas and Electric Company (PG&E) is implementing an Interim Measure (IM) to address chromium concentrations in groundwater at the Topock Compressor Station near Needles, California. The IM consists of groundwater extraction for hydraulic control of the plume boundaries in the Colorado River floodplain and management of extracted groundwater. Collectively, the groundwater extraction, treatment, and injection systems are referred to as Interim Measure Number 3 (IM No. 3). Currently, the IM No. 3 facilities include a groundwater extraction system (four extraction wells: TW-2D, TW-3D, TW-2S, and PE-1), conveyance piping, a groundwater treatment plant, and an injection well field for the discharge of the treated groundwater. Figure 1-1 shows the location of the IM No. 3 extraction, conveyance, treatment, and injection facilities.

In a letter dated February 14, 2005, the California Department of Toxic Substances Control (DTSC) established the criteria for evaluating the performance of the IM. As defined by DTSC, the performance standard for this IM is to “establish and maintain a net landward hydraulic gradient, both horizontally and vertically, that ensures that hexavalent chromium [Cr(VI)] concentrations at or greater than 20 micrograms per liter [µg/L] in the floodplain are contained for removal and treatment” (DTSC 2005). The DTSC directive also defined the monitoring and reporting requirements for the IM. A draft *Performance Monitoring Plan for Interim Measures in the Floodplain Area* (CH2M HILL 2005) was submitted to DTSC on April 15, 2005 (herein referred to as the Performance Monitoring Plan). The site monitoring, data evaluation, reporting, and response actions required under the February 2005 DTSC directive are collectively referred to as the IM Performance Monitoring Program for the floodplain area.

This monthly report has been prepared in compliance with DTSC’s requirements and documents the monitoring activities and performance evaluation of the IM hydraulic containment system for the period from August 1 through August 31, 2006. The results and status of IM performance monitoring during September 2006 will be reported in October 2006.

Figure 1-2 shows the locations of wells used for the IM extraction, performance monitoring, and hydraulic gradient calculations.

The performance monitoring wells, updated through August 2006, are defined as:

- **Floodplain Wells** (monitoring wells on the Colorado River floodplain): MW-22, MW-27 cluster (three), MW-28 cluster (two), MW-29, MW-30 cluster (two), MW-32 cluster (two), MW-33 cluster (four), MW-34 cluster (three), MW-36 cluster (six), MW-39 cluster (six), MW-42 cluster (three), MW-43 cluster (three), MW-44 cluster (three), MW-45, MW-46 cluster (two), MW-49 cluster (three).
- **Intermediate Wells** (monitoring wells located immediately north, west, and southwest of the floodplain): MW-12, MW-19, MW-20 cluster (three), MW-21, MW-26, MW-31

cluster (two), MW-35 cluster (two), MW-47 cluster (two), MW-50 cluster (two), and MW-51.

- **Interior Wells** (monitoring wells located upgradient of IM pumping): MW-10 and MW-25.

Three extraction wells (TW-2D, TW-3D and TW-2S) are located on the MW-20 bench (Figure 1-1). In March 2005, extraction well PE-1 was installed on the floodplain approximately 450 feet east of extraction well TW-2D (Figure 1-1). Construction of the conveyance piping and power supply to well PE-1 was completed in January. Testing and commissioning of well PE-1 began on January 25, 2006, with full-time operation of the well beginning on January 26, 2006. Currently, both TW-3D and PE-1 are in full-time operation.

The wells screened in the unconsolidated alluvial fan and fluvial deposits that comprise the Alluvial Aquifer have been separated into three depth intervals to present groundwater quality and groundwater level data. The depth intervals of the Alluvial Aquifer—designated upper, middle, and lower—are based on grouping the monitoring wells screened at common elevations and do not represent distinct hydrostratigraphic units or separate aquifer zones. The subdivision of the aquifer into three depth intervals is an appropriate construct for presenting and evaluating groundwater quality data in the floodplain. The three-interval concept is also useful for presenting and evaluating lateral gradients, while minimizing effects of vertical gradients and observing the influence of pumping from partially-penetrating wells. It should be noted, however, that these divisions do not correspond to any distinct lithostratigraphic layers within the aquifer. The floodplain aquifer is considered to be hydraulically undivided.

## 2.0 Extraction System Operations

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Pumping data for the IM groundwater extraction system for the period August 1 through August 31, 2006 are shown in Table 2-1. During the reporting period, extraction wells TW-3D and PE-1 operated at a combined target pump rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime.

The August 2006 monthly average pumping rate was 133.5 gpm. A total of 5,958,678 gallons of groundwater was extracted and treated by the IM No. 3 treatment plant during August 2006. Approximately 1,320 gallons of purge water from the groundwater monitoring program were also treated at the IM No. 3 facility during August 2006. The operational run time for the IM extraction system was approximately 99 percent during this reporting period. An operations log for the extraction system during August 2006, including downtime, is included in Appendix A.

The concentrate (i.e., brine) from the reverse osmosis system was shipped offsite with shipping papers as a Resource Conservation and Recovery Act non-hazardous waste and transported to USFilter Corporation in Los Angeles, California for treatment and disposal. One container of solids (approximately 12 cubic yards) from the IM No. 3 facility was transported to the Chemical Waste Management at the Kettleman Hills facility during August 2006.

Daily inspections included general facility inspections, flow measurements, and site security monitoring. Daily logs with documentation of inspections are maintained onsite.

Table 2-2 summarizes the analytical results of groundwater samples collected from the extraction well system during the August reporting period and prior months. Future monitoring of the extraction well water quality will be completed at the frequency required by the Waste Discharge Requirements issued for the IM No. 3 treatment facility.



## 3.0 Chromium Sampling Results

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During August 2006, the groundwater monitoring wells in the floodplain area were sampled for Cr(VI), total chromium [Cr(T)], and field water quality parameters under quarterly, monthly, and biweekly schedules, in accordance with the approved groundwater monitoring plan and DTSC directives. Refer to PG&E's *Topock Groundwater and Surface Water Monitoring Report, First Quarter 2006* (CH2M HILL 2006) for the prior and current sampling plan and frequencies for groundwater wells in the performance monitoring area.

Table B-1 in Appendix B presents the groundwater sampling results for Cr(VI) and Cr(T), as well as groundwater elevation and selected field water quality parameters for monitoring wells in the floodplain area during August 2006 and the previous months. Table B-2 (Appendix B) presents the groundwater sampling data for the other wells monitored in the Performance Monitoring Program area during the evaluation period.

Figure 3-1 presents the Cr(VI) results distribution for August 2006 in plan view for the groundwater wells monitoring the upper, middle, and lower depth intervals of the Alluvial Aquifer in the floodplain area. Interpretations of Cr(VI) contours at each depth interval are also provided on this figure. The actual locations of contours beyond well data points are not certain, but are inferred using available site investigation and monitoring data (bedrock structure, hydraulic gradients, observed distribution of geochemically reducing conditions and Cr(VI) concentration gradients). The aquifer depth intervals, well screens, and August 2006 Cr(VI) sampling results and interpreted contours are also shown on Figure 3-1 in a vertical cross-section extending east-west across the floodplain. The California drinking water standard for Cr(T) is 50 µg/L.

Figure 3-2 presents the August 2006 Cr(VI) results for additional floodplain monitoring wells on a cross-section oriented parallel to the Colorado River (see Figure 1-2 for locations of the cross-sections). For ongoing IM performance evaluation, Cr(VI) concentration trend graphs and hydrographs for key floodplain monitoring wells are presented on Figures B-1 (well MW-33-90), B-2 (well MW-34-100), and B-3 (well MW-36-100) in Appendix B.

## 4.0 Hydraulic Gradient Results

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During the reporting period, water levels were recorded at intervals of 30 minutes with pressure transducers in 67 wells and two river monitoring stations (I-3 and RRB). The data are typically continuous, with only short interruptions for sampling or maintenance. The location of the wells monitored are shown on Figure 1-2 and listed in Section 1.0.

The monthly average and the minimum and maximum daily average groundwater and river elevations have been calculated from the pressure transducer data for the August reporting period (August 1 through August 30, 2006) and are summarized in Appendix C, Table C-1. Data collection was conducted before the holiday weekend on August 31 and September 1, so averaging was limited to 30 days in August 2006. During August 2006, hydraulic data from well MW-31-135 were available from August 1 through 7, but data were not obtained for the period August 8 through 30 due to transducer malfunction. A new transducer was installed in MW-31-135 on September 1, 2006.

Due to the significant variation in groundwater salinity at the site, the water level measurements need to be adjusted (density-corrected) to equivalent fresh-water hydraulic heads prior to calculating groundwater elevations and gradients (Fetter 1994). The methods and procedures used for adjusting the performance monitoring water level data for salinity and temperature differences are described in the Performance Monitoring Plan. Groundwater elevation hydrographs (for August 2006) for all wells with transducers are included in Appendix C. The elevation of the Colorado River measured at the river gauge (I-3, Figure 1-2) during August 2006 is also shown on the hydrographs.

The August 2006 hydraulic data and groundwater gradient maps for the upper, middle, and lower depth intervals are shown on Figures 4-1, 4-2, and 4-3, respectively. The groundwater elevations for all depth intervals of the Alluvial Aquifer indicate very strong landward hydraulic gradients within the IM-3 capture zone throughout the floodplain. To the west of the TW-3D and PE-1 pumping area, the hydraulic gradient in the upper depth interval is easterly and consistent with the regional gradient outside of the floodplain area. The average groundwater elevations measured in the new IM monitoring wells during August 2006 are presented on the middle and lower depth interval gradient maps (Figures 4-2 and 4-3, respectively). Many of the new monitoring wells are significantly deeper than other wells in the lower aquifer zone. Due to vertical gradients present at the Topock site, water levels in deeper wells tend to be higher than water levels in shallower wells. Consequently, some of the new wells with screen intervals significantly deeper than existing wells exhibit water levels that are not contoured with nearby shallower lower zone wells in plan view on Figure 4-3.

The landward gradients measured during August 2006 were slightly less than July 2006. The slightly diminished gradients for August are related to the lowering of water levels in the Colorado River during the reporting period. The August 2006 average monthly groundwater elevations are also presented and contoured in cross-section on Figure 4-4 (cross-section location shown on Figure 1-2).

Table 4-1 summarizes the estimated and actual dam discharges and river elevations since April 2004. The actual Davis Dam average discharge for August 2006 of 12,871 cubic feet per second (cfs) was consistent with the United States Bureau of Reclamation (USBR) projected discharge of 12,900 cfs for the current reporting period. The actual Colorado River elevation at I-3 (monthly average) was 0.1 foot greater than the level predicted by using the multiple regression method with USBR projections for the August reporting period.

Table 4-2 summarizes gradients measured between the three designated well pairs (MW-31-135/MW-33-150, MW-20-130/MW-34-80, and MW-20-130/MW-42-65) during August 2006. Pumping from extraction well PE-1 began on January 26, 2006. Since that time, the central well pair has been affected by PE-1 pumping. Pumping at well PE-1 would tend to lower the water level in well MW-34-80 and decrease the apparent gradient in the central well pair. Nevertheless, average gradients in the three well pairs were landward at magnitudes that were up to three times the target value of 0.001 feet per foot (0.0018, 0.0027, and 0.0032, respectively). These gradients were less than the average gradients for these well pairs measured in July 2006 due to decreasing river levels over the reporting period.

## 5.0 Status of Operation and Monitoring

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Reporting of the IM extraction and monitoring activities will continue as described in the Performance Monitoring Plan. The next monitoring report will be a monthly performance report for the September reporting period. The third quarter 2006 performance evaluation report (addressing the August, September, and October 2006 reporting periods) will be submitted by November 30, 2006.

Per DTSC direction, PG&E will continue to operate both TW-3D and PE-1 at a target combined pumping rate of 135 gpm during September 2006, except for periods when planned and unplanned downtime occurs. One week of planned downtime for IM No. 3 facility maintenance may occur either the last week of September or the first week of October 2006, pending DTSC approval. Treated groundwater will be discharged into the IM No. 3 injection wells in accordance with Waste Discharge Requirements Order No. R7-2004-0103. Brine generated as a byproduct of the treatment process will continue to be transported offsite.

PG&E will balance the pumping rates between wells TW-3D and PE-1 to maintain the target pumping rate and maintain appropriate hydraulic gradients across the Alluvial Aquifer. If, at any time, hydraulic data indicate that well PE-1 pumping has the potential to draw higher concentrations of chromium away from the capture zone of well TW-3D, PG&E will request authorization from DTSC to increase the pumping rate at TW-3D and decrease the rate at well PE-1. Extraction well TW-2D will continue serve as a backup extraction well to TW-3D and PE-1.

Current USBR projections show that the average Davis Dam release for September 2006 (12,100 cfs) will be less than in August 2006 (12,871 cfs). Based on September 11, 2006 USBR projections, it is anticipated that the Colorado River level at the I-3 gage location during September 2006 will decrease approximately 0.6 foot compared to the average river level in August 2006.

With the initiation of pumping from PE-1 (late January 2006) and expansion of the IM monitoring well network, new gradient control well pairs will be defined by DTSC to account for the more complex gradient caused by pumping at both TW-3D and PE-1. Modifications and updates to the IM performance monitoring program will be incorporated pending DTSC approval and direction.

## 6.0 References

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- California Department of Toxic Substances Control (DTSC). 2005. Letter. "Criteria for Evaluating Interim Measures Performance Requirements to Hydraulically Contain Chromium Plume in Floodplain Area, Pacific Gas & Electric Company, Topock Compressor Station" February 14.
- CH2M HILL. 2005. *Draft Performance Monitoring Plan for Interim Measures in the Floodplain Area, PG&E Topock Compressor Station*. April 15.
- \_\_\_\_\_. 2006. *Groundwater and Surface Water Monitoring Report, First Quarter 2006, PG&E Topock Compressor Station*. June 1.
- Fetter, C.W. 1994. *Applied Hydrogeology*. Third Edition. Prentice-Hall.



TABLE 2-1  
Pumping Rate and Extracted Volume for IM System through August 2006  
*Interim Measures Performance Monitoring*  
*PG&E Topock Compressor Station*

Extraction Well	August 2006 Period <sup>a</sup>		Project To Date <sup>b</sup>
	Average Pumping Rate <sup>c</sup> (gpm)	Volume Pumped (gal)	Cumulative Volume Pumped (gal)
TW-2S	0	0	994,438
TW-2D <sup>d</sup>	1.7	75,549	52,950,905
TW-3D	96.3	4,299,628	34,830,806
PE-1	35.5	1,583,501	10,950,613
<b>Total</b>	133.5	5,958,678	99,726,762
Volume Pumped from the MW-20 Well Cluster			1,527,724
Total Volume Pumped <sup>b</sup> (gal)			101,254,486
Total Volume Pumped (ac-ft)			310.8

gpm: gallons per minute.

gal: gallons.

ac-ft: acre-feet.

<sup>a</sup> Pumping results during the monthly period are based on readings collected between August 1, 2006 at 12:00 a.m. and August 31, 2006 at 11:59 p.m. (31 days).

<sup>b</sup> Interim Measure groundwater extraction at the Topock site was initiated in March 2004.

<sup>c</sup> The "Average Pumping Rate" is the overall average during the reporting period, including system downtime based on flow meter readings.

<sup>d</sup> Extraction well TW-2D was put into temporary operation on August 7 and 8, 2006 while replacing a leaking gasket in the TW-3D pipeline extraction well vault. The leak was entirely contained within the well vault, which provides secondary containment at the extraction wellhead.

TABLE 2-2

Analytical Results for Extraction Wells, March through August 2006  
Interim Measures Performance Monitoring  
PG&E Topock Compressor Station

Well ID	Sample Date	Dissolved Total Chromium mg/L	Hexavalent Chromium mg/L	Total Dissolved Solids mg/L
TW-3D	08-Mar-06	3.21	3.04	5380
TW-3D	06-Apr-06	2.71	2.95	5740
TW-3D	11-May-06	2.69	2.74	5720
TW-3D	15-Jun-06	2.45	2.61	5510
TW-3D	12-Jul-06	2.44	2.59	5510
TW-3D	09-Aug-06	3.06	2.66	5860
PE-1	08-Mar-06	0.125	0.136	6830
PE-1	06-Apr-06	0.117	0.133	6680
PE-1	11-May-06	0.109	0.118	7000
PE-1	15-Jun-06	0.0873	0.101	6050
PE-1	12-Jul-06	0.0724	0.0959	6160
PE-1	09-Aug-06	0.0834	0.0959	5270

**NOTES:**

mg/L = concentration in milligrams per liter (mg/L)

Analytical results from inactive extraction wells are presented in Table B-2.

Groundwater samples from active extraction wells are taken at sample taps in Valve Vault 1 on the MW-20 Bench.



**TABLE 4-1**

Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3  
*Interim Measures Performance Monitoring*  
*PG&E Topock Compressor Station*

Month	Davis Dam Release			Colorado River Elevation at I-3		
	Projected (cfs)	Actual (cfs)	Difference (cfs)	Predicted (ft AMSL)	Actual (ft AMSL)	Difference (feet)
April 2004	17,400	17,354	-46	456.4	456.2	-0.2
May 2004	17,100	16,788	-312	456.3	456.3	-0.1
June 2004	15,800	16,869	1,069	455.8	456.6	0.7
July 2004	14,000	14,951	951	455.2	455.9	0.7
August 2004	12,100	12,000	-100	454.5	454.9	0.4
September 2004	11,200	10,979	-221	454.2	454.6	0.4
October 2004	8,600	7,538	-1,062	453.2	453.5	0.3
November 2004	9,500	8,075	-1,425	453.6	453.4	-0.2
December 2004	6,200	8,090	1,890	452.4	453.3	0.9
January 2005	8,800	4,900	-3,900	453.4	452.4	-1.0
February 2005	8,000	4,820	-3,180	453.1	452.6	-0.5
March 2005	15,600	7,110	-8,490	455.8	452.9	-2.9
April 2005	16,700	16,306	-394	455.9	456.0	0.1
May 2005	16,700	15,579	-1,121	456.2	456.1	-0.1
June 2005	14,600	15,223	623	455.8	456.1	0.3
July 2005	15,400	15,612	212	456.0	456.0	0.0
August 2005	11,700	11,544	-156	454.6	454.8	0.2
September 2005	12,400	12,335	-65	454.6	NA	NA
October 2005	12,300	11,201	-1,099	454.5	454.3	-0.2
November 2005	10,900	10,216	-684	454.3	454.3	0
December 2005	6,900	6,745	-155	452.8	452.7	-0.1
January 2006	8,400	9,166	766	453.2	453.6	0.4
February 2006	11,100	10,790	-310	454.1	454.1	0.1
March 2006	13,000	12,429	-571	454.7	454.8	0.2
April 2006	16,600	18,300	1700	456.0	456.1	0.0
May 2006	15,500	16,818	1318	456.0	456.3	0.3
June 2006	16,100	17,547	1447	456.2	456.4	0.2
July 2006	14,700	15,171	-471	455.7	455.8	0.1
August 2006	12,900	12,871	29	454.9	455.1	0.1
September 2006	12,100	----	----	454.5	----	----

**NOTES:**

NA = I-3 transducer data unavailable for month of September 2005 due to damage by debris.

Projected Davis Dam releases, updated monthly, are reported by the US Department of Interior, Bureau of Reclamation at <http://www.usbr.gov/lc/region/g4000/24mo.pdf>; listed projections for April 2004 through July 2004 are from April 2004, and the remainder were from the beginning of each respective month.

Colorado River levels at I-3 are predicted from a linear regression between historical dam releases and measured river levels at I-3 (updated monthly).

cfs = cubic feet per second; ft AMSL = feet above mean sea level

**TABLE 4-2**

Average Hydraulic Gradients Measured at Well Pairs, August 2006

*Interim Measures Performance Monitoring**PG&E Topock Compressor Station*

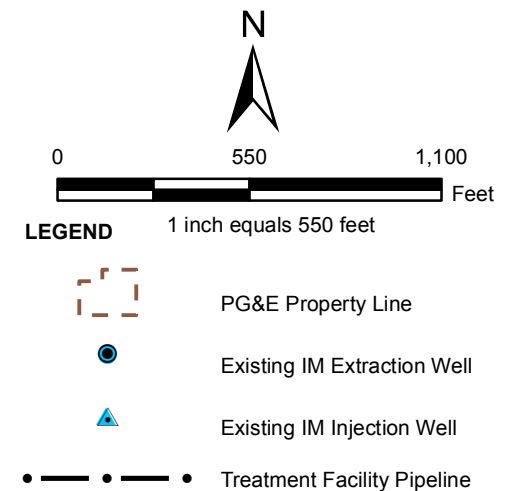
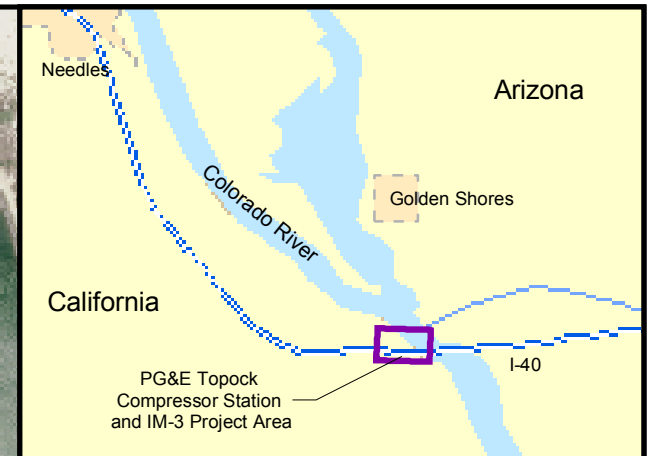
<b>Well Pair</b>	<b>Mean Landward Hydraulic Gradient (feet/foot)</b>	<b>Measurement Dates 2006</b>
Northern Gradient Pair MW-31-135 / MW-33-150	0.0018	August 1 through 7
Central Gradient Pair MW-20-130 / MW-34-80	0.0027	August 1 through 30
Southern Gradient Pair MW-20-130 / MW-42-65	0.0032	August 1 through 30

**Notes:**

- 1) Refer to Figure 1-2 for location of well pairs
- 2) For IM pumping, the target landward gradient for the selected well pairs is 0.001 feet/foot
- 3) Extraction well PE-1 began pumping on 1/26/06. As a result, the gradient reported for the central well pair is affected by having an additional pumping well between wells used for gradient calculation.
- 4) The transducer in MW-31-135 failed after the first week of August, so only one week of data is available for averaging.

