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July 15, 2005

Norman Shopay  
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Geology and Corrective Action Branch  
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Subject: Performance Monitoring Report for June 2005  
Interim Measures Performance Monitoring Program for Floodplain Area  
PG&E Topock Compressor Station, Needles, California

Dear Mr. Shopay:

Enclosed is the performance monitoring report for the Interim Measures Performance Monitoring Program for the Topock project. This performance monitoring report documents the monthly performance monitoring results for June 2005.

In a letter dated February 14, 2005, Department of Toxic Substances Control (DTSC) established criteria for evaluating the performance of the Interim Measures. This report was prepared in conformance with DTSC's Enclosure A requirements of the February 14, 2005 letter.

Please contact me at (805) 546-5243 if you have any questions or if you need additional information.

Sincerely,

*Terri Herson  
for Yvonne Meeks*

Enclosure  
cc: CWG Members

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# **Performance Monitoring Report for June 2005**

## **Interim Measures Performance Monitoring Program for Floodplain Area**

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

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

July 15, 2005

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

# **Performance Monitoring Report for June 2005**

## **Interim Measures Performance Monitoring Program for Floodplain Area**

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

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

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

**July 15, 2005**

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

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



# Contents

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<b>Acronyms and Abbreviations .....</b>	<b>v</b>
<b>1.0      Introduction.....</b>	<b>1-1</b>
<b>2.0      Extraction System Operations.....</b>	<b>2-1</b>
<b>3.0      Chromium Sampling Results.....</b>	<b>3-1</b>
<b>4.0      Hydraulic Gradient Results.....</b>	<b>4-1</b>
<b>5.0      Status of Operations and Monitoring.....</b>	<b>5-1</b>

## Tables

- 2-1 Pumping Rate and Extracted Volume for IM System through June 2005
- 2-2 Analytical Results for Extraction Wells, April through June 2005
- 4-1 Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3
- 4-2 Average Monthly Gradients Measured at Well Pairs, June 2005

## Figures

- 1-1 Location of Wells and Cross Section used for IM Performance Monitoring
- 3-1 Cr(VI) Concentrations in Alluvial Aquifer, June 2005
- 3-2 Cr(VI) Concentrations, Floodplain Cross-section A, June 2005
- 4-1 Average Groundwater Shallow Wells and River Elevations, June 2005
- 4-2 Average Groundwater Elevations, Mid-depth Wells, June 2005
- 4-3 Average Groundwater Elevations, Deep Wells, June 2005
- 4-4 Average Groundwater Elevations, Floodplain Cross-section A, June 2005

## Appendices

- A      Chromium Sampling Results for Monitoring Wells in Floodplain Area
  - Table A-1      Groundwater Sampling Results for Floodplain Monitoring Wells, February 2005 - June 2005

- Table A-2      Groundwater Sampling Results for Other Wells in PMP Area,  
December 2004 - June 2005
- Figures A-1    Hexavalent Chromium Concentrations and  
through A-3    Hydrographs for Floodplain Wells
- B      Hydraulic Monitoring Data for Reporting Period
- Table B-1     Monthly Average, Minimum, and Maximum Groundwater  
Elevations, June 2005
- Figures B-1    Groundwater Hydrographs for June 2005  
through B-15

# Acronyms and Abbreviations

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cfs	cubic feet per second
Cr(T)	total chromium
Cr(VI)	hexavalent chromium
DTSC	Department of Toxic of Substances Control
gpm	gallons per minute
IM	Interim Measure
PG&E	Pacific Gas and Electric Company
PMP	Performance Monitoring Program
$\mu\text{g}/\text{L}$	micrograms per liter (similar to parts per billion [ppb])
USBR	United States Bureau of Reclamation

# 1.0 Introduction

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Pacific Gas and Electric Company (PG&E) is implementing Interim Measure (IM) No. 2 at the Topock Compressor Station near 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 monthly Performance Monitoring Report describes operational and monitoring information for IM No. 2 for the period from June 1 through June 30, 2005.

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 in the floodplain area of the site. 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 concentrations at or greater than 20 micrograms per liter [ $\mu\text{g/L}$ ] in the floodplain are contained for removal and treatment" (Enclosure A, DTSC February 14, 2005 letter). 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* was submitted to DTSC on April 15, 2005, referred to herein 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 (PMP) 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. The next monthly report for the July 2005 period will be submitted on August 15, 2005.

Figure 1-1 shows the locations of wells used for the IM extraction, performance monitoring, and hydraulic gradient calculations. The wells are defined as:

- **Floodplain Wells:** MW-22, MW-27 cluster (3), MW-28 cluster (2), MW-29, MW-30 cluster (2), MW-32 cluster (2), MW-33 cluster (4), MW-34 cluster (3), MW-36 cluster (6), MW-39 cluster (6), MW-42 cluster (3), and MW-43 cluster (3).
- **Intermediate Wells:** MW-12, MW-19, MW-20 cluster (3), MW-21, MW-26, MW-31 cluster (2), MW-35 cluster (2), and TW-2S, TW-2D.
- **Interior Wells:** MW-10 and MW-25.

The IM-2 extraction and treatment system is located on the MW-20 bench. In March 2005, an additional extraction well, designated PE-1, was installed on the floodplain approximately 450 feet east of extraction well TW-2D. Also in March 2005, PG&E submitted a request for DTSC and BLM approval to design and install piping, well vaults, and power supply for the new extraction well and facilities. Construction of the pipeline facilities will be completed following design approval.

The wells screened in the unconsolidated alluvial fan and fluvial deposits, which 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.

## **2.0 Extraction System Operations**

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On May 21, 2004, the United States Bureau of Land Management approved the IM No. 2 work plan to modify the existing operations to batch treat the water onsite. The modifications were started on June 9, 2004 and completed on July 15, 2004. Startup and testing of the batch plant began on July 19, 2004.

Treatment is completed in three steps: (1) chromium reduction by reaction with ferrous chloride to reduce the hexavalent chromium [Cr(VI)] to the less soluble trivalent form, (2) iron oxidation to precipitate out excess iron and reduced chromium, and (3) clarification to remove the precipitated solids from the water. Treated water from the clarifier is transferred to holding tanks for offsite disposal. Precipitated solids are periodically pumped from the clarifier into a container (phase separator) for offsite disposal.

Pumping data for the period June 1 through June 30, 2005 are shown in Table 2-1. An average pumping rate of approximately 65.1 gallons per minute (gpm) from both TW-2D and TW-2S was maintained throughout June 2005. TW-2S was pumped from June 23 through June 24 for approximately 31 hours and 40 minutes at an average pumping rate of approximately 57.1 gpm. A total of 2,815,543 gallons of groundwater was extracted and batch treated during June 2005.

The DTSC-approved shutdown of well TW-2D occurred on June 22, 2005 for approximately 8 hours to install a new pump in TW-2D. Approximately 10 hours after installing the new pump in TW-2D, the pump motor was apparently damaged by a lightning strike in the early morning hours of June 23. After the pump in TW-2D failed, TW-2S was run for approximately 32 hours from June 23 through June 24. Well TW-2S was shutdown after the pump in TW-2D was replaced. Small daily fluctuations (1 to 2 gpm) in recorded pumping rates and volumes were observed due to daily fluctuations in water levels, potential intermittent changes in power supply from the generator(s), and inherent limitations in flow meter accuracy (typically 1 to 2 percent).

The batch treated water was manifested as a RCRA non-hazardous waste and transported to the United States Filter Corporation facility in Los Angeles, California for additional treatment and disposal. Solids accumulated in the clarifier were disposed as a hazardous waste at the Waste Management, Kettleman Hills Facility.

**TABLE 2-1**  
 Pumping Rate and Extracted Volume for IM System through June 2005  
*Interim Measures Performance Monitoring*  
*PG&E Topock Compressor Station*

<b>Extraction Well</b>	<b>June 2005 Period<sup>b</sup></b>		<b>Project To Date</b>
	<b>Average Pumping Rate<sup>c</sup> (gpm)</b>	<b>Volume Pumped (gal)</b>	<b>Cumulative Volume Pumped (gal)</b>
TW-2S <sup>a</sup>	57.1	108,000	594,358
TW-2D	65.4	2,707,543	31,361,272
<b>Total</b>	<b>65.1</b>	<b>2,815,543</b>	<b>31,955,630</b>
Volume Pumped from MW-20 Cluster			1,527,724
Total Volume Pumped (gal)			33,483,354
Total Volume Pumped (ac-ft)			102.8

<sup>a</sup> Pumping from TW-2S was temporarily terminated on June 11, 2004.

<sup>b</sup> Pumping results during the monthly period from May 31, 2005 at 11:59 pm and June 30, 2005 at 1:10 pm (30.1 days). The end of the month reading from May was estimated from a June 30, 2005 totalizer reading. Access to TW-2D gauges from May 17 until June 2 was restricted due to the open excavation around TW-2D as part of IM-3 construction. The area was restored and daily readings were resumed on June 3, 2005.

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

A spill of clarifier sludge occurred on Sunday, April 10, 2005 during transfer of the sludge from the clarifier to a phase separator. The transfer of sludge from the clarifier to the phase separator was stopped after the operator observed the spillage onto an underlying drip pad and the ground surface in the vicinity of the phase separator. Initial cleanup efforts were completed in April 2005. Confirmation soil samples results indicate that potentially-affected soil may still be present around the phase separator area where the spill originated (about a 15-foot by 30-foot area. PG&E collected a set of background soil samples across the MW-20 bench on May 25, 2005 to better define that amount of cleanup necessary around the phase separator container area. Additional soil excavation around the phase separator area will be completed in July and a final cleanup report will be issued 20-days after completing the work.

Daily inspections include tank inspections, flow measurements, site security, and desert tortoise sitings. Daily logs with documentation of inspections are maintained on site. No precipitation was observed at the Topock site or measured at the Needles, California airport in June 2005.

During the reporting period, a grab sample was collected from well TW-2D in conjunction with system operations. Table 2-2 is a summary of analytical results from extraction wells TW-2D and MW-20-130 during the period April through June 2005.

## 3.0 Chromium Sampling Results

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The groundwater monitoring wells in the floodplain area are sampled for Cr(VI), total chromium [Cr(T)], and field water quality parameters under monthly, biweekly, and weekly schedules, in accordance with the approved groundwater monitoring plan and DTSC directives. Table A-1 (Appendix A) presents the groundwater sampling results for Cr(VI), Cr(T), groundwater elevation and selected field water quality parameters for monitoring wells in the floodplain area during June 2005 and the previous months. Table A-2 presents the groundwater sampling data for the other wells monitored in the PMP area during the evaluation period.

Figure 3-1 presents the Cr(VI) results distribution for June 2005 in plan view for the groundwater wells monitoring the upper-, middle-, and lower-depth intervals of the Alluvial Aquifer in the floodplain area. The June 2005 Cr(VI) sampling results maps also shows the approximate outline of Cr(VI) in groundwater greater than 50 µg/L (the California drinking water standard for total chromium) and 20 µg/L. The Cr(VI) sampling results from the June 2005 monthly sampling event are shown on Figure 3-2, a vertical cross-section in the floodplain (see Figure 1-1 for cross-section location). For the PMP evaluation, Cr(VI) concentration trend graphs and hydrographs for key floodplain monitoring wells are presented in Appendix A, Figures A-1 (well MW-33-90), A-2 (MW-34-100), and A-3 (MW-36-100).

## 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 48 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 1-1 and listed in Section 1.0.

Hydraulic data are summarized and groundwater elevations contoured by depth interval of the Alluvial Aquifer on the following figures:

- Figure 4-1 – Shallow Wells in the Alluvial Aquifer
- Figure 4-2 – Mid-depth Wells in the Alluvial Aquifer
- Figure 4-3 – Deep Wells in the Alluvial Aquifer

The average and the minimum and maximum daily average groundwater and river elevations have been calculated from the pressure transducer data for the May reporting period (June 1 to June 30, 2005) and are summarized in Appendix B, Table B-1. Reported groundwater elevations (or hydraulic heads) are adjusted for temperature and for salinity differences between wells (i.e., adjusted to a common freshwater equivalent), as described in the Performance Monitoring Plan. Groundwater elevation hydrographs (for June 2005) for all wells with transducers are included in Appendix B. The Colorado River elevation (I-3 gage station) during June 2005 is also shown on the hydrographs.

The June 2005 groundwater gradient maps for the Upper, Middle, and Lower zones are shown on Figures 4-1, 4-2, and 4-3, respectively. The groundwater elevations for all depth intervals of the Alluvial Aquifer indicate strongly landward hydraulic gradients along the floodplain. To the west of the pumping area, the hydraulic gradient in the upper-depth interval is easterly and consistent with the regional gradient outside of the floodplain area. The landward gradients measured during June 2005 were steeper than usual due to a combination of the spring conditions during which the river levels are higher than in other seasons and the continuation of an approximately 70 gpm IM-2 extraction rate. The average monthly groundwater elevations are also presented and contoured in cross-section on Figure 4-4 (location of cross-section shown on Figure 1-1).

Table 4-1 summarizes the estimated and actual dam discharges and river elevations since April 2004. The actual Davis Dam June 2005 average discharge (15,223 cubic feet per second [cfs]) was slightly greater than the United States Bureau of Reclamation (USBR) projected discharge for the June reporting period (14,600 cfs). The actual Colorado River elevation at I-3 (monthly average) was 0.45 foot greater than that calculated using the multiple regression method with USBR projections for the June reporting period.

Gradients were measured between the three designated well pairs (MW-20-130/MW-34-80, MW-20-130/MW-42-65, and MW-31-135/MW-33-150) during June 2005. As shown in Table 4-2, the average gradients in the three well pairs were landward at magnitudes that were generally between 1.5 and 3 times greater than the target value of 0.0010 feet per foot (0.0032, 0.0032, and 0.0016, respectively). Hydraulic gradient data from well MW-42-65 was

not available for the period June 1-15 due to transducer malfunction. Data from MW-22 were incomplete from June 16-30, also due to a transducer malfunction. RRB data were unavailable due to a wasp nest that has made accessing this location hazardous. Field access to RRB will be confirmed and resolved in the upcoming weeks and the transducer data will be obtained for the July reporting period.

## **5.0 Status of Operations and Monitoring**

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Monitoring and reporting of the IM activities will continue as described in the Performance Monitoring Plan. The next status report will be a monthly performance monitoring report submitted on August 15, 2005 and will cover activities from July 1 through July 31, 2005.

Continuous pumping from extraction well TW-2D will continue in July 2005. Groundwater treatment in the IM-3 system is scheduled to commence on July 16, 2005. Consultation with DTSC and the federal agencies on the design and alignment of the piping to extraction well PE-1 is ongoing (field activities are to commence after receiving agency approval).

Based on current USBR projections, it is anticipated that the Colorado River level at I-3 in July 2005 will slightly increase relative to June 2005. Future adjustments in pump rates from TW-2D will be proposed based on expected river levels, observed groundwater gradients, potential system modifications, and other relevant factors.

## **Tables**

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TABLE 2-2

Analytical Results for Extraction Wells, March 2005 through June 2005  
 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-02D	02-Mar-05	5.44 ^ 1	---	5880 J
TW-02D	09-Mar-05	5.54 ^ 1	5.82 J	4560 J
TW-02D	06-Apr-05	5.70 ^ 1	5.44	6140
TW-02D	19-Apr-05	5.77 ^ 1	5.47	6580
TW-02D	05-May-05	5.49 ^	---	6470
TW-02D	15-Jun-05	4.86	4.57	6420
MW-20-130	02-Mar-05	8.62 ^ 1	---	5270 J
MW-20-130	09-Mar-05 FD	8.17	8.81	6200
MW-20-130	09-Mar-05	8.90	8.73	5520

**Notes:**

<sup>1</sup> Samples field filtered. All other dissolved total chromium is lab filtered.

<sup>^</sup> Groundwater samples from IM extraction wells are analyzed by certified laboratory for operational monitoring purpose.

Analytical data is reviewed for quality control but does not undergo full data validation; results flagged ^.

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

FD = field duplicate sample

J = concentration or reporting limit estimated by laboratory or data validation.

(---) = data not collected.