## Figures

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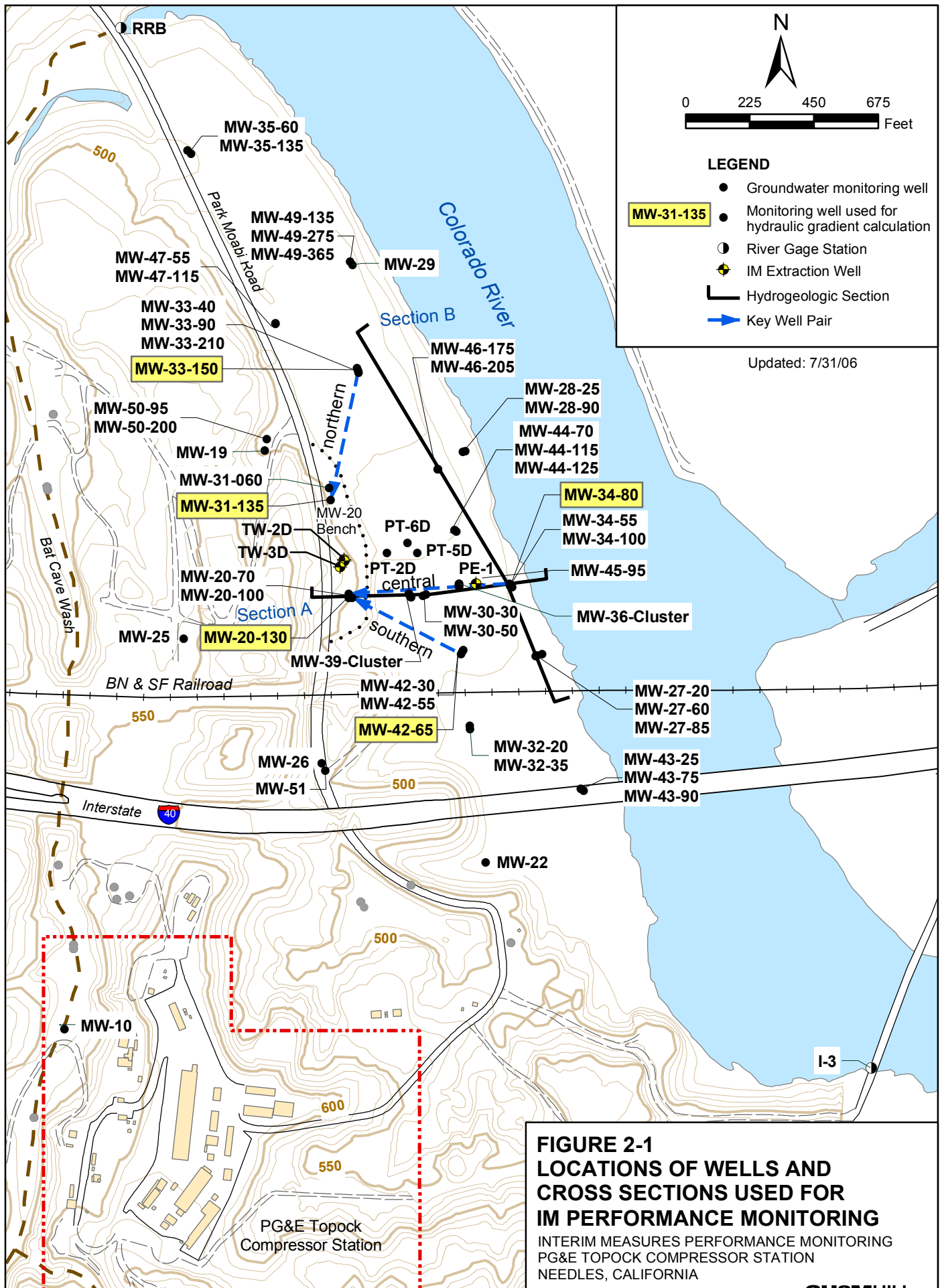


**Notes:** Location map shows Interim Measures No.3 (IM-3) facilities as of January 2006.  
Aerial photography taken May 2005.

# **FIGURE 1-1** **LOCATIONS OF IM NO. 3** **GROUNDWATER EXTRACTION,** **CONVEYANCE, AND TREATMENT** **FACILITIES**

INTERIM MEASURES 2006 WELL  
DRILLING INVESTIGATION REPORT  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

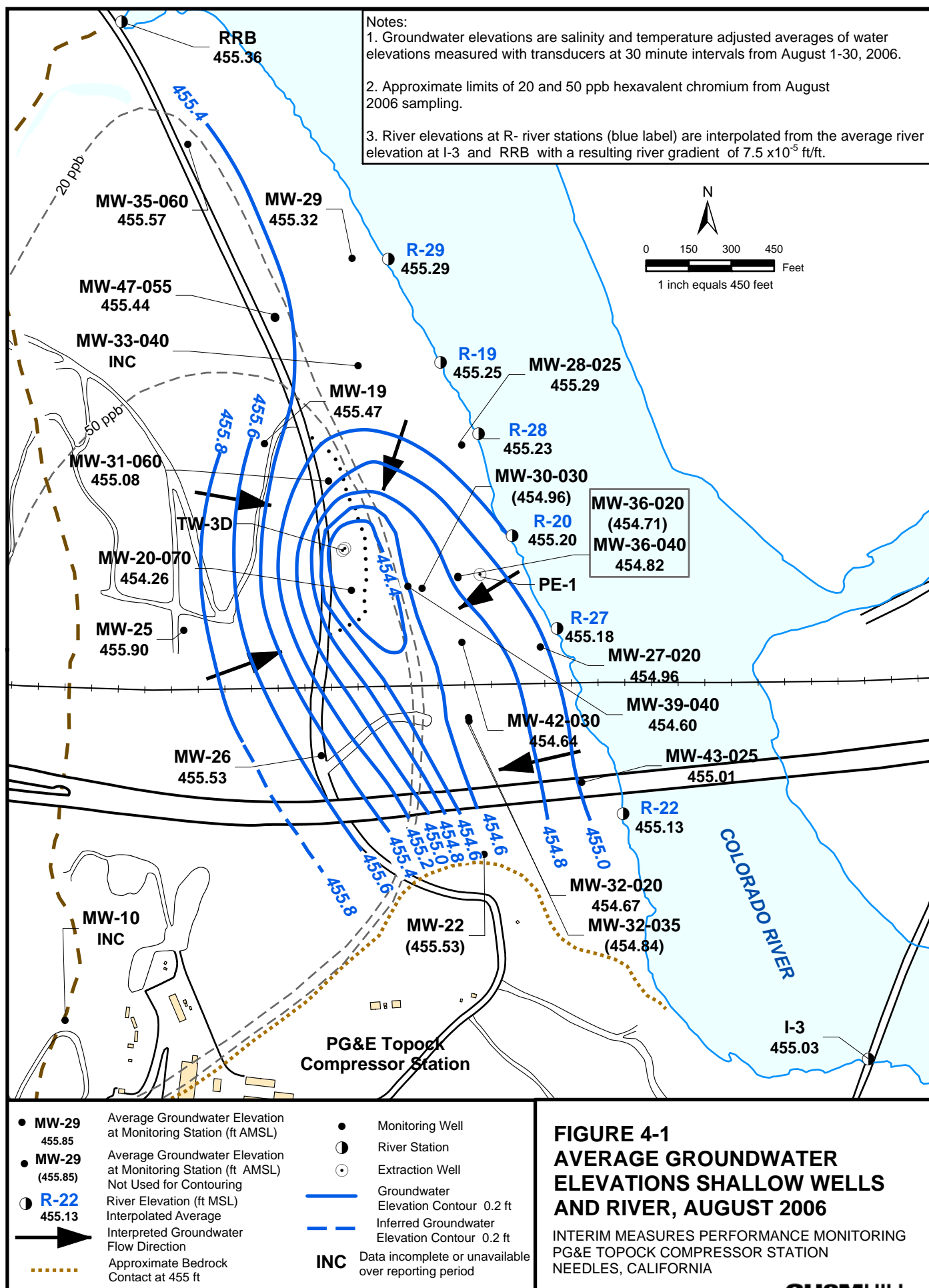
**CH2MHILL**







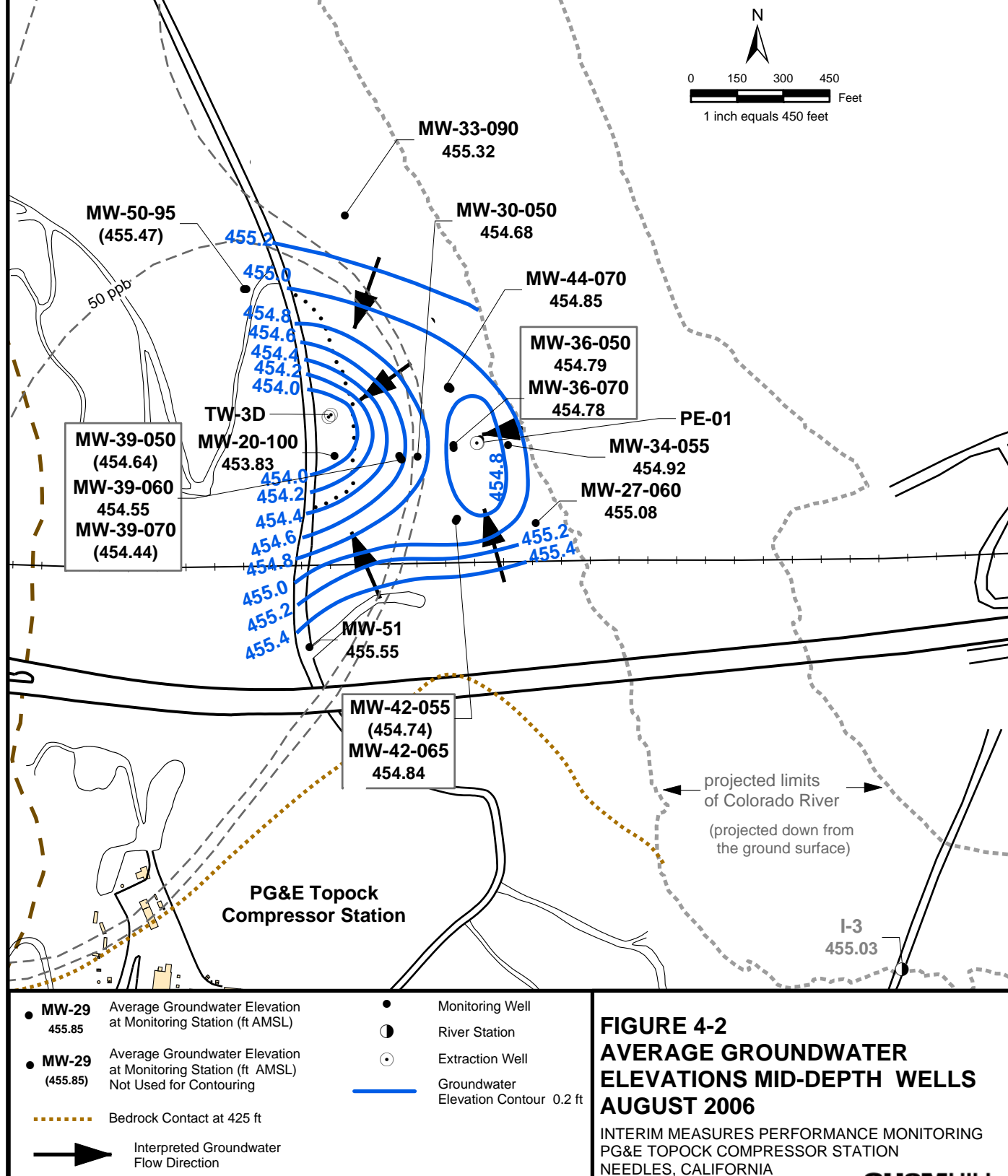


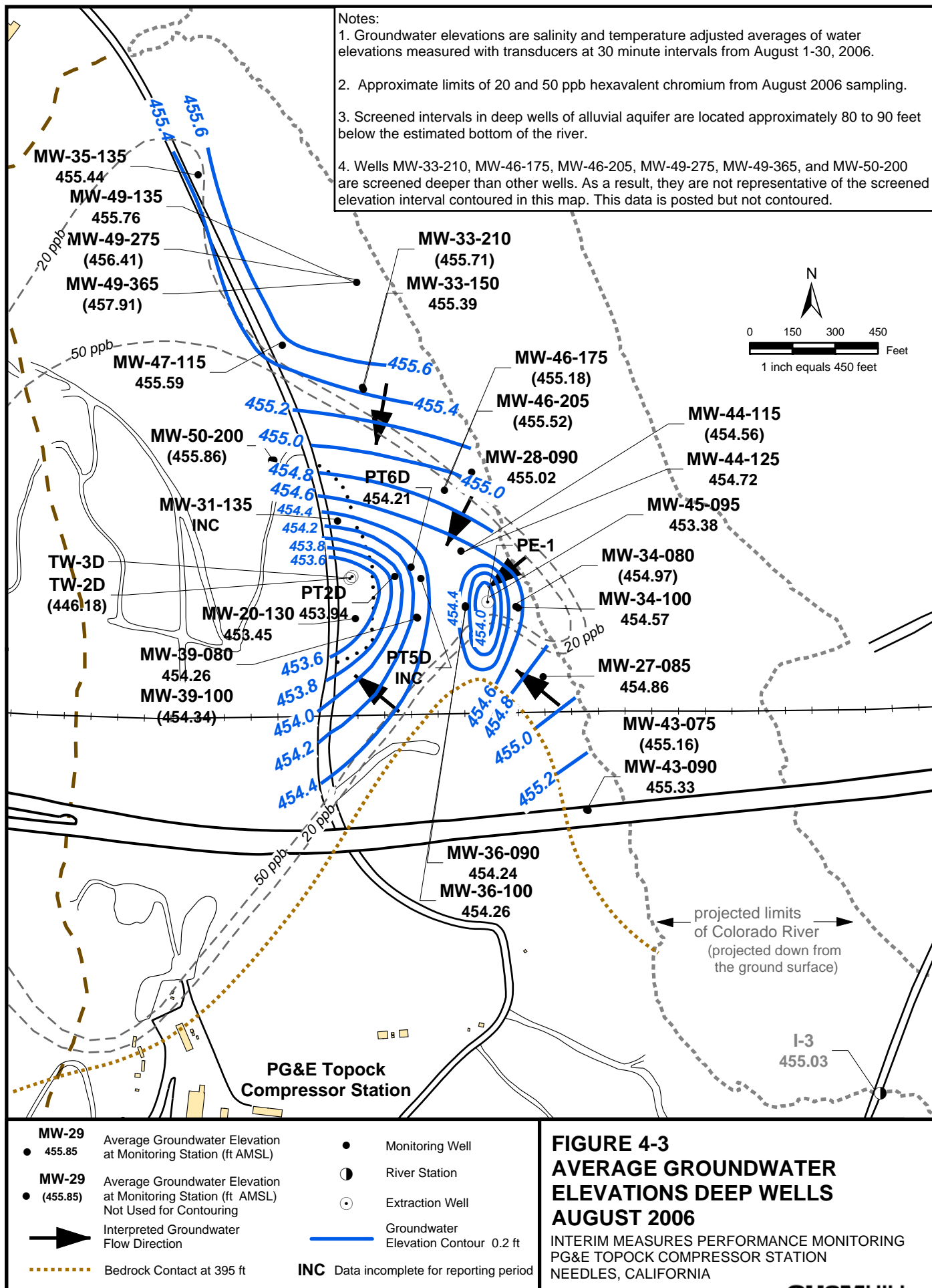


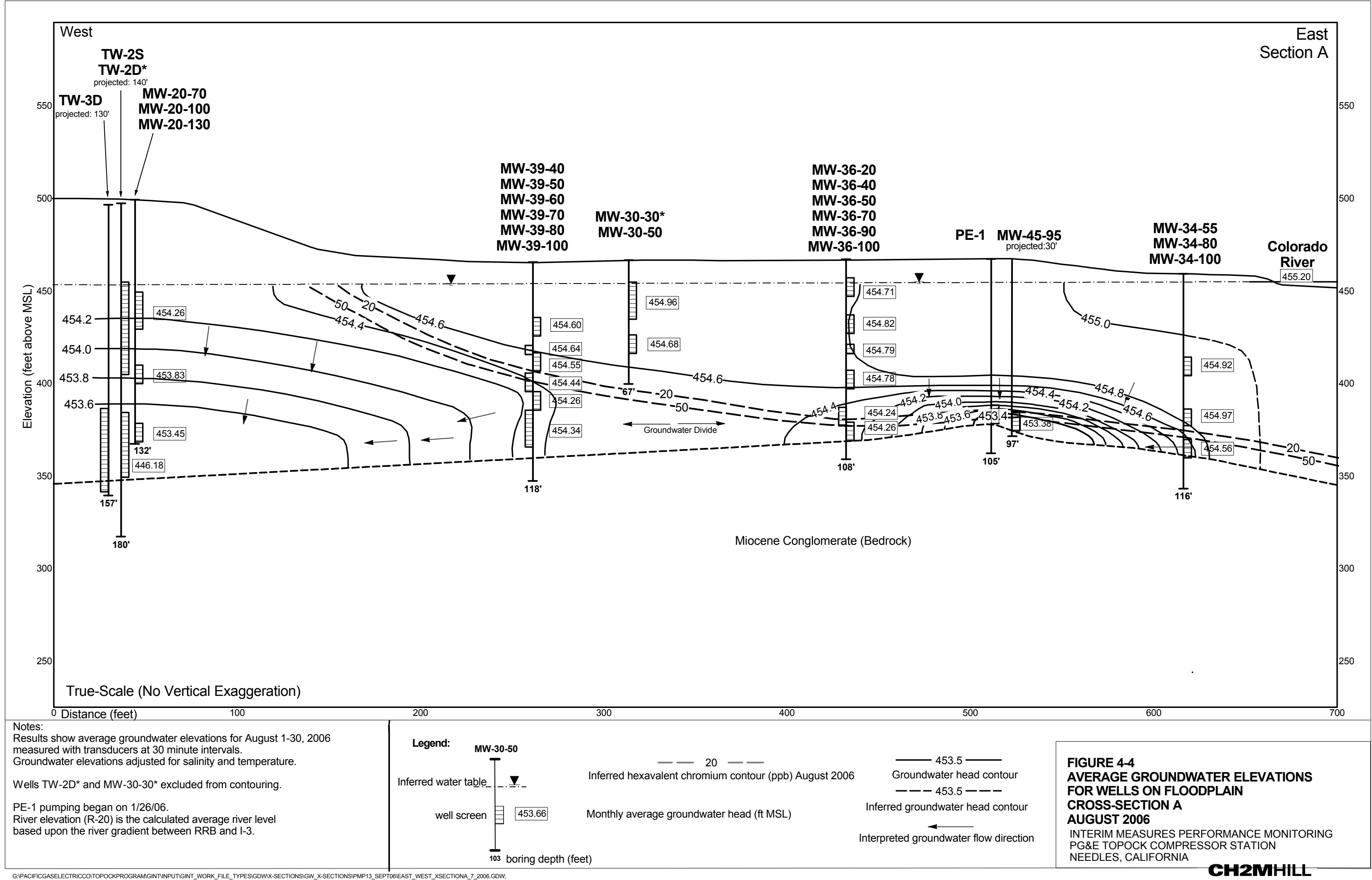


**Notes:**

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30 minute intervals from August 1-30, 2006.
2. Approximate limits of 20 and 50 ppb hexavalent chromium from August 2006 sampling. The 20 ppb contour extends northward since both shallow and deep wells at this location have detections greater than 20 ppb. See Figure 3-1 of this report.
3. Screened intervals in mid-depth wells of alluvial aquifer are located approximately 40 to 50 feet below the estimated bottom of the river.







**Appendix A**  
**Extraction System Operations Log for**  
**August 2006**

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## Appendix A

### Extraction System Operations Log for August 2006

### PG&E Topock Interim Measures Performance Monitoring Program

During August 2006, extraction wells TW-3D and PE-1 operated at a target pump rate of at 135 gallons per minute (gpm) excluding periods of planned and unplanned downtime. Extraction well TW-3D was temporary operated during August 7 and 8, 2006, while TW-3D was taken offline (see unplanned downtime below). The operational run time for the IM groundwater extraction system (combined or individual pumping from TW-2D, TW-3D and PE-1) was approximately 99 percent during the August 2006 reporting period.

The IM No. 3 facility also treated approximately 1,320 gallons of water generated from the groundwater monitoring program during August 2006. Treatment of this water at the IM No. 3 facility was approved by the Regional Board on January 26, 2006, according to the conditions of Order No. R7-2004-0103. One container of solids (approximately 12 cubic yards) from the IM No. 3 facility were transported to the Chemical Waste Management at the Kettleman Hills facility during August 2006.

On August 2, 2006, injection well IW-03 was brought into full-time service and IW-02 was taken out of service for well cleaning. No extraction system downtime resulted from this event.

Periods of planned and unplanned extraction system downtime during August 2006 are summarized below. The times shown are in Pacific Standard Time (PST) to be consistent with other data collected (e.g. water level data) at the site.

- **August 7 and 8, 2006 (unplanned):** Extraction well TW-3D was shut down from 5:13 p.m. on Monday, August 7 until 9:18 a.m. on Tuesday, August 8 due to a leaking pipe gasket in the extraction well vault. A water level sensor located within the extraction well vault identified the leak and automatically shutdown TW-3D. The leaking gasket was replaced and TW-3D was back online at 8:28 a.m. on Tuesday, August 8. The leak was entirely contained within the well vault, which provides secondary containment at the extraction wellhead. No extraction system downtime resulted from this event.
- **August 9, 2006 (unplanned):** The extraction well system was shut down from 5:03 p.m. until 5:35 p.m. to switch to generator power after a weather-caused power failure. Extraction system downtime was 32 minutes.
- **August 10, 2006 (unplanned):** The extraction well system was shutdown from 4:52 a.m. until 5:00 a.m. to return operations to Needles power. Extraction system downtime was 5 minutes.
- **August 22, 2006 (unplanned):** The extraction well system was shut down from 7:30 p.m. until 7:44 p.m. to switch to generator power after a weather-caused power failure. Extraction system downtime was 14 minutes.
- **August 23, 2006 (unplanned):** The extraction well system was shut down from 4:59 a.m. until 5:05 a.m. to return operations to Needles power. Extraction system downtime was 6 minutes.

- **August 23, 2006 (unplanned):** The extraction well system was shut down from 1:36 p.m. until 2:45 p.m. due to a required repair of a valve on the reverse osmosis unit. Extraction system downtime was 1 hour 9 minutes.
- **August 23, 2006 (unplanned):** The extraction well system was shut down from 6:26 p.m. until 7:44 p.m. due to a power outage caused by thunderstorms in the area. Extraction system downtime was 1 hour 18 minutes.
- **August 23, 2006 (planned):** The extraction well system was shut down from 8:53 p.m. until 10:59 p.m. to switch to the offline set of clean microfilter modules as part of normal module maintenance. Extraction system downtime was 2 hours 6 minutes.
- **August 24, 2006 (unplanned):** The extraction well system was shut down from 3:20 a.m. until 4:33 a.m. to troubleshoot and re-start the microfilter which was shutting down due to a backwash strainer alarm condition. Extraction system downtime was 1 hour 13 minutes.
- **August 25, 2006 (unplanned):** The extraction well system was shut down from 6:28 a.m. until 6:35 a.m. to return operations to Needles power. Extraction system downtime was 7 minutes.
- **August 31, 2006 (unplanned):** The extraction well system was shut down from 3:06 p.m. until 3:19 p.m. to switch to generator power after a weather-caused power failure. Extraction system downtime was 13 minutes.

**Appendix B**  
**Chromium Sampling Results for Monitoring**  
**Wells in Floodplain Area**

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TABLE B-1

Groundwater Sampling Results for Floodplain Monitoring Wells, March through August 2006

Interim Measures Performance Monitoring

PG&amp;E Topock Compressor Station

Sample Date		Hexavalent Chromium µg/L	Dissolved Total Chromium µg/L	Selected Field Parameters			Groundwater and River Elevations at Sampling Time	
				ORP mV	Dissolved Oxygen mg/L	Specific Conductance µS/cm	Groundwater Elevation salinity-adjusted feet MSL	River Elevation Downstream I-3 Station
Shallow Wells								
MW-27-020	06-Mar-06	ND (0.2)	ND (1.0)	-153	0.4	910	455.0	455.1
	01-May-06	ND (0.2)	ND (1.0)	---	2.5	1,510	455.4	454.7
MW-28-025	09-Mar-06	ND (0.2)	ND (1.0)	-54	3.5	1,140	455.2	455.2
	05-May-06	ND (0.2)	ND (1.0)	-126	0.8	1,260	456.3	455.8
MW-29	13-Apr-06	ND (0.2)	ND (1.0)	-142	4.2	4,220	455.7	455.2
	05-May-06	ND (0.2)	ND (1.0)	-128	1.3	4,430	456.0	455.4
MW-30-030	13-Mar-06	ND (5.0)	ND (1.0)	-99	1.1	55,600	454.1	454.2
	02-May-06	ND (2.0)	ND (1.0)	-104	2.4	54,600	455.4	455.7
MW-32-020	10-Mar-06	ND (2.0)	ND (1.0)	-125	0.4	---	454.4	455.1
	04-May-06	ND (1.0)	ND (1.0)	-120	0.4	25,500	455.2	454.9
MW-32-035	10-Mar-06	ND (2.0)	ND (1.0)	-161	0.1	9,570	454.7	454.9
	04-May-06	ND (1.0)	ND (1.0)	-171	0.3	16,500	455.5	455.1
MW-33-040	09-Mar-06	ND (0.2)	ND (1.0) LF	---	---	---	454.8	455.2
	04-May-06	ND (0.2)	ND (1.0) LF	12	5.3	4,580	455.5	454.8
MW-36-020	07-Mar-06	ND (1.0)	ND (1.0)	-148	2.5	18,900	---	455.2
	01-May-06	ND (1.0)	ND (1.0)	-180	5.3	20,100	455.5	456.0
MW-36-040	07-Mar-06	ND (1.0)	ND (1.0)	-166	3.3	17,000	454.4	454.6
	01-May-06	ND (1.0)	ND (1.0)	-179	5.1	13,500	455.4	455.0
MW-39-040	07-Mar-06	ND (1.0)	ND (1.0)	-162	3.0	8,450	454.1	454.3
	02-May-06	ND (1.0)	ND (1.0)	-188	0.1	8,150	455.6	456.4
MW-42-030	07-Mar-06	ND (1.0)	ND (1.0)	-154	0.4	11,400	454.3	454.5
	02-May-06	ND (1.0)	ND (1.0)	-160	2.3	18,500	455.2	455.2
MW-43-025	10-Mar-06	ND (0.2)	ND (1.0)	-153	0.3	1,350	455.3	455.4
	04-May-06	ND (0.2)	ND (1.0)	-176	0.4	1,280	456.2	455.4
Middle-Depth Wells								
MW-27-060	07-Mar-06	ND (1.0)	ND (1.0)	-118	2.5	13,700	454.8	454.9
	01-May-06	ND (1.0)	ND (1.0)	-140	1.0	12,100	455.7	455.1
MW-30-050	09-Mar-06	ND (1.0)	ND (1.0)	-81	2.4	8,800	454.2	454.2
	02-May-06	ND (1.0)	ND (1.0)	-102	2.8	14,300	455.6	456.1
MW-33-090	08-Mar-06	16.7	14.3	-42	0.3	10,200	454.9	455.0
	03-May-06	16.1	16.4	-44	0.4	10,400	455.5	454.7
	03-May-06 FD	19.3	15.3	FD	FD	FD	FD	FD
MW-34-055	08-Mar-06	ND (1.0)	ND (1.0)	-106	---	8,460	454.4	454.4
	03-May-06	ND (0.2)	ND (1.0)	-117	0.3	7,580	456.3	456.0
MW-36-050	07-Mar-06	ND (1.0)	ND (1.0)	-110	2.7	8,400	454.5	454.8
	07-Mar-06 FD	ND (1.0)	ND (1.0)	FD	FD	FD	FD	FD
	01-May-06	ND (0.2)	ND (1.0)	-162	3.6	6,810	454.8	454.7
MW-36-070	07-Mar-06	ND (1.0)	ND (1.0)	-67	2.5	9,720	454.6	455.0
	06-Apr-06	ND (1.0)	ND (1.0)	---	1.8	7,740	455.5	456.0
	01-May-06	ND (1.0)	ND (1.0)	-130	4.6	8,180	455.7	455.4

Refer to table footnotes for data qualifier explanation.



TABLE B-1

Groundwater Sampling Results for Floodplain Monitoring Wells, March through August 2006

Interim Measures Performance Monitoring

PG&amp;E Topock Compressor Station

Sample Date		Hexavalent Chromium µg/L	Dissolved Total Chromium µg/L	Selected Field Parameters			Groundwater and River Elevations at Sampling Time	
				ORP mV	Dissolved Oxygen mg/L	Specific Conductance µS/cm	Groundwater Elevation salinity-adjusted feet MSL	River Elevation Downstream I-3 Station
Middle-Depth Wells								
MW-36-070	13-Jun-06	ND (0.2) J	ND (1.0)	---	---	7,840	456.1	455.9
	11-Jul-06	ND (1.0)	ND (1.0)	-108	0.6	7,320	455.4	454.8
	09-Aug-06	ND (0.2)	ND (1.0)	-149	0.7	6,920	455.3	455.4
MW-39-050	08-Mar-06	ND (1.0)	ND (1.0)	71	2.3	16,000	454.3	455.0
	02-May-06	ND (1.0)	ND (1.0)	-45	0.2	9,380	455.4	455.3
MW-39-060	08-Mar-06	7.10	2.70	12	2.1	---	453.8	454.3
	08-Mar-06 FD	6.90	2.40	FD	FD	FD	FD	FD
	02-May-06	1.10	1.40	-39	0.2	12,000	455.3	454.8
MW-39-070	08-Mar-06	200	169	201	2.8	16,300	453.5	454.5
	06-Apr-06	223	204	88	2.1	12,300	454.8	456.3
	02-May-06	137	123	31	0.2	11,200	455.0	455.7
	14-Jun-06	107 J	94.6	197	0.0	10,300	455.9	457.0
	12-Jul-06	77.0 J	66.7	74	0.9	9,570	455.1	456.4
	10-Aug-06	89.6	86.2	67	0.6	---	454.7	456.0
MW-42-055	07-Mar-06	ND (1.0)	ND (1.0)	-122	0.3	16,500	454.3	454.4
	02-May-06	ND (1.0)	ND (1.0)	-138	2.2	21,400	456.1	455.0
MW-42-065	07-Mar-06	ND (1.0)	ND (1.0)	-58	0.4	20,100	454.4	454.3
	02-May-06	ND (1.0)	ND (1.0)	-76	2.2	25,400	455.3	454.6
MW-44-070	09-Mar-06	ND (1.0)	ND (1.0)	-393	2.4	6,970	453.2	454.0
	23-Mar-06	ND (1.0) J	ND (1.0)	-166	2.4	7,600	454.1	454.1
	04-Apr-06	ND (1.0)	ND (1.0)	-96	1.6	9,200	455.3	455.3
	04-May-06	ND (1.0)	ND (1.0)	-156	4.5	10,000	455.6	455.3
	13-Jun-06	ND (1.0)	ND (1.0)	-131	4.3	12,200	456.3	456.1
	13-Jun-06 FD	ND (1.0)	ND (1.0)	FD	FD	FD	FD	FD
	15-Jun-06	ND (1.0)	ND (1.0)	-118	5.4	14,900	456.4	456.8
Deep Wells								
MW-27-085	06-Mar-06	ND (1.0)	ND (1.0)	-92	0.2	15,800	454.8	454.8
	03-Apr-06	ND (1.0)	ND (1.0)	-102	2.5	18,200	454.5	454.3
	01-May-06	ND (1.0)	ND (1.0)	-104	0.9	18,300	455.1	454.7
	14-Jun-06	ND (1.0)	ND (1.0)	-98	3.3	22,400	456.4	456.3
	12-Jul-06	ND (2.0)	ND (1.0)	-71	2.2	21,400	456.2	456.8
	08-Aug-06	ND (1.0)	ND (1.0)	-33	2.7	22,900	454.8	456.2
MW-28-090	06-Mar-06	ND (1.0)	ND (1.0)	-151	0.3	6,830	454.4	454.4
	06-Apr-06	ND (1.0)	ND (1.0)	---	2.1	8,160	455.5	455.4
	05-May-06	ND (1.0)	ND (1.0)	-150	0.8	8,690	455.9	456.2
	15-Jun-06	ND (1.0)	ND (1.0)	-153	3.9	7,980	456.4	456.5
	13-Jul-06	ND (1.0) J	ND (1.0)	-150	1.6	---	456.6	457.1
	11-Aug-06	ND (0.2)	ND (1.0)	-159	0.6	12,300	456.1	456.5
MW-33-150	08-Mar-06	4.20	3.20	-55	0.3	20,400	454.9	455.2
	06-Apr-06	4.50	3.00	39	2.1	18,300	455.5	455.2
	03-May-06	6.60	5.50	-23	1.0	17,100	455.4	454.5
	16-Jun-06	5.50	5.40	38	2.8	21,300	456.6	457.1

Refer to table footnotes for data qualifier explanation.

TABLE B-1

Groundwater Sampling Results for Floodplain Monitoring Wells, March through August 2006

Interim Measures Performance Monitoring

PG&amp;E Topock Compressor Station

Sample Date		Hexavalent Chromium µg/L	Dissolved Total Chromium µg/L	Selected Field Parameters			Groundwater and River Elevations at Sampling Time	
				ORP mV	Dissolved Oxygen mg/L	Specific Conductance µS/cm	Groundwater Elevation salinity-adjusted feet MSL	River Elevation Downstream I-3 Station
Deep Wells								
MW-33-150	13-Jul-06	7.40 J	6.70	-14	1.1	22,400	456.2	456.5
	11-Aug-06	9.30	8.10	-19	1.8	20,200	456.0	456.4
MW-33-210	06-Mar-06	10.7	6.50	-37	0.2	16,600	455.1	454.5
	13-Apr-06	4.20	ND (4.2)	21	6.8	18,100	455.7	454.7
	05-May-06	10.0	8.80	34	0.4	20,100	456.4	456.5
	16-Jun-06	9.20	8.30	-27	2.9	23,600	456.7	456.9
	13-Jul-06	10.0 J	7.50	36	2.2	27,100	456.5	456.8
	08-Aug-06	9.80	8.70	70	3.1	23,900	455.8	454.8
MW-34-080	09-Mar-06	ND (1.0)	ND (1.0)	-12	2.2	15,100	454.8	454.8
	03-Apr-06	ND (1.0)	ND (1.0)	-38	2.4	13,500	454.4	454.0
	03-May-06	ND (1.0)	ND (1.0)	-68	0.2	13,800	456.3	455.3
	14-Jun-06	ND (1.0)	ND (1.0)	-99	2.7	15,600	456.9	456.8
	12-Jul-06	ND (1.0)	ND (1.0)	-75	1.6	14,800	456.1	456.3
	08-Aug-06	ND (1.0)	ND (1.0)	-33	0.6	16,200	455.5	455.4
MW-34-100	08-Mar-06	800	857	-8	---	18,600	454.2	454.3
	08-Mar-06 FD	801	773	FD	FD	FD	FD	FD
	23-Mar-06	830	851	113	2.2	18,400	454.1	454.4
	23-Mar-06 FD	828	855	FD	FD	FD	FD	FD
	03-Apr-06	858	910	42	2.8	16,800	454.1	454.1
	21-Apr-06	852	873	---	---	---	---	455.8
	03-May-06	900	946	-10	0.3	18,200	455.2	454.8
	17-May-06	935	1180	44	3.1	23,800	455.2	455.2
	17-May-06 FD	930	1190	FD	FD	FD	FD	FD
	31-May-06	960	929	104	3.1	16,100	456.6	456.3
	14-Jun-06	922	839	-2	3.2	20,800	456.5	456.6
	14-Jun-06 FD	921	864	FD	FD	FD	FD	FD
	28-Jun-06	976	1130	132	5.0	21,800	456.2	456.6
	12-Jul-06	823 J	851	27	1.5	19,300	455.9	456.6
	12-Jul-06 FD	828 J	864	FD	FD	FD	FD	FD
	26-Jul-06	859	955	36	2.2	---	456.2	456.7
	08-Aug-06	889	982	64	0.5	20,600	455.5	455.9
	28-Aug-06	922	945	69	1.3	28,900	453.6	453.6
MW-36-090	07-Mar-06	33.0	27.5	42	3.1	14,700	453.7	454.4
	04-Apr-06	23.5	15.7	5	2.4	12,700	455.4	455.3
	01-May-06	22.8	18.3	24	4.4	11,400	454.3	454.6
	13-Jun-06	10.9	9.00	---	---	10,300	455.7	456.4
	11-Jul-06	12.2	11.1	-34	0.8	14,000	454.4	455.3
	09-Aug-06	9.00	8.20	-96	0.8	9,190	454.9	455.9
MW-36-100	13-Mar-06	540	531	-16	0.2	17,400	453.1	453.7
	05-Apr-06	554	492	24	0.1	15,300	453.7	455.3
	02-May-06	532	517	23	2.7	21,900	454.4	454.8
	15-Jun-06	496 J	465	7	3.6	18,200	455.4	456.2
	13-Jul-06	528	497	37	1.0	19,600	455.7	457.5

Refer to table footnotes for data qualifier explanation.

TABLE B-1

Groundwater Sampling Results for Floodplain Monitoring Wells, March through August 2006

Interim Measures Performance Monitoring

PG&amp;E Topock Compressor Station

		Sample Date	Hexavalent Chromium µg/L	Dissolved Total Chromium µg/L	Selected Field Parameters			Groundwater and River Elevations at Sampling Time	
					ORP mV	Dissolved Oxygen mg/L	Specific Conductance µS/cm	Groundwater Elevation salinity-adjusted feet MSL	River Elevation Downstream I-3 Station
Deep Wells									
MW-36-100		09-Aug-06	551	474	67	1.6	14,600	455.1	456.3
MW-39-080		08-Mar-06	1420	1400	154	2.2	20,900	453.7	454.6
		06-Apr-06	1200	1120	86	2.0	15,800	454.8	456.2
		02-May-06	1410	1450	61	0.2	14,900	454.9	455.0
		14-Jun-06	1000 J	934	184	0.0	15,100	455.9	456.8
		12-Jul-06	830 J	750	69	1.1	14,600	455.2	456.8
		10-Aug-06	481	447	78	0.6	15,800	454.5	455.4
MW-39-100		13-Mar-06	4070	4640	51	0.7	20,400	452.9	453.9
		05-Apr-06	4470	4050	73	0.9	18,300	454.2	454.9
	FD	05-Apr-06	4460	4330	FD	FD	FD	FD	FD
		02-May-06	3680	3480	67	3.5	---	454.4	454.7
		14-Jun-06	3270	3250	79	3.4	23,100	455.8	455.7
		13-Jul-06	3790	3470	80	1.5	26,200	455.5	457.4
		10-Aug-06	3230	3440	141	1.6	23,000	454.9	456.0
	FD	10-Aug-06	3170	3410	FD	FD	FD	FD	FD
MW-43-075		10-Mar-06	ND (1.0)	ND (1.0)	-149	0.1	14,400	455.4	455.4
		03-Apr-06	ND (1.0)	ND (1.0)	-148	2.3	15,000	454.9	454.2
		04-May-06	ND (1.0)	ND (1.0)	-167	0.3	15,400	456.6	456.1
MW-43-090		10-Mar-06	ND (2.0)	ND (1.0)	-116	0.0	21,100	455.5	455.1
		03-Apr-06	ND (1.0)	ND (1.0)	-97	2.3	21,100	455.2	454.3
		04-May-06	ND (1.0)	ND (1.0)	-124	0.4	22,400	456.6	455.9
MW-44-115		14-Mar-06	735 J	730	-11	1.5	16,500	452.8	454.2
		22-Mar-06	1440	1970	-74	3.0	---	453.4	453.8
		04-Apr-06	1550	1620	37	1.8	15,800	455.4	455.3
	FD	04-Apr-06	1570	1570	FD	FD	FD	FD	FD
		20-Apr-06	1680	1650	-38	0.4	11,400	455.0	455.4
	FD	20-Apr-06	1680	1610	FD	FD	FD	FD	FD
		26-Apr-06	1560	1580	-27	2.5	15,800	456.1	455.8
		04-May-06	1710	1870	-21	4.9	17,300	454.9	454.8
		10-May-06	1490	1550	7	2.2	22,700	454.9	454.7
		17-May-06	1560	1880	-10	1.9	19,600	455.5	456.1
		31-May-06	1610	1580	-11	0.2	13,100	455.0	455.5
	FD	31-May-06	1610	1600	FD	FD	FD	FD	FD
		13-Jun-06	1420	1350	-26	3.3	17,700	455.6	455.9
		28-Jun-06	1600	1830	-37	4.0	16,800	455.6	456.5
		12-Jul-06	1700 J	1430	14	1.2	17,300	455.2	455.9
		26-Jul-06	1290	1530	-31	0.6	---	455.4	455.9
		09-Aug-06	1230	1460 LF	---	2.9	17,700	455.0	455.3
		23-Aug-06	1370	1440	93	0.6	16,800	454.6	455.0
MW-44-125		09-Mar-06	66.6 R	67.5 R	-419	2.6	13,500	453.0	454.1
		22-Mar-06	362	430	-280	1.5	15,000	453.9	453.7
		04-Apr-06	372	374	10	1.9	15,600	455.9	455.5
		20-Apr-06	461	504	-138	0.0	11,400	455.3	455.9

Refer to table footnotes for data qualifier explanation.

TABLE B-1

Groundwater Sampling Results for Floodplain Monitoring Wells, March through August 2006

Interim Measures Performance Monitoring

PG&amp;E Topock Compressor Station

Sample Date		Hexavalent Chromium µg/L	Dissolved Total Chromium µg/L	Selected Field Parameters			Groundwater and River Elevations at Sampling Time				
				ORP mV	Dissolved Oxygen mg/L	Specific Conductance µS/cm	Groundwater Elevation salinity-adjusted feet MSL	River Elevation Downstream I-3 Station			
Deep Wells											
MW-44-125	26-Apr-06	480	485	-147	2.5	16,200	456.4	456.0			
	26-Apr-06	FD	479	493	FD	FD	FD	FD			
	04-May-06		584	592	-144	4.4	17,200	455.7	455.4		
	10-May-06		634	J	667	-96	2.2	23,000	455.5	454.9	
	17-May-06		612		740	-103	1.7	19,700	455.9	456.1	
	31-May-06		413		398	-95	0.4	13,600	455.6	455.6	
	11-Jul-06		373		395	-16	0.7	12,100	455.0	455.1	
	11-Jul-06	FD	365		335	FD	FD	FD	FD	FD	
	26-Jul-06		155		177	-140	1.9	---	455.7	455.9	
	26-Jul-06	FD	157		180	FD	FD	FD	FD	FD	
	09-Aug-06		218		227	LF	-93	0.6	16,800	455.4	455.7
	28-Aug-06		468		486	-188	1.1	17,700	454.4	454.2	
28-Aug-06	FD	462		540	FD	FD	FD	FD	FD		
MW-45-095a	24-Mar-06	259	216	-20	2.3	16,100	453.3	454.6			
	13-Jul-06	197	202	45	1.4	22,200	454.4	456.1			
MW-45-095b	24-Mar-06	332	327	-12	2.1	16,700	452.0	454.5			
MW-46-175	14-Mar-06	287	279	-44	2.2	19,500	455.2	454.5			
	24-Mar-06	213	173	-93	1.9	19,900	456.4	454.7			
	07-Apr-06	208	J	186	-116	2.1	18,500	455.8	455.9		
	04-May-06	222	237	-27	4.8	20,800	455.2	454.7			
	18-May-06	227	268	-17	2.6	20,500	455.4	454.8			
	31-May-06	139	J	169	37	1.2	15,900	455.7	455.3		
	15-Jun-06	233	211	-16	3.2	19,900	456.5	456.9			
	30-Jun-06	112	160	56	6.2	21,800	456.0	456.0			
	30-Jun-06	FD	111	164	FD	FD	FD	FD	FD		
	12-Jul-06	135	J	85.8	38	1.5	19,500	456.0	455.6		
	27-Jul-06	174	206	16	0.7	---	456.2	456.6			
	09-Aug-06	210	186	65	0.7	21,900	455.3	454.8			
	09-Aug-06	FD	223	214	FD	FD	FD	FD	FD		
	25-Aug-06	137	136	-24	1.1	19,800	455.2	454.9			
MW-46-205	14-Mar-06	ND (1.0)	ND (1.0)	-117	2.3	22,600	455.1	454.9			
	24-Mar-06	ND (1.0)	ND (1.0)	-202	1.7	24,000	456.5	454.4			
	07-Apr-06	ND (1.0)	J	ND (1.0)	-200	1.9	22,400	460.2	456.2		
	04-May-06	ND (1.0)	ND (1.0)	-177	4.6	25,900	455.5	454.8			
	15-Jun-06	ND (1.0)	1.80	-147	2.9	24,100	456.8	457.2			
	13-Jul-06	ND (1.0)	3.50	-152	1.0	24,900	456.4	457.4			
10-Aug-06	ND (1.0)	ND (1.0)	-88	1.3	22,900	455.9	455.4				
MW-49-135	25-Apr-06	ND (1.0)	J	ND (1.0)	-167	2.4	18,800	455.8	455.2		
	18-May-06	ND (1.0)	ND (1.0)	-178	2.3	17,100	456.6	455.8			
MW-49-275	25-Apr-06	ND (1.0)	ND (1.0)	-143	3.3	29,400	455.4	454.9			
	18-May-06	ND (1.0)	ND (1.0)	-214	2.2	26,700	456.4	455.1			
MW-49-365	26-Apr-06	ND (2.0)	ND (1.0)	-244	2.2	37,600	458.0	455.1			
	16-May-06	ND (2.0)	ND (1.0)	-192	1.8	44,900	458.3	455.5			

Refer to table footnotes for data qualifier explanation.

TABLE B-1

Groundwater Sampling Results for Floodplain Monitoring Wells, March through August 2006  
Interim Measures Performance Monitoring  
PG&E Topock Compressor Station

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**NOTES:**

ND = not detected at listed reporting limit (RL)

FD = field duplicate

J = concentration or RL estimated by laboratory or data validation

T = data from the downhole transducers to fill groundwater elevation data gaps at some locations

MSL = mean sea level

(---) = data not collected, available, rejected, or field instrumentation malfunctioned

µg/L = micrograms per liter

mV = oxidation-reduction potential (ORP)

µS/cm = microSiemens per centimeter

M = I-3 Transducer damaged

Beginning in July 2005, samples analyzed for total chromium by EPA Method 6010B or 6020 were filtered and preserved in the field after sample collection, as per DTSC's June 30, 2005 letter.

The RLs for certain hexavalent chromium results from Method 7199 analyses have been elevated above the standard RL of 0.2 µg/L due to required sample dilution to accommodate matrix interferences.

Groundwater and river elevations in feet above mean sea level (MSL) rounded to 0.1 foot. River elevations from pressure transducer record at I-3.