**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*

<b>Month</b>	<b>Davis Dam Release</b>			<b>Colorado River Elevation at I-3</b>		
	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	456.1	0.2
May 2005	16,700	15,579	-1,121	456.2	456.3	0.1
June 2005	14,600	15,223	623	455.8	456.3	0.4
July 2005	15,400	---	---	456.0	---	---

**Notes:**

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 through July are from April 2004, and the remainder were from the beginning of each respective month, except July 2005, which is from June 2005. 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

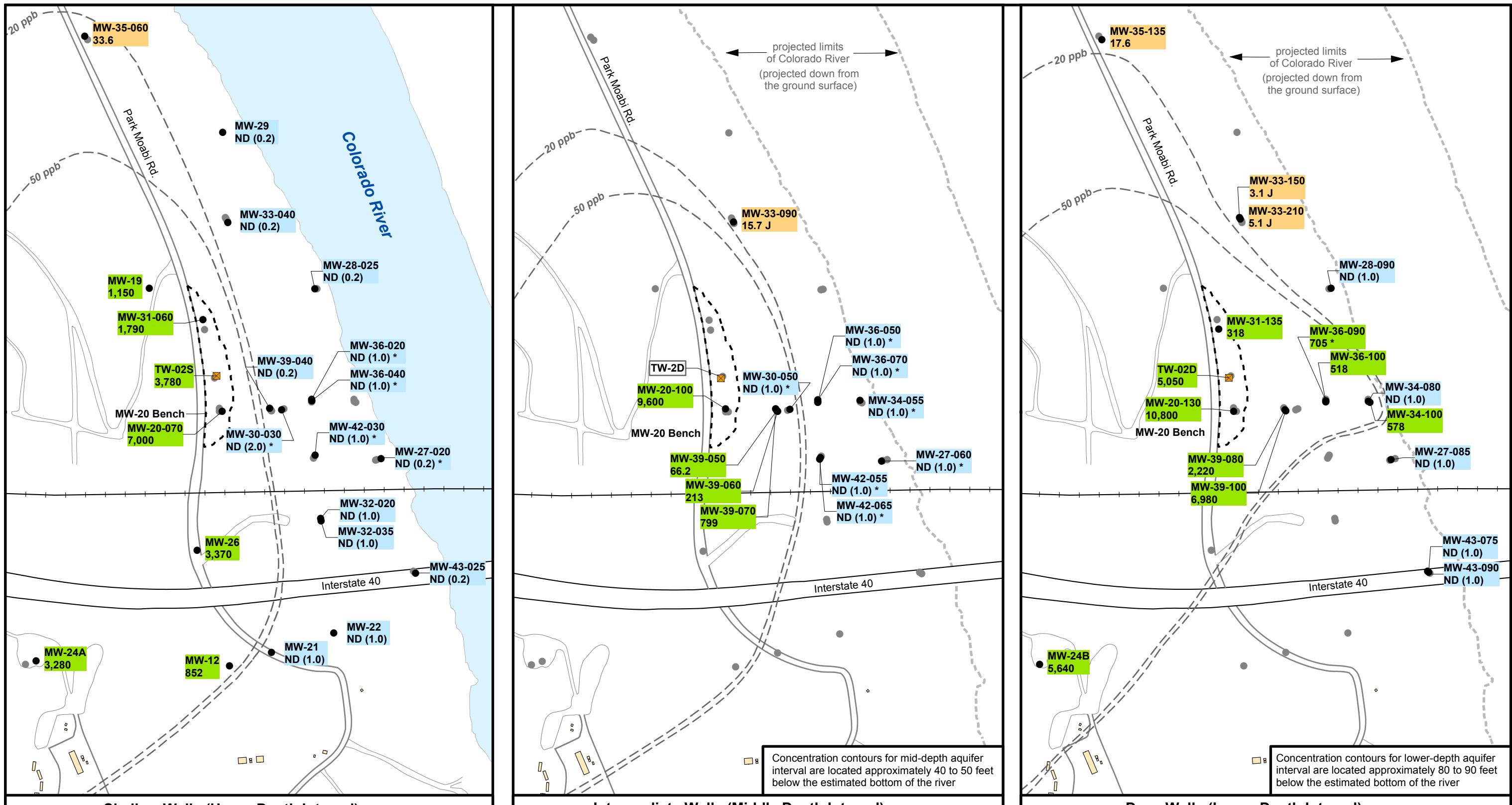
**TABLE 4-2**  
 Average Hydraulic Gradients Measured at Well Pairs, June 2005  
*Interim Measures Performance Monitoring*  
*PG&E Topock Compressor Station*

Well Pair	Mean Landward Hydraulic Gradient (feet/foot)	Measurement Dates 2005
<b>Northern Gradient Pair</b>		
MW-31-135 / MW-33-150	0.0016	June-1 through June-30
<b>Central Gradient Pair</b>		
MW-20-130 / MW-34-80	0.0032	June-2 through June-30
<b>Southern Gradient Pair</b>		
MW-20-130 / MW-42-65	0.0032	June-16 through June-30

**Notes:**

1. For IM pumping, the target landward gradient for the selected well pairs is 0.001 feet/foot
2. Refer to Figure 1-1 for location of well pairs
3. MW-42-65 data unavailable from 6/1/05 through 6/15/05
4. Extraction well TW-2D was temporarily shut down on 6/23/05 on 6/24/05.

## **Figures**



ND (1) Not detected at listed reporting limit (ppb)

41 Less than 50 ppb

3,810 Greater than 50 ppb

— · 50 — · Inferred Cr(VI) concentration contour

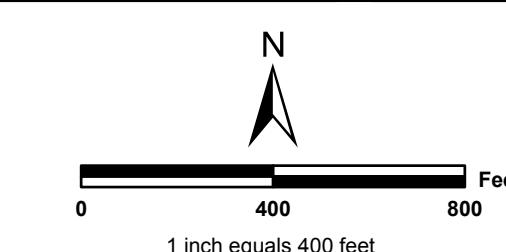
See Figure 3-2 for depth intervals for Alluvial Aquifer

Notes:  
Results marked \* are from March, April & May 2005 sampling events.

J = concentration estimated from data validation

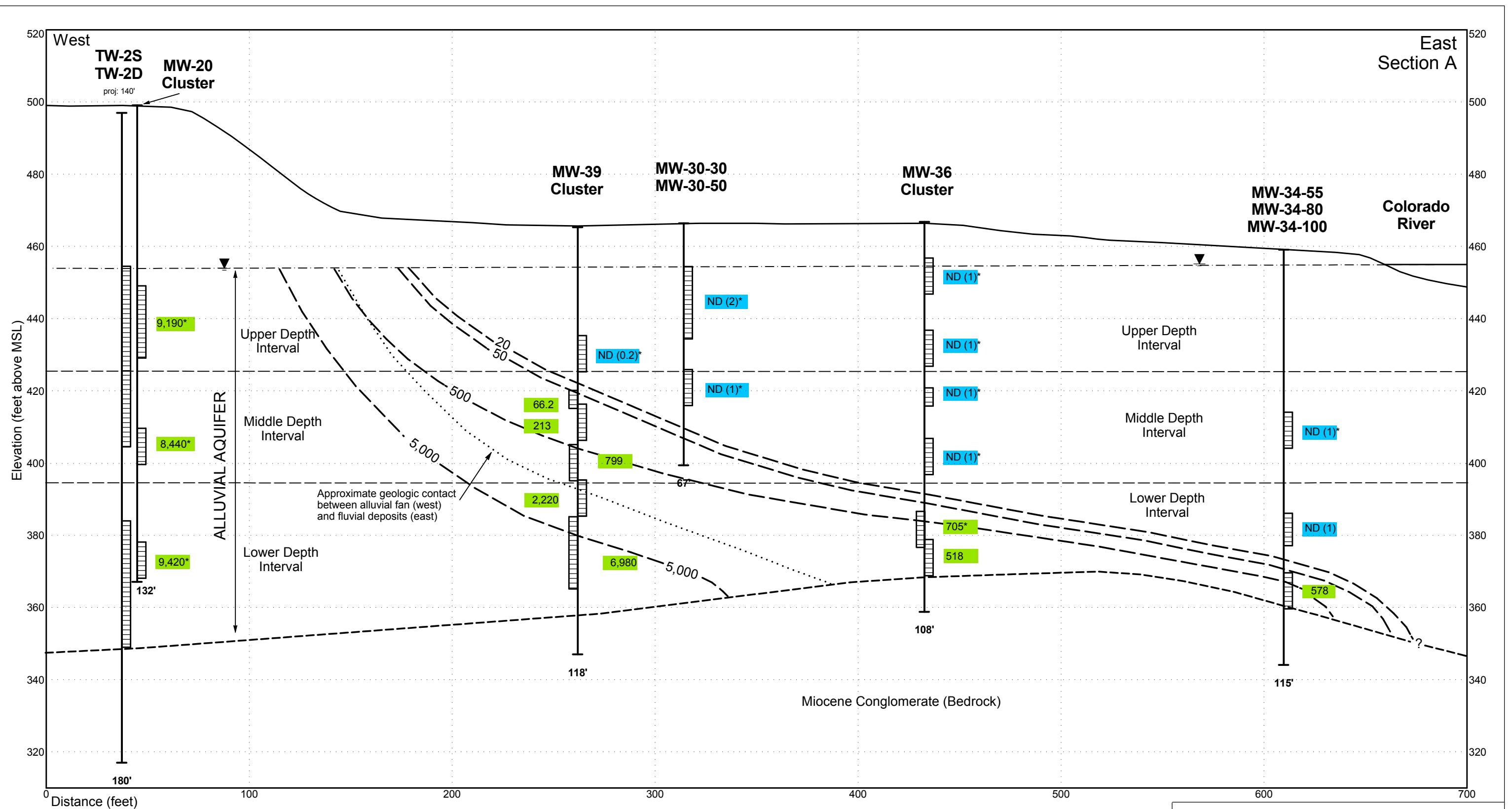
### Hexavalent Chromium Concentrations in Groundwater June 2005 Sampling Events

Concentrations in micrograms per liter ( $\mu\text{g/L}$ )  
equivalent to parts per billion (ppb)  
ND = not detected at listed reporting limit.



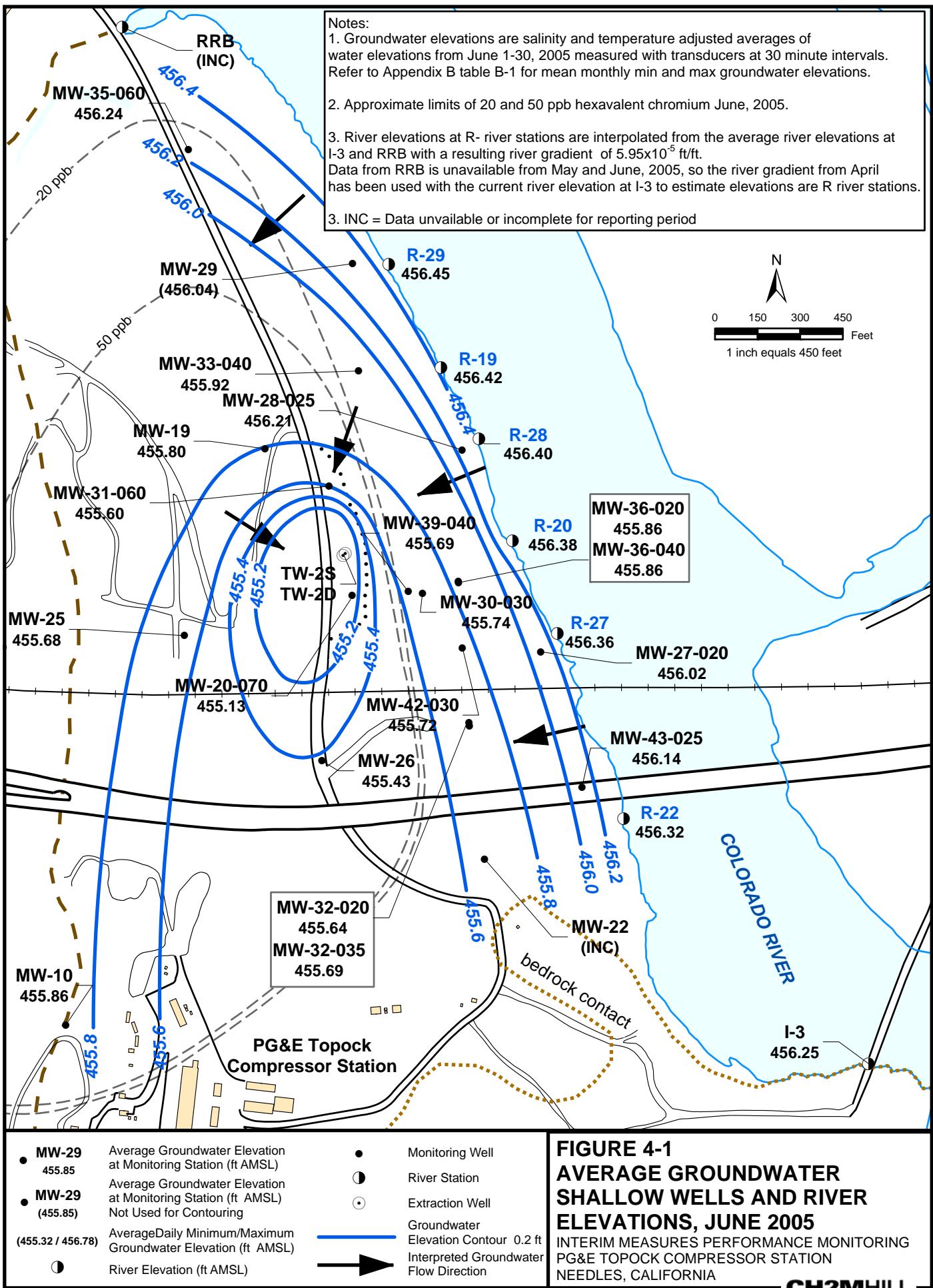
**FIGURE 3-1**  
**CR(VI) CONCENTRATIONS**  
**IN ALLUVIAL AQUIFER, JUNE 2005**

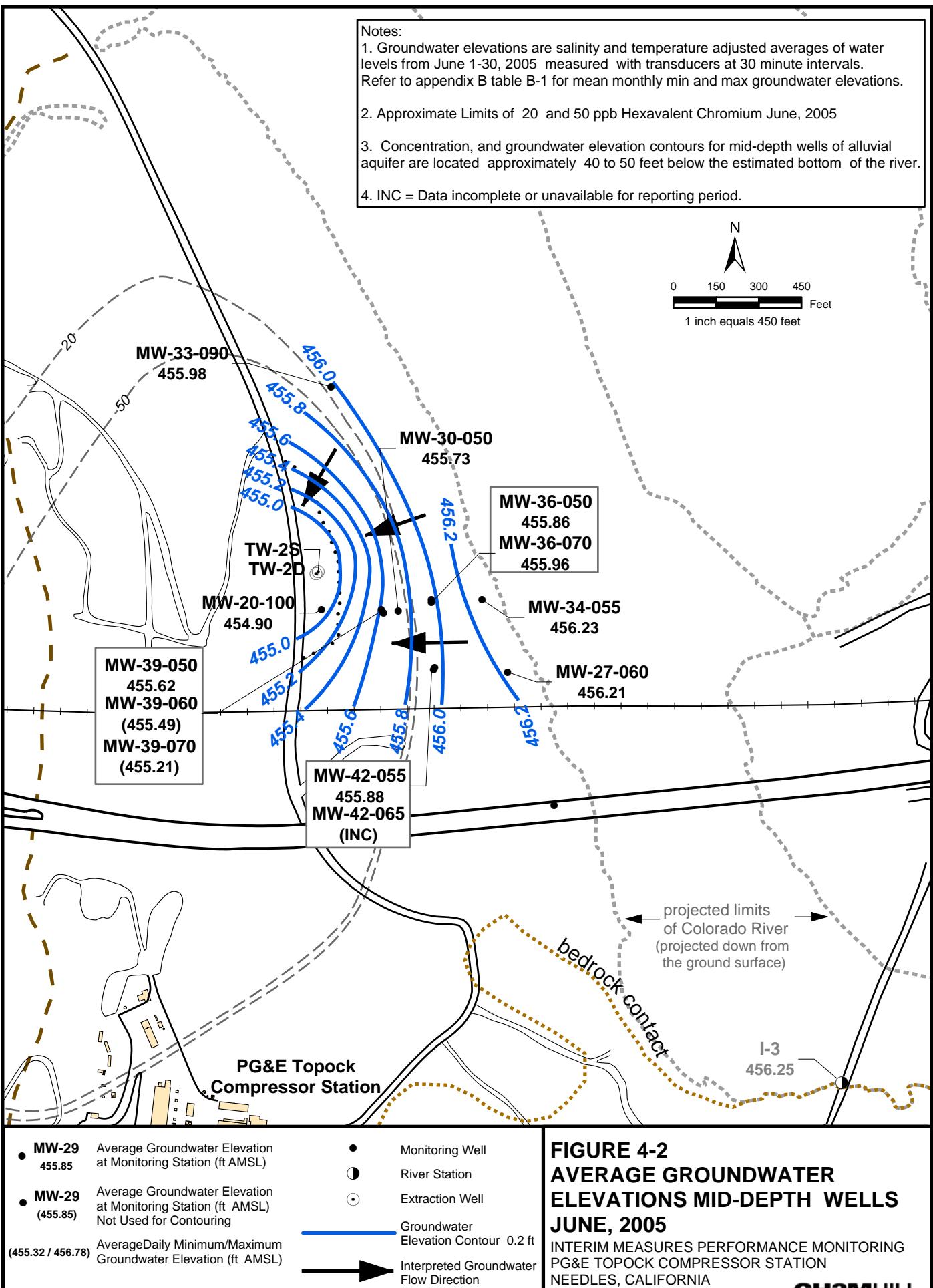
INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