Results for MW-44-125 from the June 28, 2006 sampling event are not shown while these data undergo more rigorous field QC evaluation.

TABLE B-2

Groundwater Sampling Results for Other Monitoring Wells in PMP Area, March through August 2006  
Interim Measures Performance Monitoring  
PG&E Topock Compressor Station

Well ID	Sample Date	Hexavalent Chromium µg/L	Dissolved Total Chromium µg/L	Selected Field Parameters		
				ORP mV	Dissolved Oxygen mg/L	Specific Conductance µS/cm
Shallow Wells						
MW-12	18-Apr-06	1210	1300	91.0	7.28	3460
	01-May-06	1250	1280	-38	---	3840
MW-19	09-Mar-06	1090	1080	227	7.43	3850
	02-May-06	1130	1120	38.0	3.30	2450
MW-20-070	10-Mar-06	5170	4510	228	7.32	5830
	05-May-06	4100	4440	97.0	7.21	3050
MW-21	09-Mar-06	---	---	---	4.20	15100
	02-May-06	ND (1.0)	ND (1.0)	-77	---	11500
MW-22	15-Mar-06	ND (2.0)	ND (1.0)	---	8.54	34800
	03-May-06	ND (1.0) J	ND (1.0)	-88	4.14	34200
MW-24A	06-Mar-06	3490	3980	239	5.17	3140
MW-25	09-Mar-06	1360	1430	210	7.40	2750
	03-May-06	1390	1310	98.0	7.72	2110
	03-May-06 FD	1280	1310	FD	FD	FD
MW-26	08-Mar-06	3280	3020	170	9.16	3840
	01-May-06	3210	3110	---	---	3290
MW-31-060	15-Mar-06	1020	1010	217	7.01	2750
	15-Mar-06 FD	1000	1010	FD	FD	FD
	01-May-06	952	959	---	---	2740
MW-35-060	14-Mar-06	31.6	24.3	42.0	2.92	---
	01-May-06	25.7	26.4	-37	---	6770
MW-47-055	23-Mar-06	10.9 J	7.90	-94	2.98	5800
	16-May-06	24.0	27.3	22.0	2.89	4430
TW-02S	15-Mar-06	2720	2870	-38	7.53	3200
	03-May-06	2400	2600	80.0	6.75	3150
Middle-Depth Wells						
MW-20-100	10-Mar-06	10100	10200	198	3.77	4360
	05-May-06	10400	12100	98.0	5.20	3760
MW-50-095	09-May-06	199	194	30.0	3.00	5480
	24-May-06	218	221	50.0	3.42	---
MW-51	12-May-06	4370	4630	92.0	2.51	12100
	30-May-06	4130	4530	17.0	1.53	10600
Deep Wells						
MW-20-130	10-Mar-06	10700	10600	213	3.49	14500
	05-May-06	12000	13700	97.0	2.21	12400
MW-24B	07-Mar-06	5650	5970	199	2.59	17200
MW-31-135	15-Mar-06	173	186	33.0	3.05	13400
	09-May-06	154	146 LF	82.0	2.75	15900
MW-35-135	10-Mar-06	28.0	24.0	103	2.44	12400
	10-Mar-06 FD	26.5	25.7	FD	FD	FD
	02-May-06	21.0	20.7	0.00	2.70	13000

TABLE B-2

Groundwater Sampling Results for Other Monitoring Wells in PMP Area, March through August 2006  
Interim Measures Performance Monitoring  
PG&E Topock Compressor Station

Well ID	Sample Date	Hexavalent Chromium µg/L	Dissolved Total Chromium µg/L	Selected Field Parameters		
				ORP mV	Dissolved Oxygen mg/L	Specific Conductance µS/cm
MW-47-115	23-Mar-06	ND (2.0) J	ND (1.0)	-161	2.32	15600
	16-May-06	1.40	5.10	-67	1.93	18400
MW-50-200	09-May-06	7750	7360	-11	1.91	20200
	24-May-06	5810	5910	60.0	4.11	37000
TW-02D	15-Mar-06	1360	1360	5.00	5.20	8470
	03-May-06	1120	1120	82.0	6.10	8490
TW-04	18-May-06	1.00	6.40	-97	0.56	15600
	05-Jun-06	ND (1.0)	4.10	-131	0.00	18300
TW-05	10-May-06	1.10 J	1.30	-161	0.60	15100
	01-Jun-06	ND (1.0) J	ND (1.0)	17.0	1.51	10600

**NOTES:**

Analytical results are validated.

ND = not detected at listed reporting limit (RL)

FD = field duplicate

J = concentration or RL estimated by laboratory or data validation

LF = lab filtered

(---) = data not collected, available, or field instrumentation malfunctioned

µg/L = micrograms per liter

mg/L = milligrams per liter

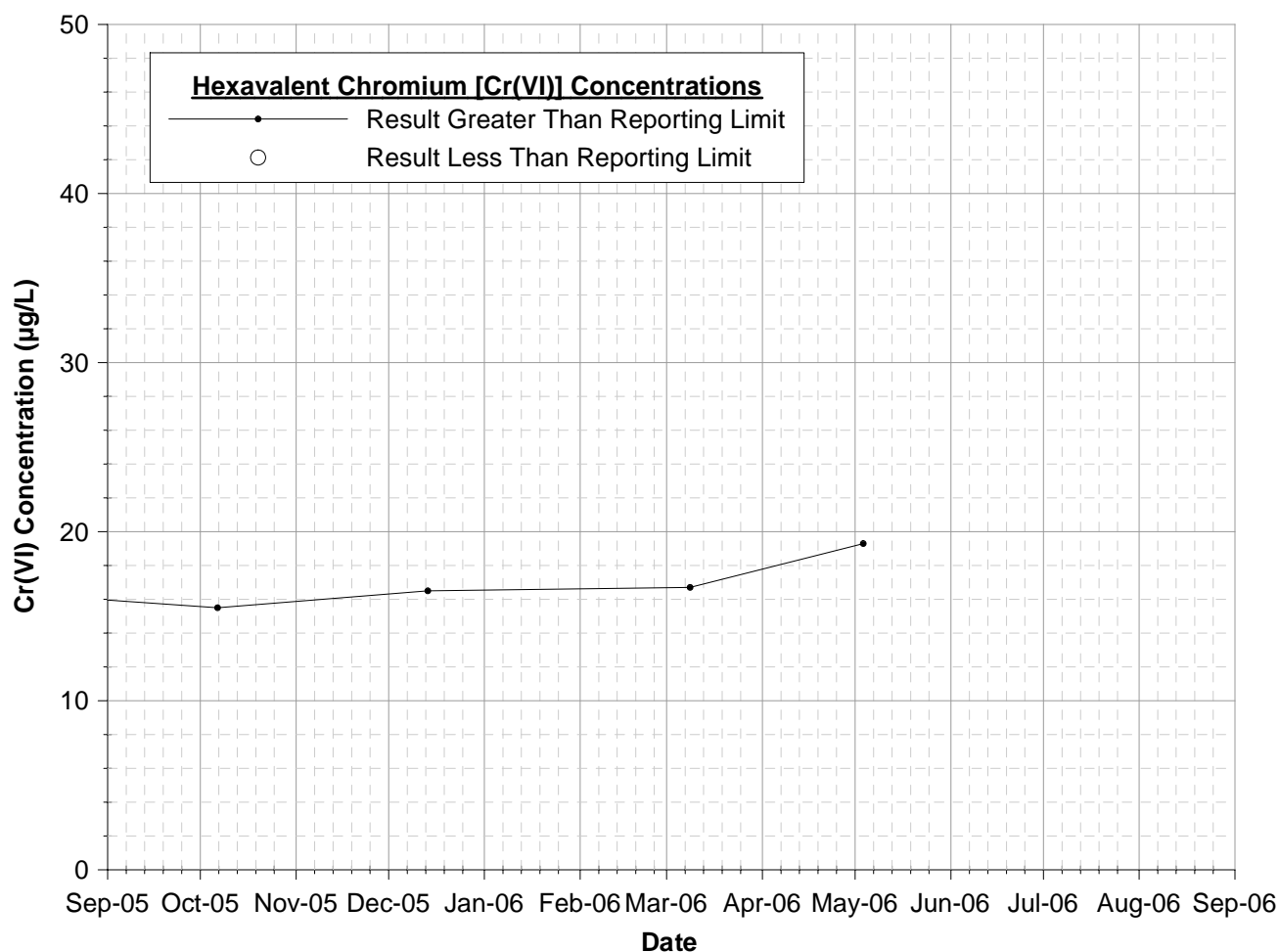
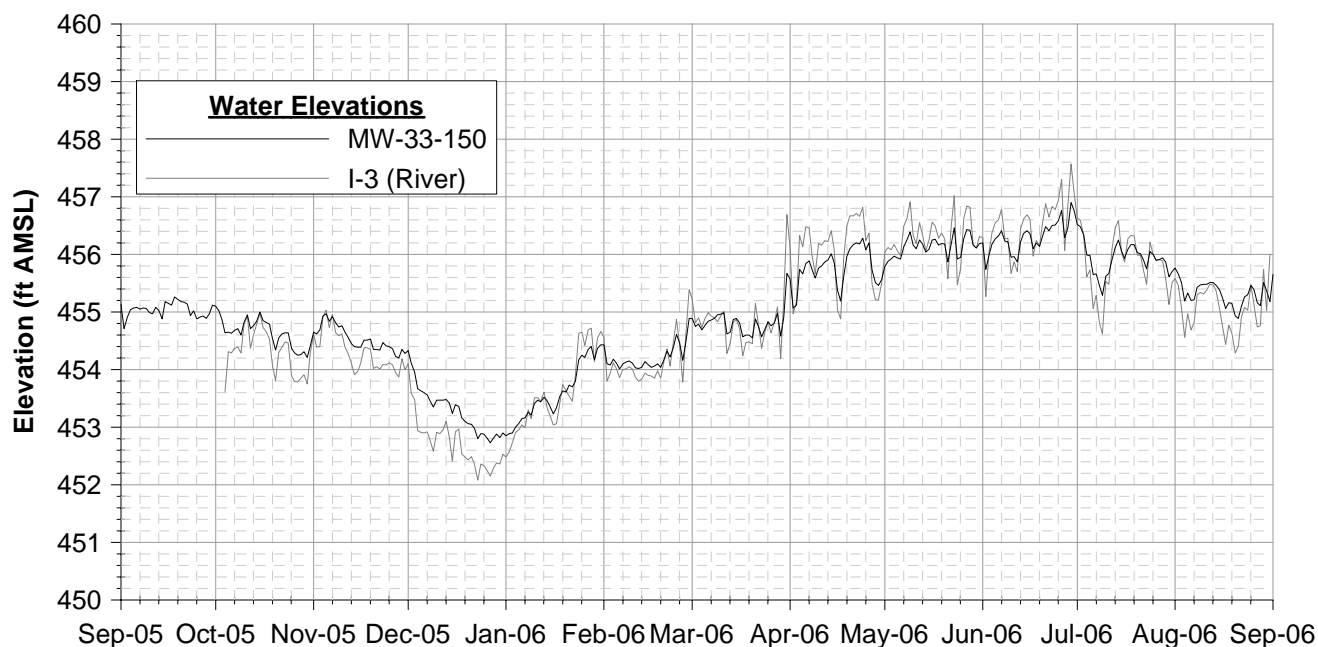
mV = oxidation-reduction potential (ORP)

µS/cm = microSiemens per centimeter

PMP = Interim Measure Performance Monitoring Program

Samples analyzed for total chromium by EPA Method 6010B or 6020 were filtered and preserved in the field after sample collection, as per DTSC's June 30, 2005 letter.

MW-21 was not sampled in March 2006 because the well was purged dry and did not produce enough water within 24 hours.

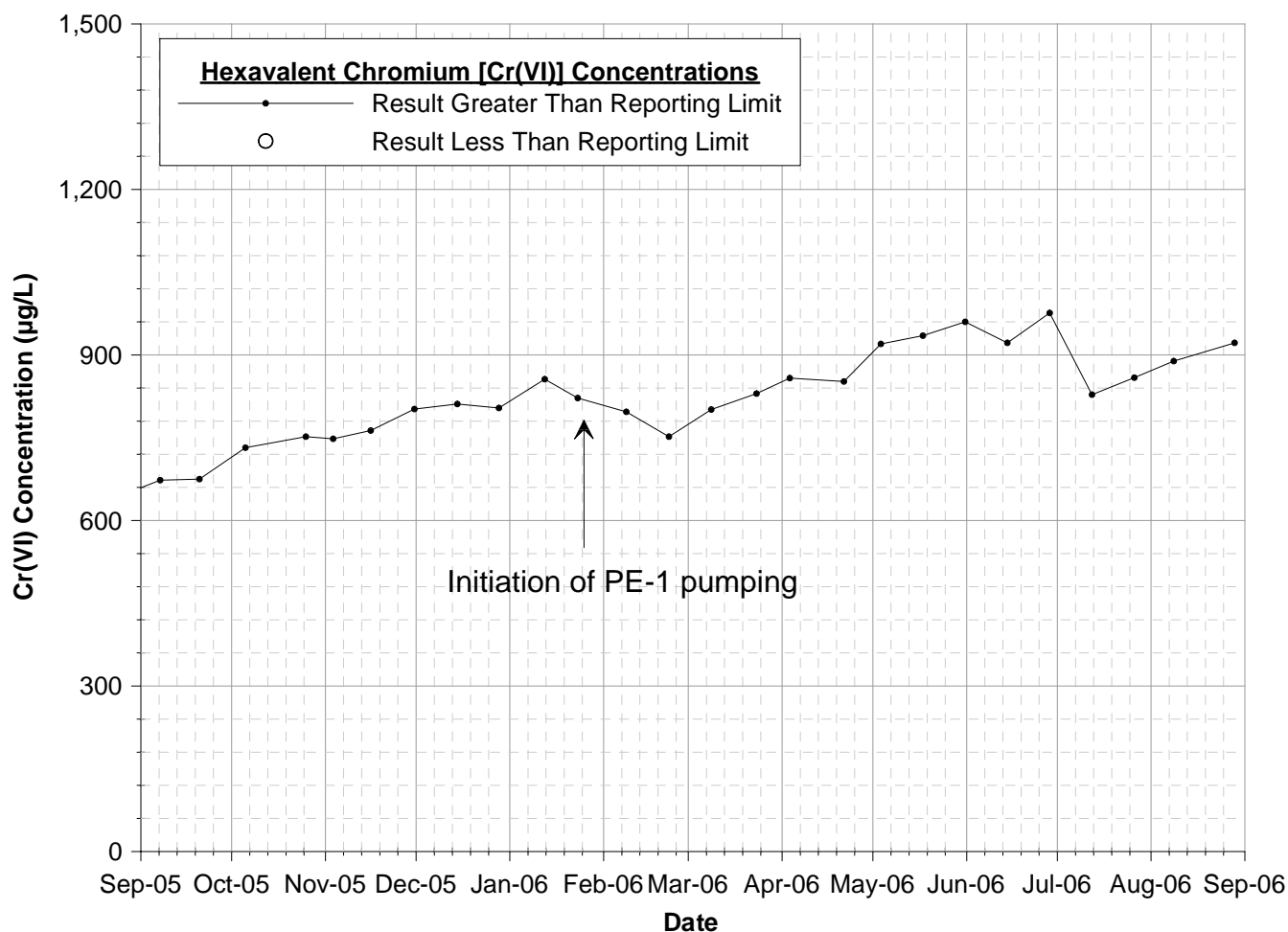
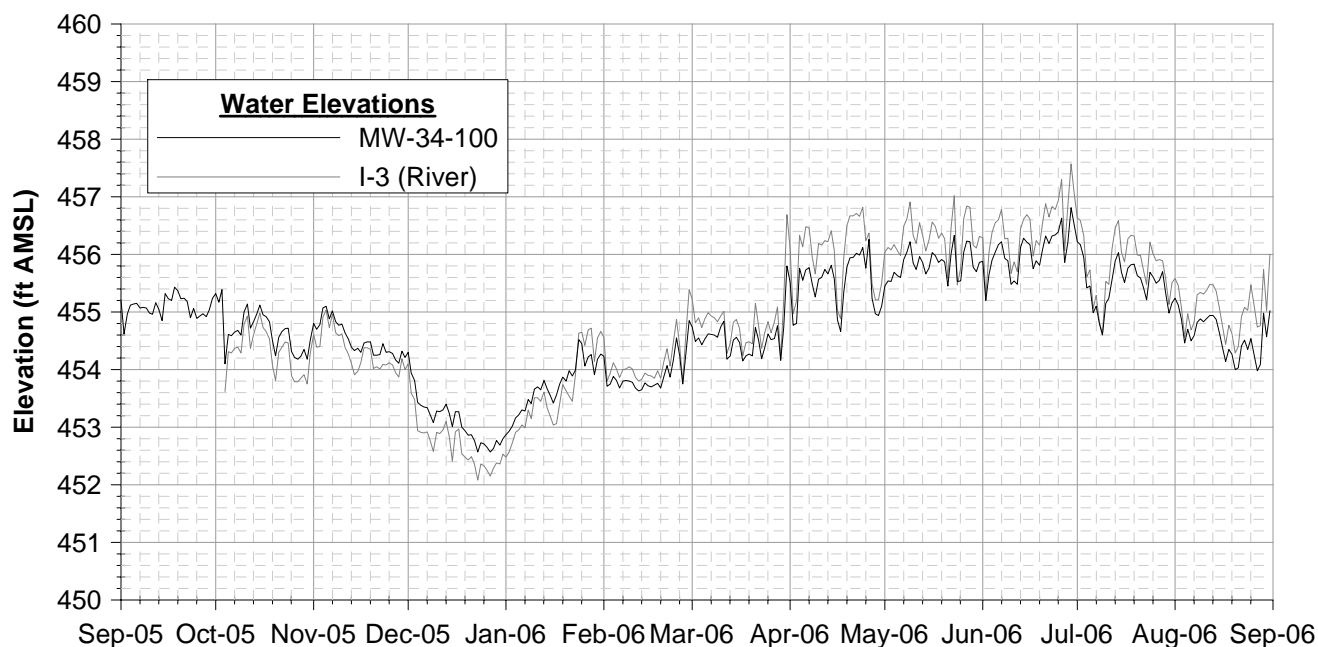


**FIGURE B-1**  
**MW-33-90 CR(VI) CONCENTRATION &**  
**HYDROGRAPH - THROUGH 5/3/2006**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG&E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA

**Notes**

1. Chromium results in micrograms per liter ( $\mu\text{g/L}$ ), equivalent to parts per billion (ppb).
2. Data subject to review.
3. Results plotted are maximum concentrations from primary and duplicate samples; see Table B-1 for complete results.
4. I-3 data unavailable 9/1/05 through 10/4/05 due to river damage.

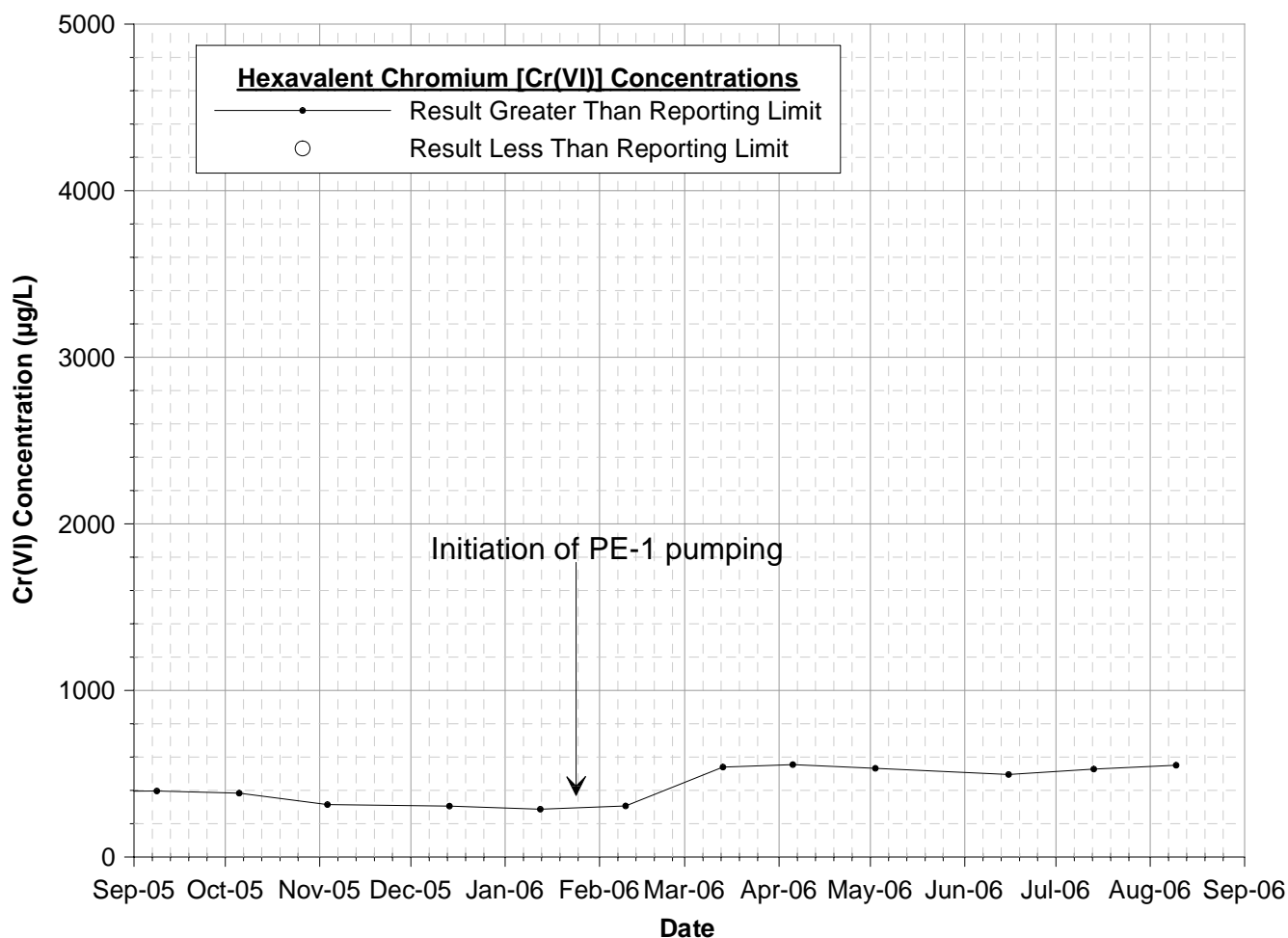
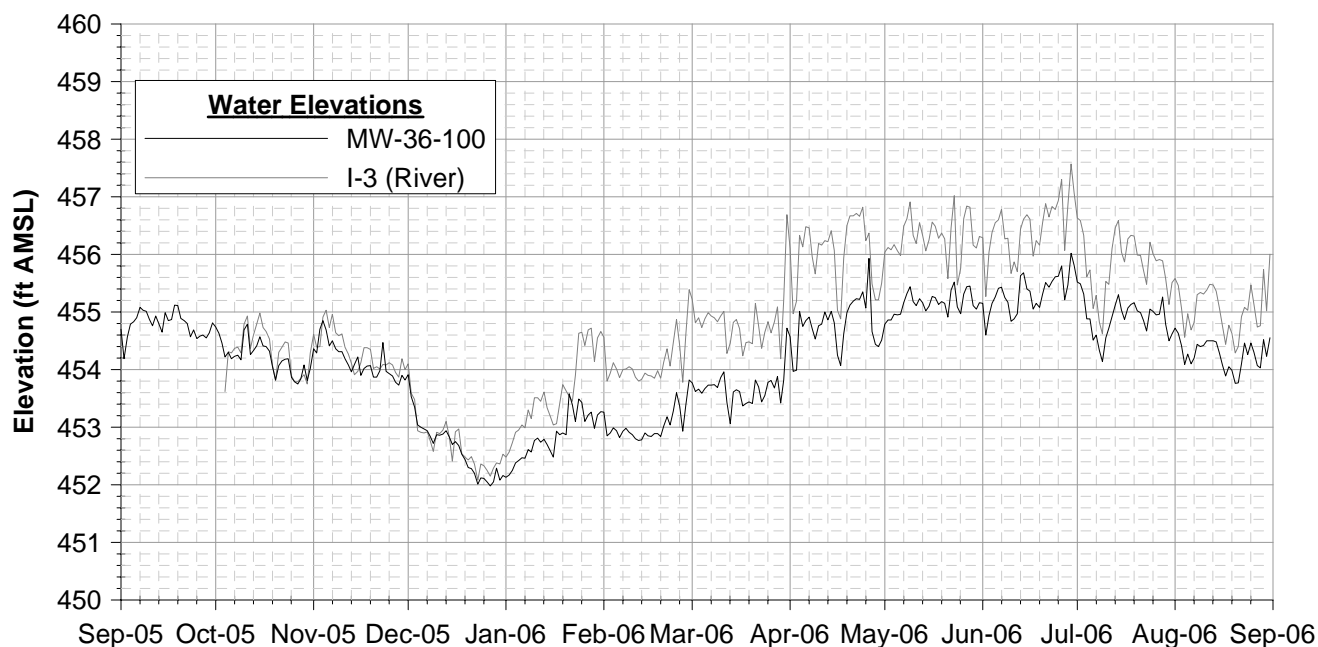




**FIGURE B-2**  
**MW-34-100 CR(VI) CONCENTRATION & HYDROGRAPH - THROUGH 8/28/06**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

**Notes**

1. Chromium results in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
2. No groundwater elevation data available during May 2005 due to transducer malfunction.
3. Data subject to review.
4. Results plotted are maximum concentrations from primary and duplicate samples; see Table B-1 for complete results.
5. I-3 data unavailable 9/1/05 through 10/4/05 due to river damage.



**FIGURE B-3**  
**MW-36-100 CR(VI) CONCENTRATION &**  
**HYDROGRAPH - THROUGH 8/9/06**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG&E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA

**Notes**

1. Chromium results in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
2. Data subject to review.
3. Results plotted are maximum concentrations from primary and duplicate samples; see Table B-1 for complete results.
4. I-3 data unavailable 9/1/05 through 10/4/05 due to river damage.

**Appendix C**  
**Hydraulic Monitoring Data for Reporting Period**

**TABLE C-1**

Monthly Average, Minimum, and Maximum Groundwater Elevations, August 2006  
*Interim Measures Performance Monitoring*  
*PG&E Topock Compressor Station*

<b>Well</b>	<b>Average (ft AMSL)</b>	<b>Minimum (ft AMSL)</b>	<b>Maximum (ft AMSL)</b>	<b>Aquifer Depth</b>
I-3	455.03	453.75	456.28	River Station
MW-10	INC	INC	INC	Shallow
MW-19	455.47	455.35	455.55	Shallow
MW-20-070	454.26	454.12	454.39	Shallow
MW-20-100	453.83	453.61	454.18	Mid-Depth
MW-20-130	453.45	453.17	453.94	Deep
MW-22	455.53	455.44	455.59	Shallow
MW-25	455.90	455.86	455.94	Shallow
MW-26	455.53	455.48	455.60	Shallow
MW-27-020	454.96	454.61	455.28	Shallow
MW-27-060	455.08	454.36	455.79	Mid-Depth
MW-27-085	454.86	454.14	455.57	Deep
MW-28-025	455.29	454.73	455.85	Shallow
MW-28-090	455.02	454.15	455.87	Deep
MW-29	455.32	450.11	455.46	Shallow
MW-30-030	454.96	454.76	455.15	Shallow
MW-30-050	454.68	454.06	455.29	Mid-Depth
MW-31-060	455.08	454.90	455.22	Shallow
MW-31-135	INC	INC	INC	Deep
MW-32-020	454.67	454.50	454.82	Shallow
MW-32-035	454.84	454.45	455.21	Shallow
MW-33-040	INC	INC	INC	Shallow
MW-33-090	455.32	454.86	455.78	Mid-Depth
MW-33-150	455.39	454.94	455.85	Deep
MW-33-210	455.71	455.30	456.10	Deep
MW-34-055	454.92	454.02	455.78	Mid-Depth
MW-34-080	454.97	454.11	455.80	Deep
MW-34-100	454.57	453.78	455.36	Deep
MW-35-060	455.57	455.21	455.91	Shallow
MW-35-135	455.44	455.22	455.66	Deep
MW-36-020	454.71	454.12	455.28	Shallow
MW-36-040	454.82	454.15	455.48	Shallow
MW-36-050	454.79	454.09	455.47	Mid-Depth
MW-36-070	454.78	454.07	455.48	Mid-Depth
MW-36-090	454.24	453.64	454.89	Deep
MW-36-100	454.26	453.66	454.92	Deep
MW-39-040	454.60	454.02	455.17	Shallow
MW-39-050	454.64	454.08	455.20	Mid-Depth
MW-39-060	454.55	454.02	455.09	Mid-Depth
MW-39-070	454.44	454.00	454.96	Mid-Depth
MW-39-080	454.26	453.81	454.78	Deep
MW-39-100	454.34	453.89	454.87	Deep
MW-42-030	454.64	454.18	455.08	Shallow

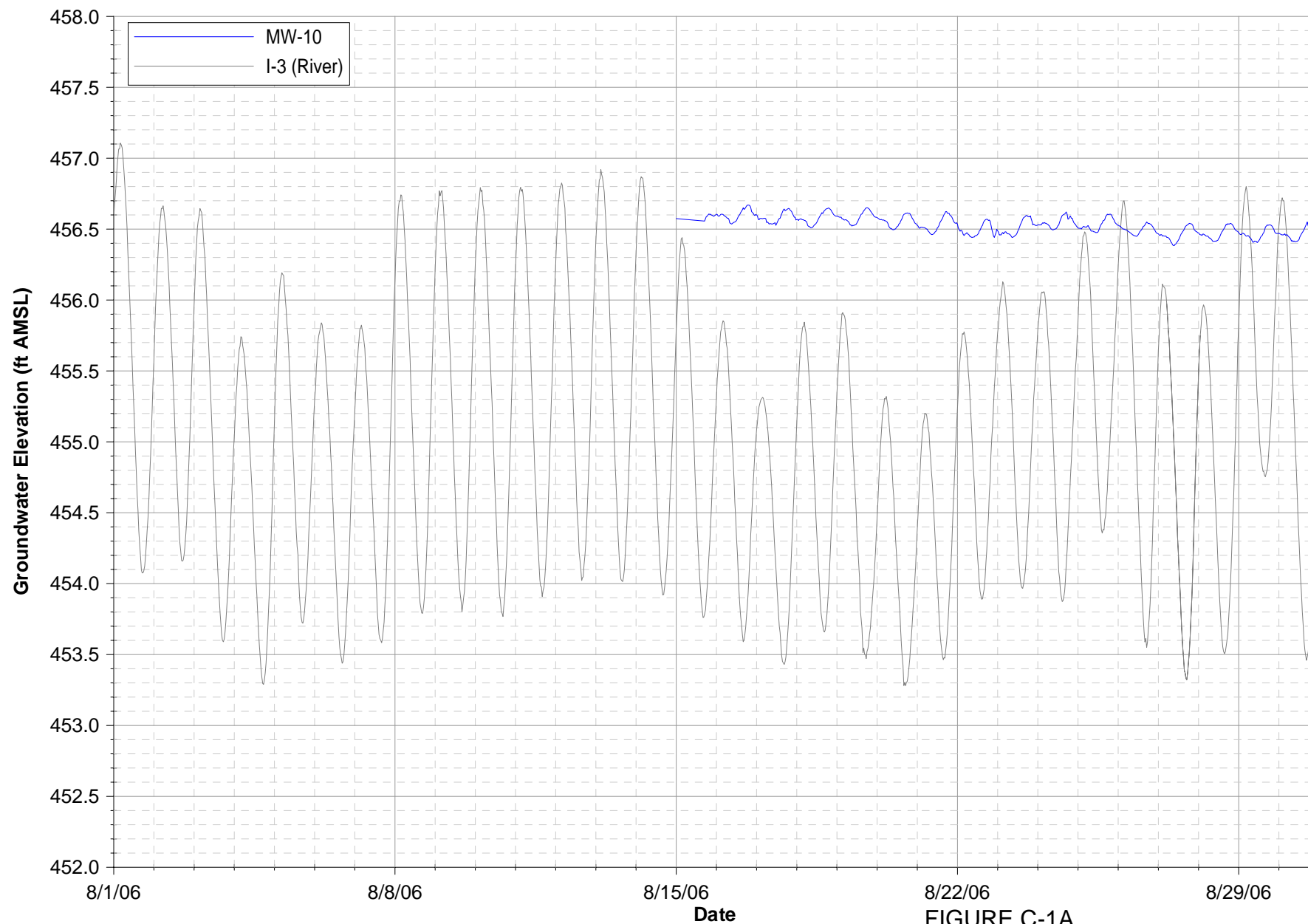
**TABLE C-1**

Monthly Average, Minimum, and Maximum Groundwater Elevations, August 2006

*Interim Measures Performance Monitoring**PG&E Topock Compressor Station*

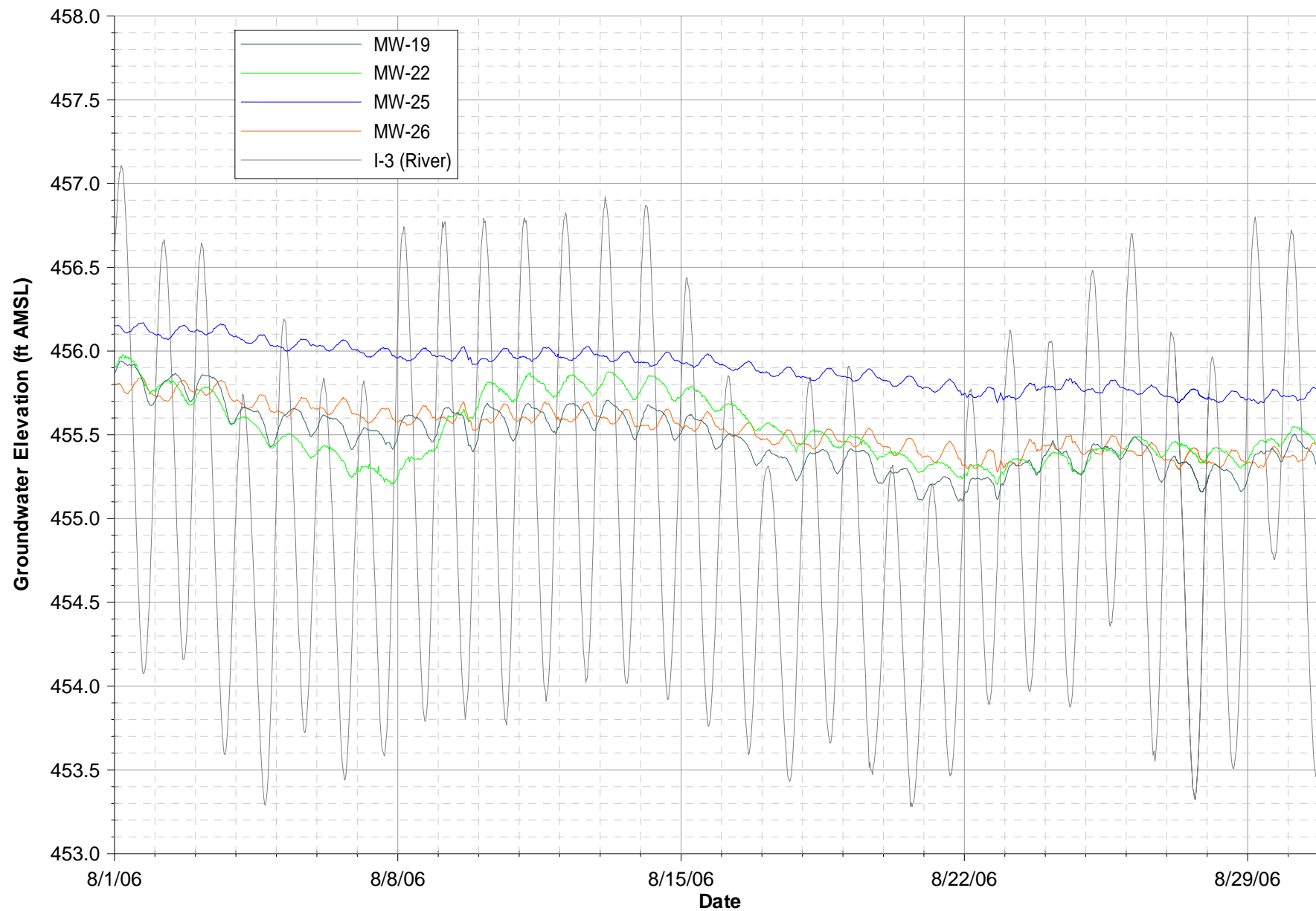
<b>Well</b>	<b>Average (ft AMSL)</b>	<b>Minimum (ft AMSL)</b>	<b>Maximum (ft AMSL)</b>	<b>Aquifer Depth</b>
MW-42-055	454.74	454.26	455.21	Mid-Depth
MW-42-065	454.84	454.37	455.30	Mid-Depth
MW-43-025	455.01	454.30	455.70	Shallow
MW-43-075	455.16	454.40	455.90	Deep
MW-43-090	455.33	454.57	456.09	Deep
MW-44-070	454.85	454.04	455.64	Mid-Depth
MW-44-115	454.56	453.92	455.21	Deep
MW-44-125	454.72	454.08	455.38	Deep
MW-45-095	453.38	452.64	454.49	Deep
MW-46-175	455.18	454.63	455.73	Deep
MW-46-205	455.52	455.09	455.96	Deep
MW-47-055	455.44	455.23	455.63	Shallow
MW-47-115	455.59	455.35	455.83	Deep
MW-49-135	455.76	455.23	456.28	Deep
MW-49-275	456.41	456.13	456.71	Deep
MW-49-365	457.91	457.68	458.17	Deep
MW-50-095	455.47	455.33	455.61	Mid-Depth
MW-50-200	455.86	455.68	456.06	Deep
MW-51	455.55	455.50	455.60	Mid-Depth
PT2D	453.94	453.46	454.57	Deep
PT5D	INC	INC	INC	Deep
PT6D	454.21	453.70	454.84	Deep
RRB	455.36	454.02	456.66	River Station
TW-02D	446.18	445.01	447.84	Deep

INC= Data incomplete over reporting period



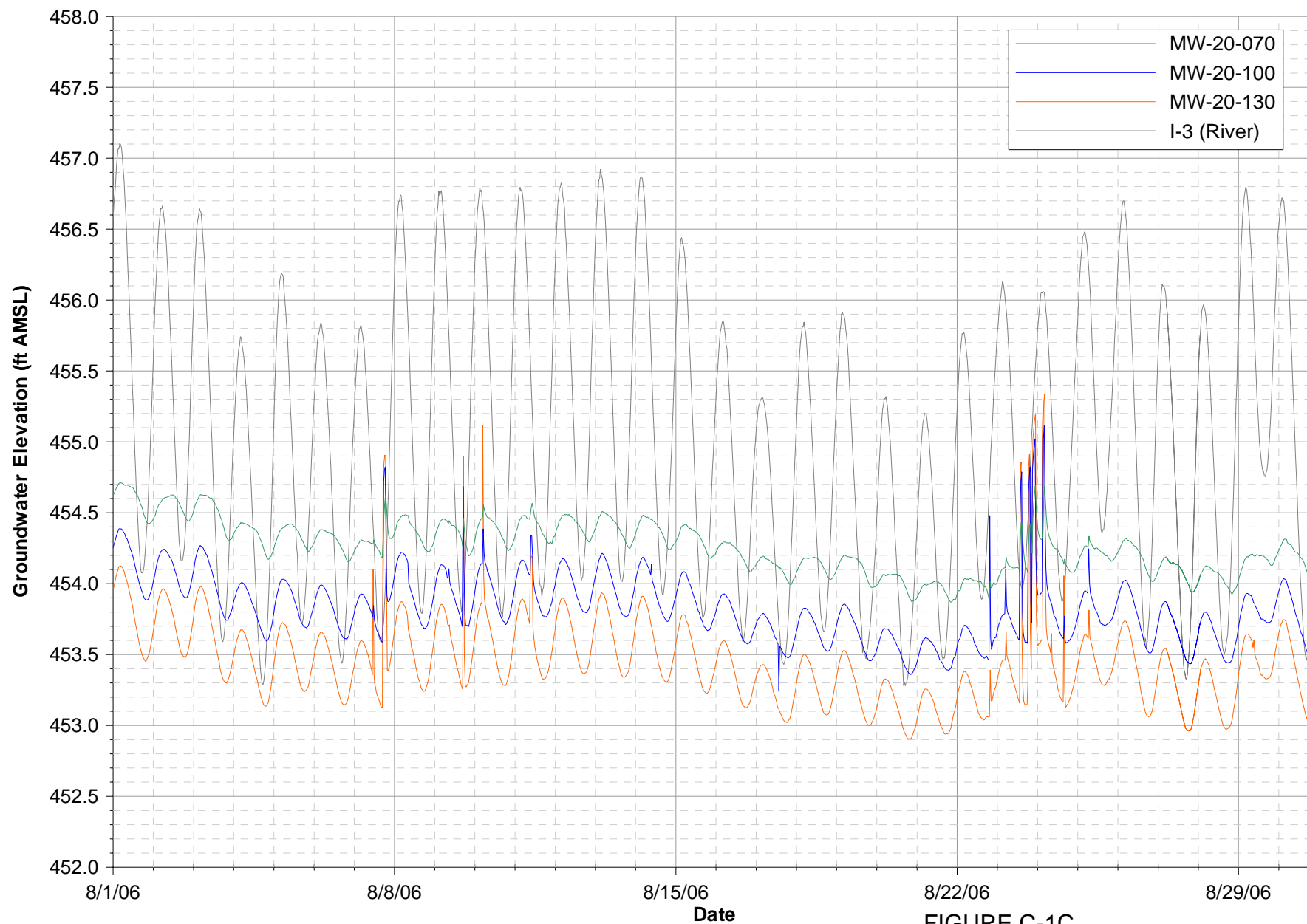
Note: Data subject to review.  
MW-10 transducer failed first two weeks of August 2006. Replaced on 8/15/06.

**FIGURE C-1A**  
**MW-10 HYDROGRAPH**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



Note: Data subject to review.

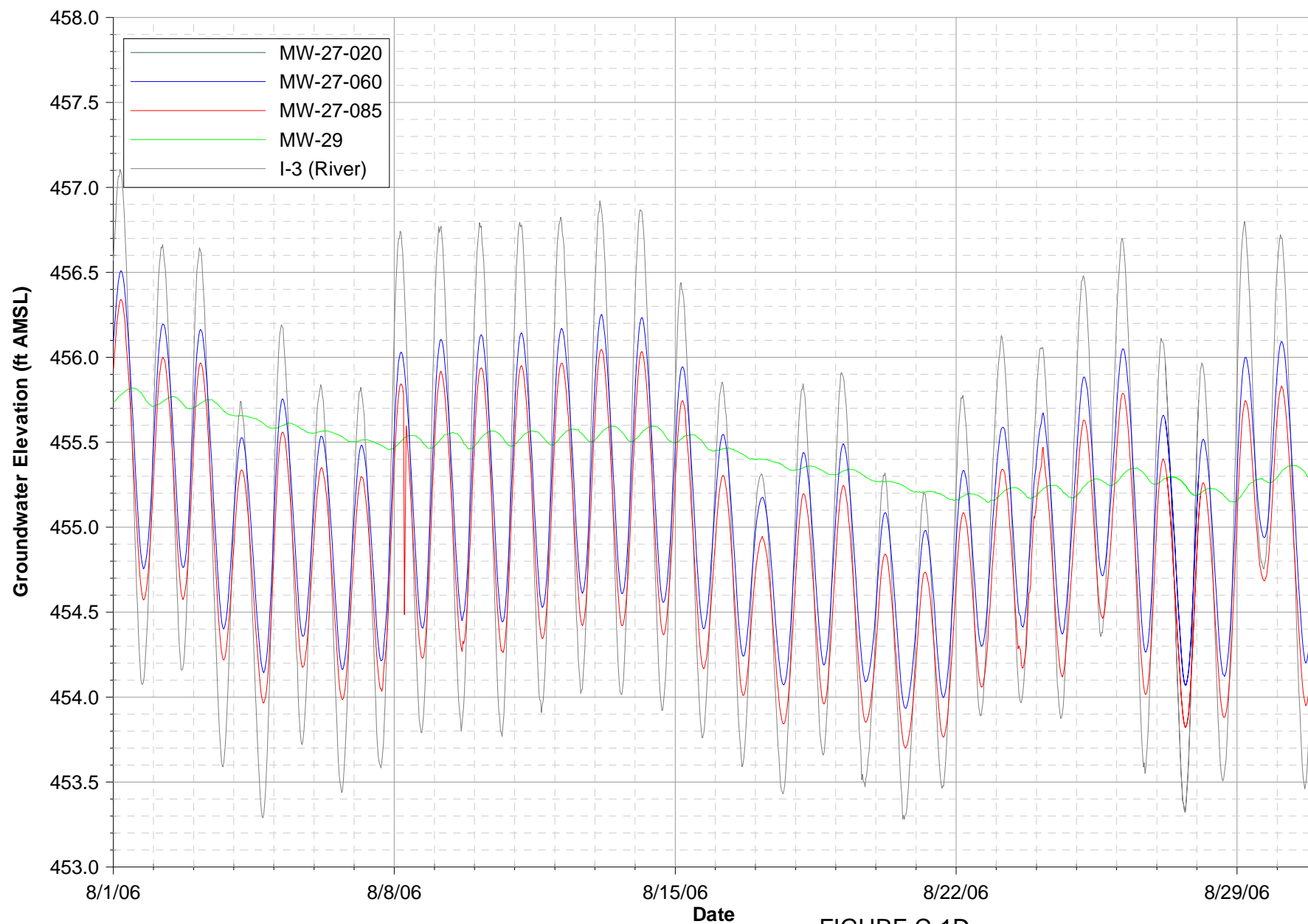
**FIGURE C-1B**  
**MW-19, MW-22, MW-25, AND MW-26 HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



Note: Data subject to review.