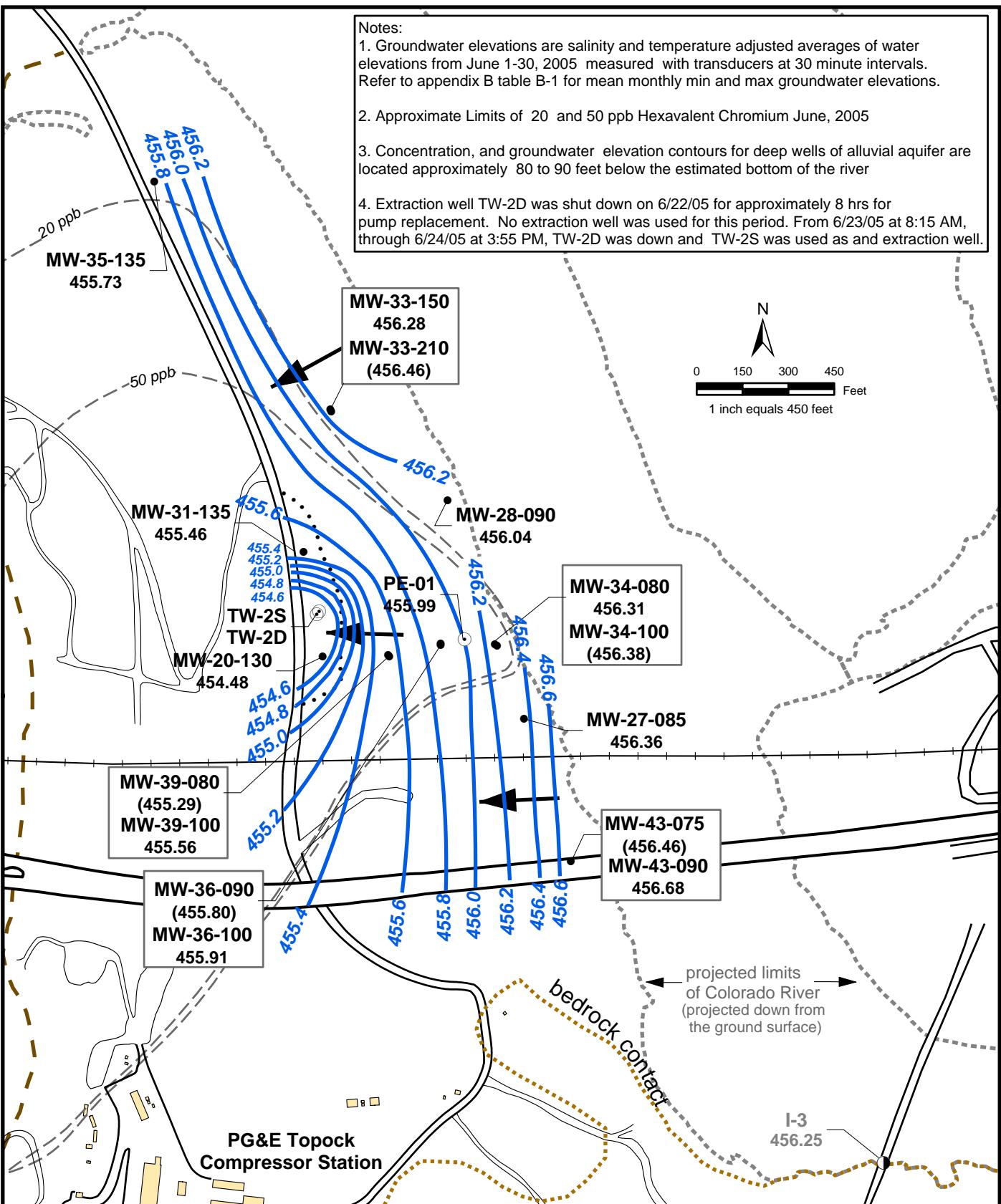


**FIGURE 3-2**  
**CR(VI) CONCENTRATIONS**  
**FLOODPLAIN CROSS-SECTION A**  
**JUNE 2005**

INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA





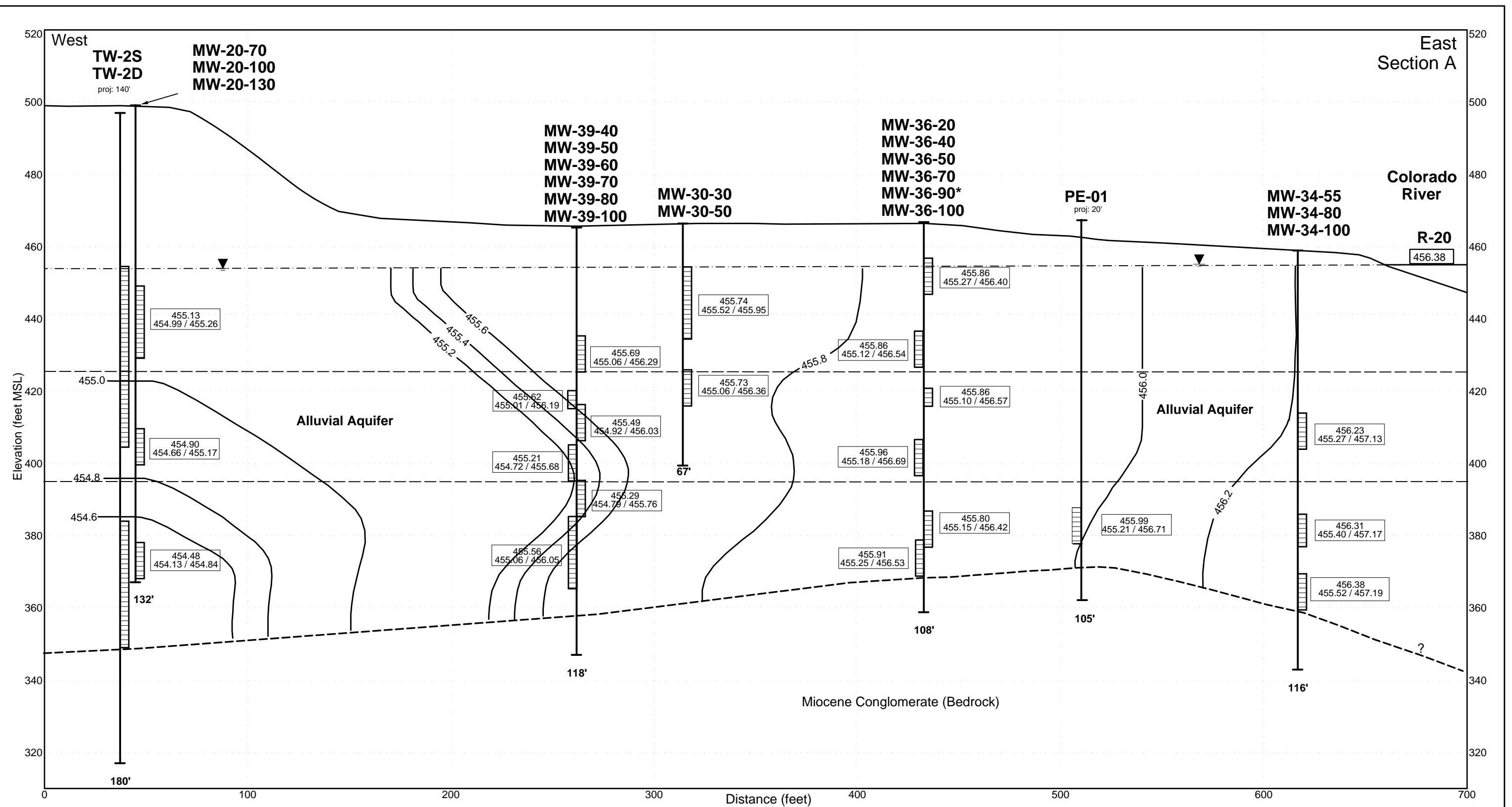


- MW-29 Average Groundwater Elevation at Monitoring Station (ft AMSL) 455.85
- MW-29 (455.85) Average Groundwater Elevation at Monitoring Station (ft AMSL) Not Used for Contouring
- (455.32 / 456.78) Average Daily Minimum/Maximum Groundwater Elevation (ft AMSL)
- INC Data incomplete for reporting period

- Monitoring Well
- River Station
- Extraction Well
- Groundwater Elevation Contour 0.2 ft
- Interpreted Groundwater Flow Direction

**FIGURE 4-3**  
**AVERAGE GROUNDWATER ELEVATIONS DEEP WELLS JUNE, 2005**

INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



**FIGURE 4-4**  
**AVERAGE GROUNDWATER ELEVATIONS**  
**FLOODPLAIN CROSS-SECTION A**  
**JUNE, 2005**

INTERIM MEASURES PERFORMANCE MONITORING  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

**CH2MHILL**

**Appendix A**

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

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TABLE A-1

Groundwater Sampling Results for Floodplain Monitoring Wells, February 2005 through June 2005  
 Interim Measures Performance Monitoring  
 PG&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	
<b>Shallow Wells</b>								
MW-27-020	09-Feb-05	ND (0.2)	ND (1.0)	-198	0.1	3,500	453.0	452.8
	08-Mar-05	ND (0.2)	ND (1.0)	-178	0.0	2,180	451.9	451.3
	04-Apr-05	ND (0.2)	ND (1.0)	-194	0.0	2,580	454.7	453.8
	04-May-05	ND (0.2)	ND (1.0)	-176	0.4	1,280	456.1	455.8
MW-28-025	08-Feb-05	ND (0.2)	ND (1.0)	---	---	---	---	452.7
	10-Mar-05	ND (0.2)	ND (1.0)	60	5.6	1,400	451.9	451.8
	04-Apr-05	ND (0.2)	ND (1.0)	-108	0.1	1,590	454.9	454.4
	03-May-05	ND (0.2)	ND (1.0)	-59	0.4	1,280	456.4	456.4
	15-Jun-05	ND (0.2)	ND (1.0)	-54	2.7	1,460	456.2	456.0
MW-29	07-Feb-05	ND (1.0)	3.00	-150	0.5	20,100	453.3	452.8
	09-Mar-05	ND (2.0)	ND (1.0)	-127	1.7	32,900	452.8	450.6
	06-Apr-05	ND (1.0)	ND (1.0)	-128	2.0	22,700	454.5	455.5
	05-May-05	ND (0.2)	ND (1.0)	-142	0.1	---	455.9	456.3
	15-Jun-05	ND (0.2)	ND (1.0)	-108	3.1	6,580	456.1	456.2
MW-30-030	09-Feb-05	ND (5.0)	ND (1.0)	-121	0.2	59,700	453.1	452.5
	10-Mar-05	ND (5.0)	ND (1.0)	-84	4.1	65,900	452.7	451.7
	06-Apr-05	ND (2.0)	ND (1.0)	-143	0.3	38,000	454.4	455.2
	09-May-05	ND (2.0)	ND (1.0)	-131	0.3	47,700	455.4	455.3
MW-32-020	07-Feb-05	ND (1.0)	ND (1.0)	-155	0.0	25,900	453.0	452.6
	09-Mar-05	ND (2.0)	ND (1.0)	-161	0.0	29,900	452.3	450.5
	04-Apr-05	ND (1.0)	ND (1.0)	-178	0.0	26,000	453.9	453.8
	09-May-05	ND (1.0)	ND (1.0)	-121	0.2	20,600	455.4	455.0
	17-Jun-05	ND (1.0)	ND (1.0)	-188	2.4	15,500	455.6	455.4
MW-32-035	07-Feb-05	ND (1.0)	ND (1.0)	-175	0.5	10,000	452.9	452.6
	09-Mar-05	ND (1.0)	ND (1.0)	-183	0.1	12,400	451.6	450.5
	04-Apr-05	ND (1.0)	ND (1.0)	-197	0.1	9,800	454.2	453.9
	09-May-05	ND (1.0)	ND (1.0)	-164	0.2	13,600	455.5	455.1
	17-Jun-05	ND (1.0)	ND (1.0)	-202	2.3	12,800	455.7	455.4
MW-33-040	07-Feb-05	ND (1.0)	ND (1.0)	-162	0.6	7,540	453.3	452.7
	09-Mar-05	ND (1.0)	ND (1.0)	-125	3.3	7,050	451.9	450.6
	04-Apr-05	ND (0.2)	ND (1.0)	-160	0.7	9,900	454.4	454.1
	05-May-05	ND (0.2)	ND (1.0)	-90	0.6	5,760	455.8	455.7
	17-Jun-05	ND (0.2)	ND (1.0)	-94	5.4	5,460	456.0	456.1
MW-36-020	07-Feb-05	ND (1.0)	1.40	-62	6.2	31,400	452.9	452.6
	09-Mar-05	ND (2.0)	ND (1.0)	-88	7.6	22,600	451.3	450.6
	05-Apr-05	ND (1.0)	ND (1.0)	-92	5.3	20,000	---	454.0
	03-May-05	ND (1.0)	ND (1.0)	-180	3.5	10,200	456.0	456.4
MW-36-040	07-Feb-05	ND (1.0)	ND (1.0)	-151	6.6	11,300	452.8	452.6
	08-Mar-05	ND (1.0)	ND (1.0)	-194	5.5	9,000	451.7	451.2
	05-Apr-05	ND (1.0)	ND (1.0)	-162	5.3	11,200	---	454.0
	05-May-05	ND (1.0)	ND (1.0)	-180	2.7	10,300	455.5	455.5
MW-39-040	08-Feb-05	ND (0.2)	ND (1.0)	-160	5.4	7,390	452.7	452.4

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TABLE A-1

Groundwater Sampling Results for Floodplain Monitoring Wells, February 2005 through June 2005  
 Interim Measures Performance Monitoring  
 PG&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	
<b>Shallow Wells</b>								
MW-39-040	09-Mar-05	ND (1.0)	ND (1.0)	-177	5.0	8,290	451.3	450.6
	05-Apr-05	ND (1.0)	ND (1.0)	-179	5.4	6,200	---	454.5
	05-May-05	ND (0.2)	ND (1.0)	-179	1.8	6,070	455.7	456.2
	16-Jun-05	ND (0.2)	ND (1.0)	-202	2.1	9,600	456.0	455.7
MW-42-030	23-Feb-05	ND (1.0)	ND (1.0)	-175	1.5	12,600	452.4	452.6
	16-Mar-05	ND (1.0)	ND (1.0)	-136	1.2	17,800	451.8	451.7
MW-43-025	07-Mar-05	ND (0.2)	ND (1.0)	-161	6.1	1,690	451.9	451.7
	15-Mar-05	ND (0.2)	ND (1.0)	-177	4.6	1,660	451.8	451.8
	20-Jun-05	ND (0.2)	ND (1.0)	-174	1.9	1,800	456.3	456.0
<b>Middle-Depth Wells</b>								
MW-27-060	23-Feb-05	ND (1.0)	ND (1.0)	-151	1.3	15,200	452.7	452.6
	23-Feb-05 FD	ND (1.0)	ND (1.0)	FD	FD	FD	FD	FD
	01-Mar-05	ND (1.0)	ND (1.0) J	-143	5.1	13,400	452.8	452.6
	08-Mar-05	ND (1.0)	ND (1.0)	-144	1.1	18,000	451.9	451.4
	14-Mar-05	ND (1.0)	ND (1.0)	-158	0.8	20,300	---	451.5
	23-Mar-05	ND (1.0)	ND (1.0)	-124	1.7	12,700	454.2	454.4
	29-Mar-05	ND (1.0)	ND (1.0)	-154	0.3	16,800	454.3	454.1
	05-Apr-05	ND (1.0)	ND (1.0)	-157	0.1	16,700	454.3	454.0
	12-Apr-05	ND (1.0)	ND (1.0)	-146	0.2	13,800	456.6	456.7
	19-Apr-05	ND (1.0)	ND (1.0)	---	---	---	456.3	456.3
	26-Apr-05	ND (1.0)	ND (1.0)	-111	7.0	22,100	456.6	456.2
	04-May-05	ND (1.0)	ND (1.0)	-114	0.4	14,400	456.2	456.0
MW-30-050	09-Feb-05	ND (10)	1.60 J	-155	0.0	13,300	452.7	452.5
	09-Feb-05 FD	ND (1.0)	11.2 J	FD	FD	FD	FD	FD
	10-Mar-05	ND (1.0)	ND (1.0)	-230	4.7	9,000	451.7	451.7
	06-Apr-05	18.5	15.5	-252	0.5	14,000	454.8	455.4
	06-Apr-05 FD	17.1 J	13.0	FD	FD	FD	FD	FD
	09-May-05	ND (1.0)	ND (1.0)	-100	0.3	14,200	455.4	455.6
	09-May-05 FD	ND (1.0)	ND (1.0)	FD	FD	FD	FD	FD
MW-33-090	07-Feb-05	20.2	14.9	-75	0.5	9,320	453.2	452.6
	22-Feb-05	19.0	18.3	10	5.2	8,930	452.6	452.2
	09-Mar-05	18.6	18.2	-101	0.7	---	451.8	450.5
	22-Mar-05	18.9	19.2	-92	4.7	14,600	453.7	454.2
	04-Apr-05	21.3	17.2	-98	0.3	13,300	454.4	454.1
	19-Apr-05	20.3	17.9	---	4.0	8,830	455.5	455.3
	19-Apr-05 FD	20.0	18.2	FD	FD	FD	FD	FD
	05-May-05	17.4	16.8	-244	0.3	8,250	455.7	455.4
	18-May-05	15.5	16.3	-141	1.6	---	455.8	455.1
	01-Jun-05	17.8	14.0	-53	0.4	12,000	456.3	456.3
	01-Jun-05 FD	16.0	12.7	FD	FD	FD	FD	FD
	16-Jun-05	15.0	14.2	-209	2.1	9,500	455.9	455.4
	16-Jun-05 FD	15.7 J	13.4	FD	FD	FD	FD	FD

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TABLE A-1

Groundwater Sampling Results for Floodplain Monitoring Wells, February 2005 through June 2005  
 Interim Measures Performance Monitoring  
 PG&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	
<b>Middle-Depth Wells</b>								
MW-34-055	09-Feb-05	ND (1.0)	ND (1.0)	-112	0.0	12,600	453.0	452.7
	10-Mar-05	ND (1.0)	ND (1.0)	-191	5.1	9,000	451.7	451.4
	05-Apr-05	ND (1.0)	ND (1.0)	-110	0.7	12,400	454.1	454.0
	05-May-05	ND (1.0)	ND (1.0)	-99	0.1	8,860	455.5	455.1
MW-36-050	07-Feb-05	ND (1.0)	ND (1.0)	-131	5.6	11,000	452.8	452.6
	08-Mar-05	ND (1.0)	ND (1.0)	-168	5.5	8,800	451.7	451.1
	05-Apr-05	ND (1.0)	ND (1.0)	-129	5.6	9,320	---	454.1
	05-May-05	ND (1.0)	ND (1.0)	-137	2.1	9,330	455.5	455.3
MW-36-070	07-Feb-05	ND (0.21)	1.20	-60	7.2	18,500	453.0	452.7
	08-Mar-05	ND (1.0)	ND (1.0)	-115	5.2	11,300	451.7	451.2
	05-Apr-05	ND (1.0)	ND (1.0)	-48	5.6	9,990	---	454.0
	03-May-05	ND (1.0)	ND (1.0)	-103	0.0	12,300	455.9	456.0
MW-39-050	08-Feb-05	819	800	76	5.3	14,500	452.7	452.6
	09-Mar-05	422	372	11	5.0	14,400	451.3	450.5
	06-Apr-05	282 J	237	81	4.4	12,400	454.8	455.8
	03-May-05	206	204	56	0.0	14,300	454.2	455.3
	16-Jun-05	66.2	55.4	-44	2.0	15,200	456.0	454.9
MW-39-060	08-Feb-05	1880	1650	106	5.2	12,900	452.7	452.7
	09-Mar-05	1450	1300	65	4.9	15,200	451.1	450.5
	06-Apr-05	914	1080	84	4.3	12,600	---	455.5
	06-Apr-05 FD	914	907	FD	FD	FD	FD	FD
	05-May-05	450	455	43	2.0	14,600	455.4	456.0
	05-May-05 FD	460	509	FD	FD	FD	FD	FD
	16-Jun-05	213	198	19	1.9	17,600	456.1	455.1
MW-39-070	08-Feb-05	6640	6800	89	5.5	11,400	452.4	452.4
	09-Mar-05	4310	4010 J	71	5.3	13,800	451.0	450.5
	09-Mar-05 FD	4340	5310 J	FD	FD	FD	FD	FD
	05-Apr-05	2280	2080	61	5.8	11,500	---	454.4
	05-May-05	1320	1270	98	1.9	12,500	455.2	456.4
	16-Jun-05	799	576	22	1.8	16,000	456.1	455.4
MW-42-055	23-Feb-05	ND (1.0)	ND (1.0)	-188	0.9	13,600	452.5	452.6
	16-Mar-05	ND (1.0)	ND (1.0)	-191	0.5	17,100	451.9	451.7
MW-42-065	14-Feb-05	ND (1.0)	ND (1.0)	-201	0.3	22,200	453.1	452.1
	24-Feb-05	ND (1.0)	ND (2.8) J	-119	5.0	20,500	452.8	452.6
	16-Mar-05	ND (1.0)	ND (1.0)	-126	0.6	21,400	452.0	451.5
<b>Deep Wells</b>								
MW-27-085	14-Feb-05	ND (1.0)	ND (1.0)	-519	0.1	26,700	453.8	452.6
	16-Feb-05	ND (2.0)	ND (1.0)	-491	5.2	23,400	452.5	451.6
	23-Feb-05	ND (2.0)	ND (1.0)	-235	1.1	17,700	452.9	452.6
	01-Mar-05	ND (1.0)	ND (1.0) J	-155	4.9	18,600	452.9	452.6
	08-Mar-05	ND (2.0)	ND (1.0)	-152	0.2	22,000	452.1	451.4
	14-Mar-05	ND (1.0)	ND (1.0)	-153	0.9	27,000	452.2	451.6