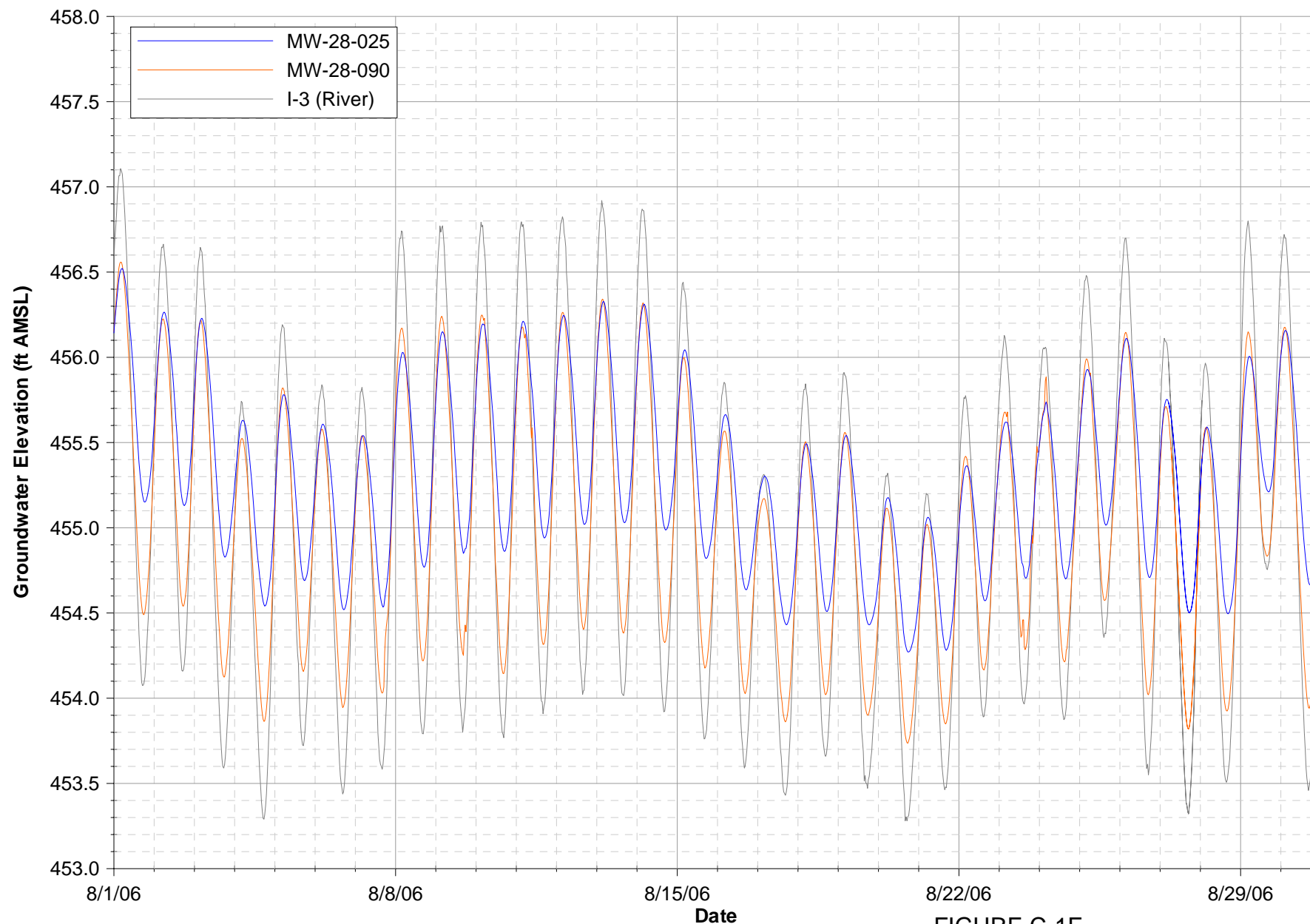
**FIGURE C-1C**  
**MW-20 CLUSTER HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA





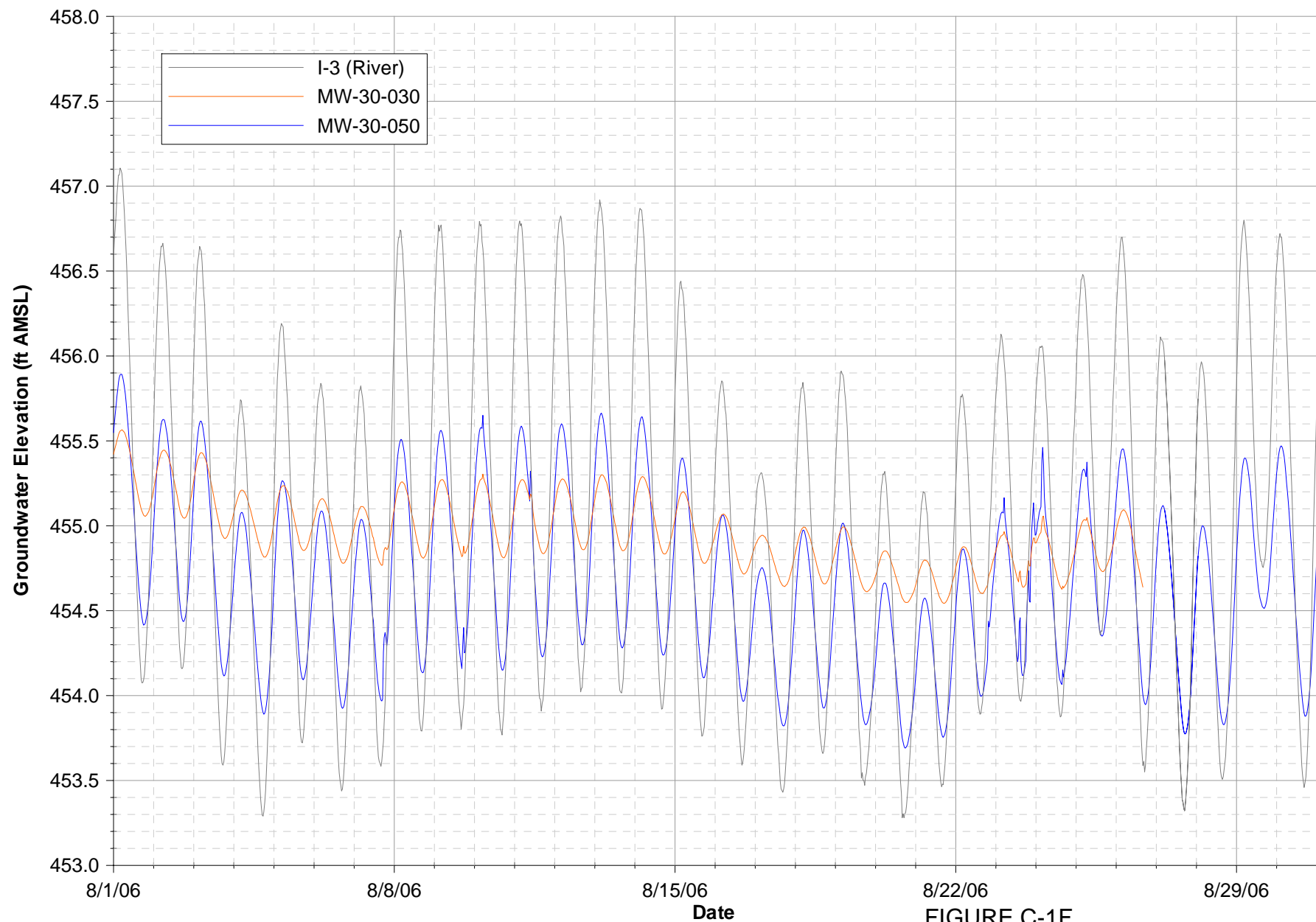
Note: Data subject to review.

**FIGURE C-1D**  
**MW-27 CLUSTER AND MW-29 HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



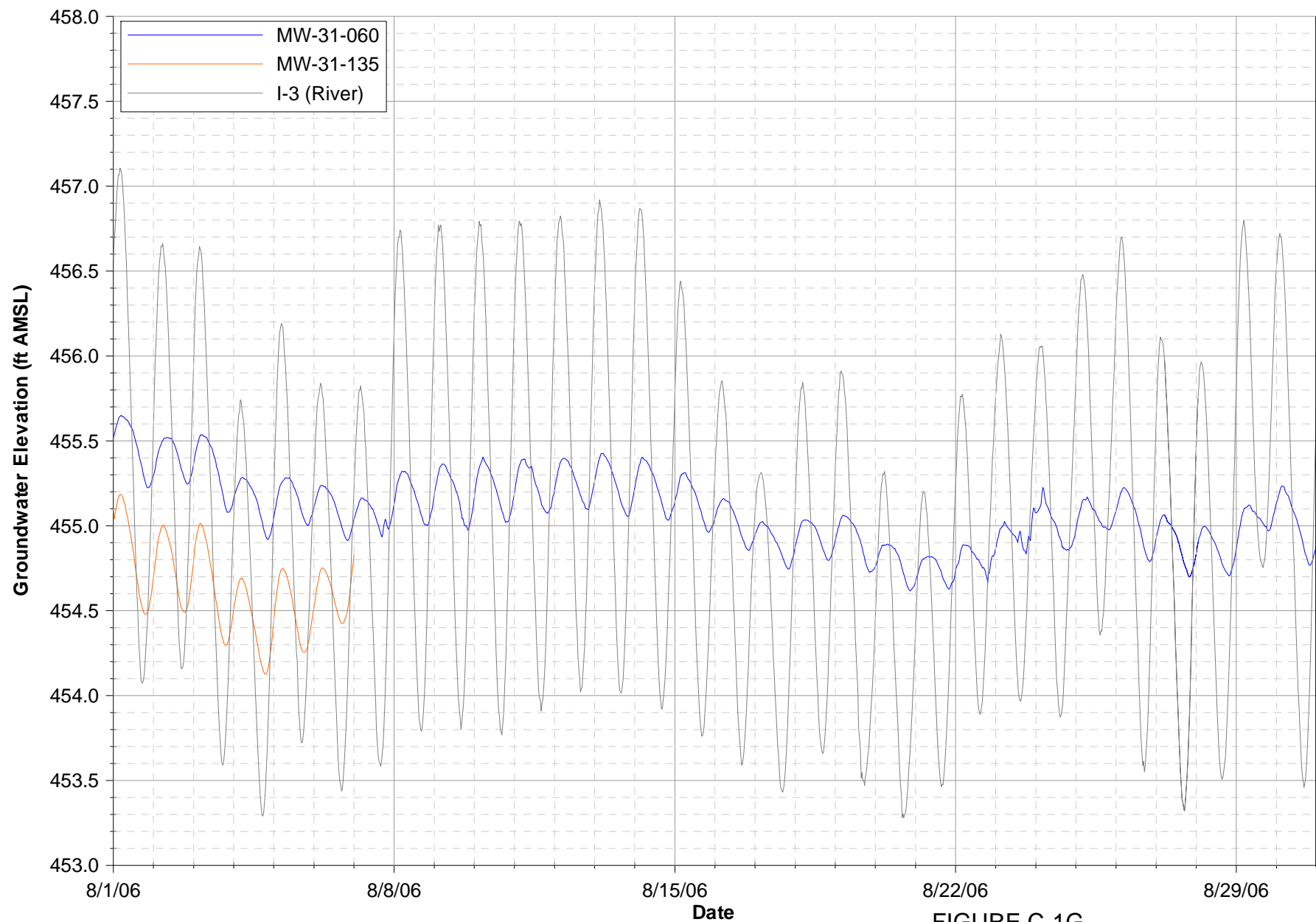
Note: Data subject to review.

**FIGURE C-1E**  
**MW-28 WELL HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



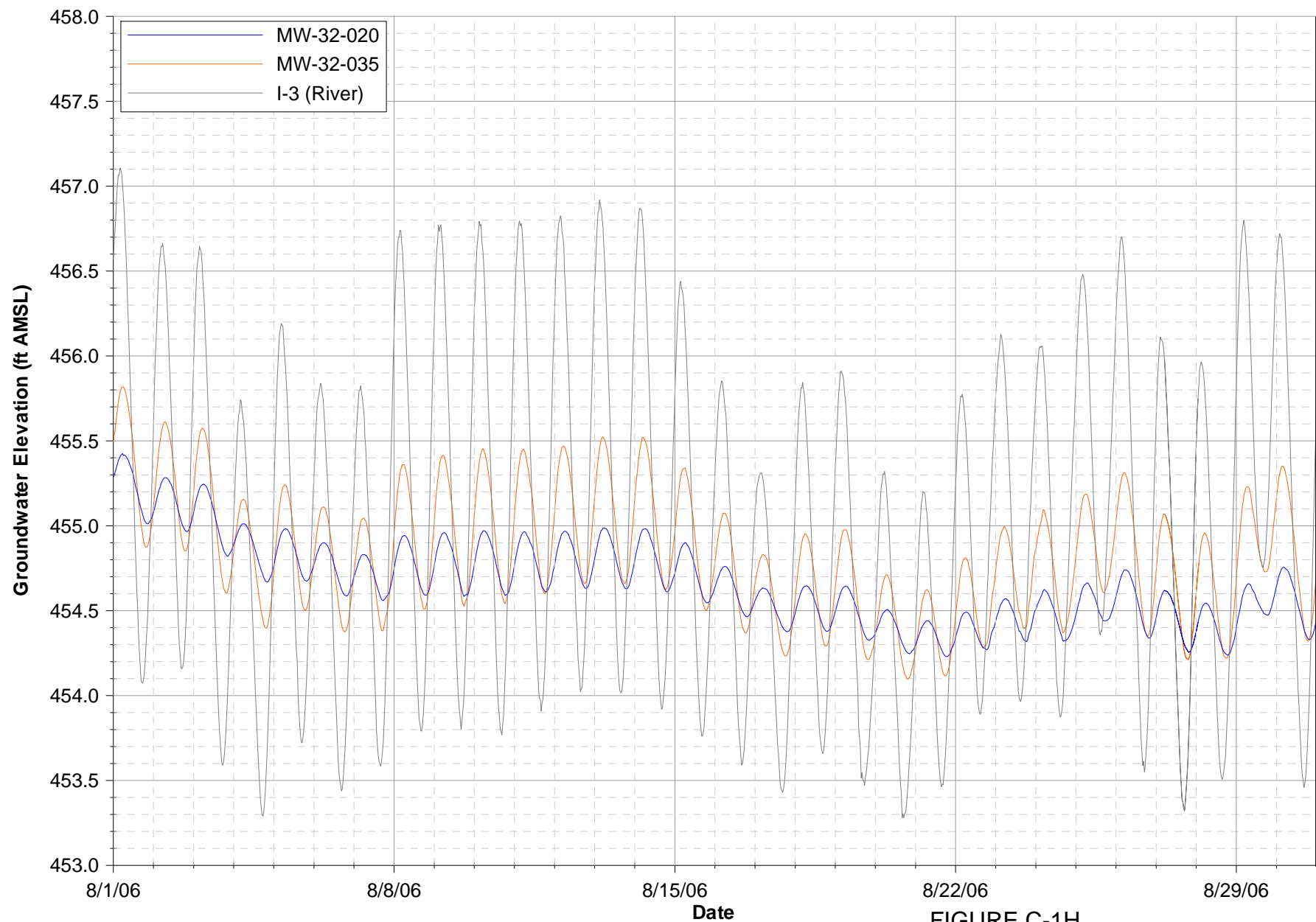
Note: Data subject to review.  
MW-30-30 batteries ran out 8/27/06.

**FIGURE C-1F**  
**MW-30 WELL HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



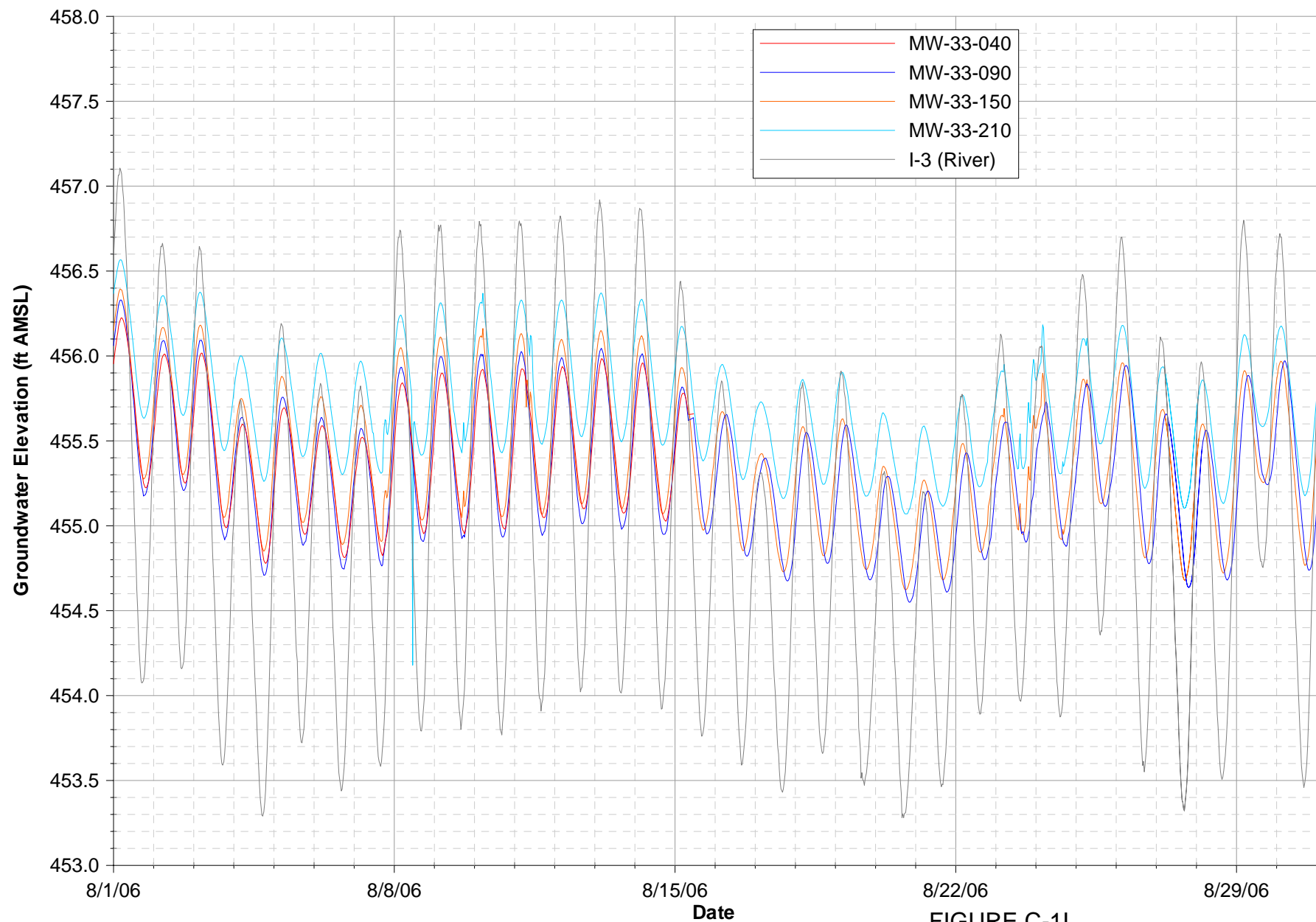
Note: Data subject to review.  
MW-31-135 Transducer failed on 8/8/06.

**FIGURE C-1G**  
**MW-31 WELL HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



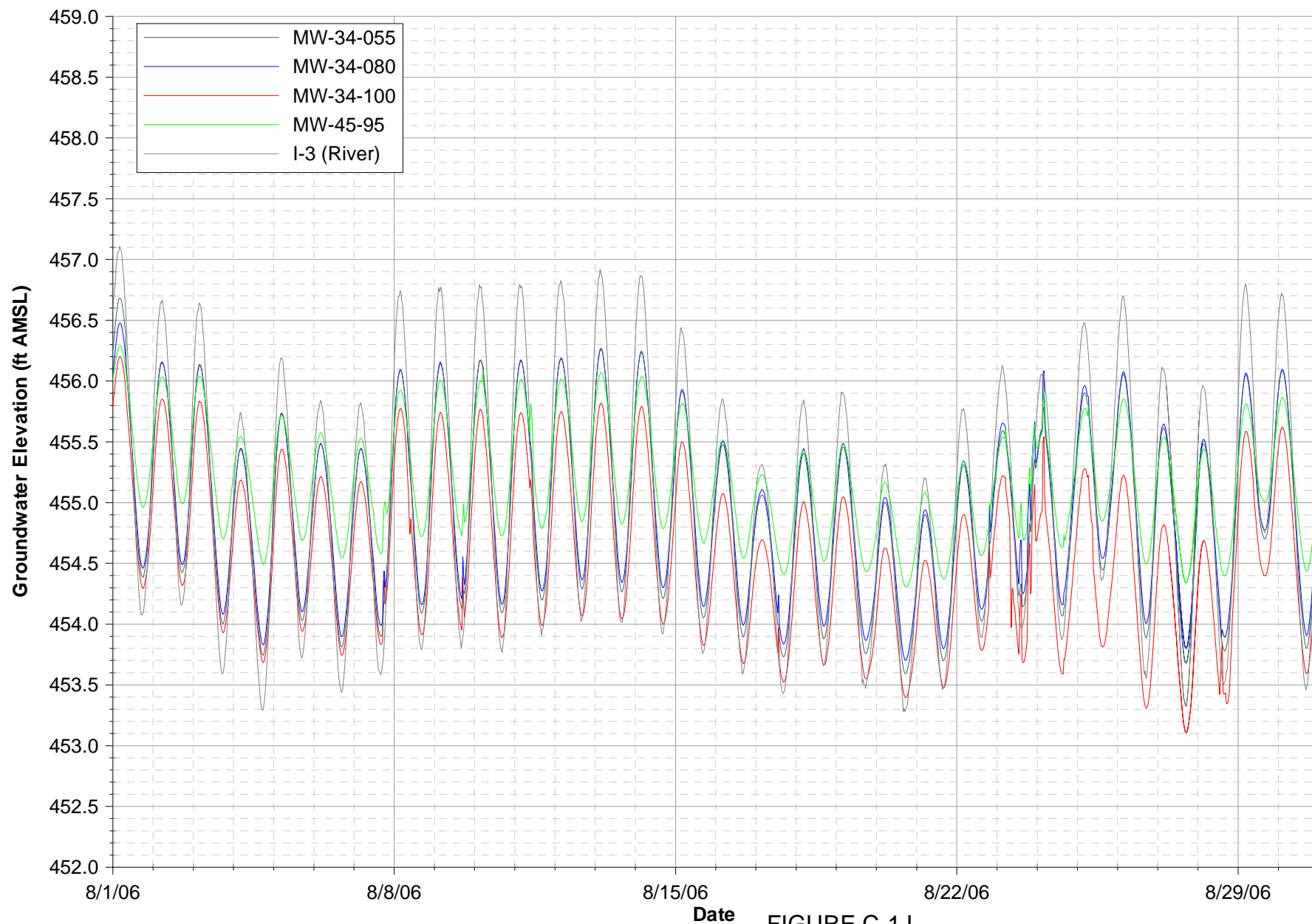
Note: Data subject to review.

**FIGURE C-1H**  
**MW-32 WELL HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



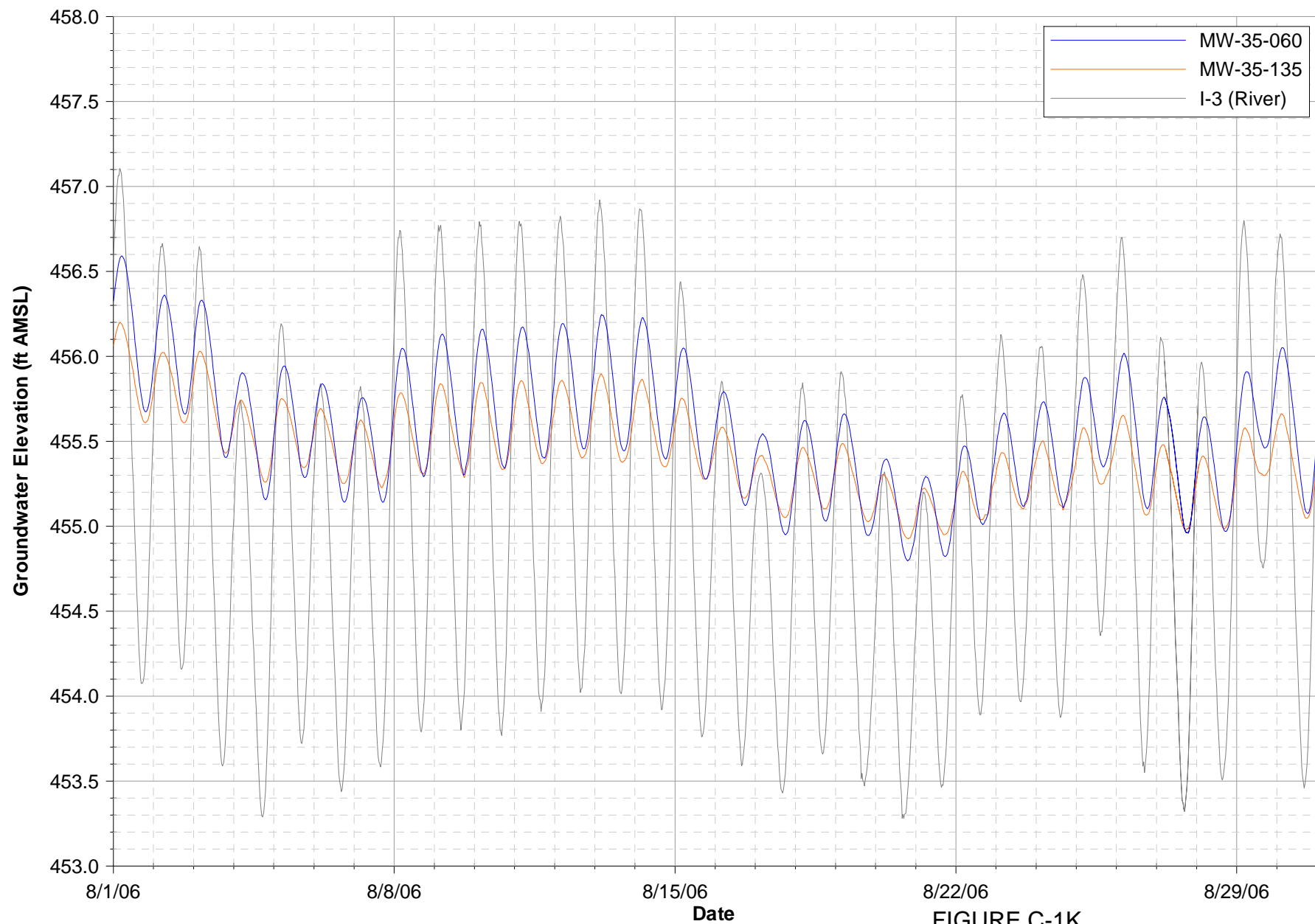
Note: Data subject to review.  
Transducer in MW-33-40 failed on 8/15/2006.

**FIGURE C-11**  
**MW-33 CLUSTER HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



Note: Data subject to review.

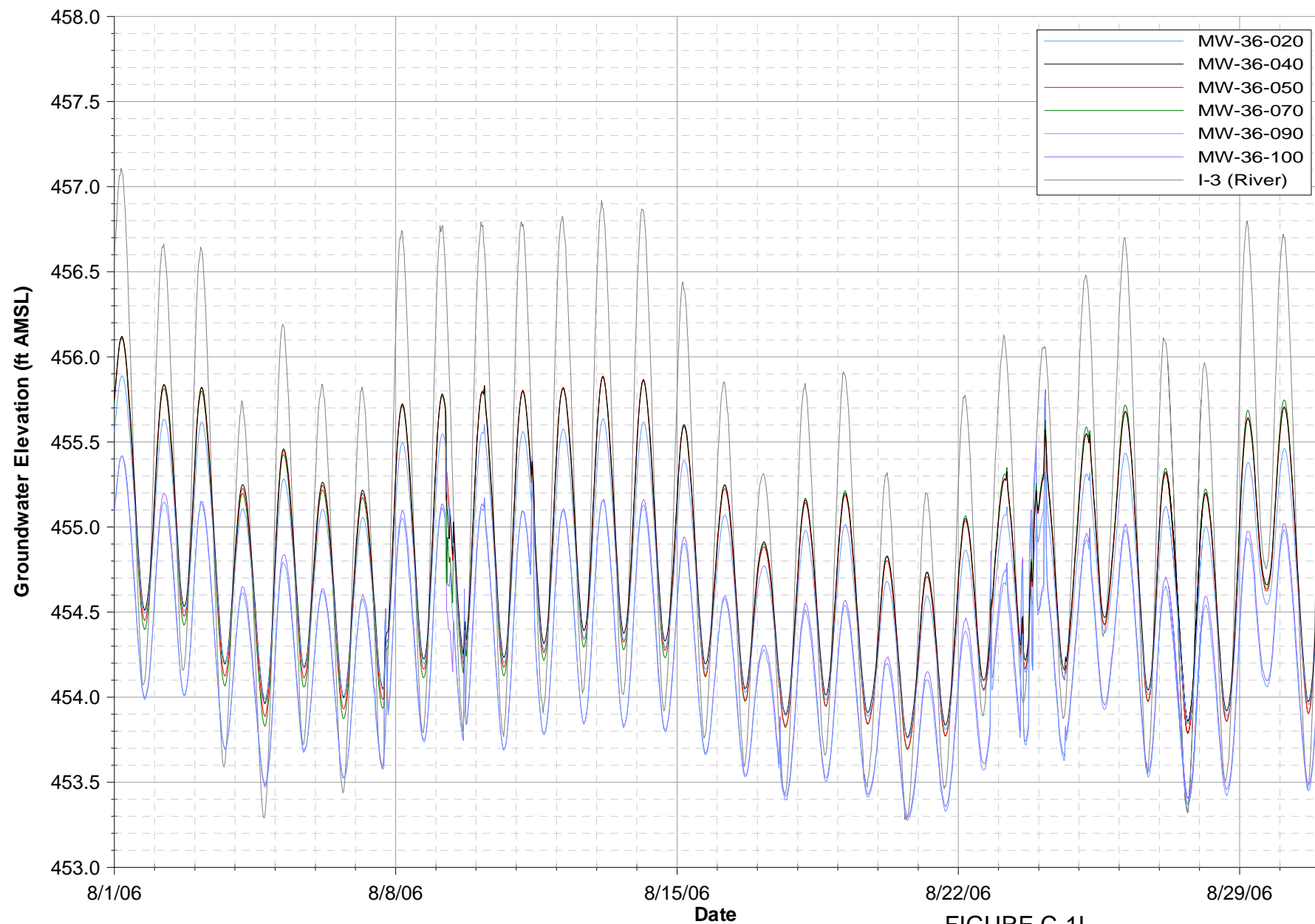
**FIGURE C-1J**  
**MW-34 CLUSTER AND MW-45-95 HYDROGRAPHS**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG&E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA



Note: Data subject to review.

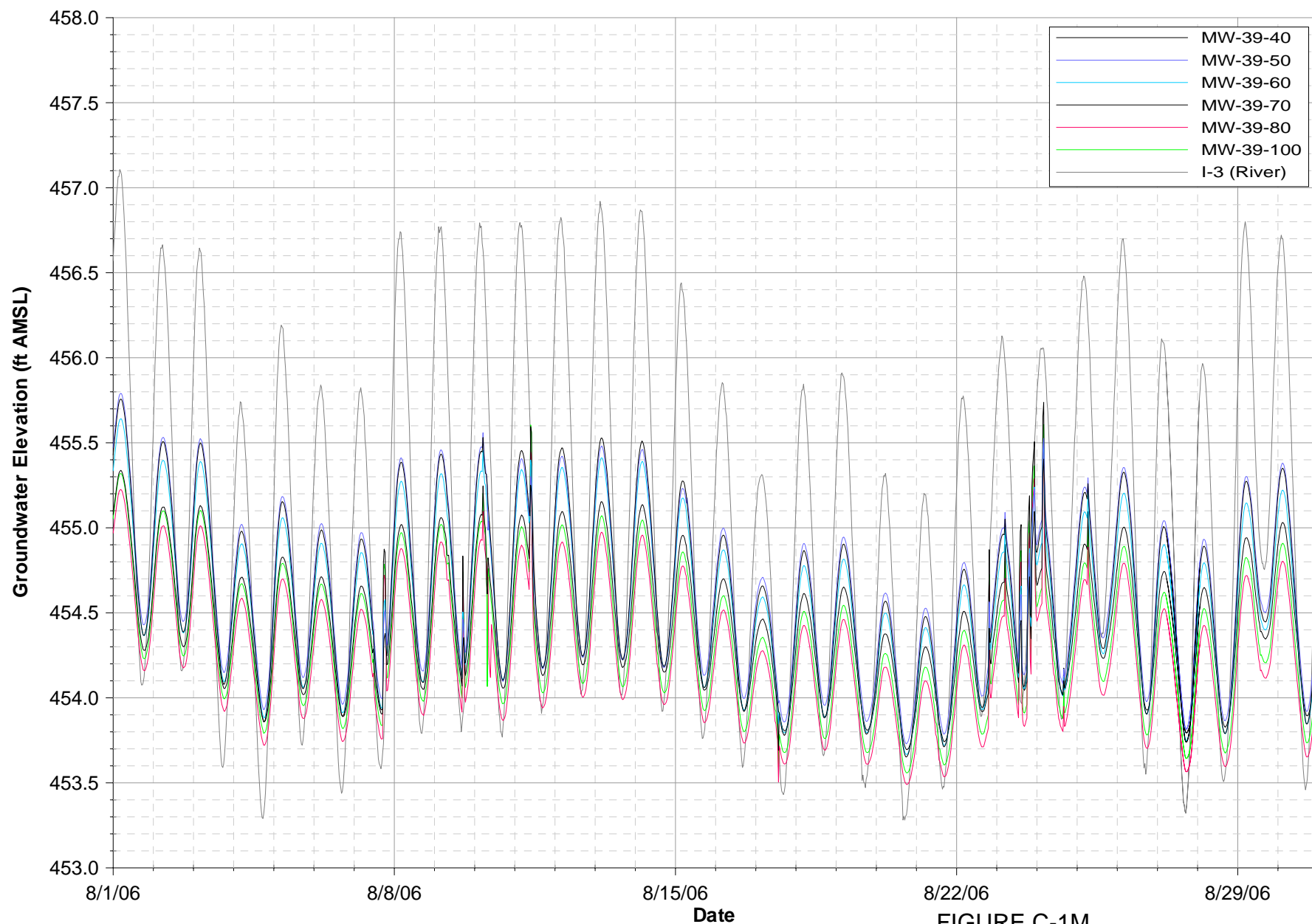
**FIGURE C-1K**  
**MW-35 WELL HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA





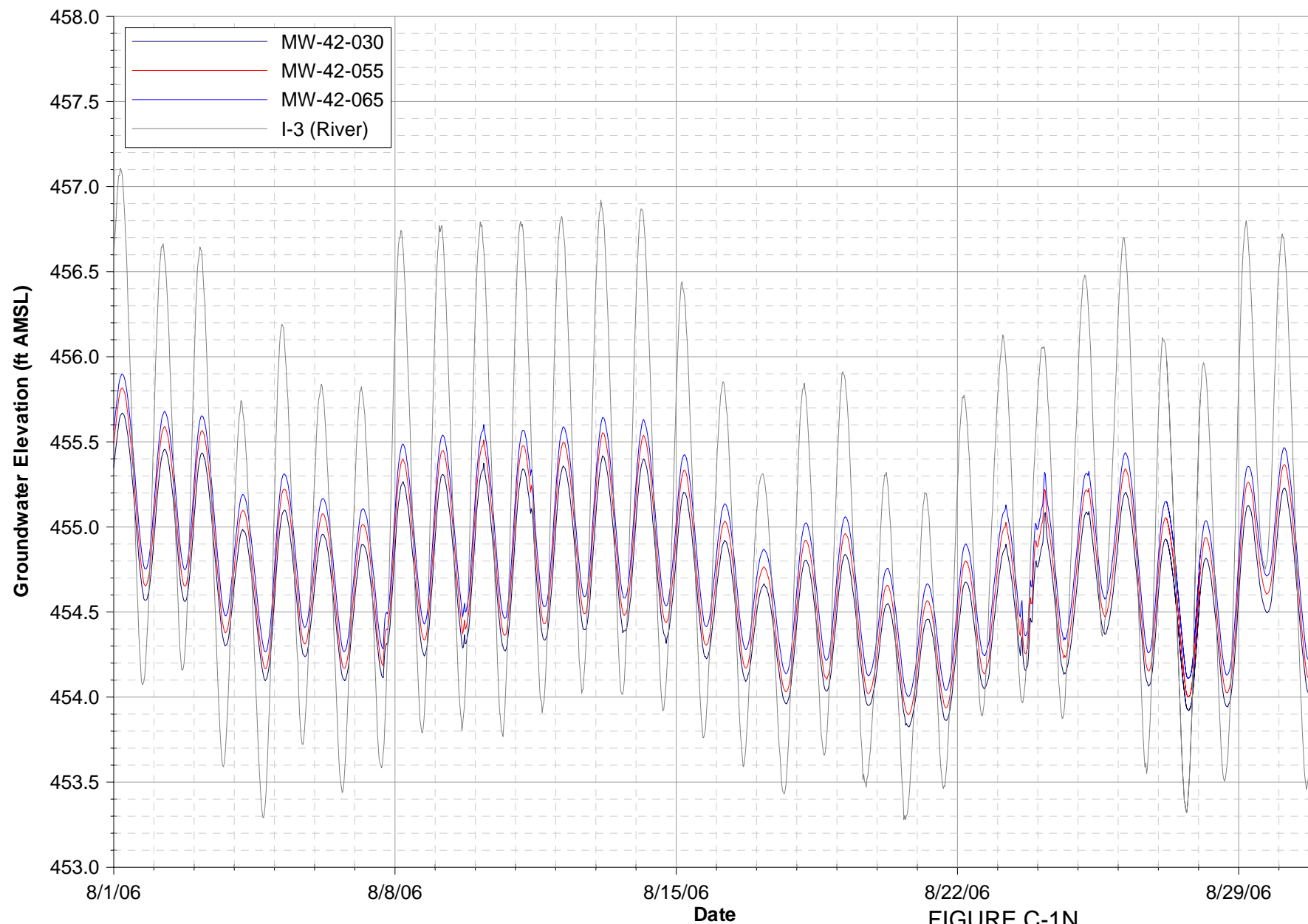
Note: Data subject to review.

**FIGURE C-1L**  
**MW-36 CLUSTER**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPECO COMPRESSOR STATION  
NEEDLES, CALIFORNIA



Note: Data subject to review.

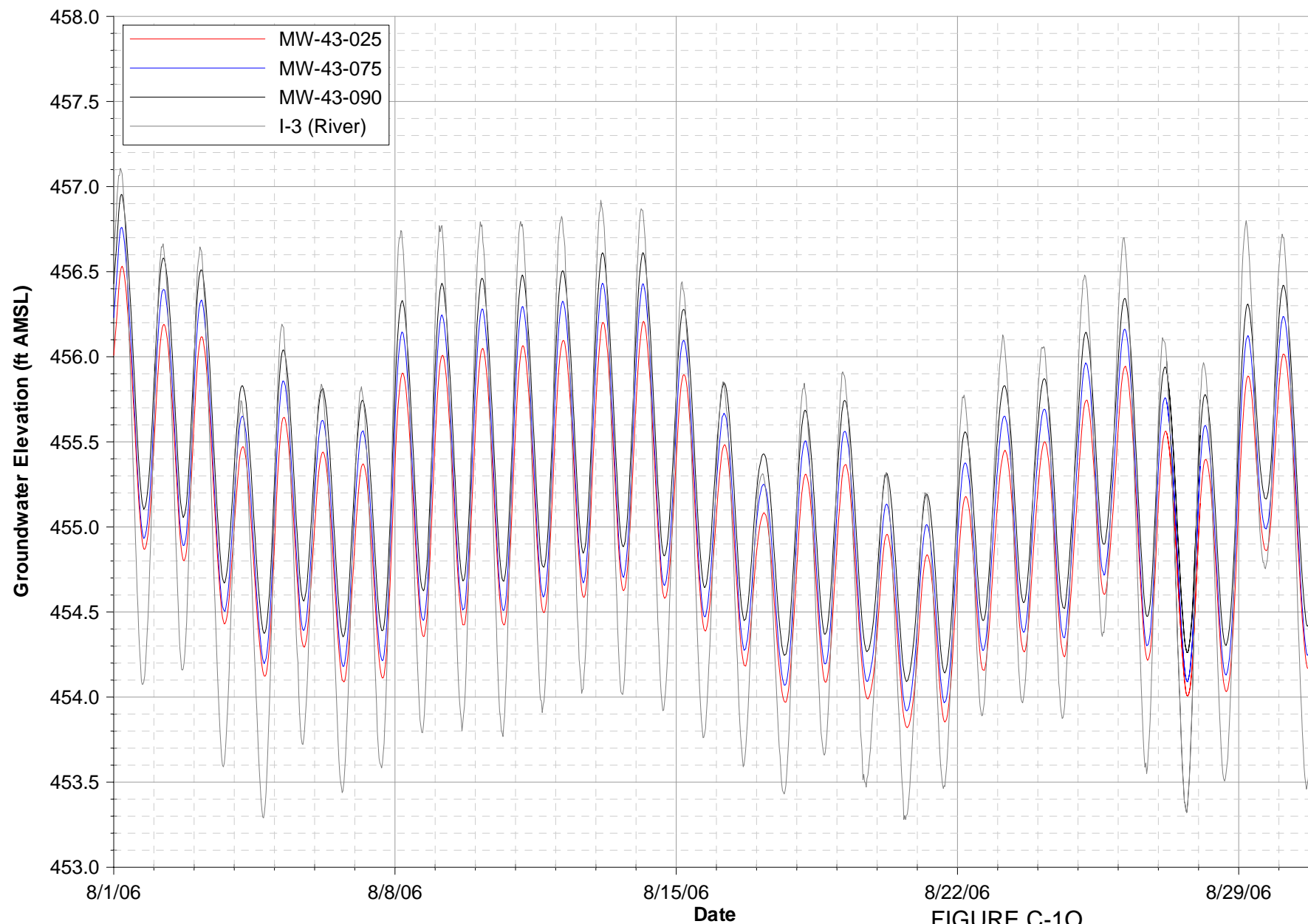
**FIGURE C-1M**  
**MW-39 CLUSTER HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG & E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



Note: Data subject to review.

FIGURE C-1N

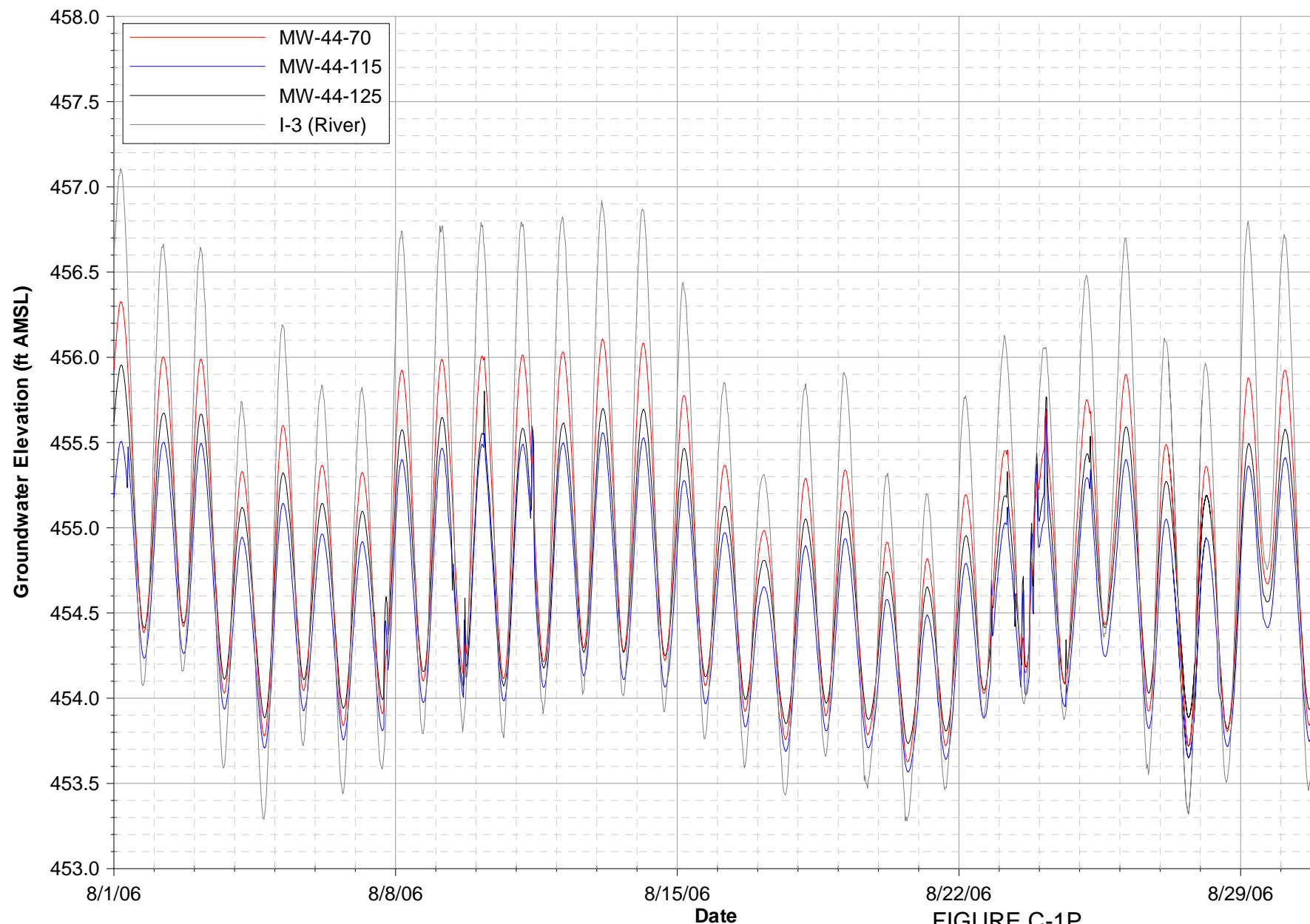
MW-42 CLUSTER HYDROGRAPHS  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



Note: Data subject to review.