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TABLE A-1

Groundwater Sampling Results for Floodplain Monitoring Wells, February 2005 through June 2005  
 Interim Measures Performance Monitoring  
 PG&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	
<b>Deep Wells</b>								
MW-27-085	23-Mar-05	ND (1.0)	ND (1.0)	-145	1.0	16,100	454.3	454.3
	29-Mar-05	ND (1.0)	ND (1.0)	-167	0.5	19,700	454.5	454.2
	05-Apr-05	ND (1.0)	ND (1.0)	-134	2.0	19,700	454.5	454.0
	12-Apr-05	ND (1.0)	ND (1.0)	-134	0.1	16,900	456.6	456.6
	19-Apr-05	ND (1.0)	ND (1.0)	---	---	---	456.5	456.5
	26-Apr-05	ND (1.0)	ND (1.0)	-138	5.7	18,100	456.1	456.0
	04-May-05	ND (1.0)	ND (1.0)	-128	0.4	18,500	456.5	456.3
	19-May-05	ND (1.0)	ND (1.0)	-131	1.0	19,600	456.5	456.4
	02-Jun-05	ND (1.0)	ND (1.0)	-100	0.9	19,500	456.2	455.6
MW-28-090	08-Feb-05	ND (1.0)	ND (1.0)	-181	0.0	9,430	453.0	452.7
	22-Feb-05	ND (1.0)	ND (1.0)	-54	5.8	9,300	452.3	452.1
	07-Mar-05	ND (1.0)	ND (1.0)	-190	0.1	12,300	451.8	451.6
	22-Mar-05	ND (1.0)	ND (1.0)	-203	0.2	12,200	453.9	454.2
	04-Apr-05	ND (1.0)	ND (1.0)	-172	0.4	12,600	454.4	454.3
	20-Apr-05	ND (1.0)	ND (1.0)	-93	3.9	9,990	456.4	456.7
	03-May-05	ND (1.0)	ND (1.0)	-208	0.4	10,600	456.1	455.7
	19-May-05	ND (1.0)	ND (1.0)	-147	0.8	9,110	456.4	456.7
	02-Jun-05	ND (1.0)	ND (1.0)	-141	1.0	---	456.2	456.2
	15-Jun-05	ND (1.0)	ND (1.0)	-205	2.5	9,410	455.8	455.5
MW-33-150	02-Mar-05	ND (1.0)	ND (1.0)	-120	4.6	15,900	453.4	452.7
	02-Mar-05 FD	ND (1.0)	ND (1.0)	FD	FD	FD	FD	FD
	16-Mar-05	ND (1.0)	ND (1.0)	-175	1.6	21,600	452.9	452.0
	17-Jun-05	3.10 J	6.40	-172	3.0	18,300	456.3	456.1
MW-33-210	24-Feb-05	ND (1.0)	ND (2.1) J	-116	4.9	22,200	453.7	452.7
	16-Mar-05	1.40	ND (1.0)	-103	0.6	25,300	453.0	451.9
	16-Jun-05	5.10 J	1.70 J	-216	2.0	22,400	456.2	455.0
MW-34-080	08-Feb-05	ND (1.0)	ND (1.0)	-162	0.0	15,500	452.9	452.3
	16-Feb-05	ND (2.0)	ND (1.0)	-224	5.1	18,000	452.1	451.5
	22-Feb-05	ND (1.0)	ND (1.0)	-95	5.8	14,100	452.4	452.3
	01-Mar-05	ND (1.0)	ND (1.0) J	-127	5.1	13,300	452.7	452.5
	08-Mar-05	ND (1.0) J	ND (1.0)	-84	0.0	17,600	451.4	451.2
	15-Mar-05	ND (1.0)	ND (1.0)	-121	0.6	15,200	---	452.0
	22-Mar-05	ND (1.0)	ND (1.0)	-83	0.2	15,200	453.8	454.3
	29-Mar-05	ND (1.0)	ND (1.0)	-214	0.0	16,800	454.2	454.4
	05-Apr-05	ND (1.0)	ND (1.0)	-207	0.0	17,200	454.2	454.1
	12-Apr-05	ND (1.0)	ND (1.0)	-86	0.1	14,200	455.9	455.7
	19-Apr-05	ND (1.0)	ND (1.0)	4	5.1	13,800	456.1	455.7
	26-Apr-05	ND (1.0)	ND (1.0)	-94	3.5	13,700	455.7	455.1
	04-May-05	ND (1.0)	ND (1.0)	-241	0.3	15,900	455.9	455.2
	18-May-05	ND (1.0)	ND (1.0)	-138	1.3	16,000	456.3	455.8
	01-Jun-05	ND (1.0)	ND (1.0)	-117	0.4	17,800	456.2	455.6
	30-Jun-05	ND (1.0)	ND (1.0)	-61	1.6	18,300	456.0	454.8
MW-34-100	14-Feb-05	357	328	-246	0.2	25,000	453.3	452.3

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TABLE A-1

Groundwater Sampling Results for Floodplain Monitoring Wells, February 2005 through June 2005  
 Interim Measures Performance Monitoring  
 PG&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	
<b>Deep Wells</b>								
MW-34-100	16-Feb-05	354	294	-159	5.3	20,400	452.4	451.5
	23-Feb-05	417	391	-35	1.4	18,000	452.8	452.6
	01-Mar-05	402	374	-86	5.0	15,700	452.8	452.6
	01-Mar-05 FD	411	332	FD	FD	FD	FD	FD
	08-Mar-05	425 J	490	-60	0.4	19,900	452.0	451.3
	14-Mar-05	426	474	-55	0.7	23,700	452.0	451.3
	23-Mar-05	421	548	-98	0.8	14,600	454.2	454.2
	29-Mar-05	73.9 J	110	-96	0.5	18,100	454.5	454.3
	29-Mar-05 FD	56.7 J	106	FD	FD	FD	FD	FD
	05-Apr-05	452	488	-115	0.3	20,000	454.6	454.4
	05-Apr-05 FD	455	454	FD	FD	FD	FD	FD
	12-Apr-05	482	502	-61	0.2	15,500	456.4	456.2
	12-Apr-05 FD	499	562	FD	FD	FD	FD	FD
	19-Apr-05	473	599	8	6.0	16,200	456.2	455.9
	26-Apr-05	476	573	-45	4.1	21,000	456.1	455.5
	26-Apr-05 FD	480	602	FD	FD	FD	FD	FD
	04-May-05	491	530	-98	0.6	18,700	455.7	455.0
	10-May-05	513	492	21	3.0	15,800	456.8	456.9
	10-May-05 FD	501	552	FD	FD	FD	FD	FD
	18-May-05	524	564	50	3.0	19,000	456.4	456.2
	25-May-05	559	478	-93	1.2	18,700	456.6	456.2
	01-Jun-05	527	609	-59	0.4	20,000	456.0	455.2
	08-Jun-05	552	583	-15	2.3	20,300	456.7	456.4
	21-Jun-05	560	477	-26	1.9	20,500	456.3	455.5
	21-Jun-05 FD	578	480	FD	FD	FD	FD	FD
MW-36-090	07-Feb-05	1720	1610	51	5.4	19,300	452.9	452.6
	09-Mar-05	1480	1380	49	5.1	18,100	451.5	450.6
	05-Apr-05	1040	946	64	5.3	15,100	---	454.0
	03-May-05	705	623	55	0.0	17,600	455.5	455.7
MW-36-100	09-Feb-05	1440	1420	-12	0.0	20,900	452.6	452.6
	22-Feb-05	1430	1230	55	5.2	18,700	452.0	452.2
	22-Feb-05 FD	1390	1250	FD	FD	FD	FD	FD
	09-Mar-05	1380	1200	-20	0.3	22,600	451.1	450.5
	22-Mar-05	1250	1180	-16	0.2	19,900	453.4	454.2
	22-Mar-05 FD	1230	1160	FD	FD	FD	FD	FD
	04-Apr-05	1110	981	-20	0.1	19,600	454.1	454.0
	20-Apr-05	825	844	2	3.1	17,500	455.9	456.5
	03-May-05	705	679	4	0.4	18,700	455.4	455.2
	18-May-05	617	796 J	12	1.5	34,800	455.3	454.9
	18-May-05 FD	620	624 J	FD	FD	FD	FD	FD
	02-Jun-05	518	441	23	2.5	18,800	456.0	456.0
MW-39-080	08-Feb-05	7750	8220	99	5.8	14,900	452.6	452.7
	08-Feb-05 FD	7890	7750	FD	FD	FD	FD	FD

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 Interim Measures Performance Monitoring  
 PG&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	
<b>Deep Wells</b>								
MW-39-080	09-Mar-05	7460	7240	82	5.0	16,800	451.1	450.5
	06-Apr-05	4820	4570	88	4.7	13,800	---	455.7
	03-May-05	3430	3510	106	0.4	14,900	454.8	455.2
	16-Jun-05	2220	1930	52	2.0	16,800	456.2	454.7
MW-39-100	09-Feb-05	9180	9480	33	2.2	22,000	452.5	452.4
	09-Feb-05 FD	9260	9710	FD	FD	FD	FD	FD
	10-Mar-05	8940	8160	28	5.1	24,500	451.5	451.2
	06-Apr-05	8220	8230	54	1.5	---	454.5	455.1
	09-May-05	7980	8490	159	1.8	20,400	455.5	455.9
	09-May-05 FD	7720	8250	FD	FD	FD	FD	FD
	17-Jun-05	6980	6030	14	2.8	19,200	455.0	455.7
MW-43-075	07-Mar-05	ND (1.0)	ND (1.0)	-150	5.6	15,200	452.2	451.7
	15-Mar-05	ND (1.0)	ND (1.0)	-178	0.5	14,900	452.7	451.8
	20-Jun-05	ND (1.0)	ND (1.0)	-165	1.8	18,100	456.8	456.1
MW-43-090	07-Mar-05	ND (1.0)	ND (1.0)	-185	0.2	21,500	452.5	451.7
	15-Mar-05	ND (1.0)	ND (1.0)	-153	0.5	22,000	452.3	451.6
	15-Mar-05 FD	ND (1.0)	ND (1.0)	FD	FD	FD	FD	FD
	20-Jun-05	ND (1.0)	ND (1.0)	-140	1.8	26,200	457.3	456.6
	20-Jun-05 FD	ND (1.0)	ND (1.0)	FD	FD	FD	FD	FD

**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, or field instrumentation malfunctioned

µg/L = micrograms per liter

mV = oxidation-reduction potential (ORP)

µS/cm = microSiemens per centimeter

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.

Refer to table footnotes for data qualifier explanation.

TABLE A-2

Groundwater Sampling Results for Other Monitoring Wells in PMP Area, December 2004 through June 2005  
 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
<b>Shallow Wells</b>						
MW-12	10-Mar-05	925	945	34.0	7.04	---
	10-Mar-05 FD	925	912	FD	FD	FD
	06-Apr-05	810	871	56.0	6.34	---
	06-Apr-05 FD	810	868	FD	FD	FD
	13-Jun-05	852	835	60.0	6.97	4060
MW-19	17-Dec-04	796	786	13.0	6.33	---
	07-Mar-05	1080	1010	100	6.67	2200
	14-Jun-05	1150	1140	65.0	6.80	2170
MW-20-070	16-Dec-04	7800	7840	150	---	3440
	10-Mar-05	8280	8630	151	8.77	---
	07-Apr-05	8740	9020	92.0	6.63	---
	15-Jun-05	6680	6450	152	6.85	3160
	15-Jun-05 FD	7000	7080	FD	FD	FD
MW-21	17-Dec-04	ND (0.2) J	ND (1.0)	-97	4.71	---
	08-Mar-05	ND (1.0)	ND (1.0)	-86	6.00	11300
	14-Jun-05	ND (1.0)	ND (1.0)	81.0	6.80	12000
MW-22	16-Dec-04	ND (1.0) J	7.00	-113	---	32600
	10-Mar-05	ND (2.0)	ND (1.0)	-150	4.74	46300
	17-Jun-05	ND (1.0)	ND (1.0)	-57	3.23	33700
MW-24A	17-Dec-04	---	2890	118	2.35	---
	11-Jan-05	3040	---	111	1.43	4700
	07-Mar-05	3390	3180	49.0	3.09	3460
	07-Mar-05 FD	3360	3290	FD	FD	FD
	16-Jun-05	3280	2640	52.0	2.70	3470
MW-26	16-Dec-04	3790	3800	55.0	9.52	4000
	08-Mar-05	2990	3160	123	10.0	3450
	08-Mar-05 FD	2990	3050	FD	FD	FD
	13-Jun-05	3370	3140	119	9.16	3820
MW-31-060	16-Dec-04	2910	2680	5.00	6.12	3240
	09-Mar-05	2700	2590	192	6.87	2860
	07-Apr-05	1910	2030	102	5.25	---
	13-Jun-05	1790	1810	122	8.00	3060
MW-35-060	13-Dec-04	26.8	27.0	-53	1.08	7010
	15-Mar-05	33.8	37.5	-18	2.22	6510
	13-Jun-05	33.6	34.1	-8.0	2.47	---
TW-02S	16-Dec-04	5080	5490	155	7.96	3540
	11-Mar-05	4400	4240	90.0	4.83	---
	16-Jun-05	3780	4180	129	7.90	4140
<b>Middle-Depth Wells</b>						
MW-20-100	16-Dec-04	8130	7910	126	---	4770
	10-Mar-05	8440	7770	110	0.40	7100
	15-Jun-05	9600	10100	136	3.44	3870
<b>Deep Wells</b>						
MW-20-130	27-Jan-05	8600	9400	38.0	1.81	---
	09-Mar-05	8730	8900	126	0.02	12800

TABLE A-2

Groundwater Sampling Results for Other Monitoring Wells in PMP Area, December 2004 through June 2005  
 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-20-130	09-Mar-05 FD	8810	8170	FD	FD	FD
	07-Apr-05	8980	8870	99.0	4.89	11000
	15-Jun-05	10800	10300	145	4.66	10600
MW-24B	17-Dec-04	---	4470	104	1.01	---
	17-Dec-04 FD	4790	4420	FD	FD	FD
	11-Jan-05	5260	---	105	1.02	14000
	07-Mar-05	5320	4950	-2.0	1.70	14300
	16-Jun-05	5640	5660	-4.0	2.20	13100
MW-31-135	14-Dec-04	410 J	407	-23	6.15	13700
	10-Mar-05	422	403	42.0	1.49	12500
	13-Jun-05	318	344	42.0	4.46	14600
	13-Jun-05 FD	318	338	FD	FD	FD
MW-35-135	13-Dec-04	15.6 J	16.0	-75	0.12	---
	13-Dec-04 FD	15.7 J	14.1	FD	FD	FD
	15-Mar-05	23.0	21.4	-108	2.11	10800
	13-Jun-05	17.6	17.6	-138	1.75	15000
TW-02D	16-Dec-04	6280	6570	143	7.10	9200
	09-Mar-05	5800	5620	---	---	---
	05-May-05	---	5490	---	---	---
	15-Jun-05	5050	4780	147	4.96	9400

**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

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

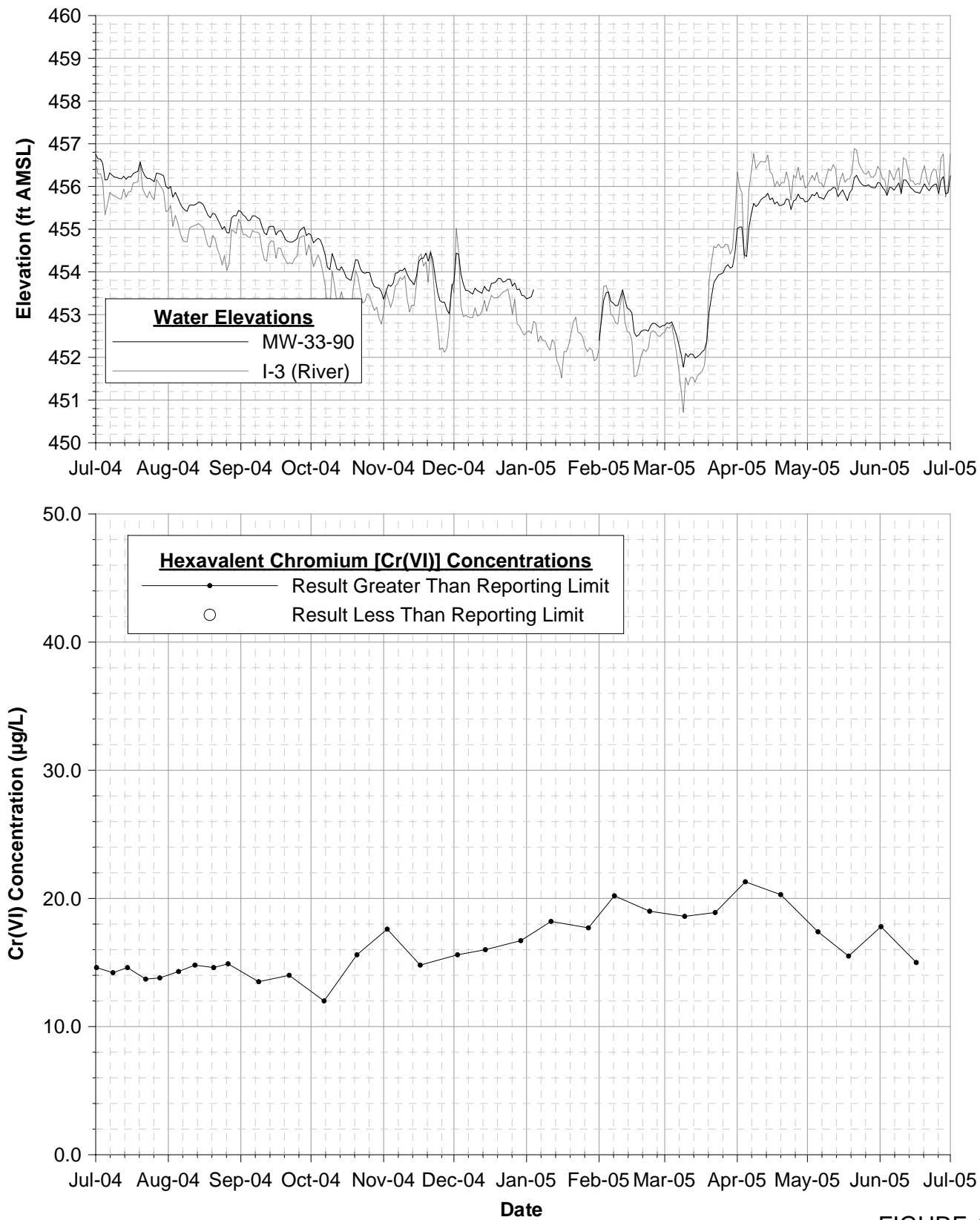
µg/L = micrograms per liter

mg/L = milligrams per liter

mV = oxidation-reduction potential (ORP)

µS/cm = microSiemens per centimeter

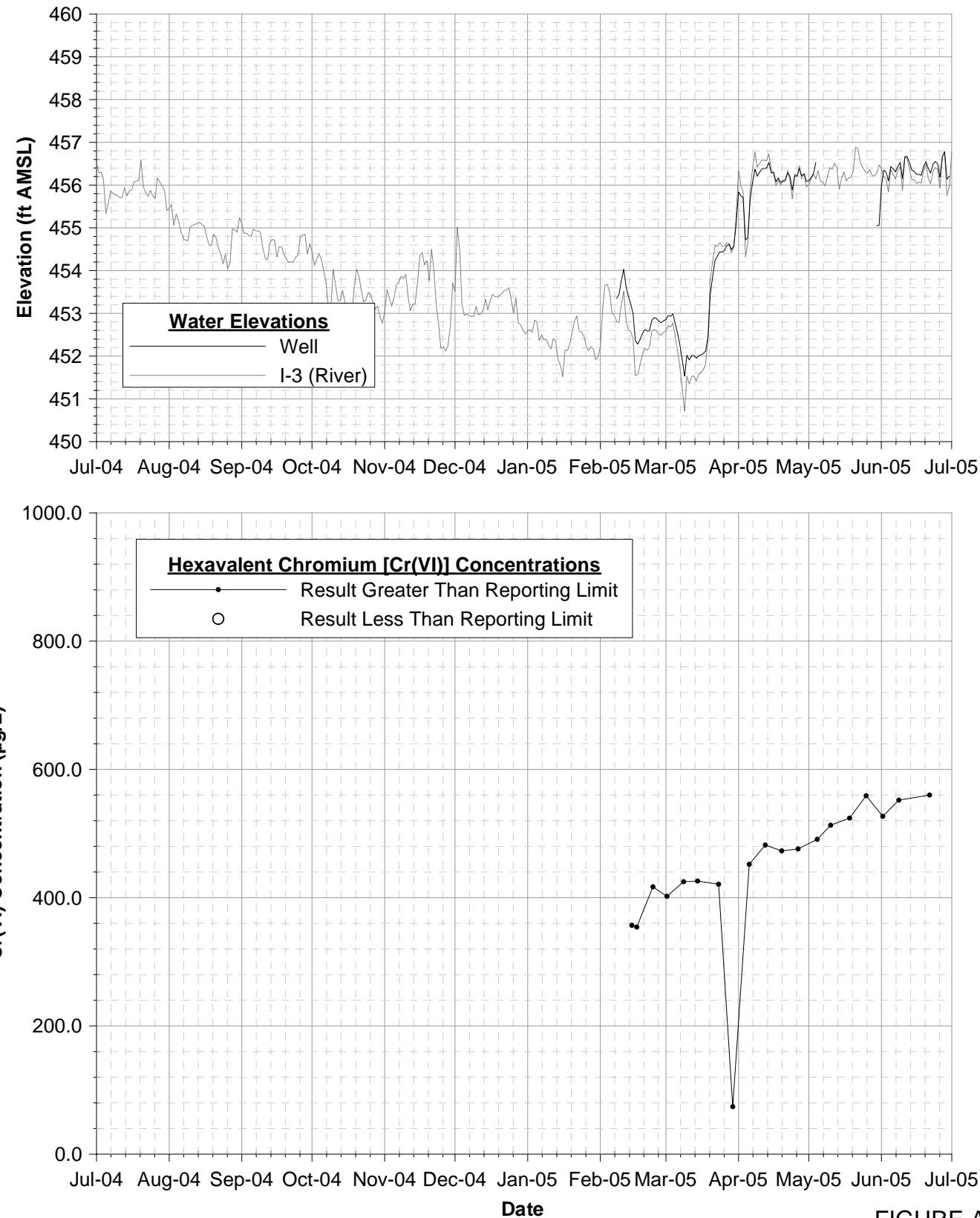
PMP = Interim Measure Performance Monitoring Program



**FIGURE A-1**  
**MW-33-90 CR(VI) CONCENTRATION & HYDROGRAPH - THROUGH 06/16/05**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG&E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA

**Notes:**

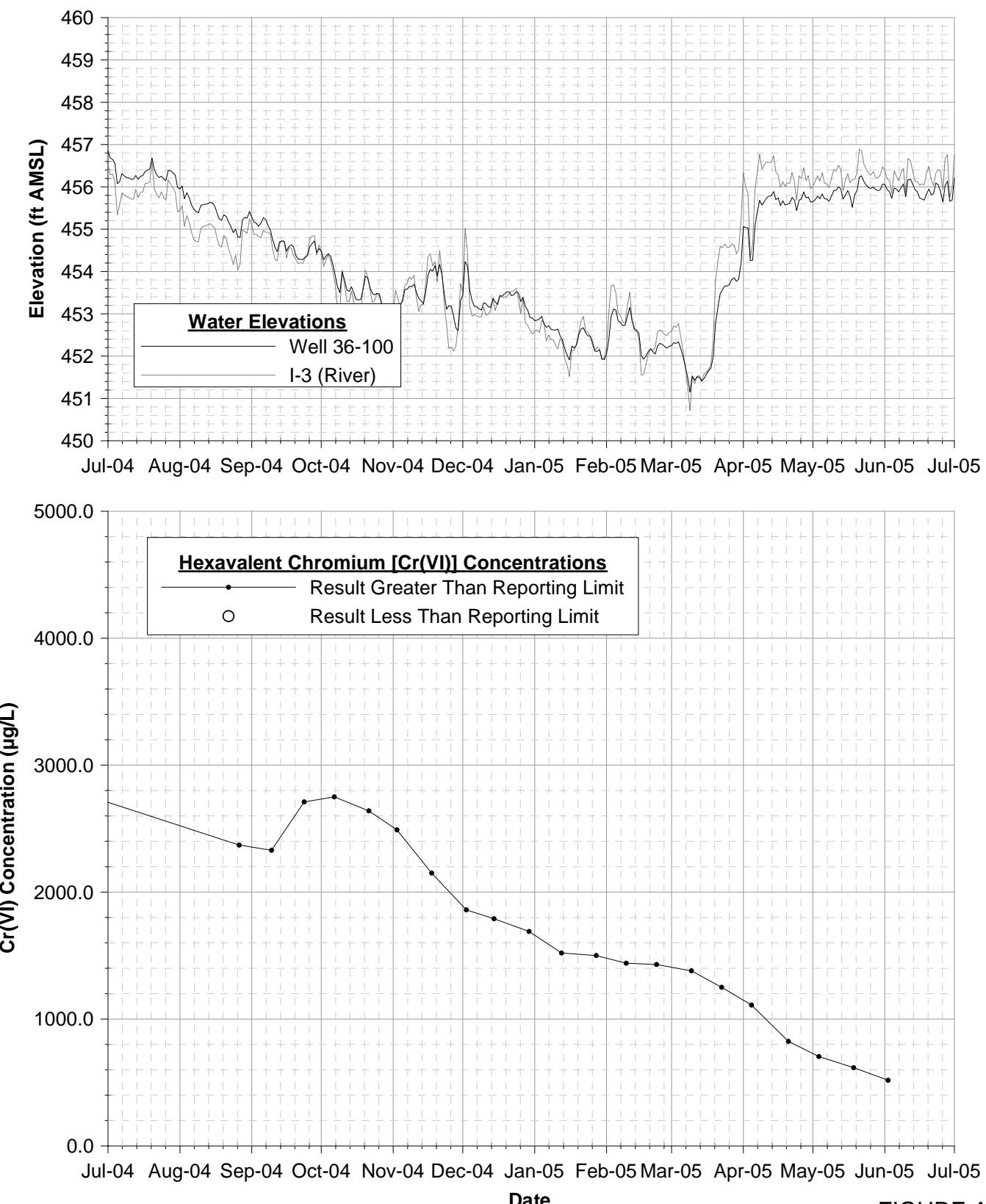
1. Chromium results in micrograms per liter ( $\mu\text{g/L}$ ), equivalent to parts per billion (ppb).
2. Beginning March 2004, groundwater samples from floodplain wells in the groundwater monitoring program are collected using the well-volume sampling method.
3. Data subject to review.



**FIGURE A-2**  
**MW-34-100 CR(VI) CONCENTRATION &**  
**HYDROGRAPH - THROUGH 6/21/05**  
 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. No groundwater elevation data available after May 4 due to transducer malfunction.
3. Data subject to review.



**FIGURE A-3**  
**MW-36-100 CR(VI) CONCENTRATION &**  
**HYDROGRAPH - THROUGH 6/2/05**  
 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. Beginning March 2004, groundwater samples from floodplain wells in the groundwater monitoring program are collected using the well-volume sampling method.
3. Data subject to review.

## **Appendix B**

### **Hydraulic Monitoring Data for Reporting Period**

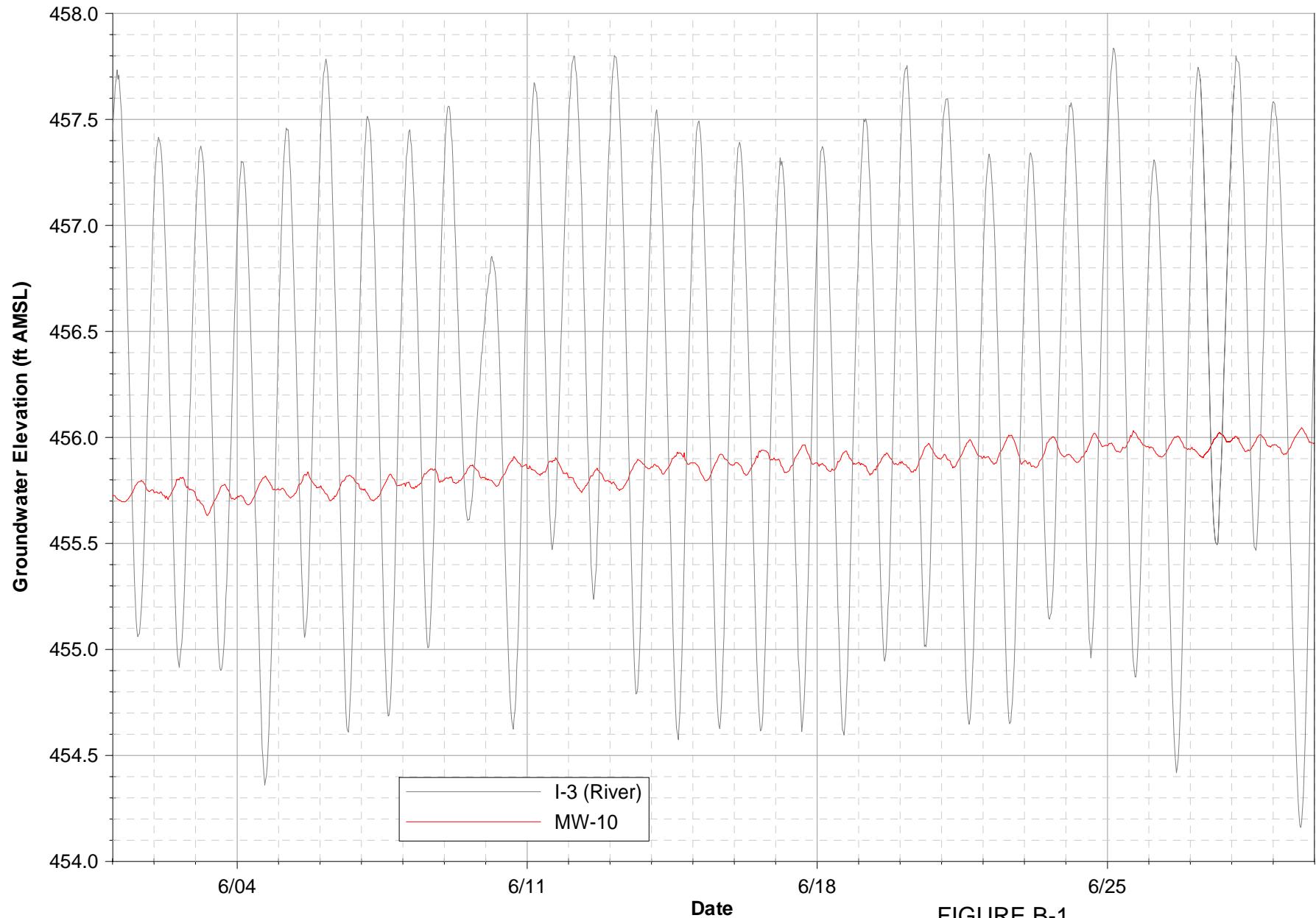
**TABLE B-1**

Monthly Average, Minimum and Maximum Groundwater Elevations, June 2005  
*Interim Measures Performance Monitoring*  
PG&E Topock Compressor Station

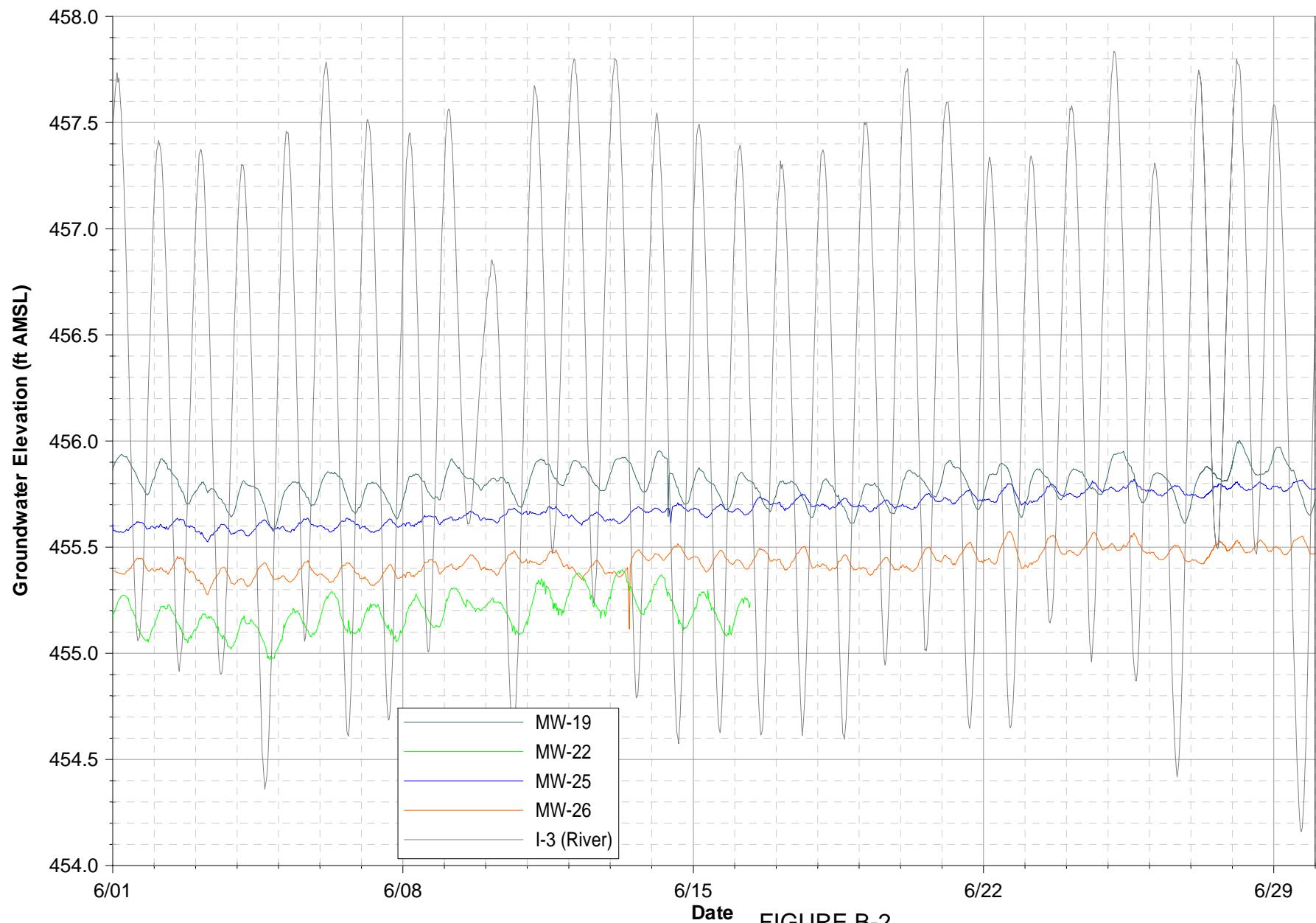
Well	Average (ft AMSL)	Minimum (ft AMSL)	Maximum (ft AMSL)	Aquifer Depth
I-3	456.25	454.85	457.52	
RRB	INC	INC	INC	River Station
MW-10	455.86	455.81	455.93	Upper
MW-19	455.80	455.69	455.88	Upper
MW-20-070	455.13	454.99	455.26	Upper
MW-22	INC	INC	INC	Upper
MW-25	455.68	455.65	455.72	Upper
MW-26	455.43	455.39	455.49	Upper
MW-27-020	456.02	455.61	456.41	Upper
MW-28-025	456.21	455.63	456.76	Upper
MW-29	456.04	455.98	456.07	Upper
MW-30-030	455.74	455.52	455.95	Upper
MW-31-060	455.60	455.43	455.76	Upper
MW-32-020	455.64	455.46	455.81	Upper
MW-32-035	455.69	455.26	456.10	Upper
MW-33-040	455.92	455.51	456.32	Upper
MW-35-060	456.24	455.83	456.63	Upper
MW-36-020	455.86	455.27	456.40	Upper
MW-36-040	455.86	455.12	456.54	Upper
MW-39-040	455.69	455.06	456.29	Upper
MW-42-030	455.72	455.23	456.18	Upper
MW-43-025	456.14	455.36	456.90	Upper
MW-20-100	454.90	454.66	455.17	Middle
MW-27-060	456.21	455.42	456.96	Middle
MW-30-050	455.73	455.06	456.36	Middle
MW-33-090	455.98	455.47	456.46	Middle
MW-34-055	456.23	455.27	457.13	Middle
MW-36-050	455.86	455.10	456.57	Middle
MW-36-070	455.96	455.18	456.69	Middle
MW-39-050	455.62	455.01	456.19	Middle
MW-39-060	455.49	454.92	456.03	Middle
MW-39-070	455.21	454.72	455.68	Middle
MW-42-055	455.88	455.36	456.37	Middle
MW-42-065	456.02	455.52	456.61	Middle
MW-20-130	454.48	454.13	454.84	Lower
MW-27-085	456.36	455.57	457.10	Lower
MW-28-090	456.04	455.10	456.91	Lower
MW-31-135	455.46	455.15	455.79	Lower
MW-33-150	456.28	455.78	456.76	Lower
MW-33-210	456.46	456.04	456.86	Lower
MW-34-080	456.31	455.40	457.17	Lower
MW-34-100	456.38	455.52	457.19	Lower
MW-35-135	455.73	455.49	455.98	Lower
MW-36-090	455.80	455.15	456.42	Lower
MW-36-100	455.91	455.25	456.53	Lower
MW-39-080	455.29	454.79	455.76	Lower
MW-39-100	455.56	455.06	456.05	Lower
MW-43-075	456.46	455.62	457.29	Lower
MW-43-090	456.68	455.83	457.52	Lower
PE-01	455.99	455.21	456.71	Lower

**Notes:**

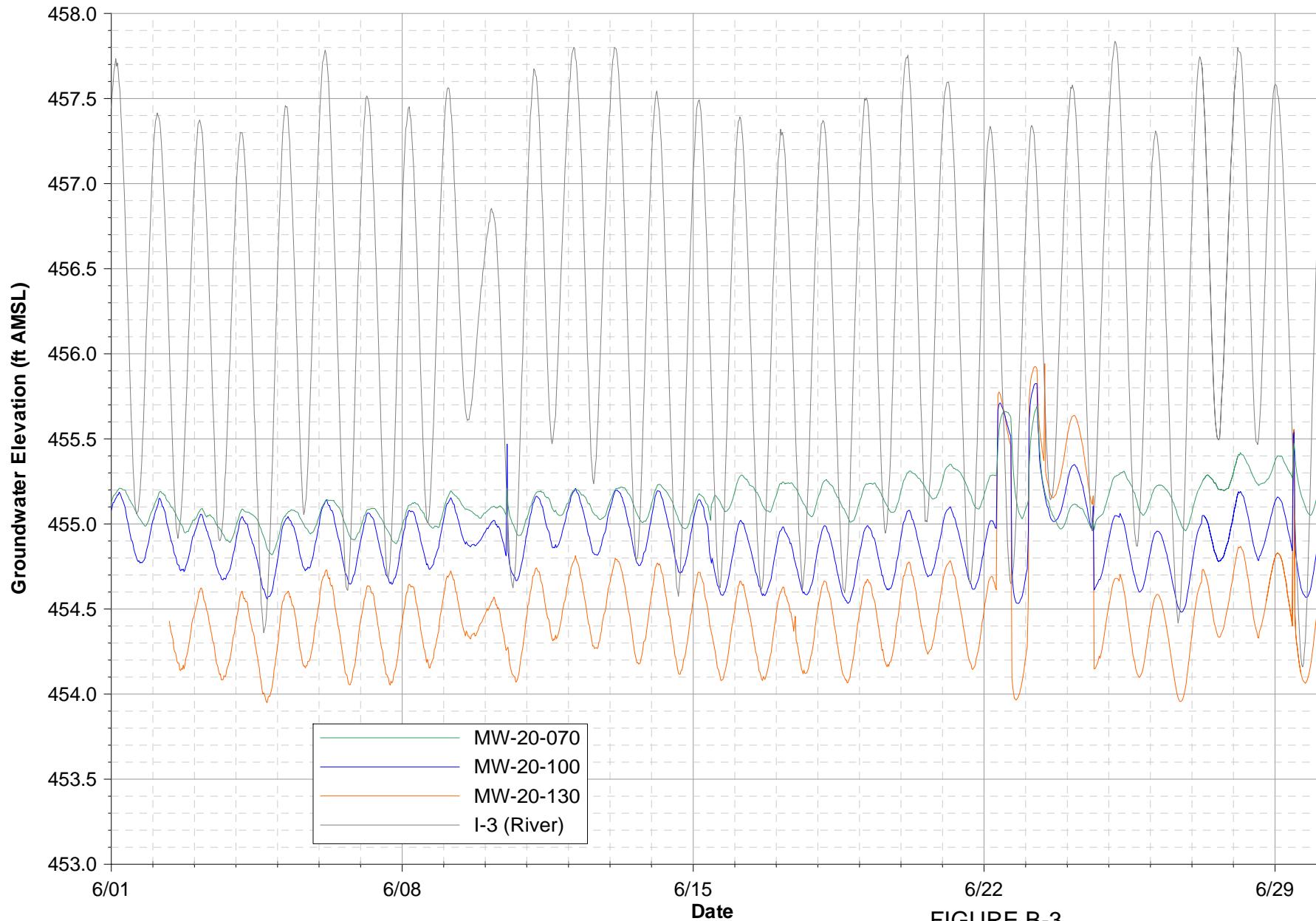
INC = Incomplete or not available for reporting period  
Data from MW-42-65 is the mean of 6/15/05 though 6/30/05.



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

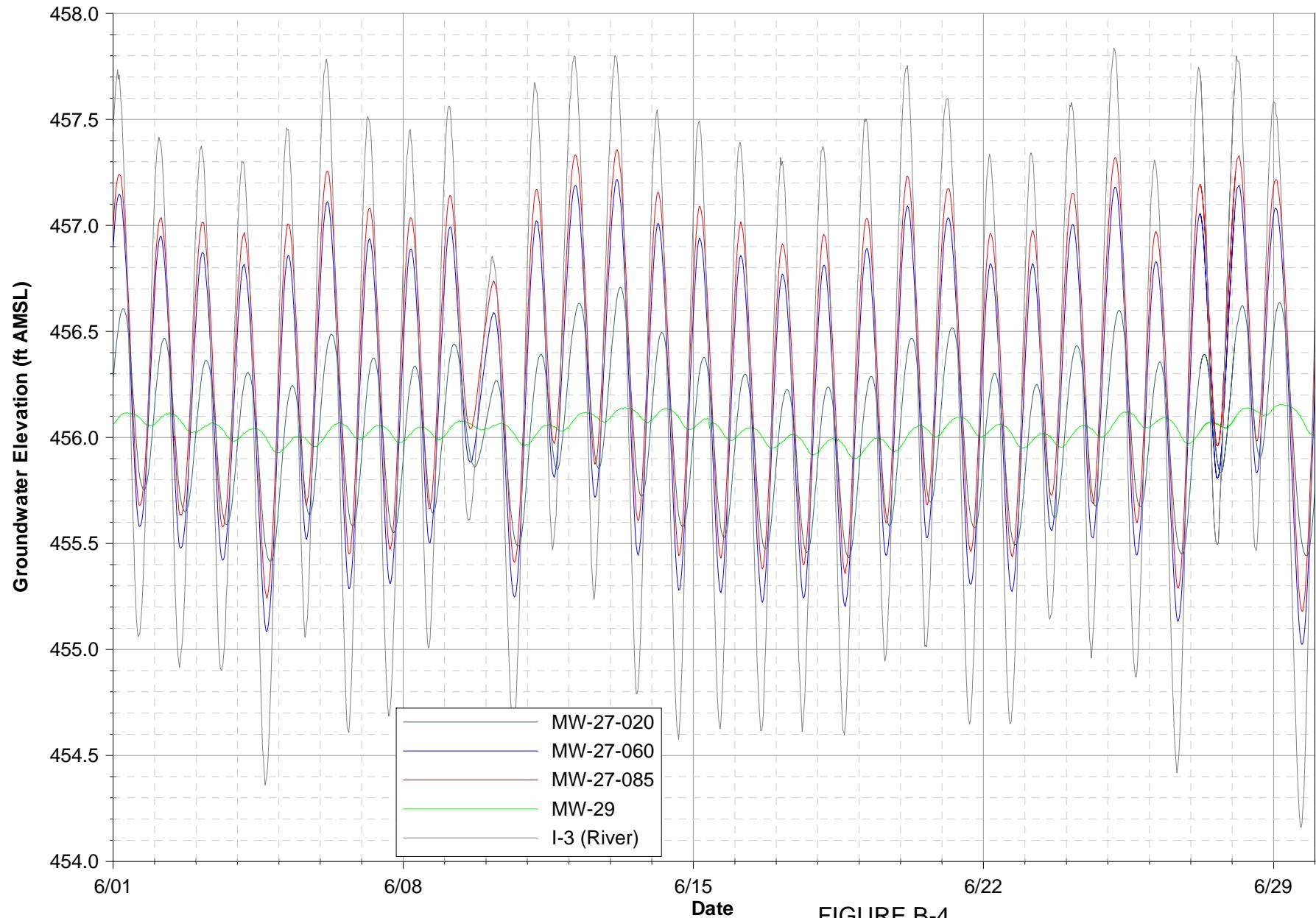


**FIGURE B-2**  
**MW-19, MW-22, MW-25, AND MW-26 HYDROGRAPHS**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG & E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA



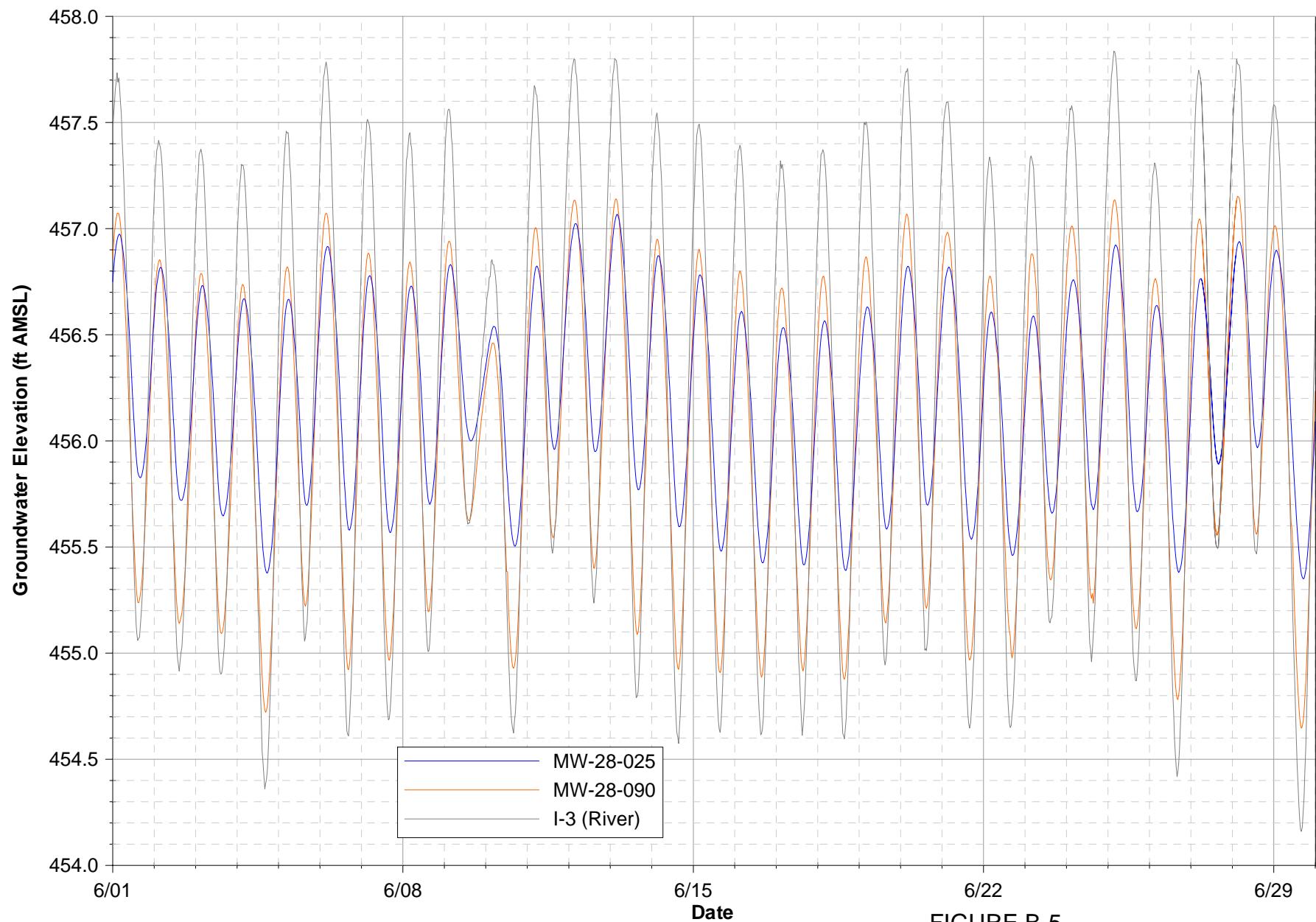
Note: Data subject to review.  
MW-20-130 data unavailable 6/1/05 through 6/2/05.

FIGURE B-3  
MW-20 CLUSTER HYDROGRAPHS  
INTERIM MEASURES PERFORMANCE MONITORING  
PG & E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



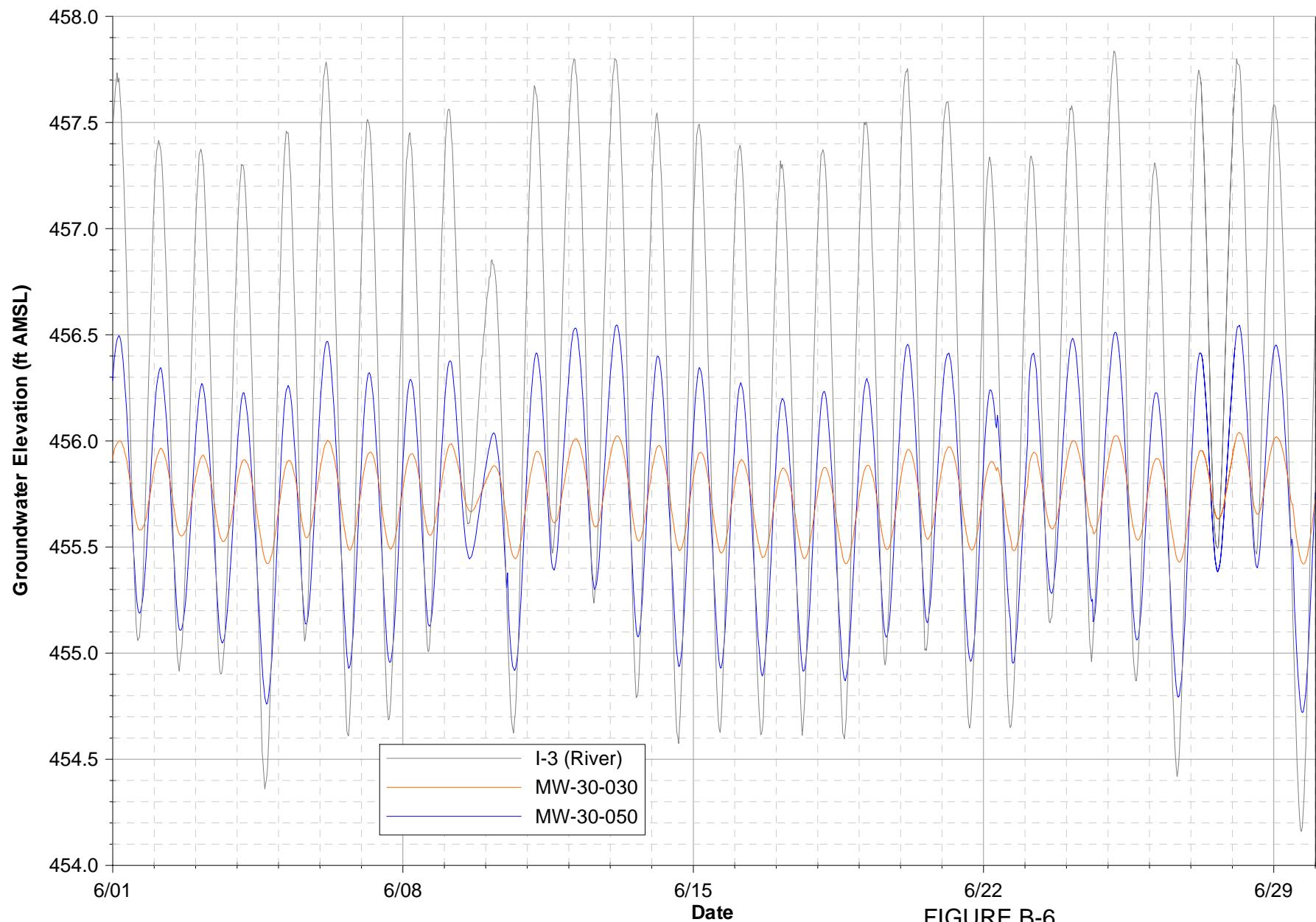
Note: Data subject to review.

**FIGURE B-4**  
**MW-27 CLUSTER AND MW-29 HYDROGRAPHS**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG & E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA



Note: Data subject to review.

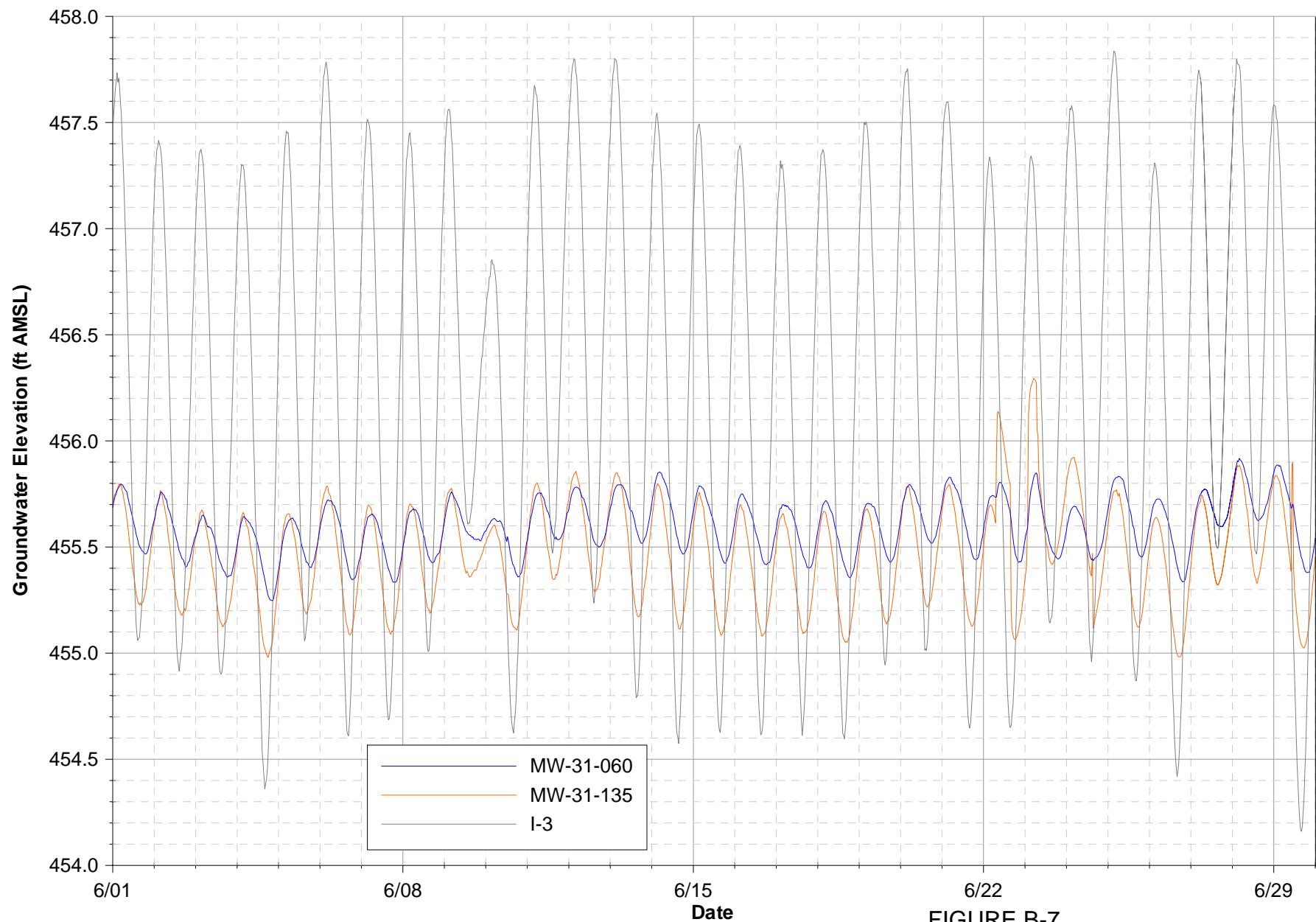
**FIGURE B-5**  
**MW-28 WELL HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG & E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



**FIGURE B-6**  
**MW-30 WELL HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG & E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

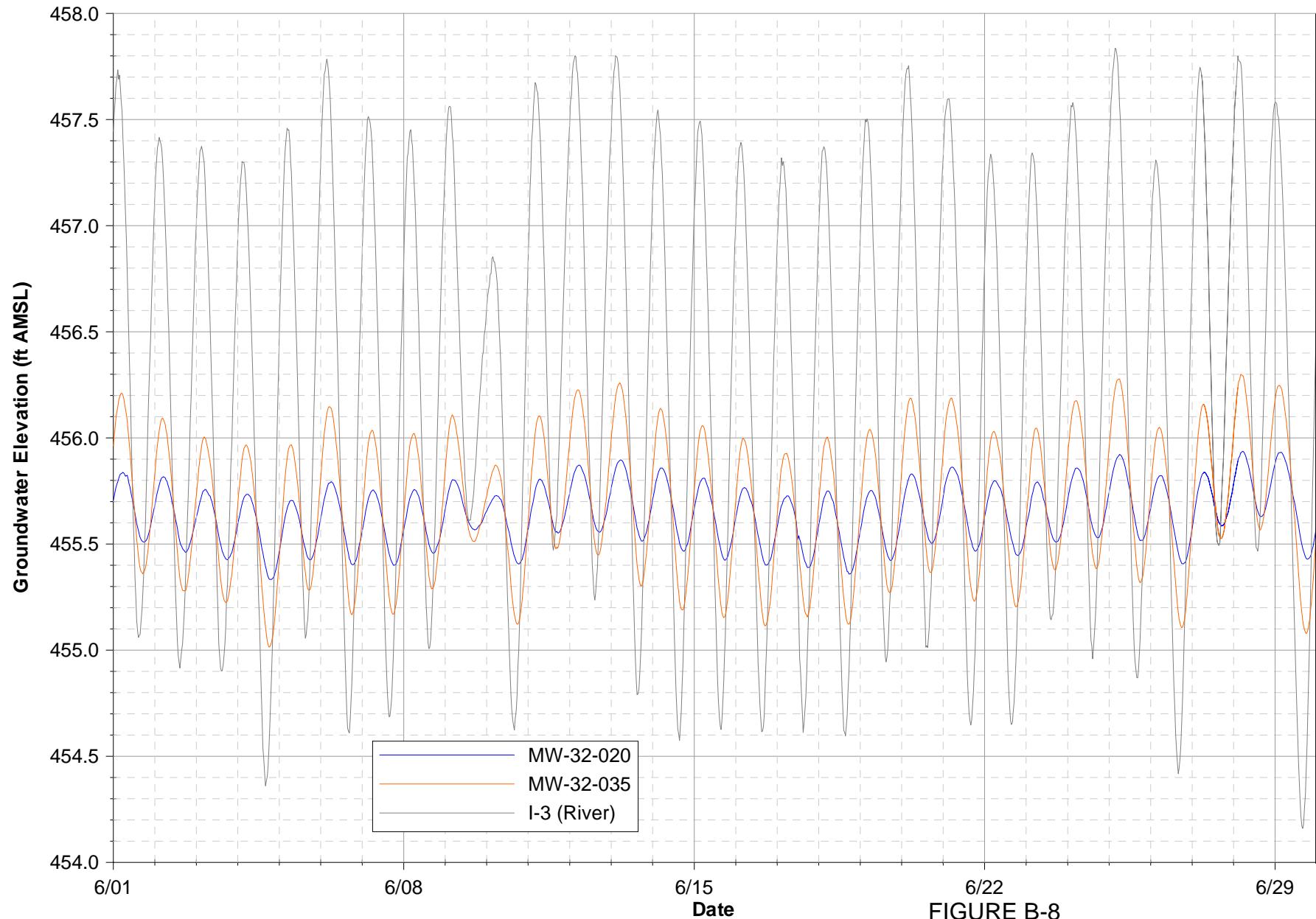
Note: Data subject to review.

**CH2MHILL**



**FIGURE B-7**  
**MW-31 WELL HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG & E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

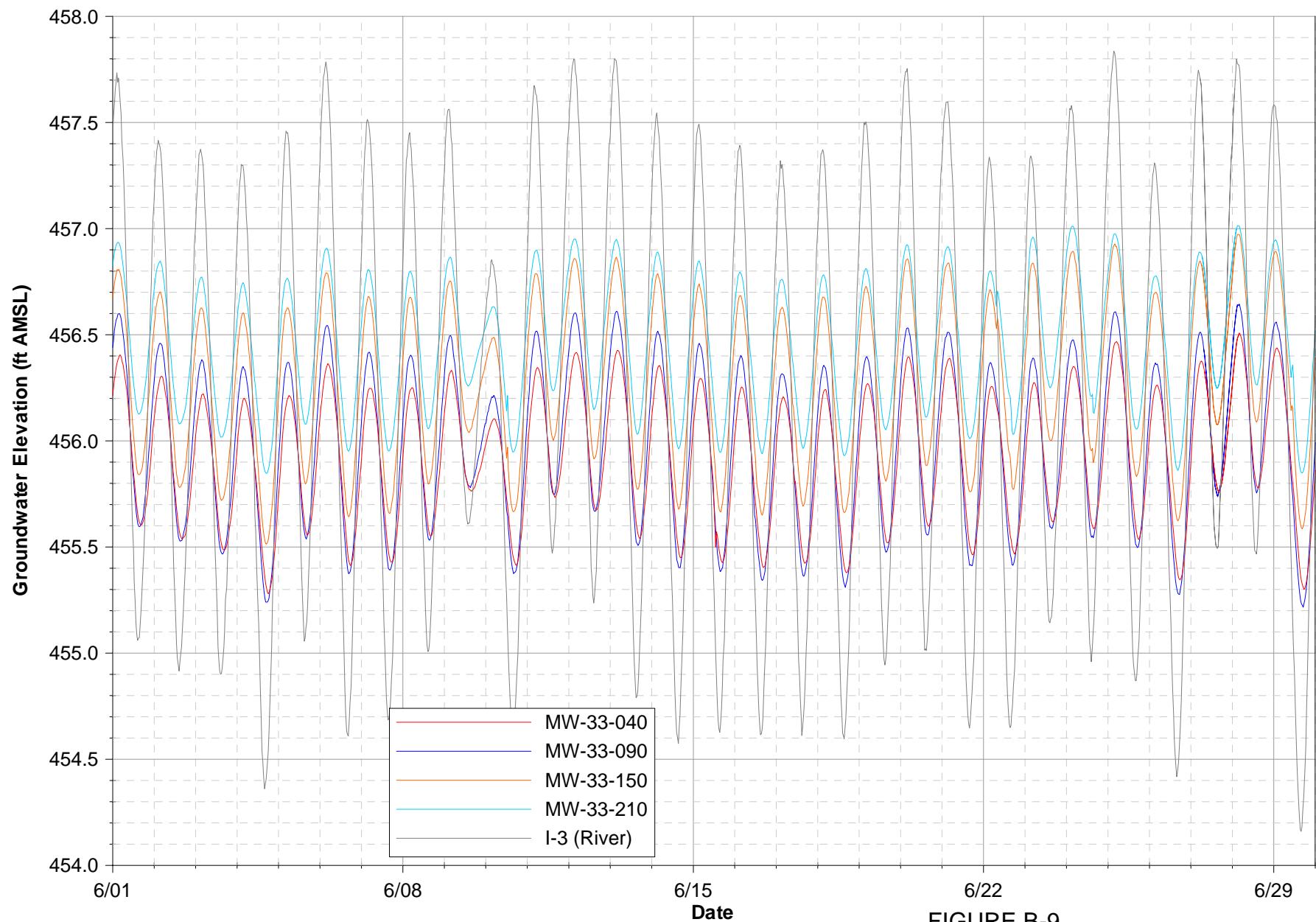
Note: Data subject to review.



Note: Data subject to review.

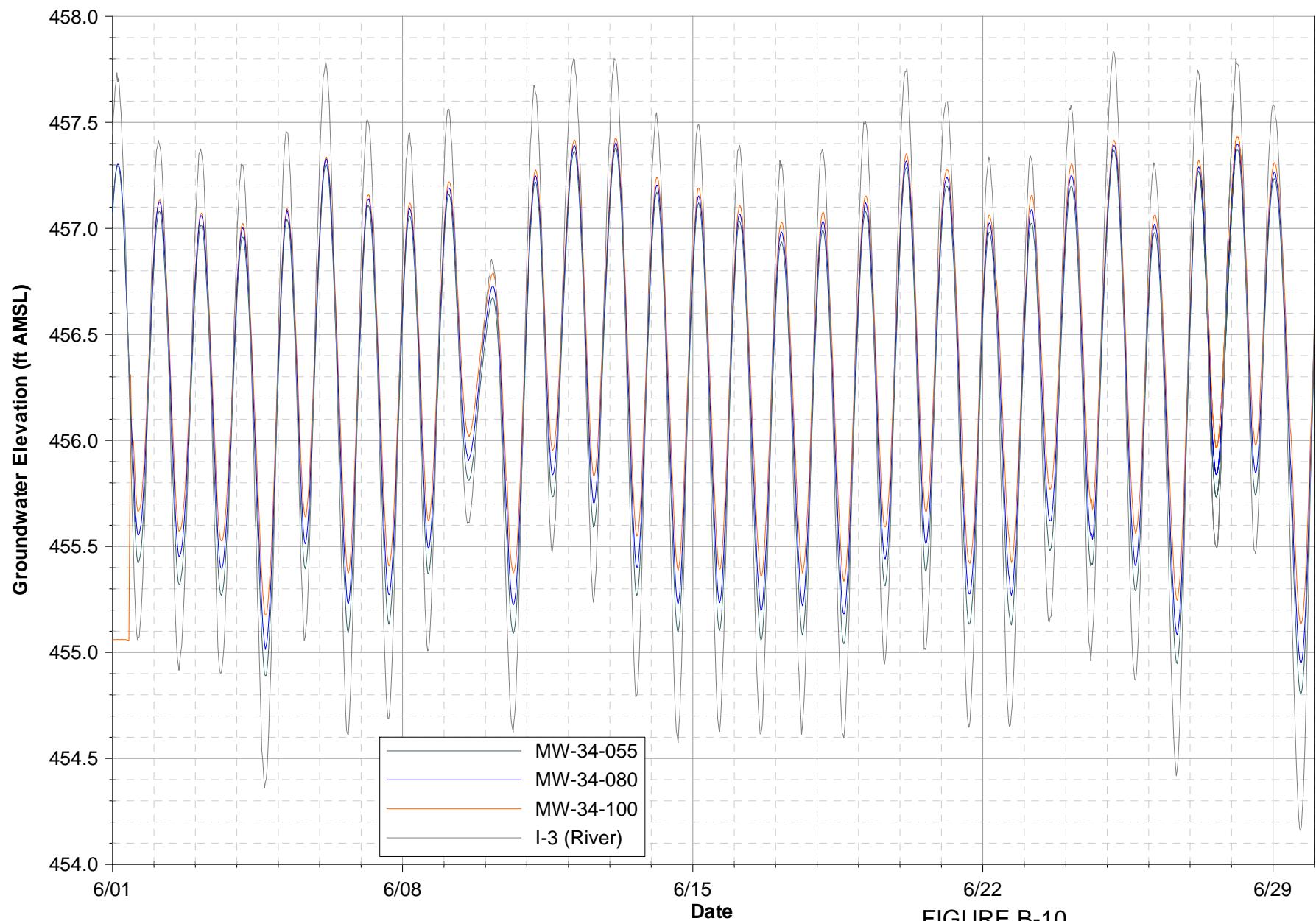
**FIGURE B-8**  
**MW-32 WELL HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG & E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

**CH2MHILL**



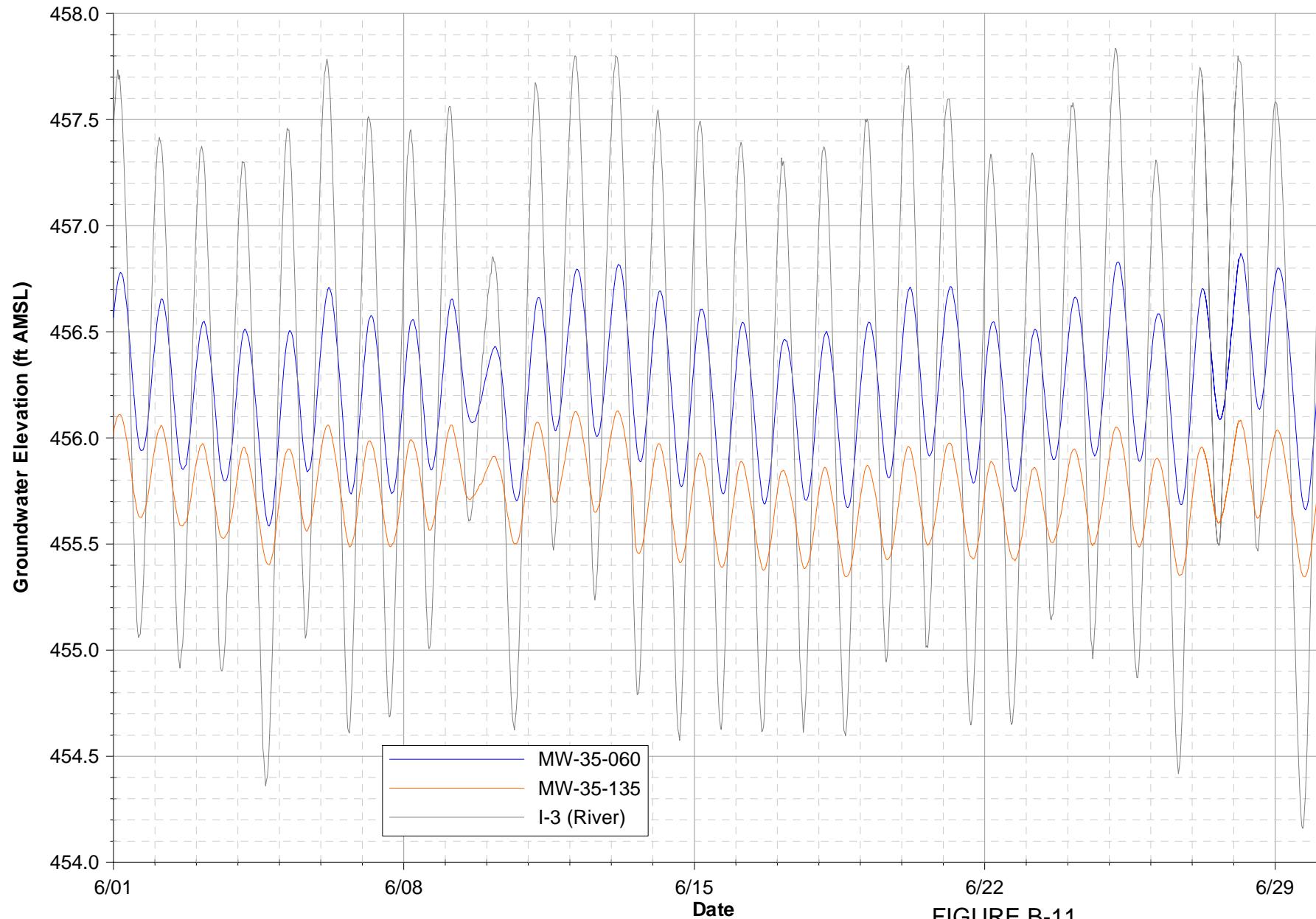
Note: Data subject to review.  
MW-33-150, and MW-33-210 are new wells installed in early March, 2005

**FIGURE B-9**  
**MW-33 CLUSTER HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG & E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



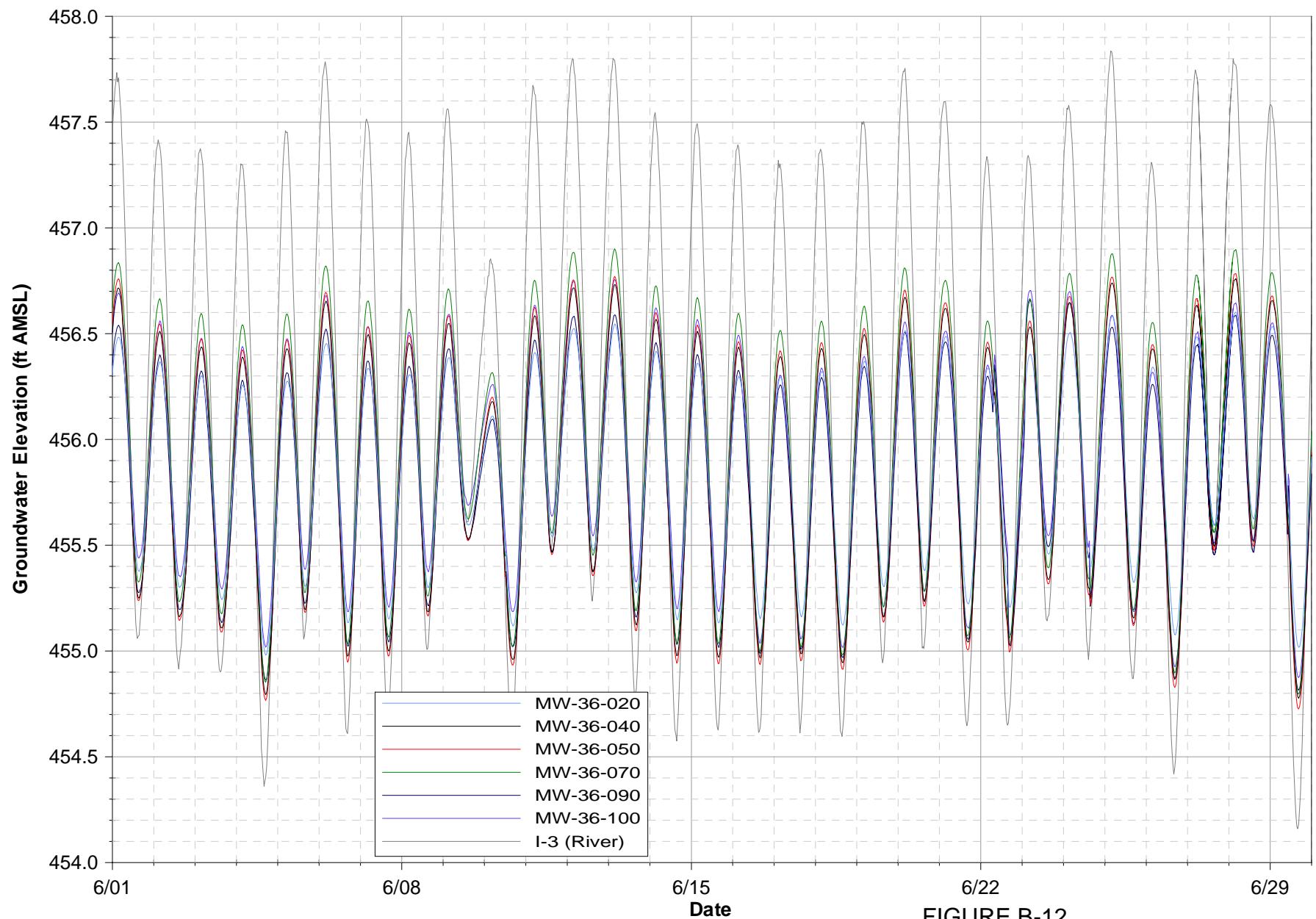
Note: Data subject to review.

**FIGURE B-10**  
**MW-34 CLUSTER HYDROGRAPHS**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG & E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA



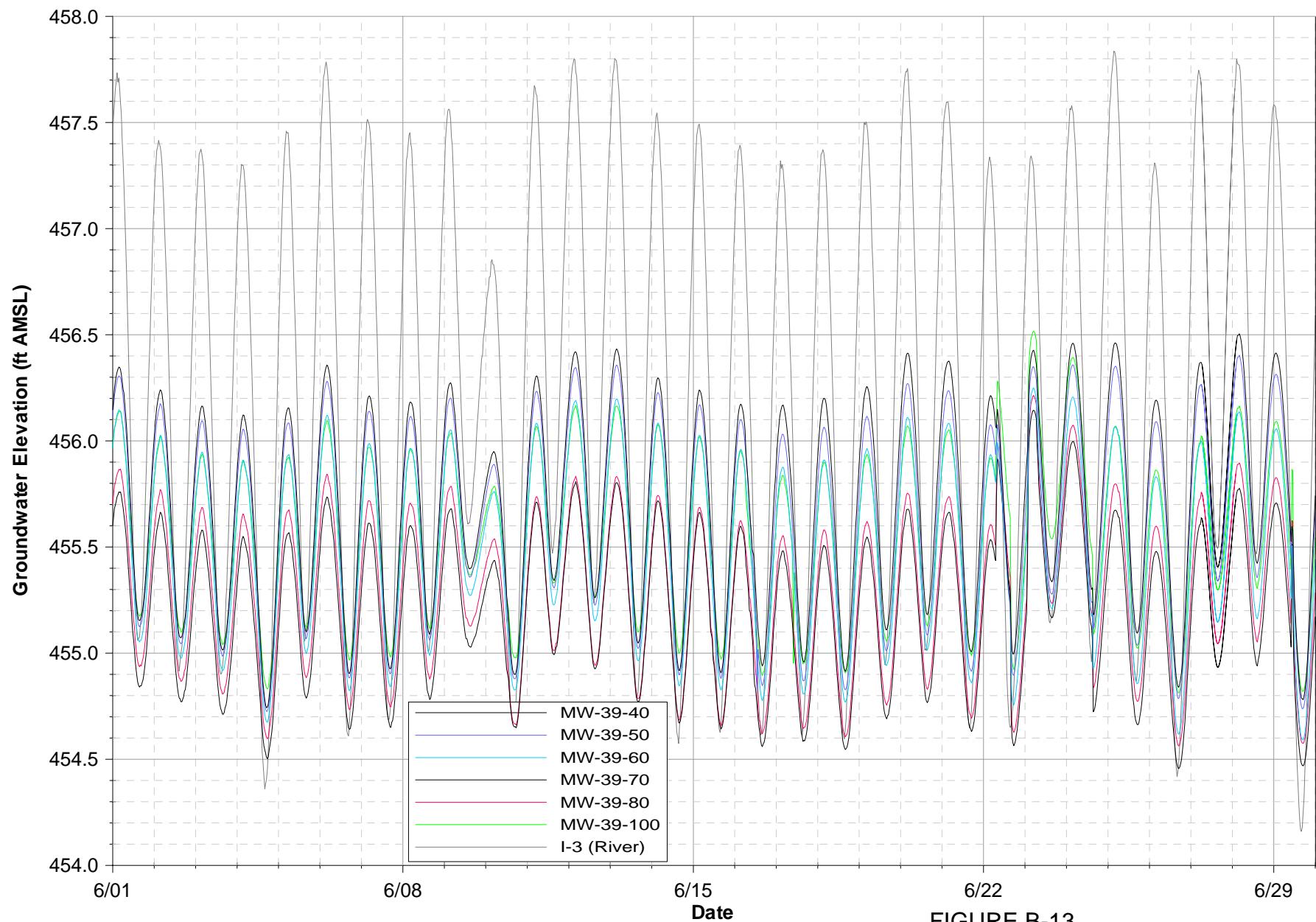
Note: Data subject to review.

**FIGURE B-11**  
**MW-35 WELL HYDROGRAPHS**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG & E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA

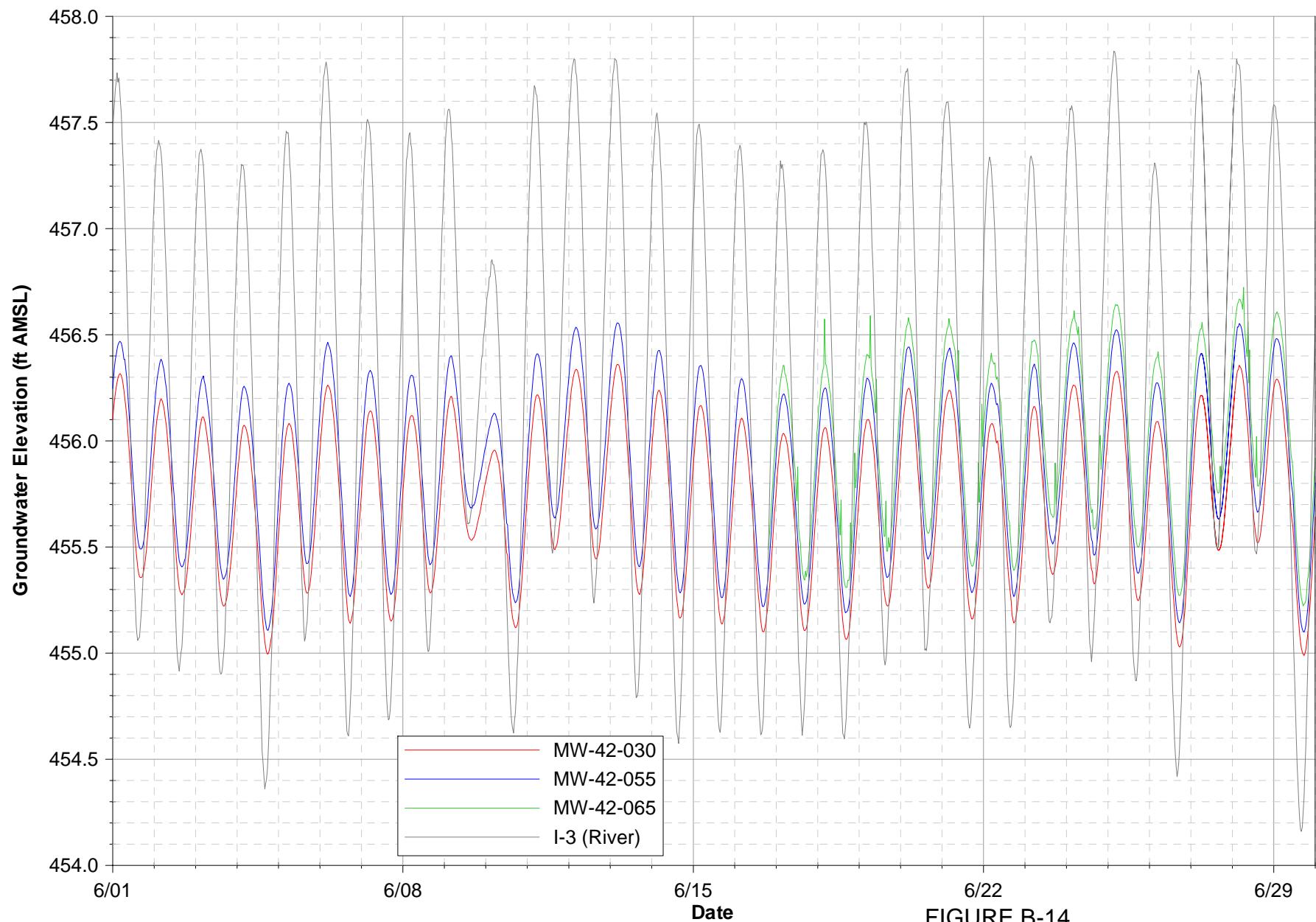


Note: Data subject to review.

**FIGURE B-12**  
**MW-36 CLUSTER HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG & E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

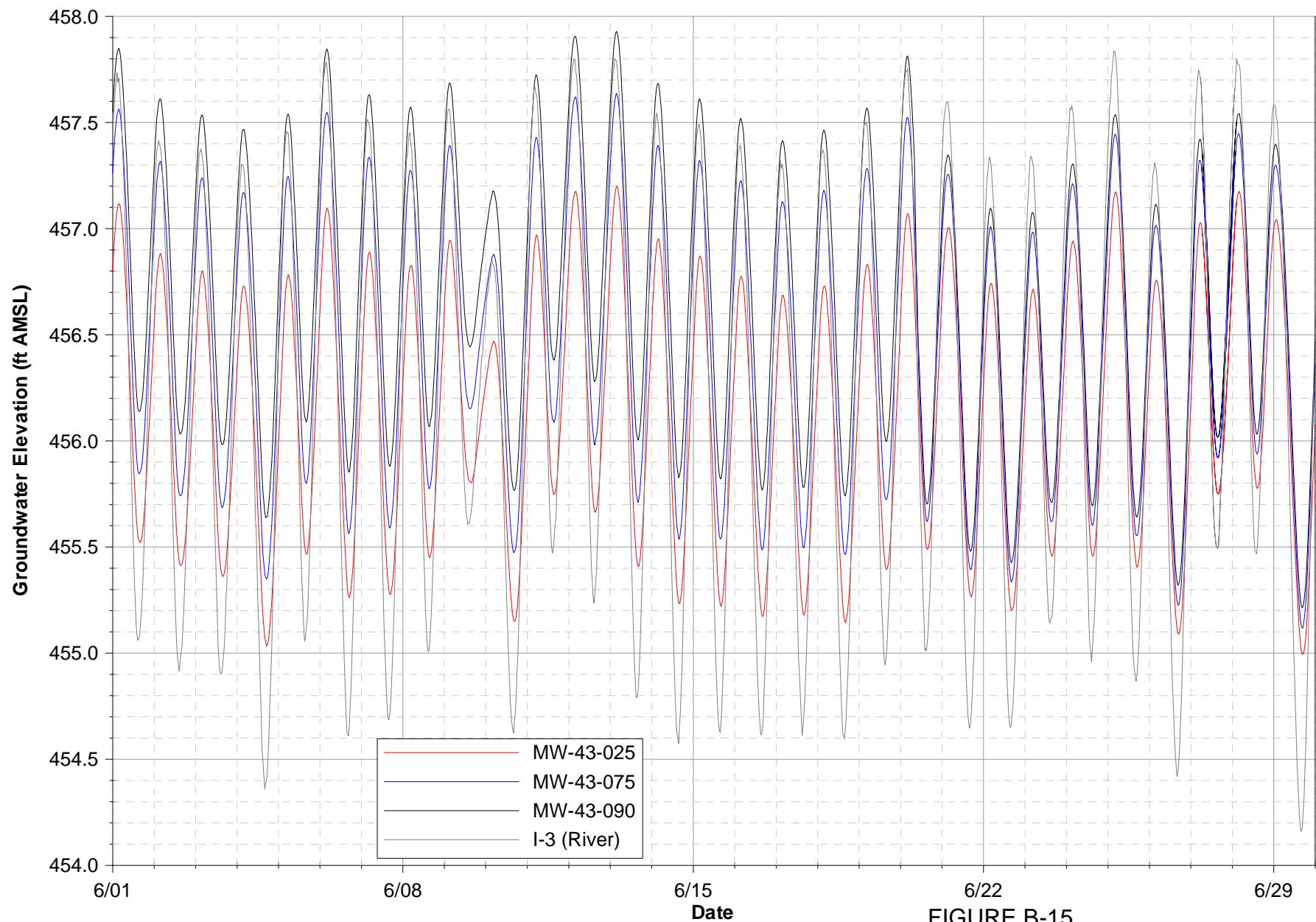


**FIGURE B-13**  
**MW-39 CLUSTER HYDROGRAPHS**  
 INTERIM MEASURES PERFORMANCE MONITORING  
 PG & E TOPOCK COMPRESSOR STATION  
 NEEDLES, CALIFORNIA



**FIGURE B-14**  
**MW-42 CLUSTER HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG & E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

Note: Data subject to review.  
MW-42-65 data unavailable 6/1/05 through 6/17/05



**FIGURE B-15**  
**MW-43 CLUSTER HYDROGRAPHS**  
INTERIM MEASURES PERFORMANCE MONITORING  
PG & E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA

Note: Data subject to review.  
MW-43 wells installed mid March, 2005