**FIGURE C-10**

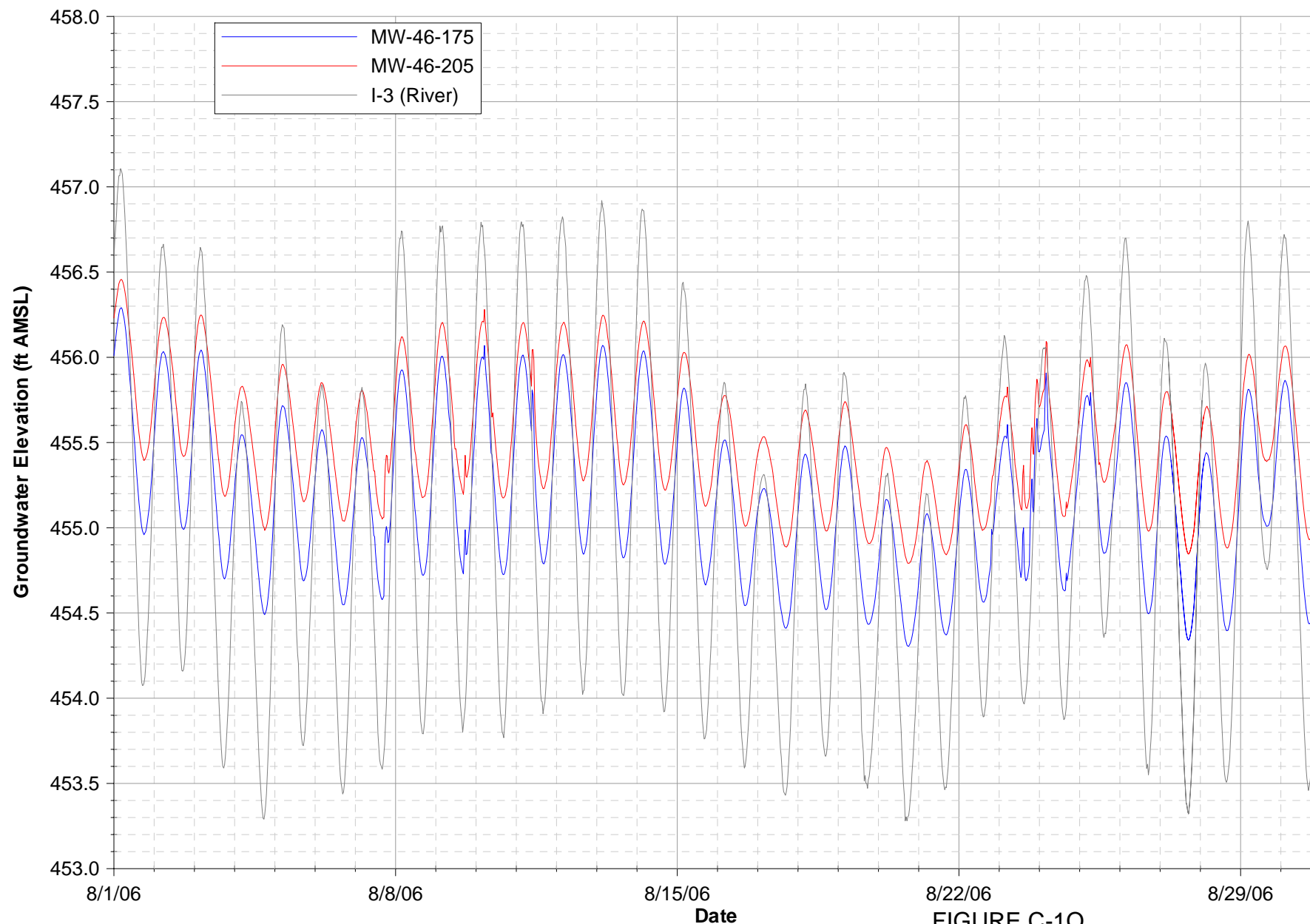
**MW-43 CLUSTER HYDROGRAPHS**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG&E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA



Note: Data subject to review.

FIGURE C-1P

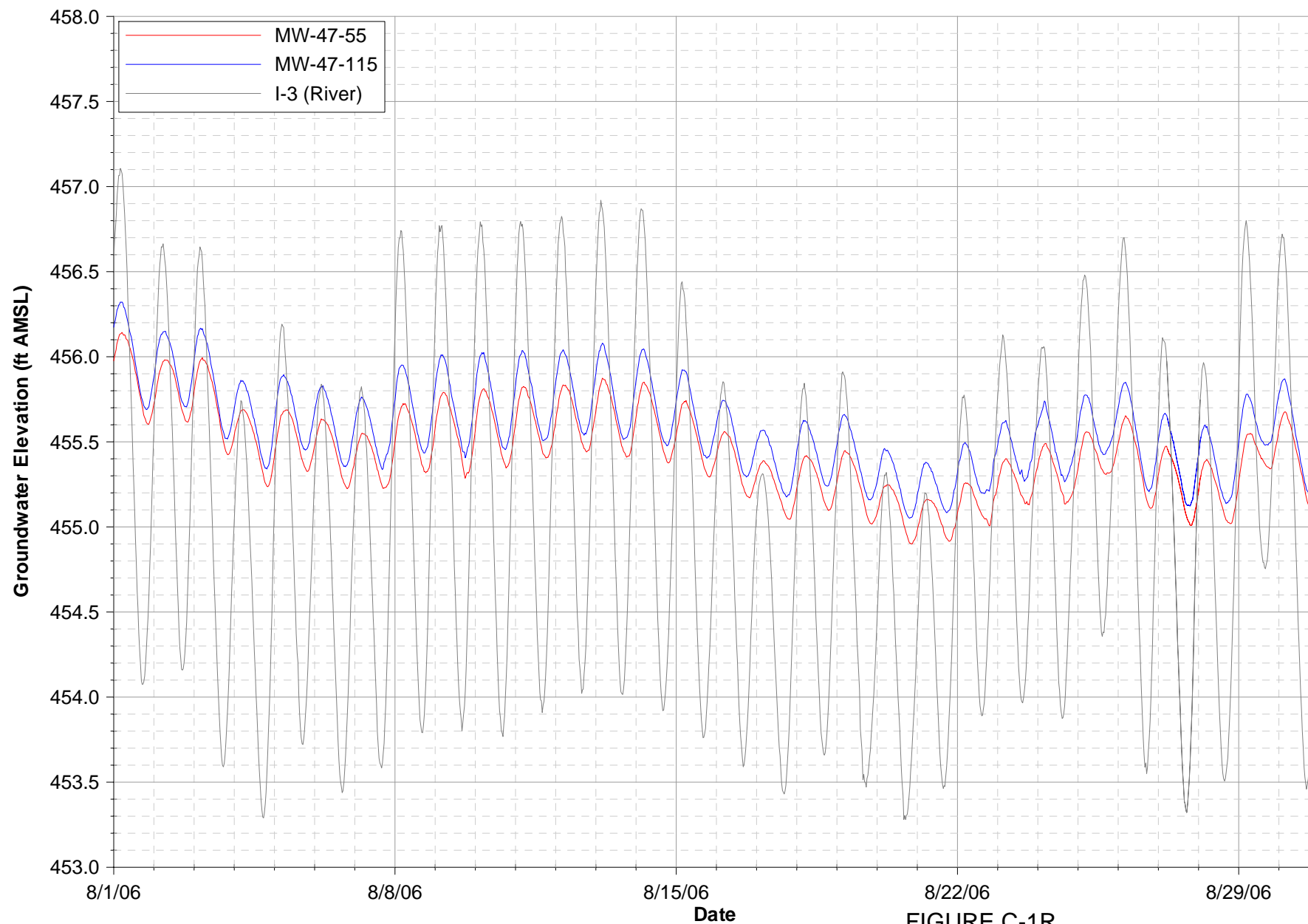
MW-44 CLUSTER HYDROGRAPHS  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG&E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA



Note: Data subject to review.

FIGURE C-1Q

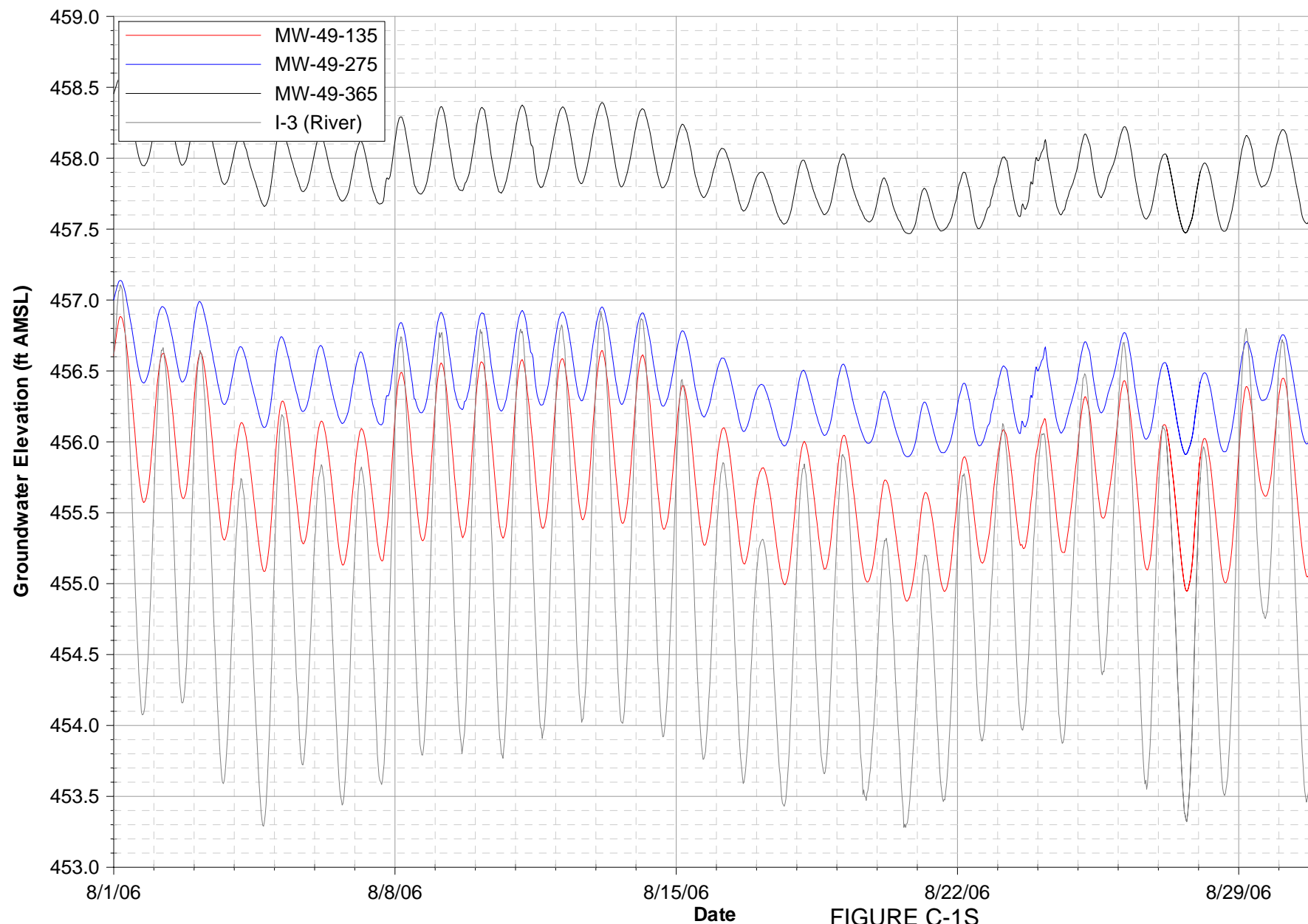
MW-46 CLUSTER HYDROGRAPHS  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



Note: Data subject to review.

**FIGURE C-1R**  
**MW-47 CLUSTER HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

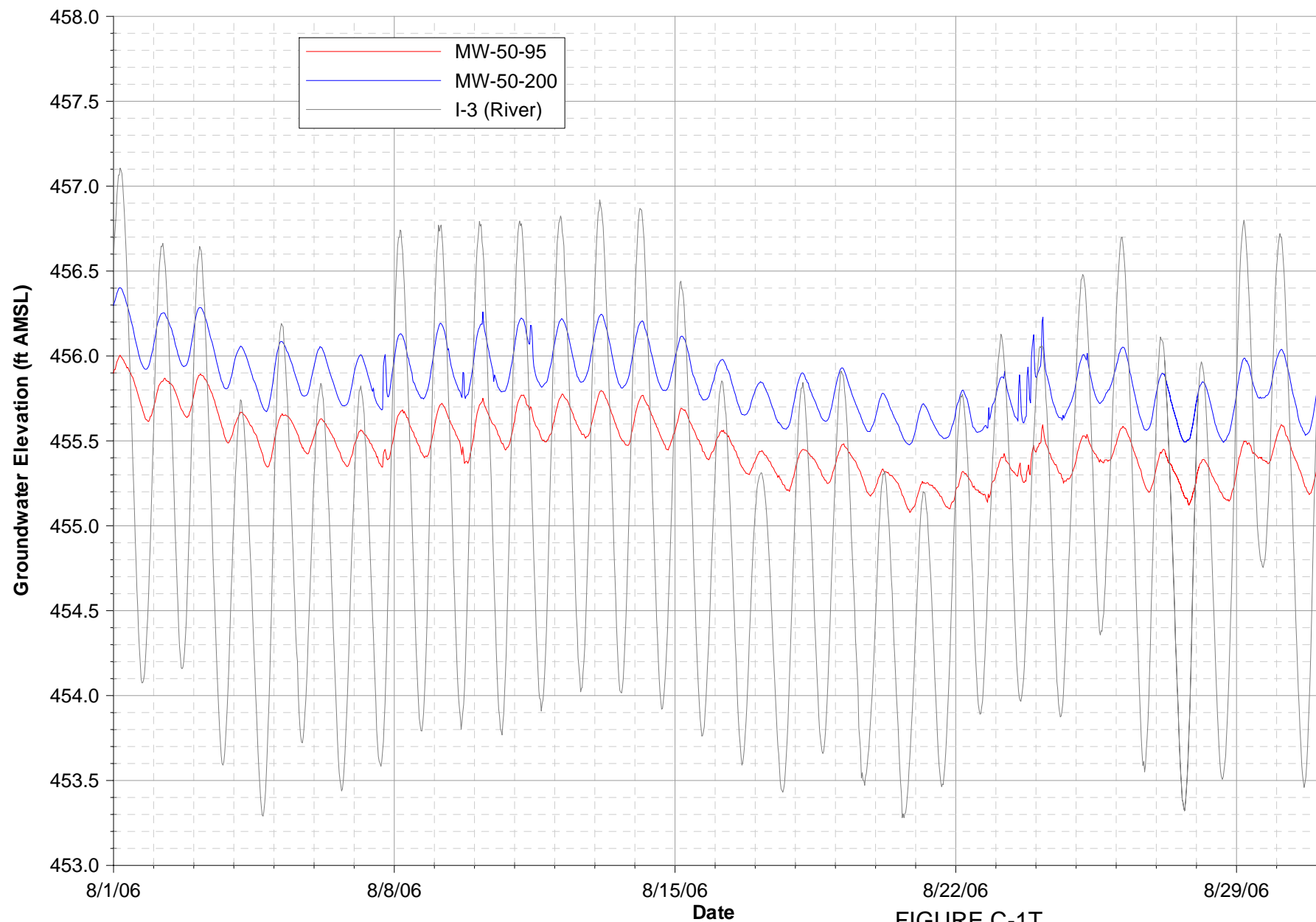




Note: Data subject to review.

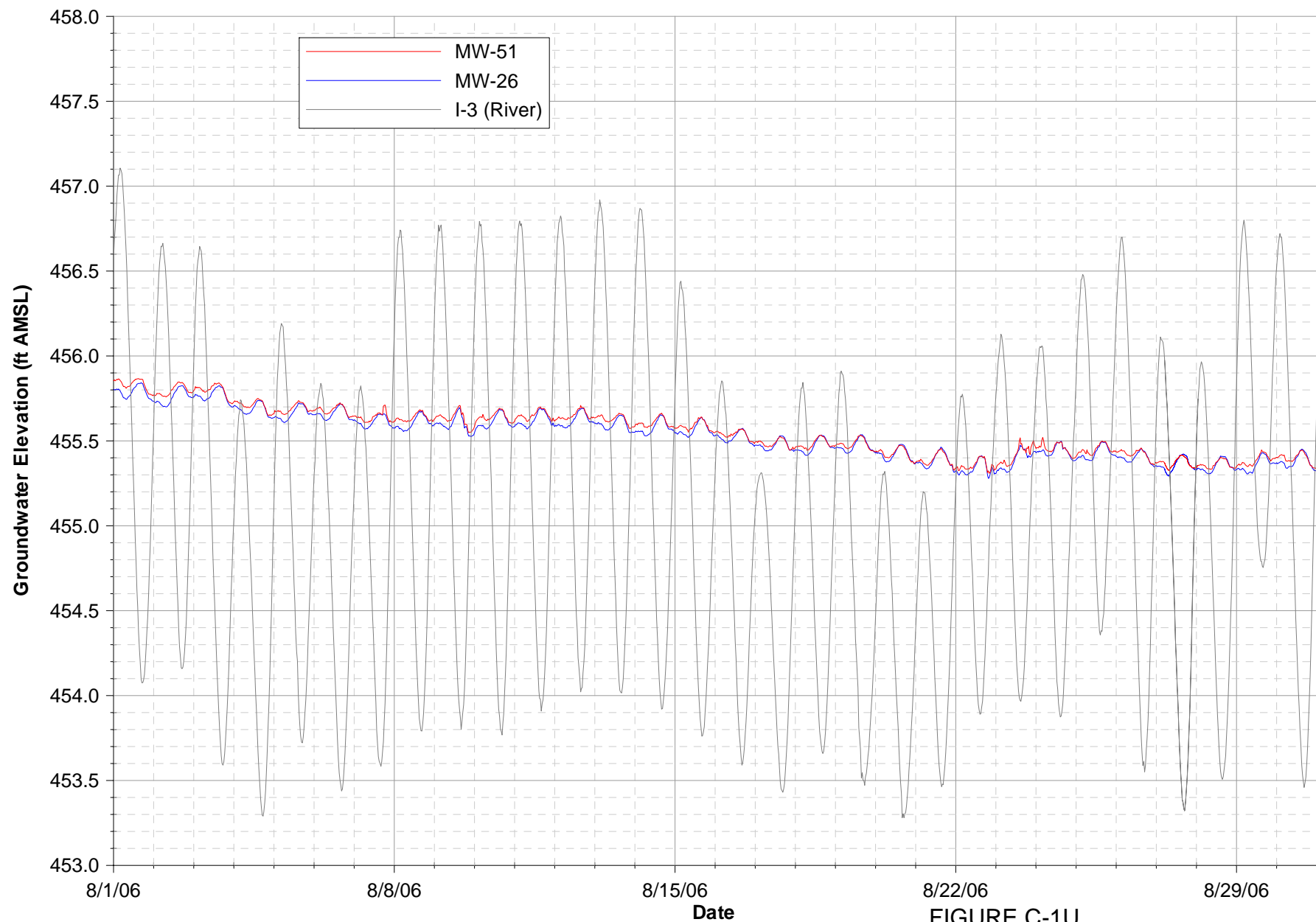
**FIGURE C-1S**  
**MW-49 CLUSTER HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA





Note: Data subject to review.

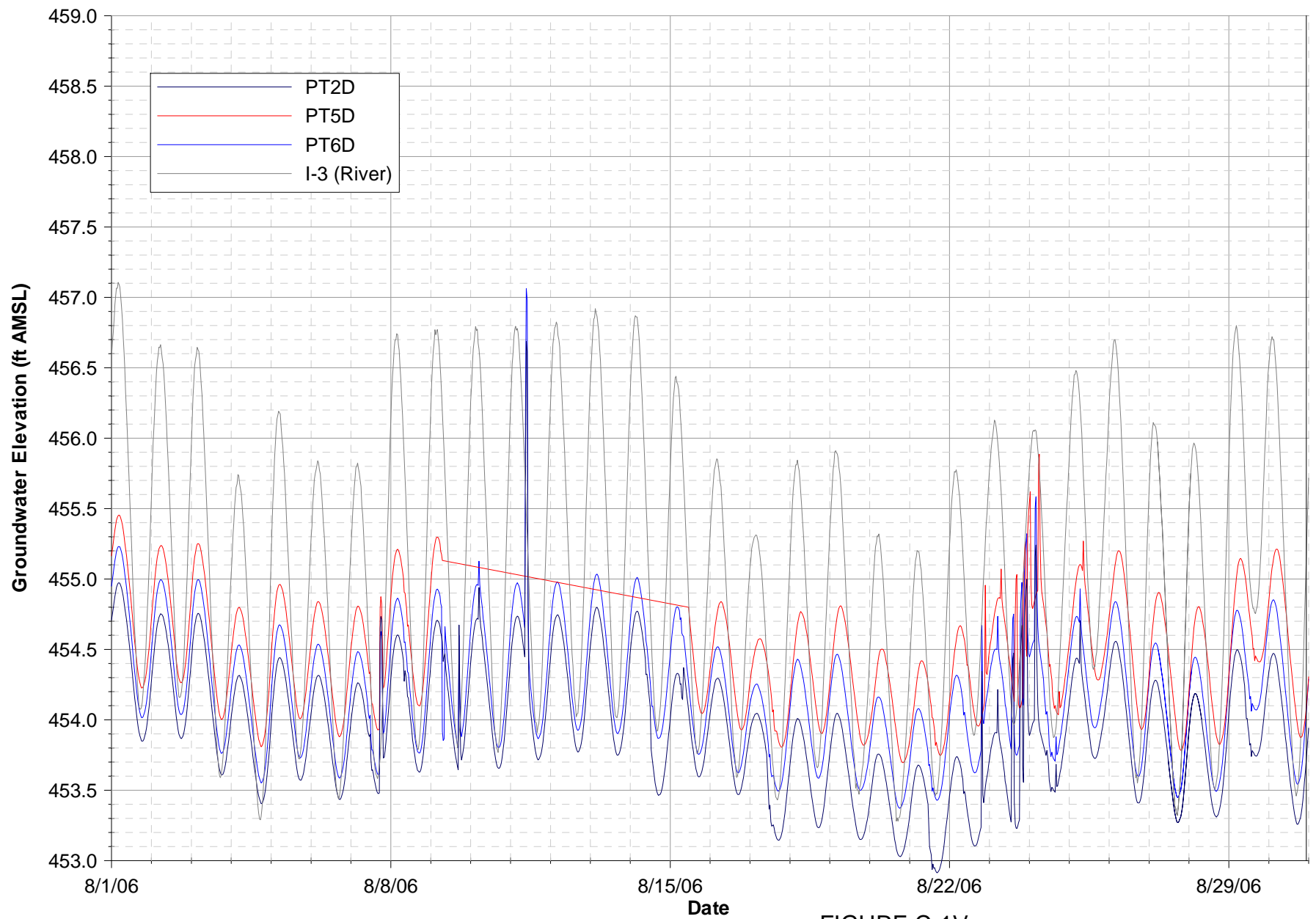
**FIGURE C-1T**  
**MW-50 CLUSTER HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



Note: Data subject to review.

FIGURE C-1U

MW-51 & MW-26 HYDROGRAPHS  
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



**FIGURE C-1V**  
**INSITU PILOT STUDY WELL HYDROGRAPHS**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG&E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA