Pacific Gas and Electric Company®

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July 15, 2004

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

Subject: Performance Monitoring Report No. 7
Interim Measure No. 2
PG&E Topock Compressor Station, Needles, California

Dear Mr. Shopay:

Enclosed is the seventh performance monitoring report for Interim Measure No. 2 for the Topock project. This report was prepared in conformance with Final Interim Measures Work Plan No. 2, and describes the activities performed and monitoring data collected during the period June 16 through 30, 2004.

Per your letter dated June 11, 2004, the reporting frequency is revised to monthly starting July 1. Therefore, the next performance monitoring report will be for the period July 1 through July 31 and will be submitted on August 15, 2004. Please contact me at (805) 546-5243 if you have any questions or if you need additional information.

Sincerely,

Teri Herson
for Yvonne Meeks

Enclosure

cc: CWG Members

Performance Monitoring Report No. 7, PG&E Topock Compressor Station, Interim Measure No. 2, June 16 through 30, 2004

Prepared for

Pacific Gas and Electric Company

July 15, 2004

CH2MHILL

Performance Monitoring Report No. 7
PG&E Topock Compressor Station, Interim Measures No. 2
June 16 through 30, 2004

Prepared for
Pacific Gas and Electric Company

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

Brian Schroth

Brian Schroth, Registered Geologist No. 7423
Senior Hydrogeologist

Performance Monitoring Report No. 7, PG&E Topock Compressor Station, Interim Measure No. 2 June 16 through 30, 2004

Pacific Gas and Electric Company (PG&E) is implementing Interim Measure (IM) No. 2 at the Topock Compressor Station in Needles, California, as described in the *Final Interim Measures Work Plan No. 2* prepared by CH2M HILL on March 2, 2004 and *Addenda to Interim Measures Work Plan No. 2,* prepared by CH2M HILL on March 1, 2004. This performance monitoring report describes operational and monitoring information for IM No. 2 for the period between June 16 and June 30, 2004.

This performance monitoring report has been prepared in compliance with the *Final Interim Measures Work Plan No. 2*, which requires reporting of system operations and performance monitoring data. This report is the final bimonthly report to be submitted to the Department of Toxic Substances Control (DTSC). Per DTSC request, future reports will be submitted monthly on the 15th of each month, and each report will cover activities of the entire preceding month. The next report will be submitted on August 15th.

System Operations

System Description

The groundwater extraction system is located within a secured area on the monitoring well MW-20 bench. Groundwater is pumped from an extraction well, TW-2D, which is located on the north side of the compound. Extracted groundwater is stored in holding tanks before transport to an off-site permitted treatment and disposal facility.

Pumping Operations

Table 1 summarizes the pumping data for the reporting period. A total of 435,440 gallons of groundwater were extracted during this reporting period. The extracted groundwater was manifested as a hazardous waste and transported to United States Filter Corporation in Los Angeles, California for treatment and disposal. Copies of field notes, field logs, and waste manifests are maintained on site. Completed waste manifests from the treatment and disposal facility are sent back to the Topock Station.

Daily inspections include tank inspections, flow measurements, site security, and desert tortoise sitings. Daily logs with documentation of inspections are maintained on site. No rainfall events occurred during this reporting period. No other operational changes were noted during the reporting period.

TABLE 1
Pump Data from TW-2S and TW-2D (June 16 through June 30, 2004)
Performance Monitoring Report No. 7, Topock Compressor Station, Interim Measure No. 2

Extraction Well	Reporting Period		Project To Date	
	Average Pumping Rate (gpm)	Volume Pumped (gal)	Average Pumping Rate (gpm)	Volume Pumped (gal)
TW-2S	0[1]	0	5.7	486,358
TW-2D	20.14	435,440	15.4	1,170,670
Total	20.14	435,440	---	1,657,028
			Volume Pumped from MW-20 Cluster:	1,224,325
			Total Volume Pumped (gal)	2,881,353
			Total Volume Pumped (ac-ft)	8.84

gpm: gallons per minute.
gal: gallons.
ac-ft: acre-feet.
[1]Pumping from TW-2S was temporarily terminated on June 11, 2004 per DTSC direction and pumping from TW-2D was increased to a minimum of 20 gpm.

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

System Modifications

On May 21, 2004, the United States Bureau of Land Management approved the PG&E work plan to modify the existing facilities to batch treat of the groundwater on site. The on-site treatment will render the groundwater non-hazardous and allow for additional disposal options. The modifications started on June 9, 2004 following procurement of equipment. Modifications continued during the last half of June and will be completed by mid-July. Pumping operations are continuing during the modifications, with only minor interruptions to allow for activities such as piping modifications. Startup and testing of the batch treatment plant will commence on July 19, 2004, following completion of the modifications.

Monitoring Data

Chemical Data

Weekly grab samples were collected from TW-2D during this reporting period. Pumping from TW-2S was temporarily terminated on June 11, 2004 per DTSC direction. Therefore, samples are no longer collected from TW-2S or the TW-2 combined stream. Samples collected from TW-2S and TW-2D since May 19, 2004 are summarized in Table 2.

Hydraulic Data

Water levels were recorded at intervals of 30 minutes or less with pressure transducers in multiple wells and two river monitoring stations (I-3 and RRB). The data are typically

continuous with only short interruptions for sampling or maintenance. The wells monitored were:

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

Attachment 1 contains hydrographs for all transducer data collected between June 1 and June 30, 2004.

Analysis of Colorado River water levels (e.g., I-3, RRB, and the Topock Marsh Inlet) and United States Bureau of Reclamation records for Davis Dam discharge show that daily fluctuations in river levels are caused by the release of water from Davis Dam. Water levels at I-3 are shown on all hydrographs provided in Attachment 1. Historic and predicted Davis Dam discharges and river elevations are being evaluated to assist in predicting future river elevations.

Time-weighted average groundwater and river elevations were calculated from the transducer data for the periods of June 1 to 13, and June 15 to 30, 2004. Figure 1 shows the location of a hydrogeologic section B1, which spans from the MW-20 bench eastward to the Colorado River. Average groundwater elevations are shown on section B1 for the periods of June 1 to 13, 2004 (Figure 2), and June 15 to 30, 2004 (Figure 3). The groundwater elevations indicate an average upward and westward gradient away from the Colorado River during the month of June. Figures 4, 5, and 6 present average groundwater elevation values and approximate contours in the Upper, Middle, and Lower Unconsolidated Alluvial Aquifers, respectively, for the period of June 1 to 13, 2004. Figures 7, 8, and 9 show the same distribution of groundwater elevations for June 15 to 30. The average groundwater elevations during these time periods indicate an average groundwater gradient away from the Colorado River, therefore satisfying the primary objective of the Interim Measure.

Future Activities

Reporting of Interim Measure No. 2 activities will continue as described in the *Final Interim Measures Work Plan No. 2*. The next status report will be submitted on August 15, 2004 and will cover activities from July 1 to July 31, 2004. Monthly reporting will commence with the August 15 submittal.

Full-time pumping from TW-2D will continue. A weekly wellhead sample will be collected from TW-2D and analyzed for total chromium, hexavalent chromium, and total dissolved solids. Modifications to the existing facilities to begin batch treatment will be completed during the next reporting period, and batch operations will commence in late July.

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

Sample Time Relative to TW-2 Pumping Start	TW-2S				TW-2D				TW-2 Combined			
	Sample Date	**Total Dissolved Chromium** mg/L	**Hexavalent Chromium** mg/L	**Total Dissolved Solids** mg/L	**Sample Date**	**Total Dissolved Chromium** mg/L	**Hexavalent Chromium** mg/L	**Total Dissolved Solids** mg/L	**Sample Date**	**Total Dissolved Chromium** mg/L	**Hexavalent Chromium** mg/L	**Total Dissolved Solids** mg/L
6 days	19-May-04	6.61	7.36	2,620	19-May-04	7.06	7.77	7,740	19-May-04	6.68	7.58	5,230
13 days	26-May-04	6.68	7.00	2,700	26-May-04	7.15	7.47	7,620	26-May-04	7.29	7.19	5,520
20 days	02-Jun-04	7.93	7.19	2,690	02-Jun-04	7.02	7.33	7,540	02-Jun-04	6.93	7.33	5,350
27 days	09-Jun-04	6.82	7.19	2,740	09-Jun-04	6.98	7.41	7,540	09-Jun-04	6.81	7.50	5,300
34 days	NS				16-Jun-04	7.55	7.11	7,400	NS			
41 days	NS				23-Jun-04	7.11	6.75	7,200	NS			
48 days	NS				30-Jun-04	6.37	6.64	7,060	NS			

Notes:
1. NS = Not Sampled
2. Sampling of TW-2S and TW-2 combined were halted when pumping from TW-2S was temporarily terminated on June 11, 2004 per DTSC direction.

Figures

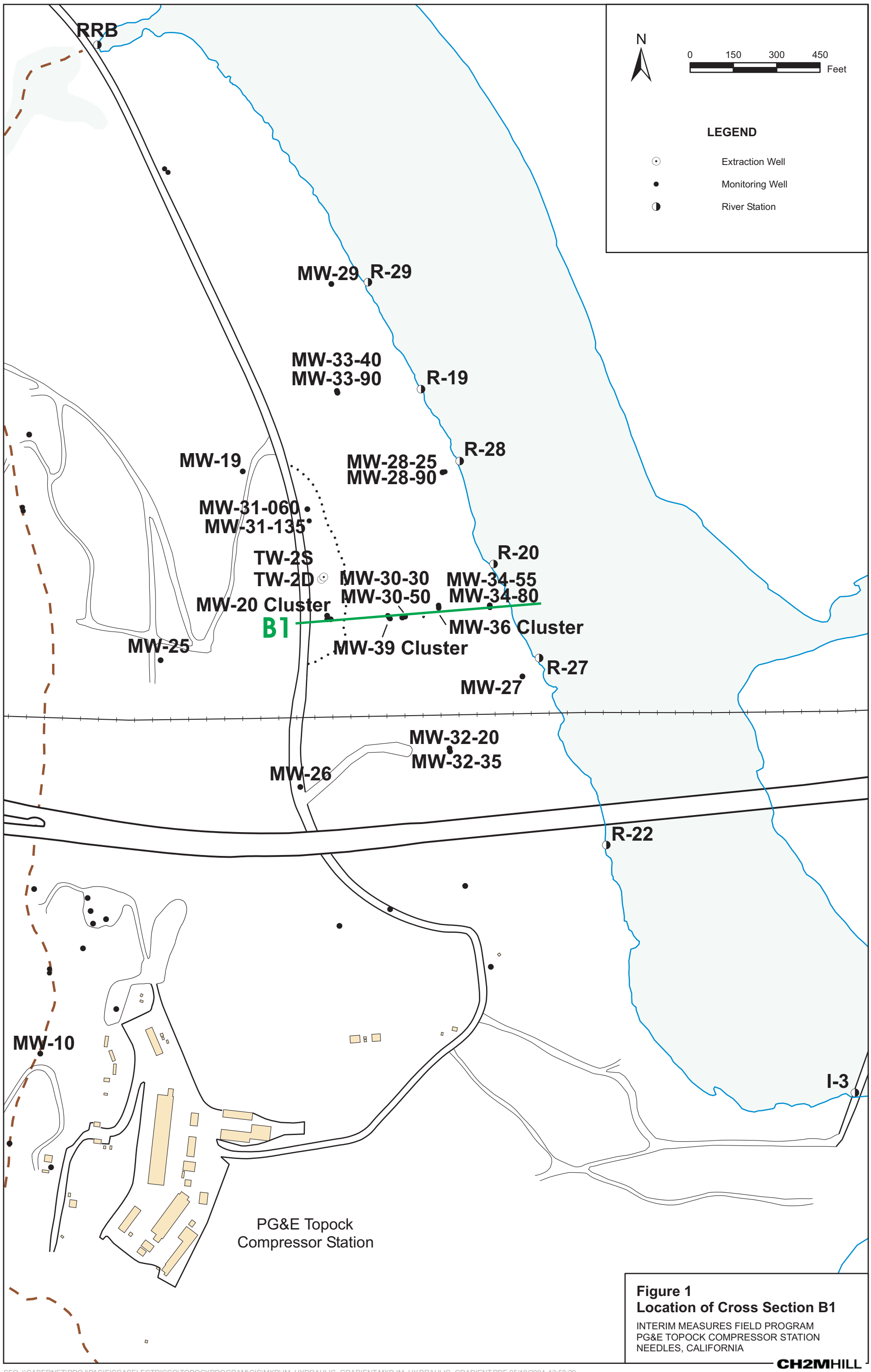

Figure 1
Location of Cross Section B1

INTERIM MEASURES FIELD PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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West

East
Section B1

TW-2S
TW-2D

Projected
120'

MW-20-70
MW-20-100
MW-20-130

MW-39-40
MW-39-50
MW-39-60
MW-39-70
MW-39-80
MW-39-100

MW-30-30
MW-30-50

MW-36-20
MW-36-40
MW-36-50
MW-36-70
MW-36-90
MW-36-100

MW-34-55
MW-34-80

Colorado River

ground surface

water table

Elevation (Ft. MSL)

500

400

300

456.29

456.40

456.76

131

180

456.66

456.99

118

456.68

456.69

67

456.92

457.14

108

457.02

457.22

93

?

?

Red Fanglomerate

consolidated / cemented conglomerate, sandstone

Note: Data subject to review.

20

Vertical
Scale

0

0

Horizontal Scale

100 feet

MW-25

water level

well screen

total depth of boring

458.07

103

Average groundwater elevation, June 1-13, 2004
(salinity adjusted)

FIGURE 2
HYDROGEOLOGIC SECTION B1
AVERAGE GROUNDWATER ELEVATIONS
JUNE 1 - 13, 2004
INTERIM MEASURES PROGRAM
PG&E TOPOCK PROJECT

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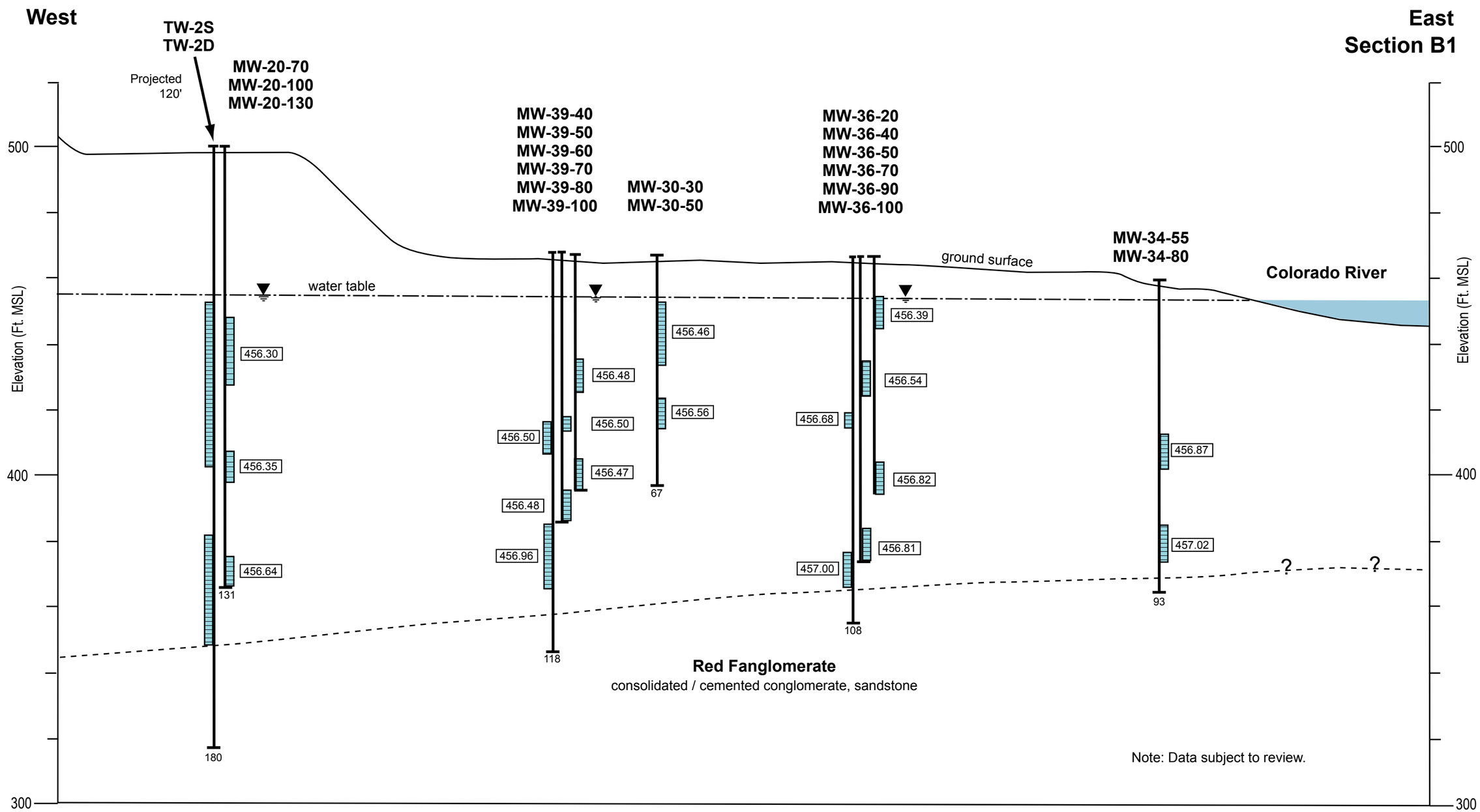
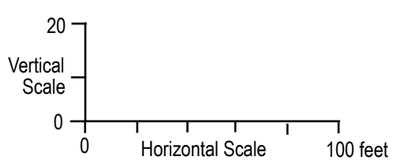
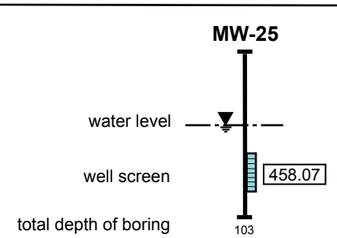
315024.IM.05.00_Section B1 - June GW elev June 1-13_7/12/04_ccc_sfo







Average groundwater elevation, June 15-30, 2004 (salinity adjusted)

FIGURE 3
HYDROGEOLOGIC SECTION B1
AVERAGE GROUNDWATER ELEVATIONS
JUNE 15 - 30, 2004
INTERIM MEASURES PROGRAM
PG&E TOPOCK PROJECT

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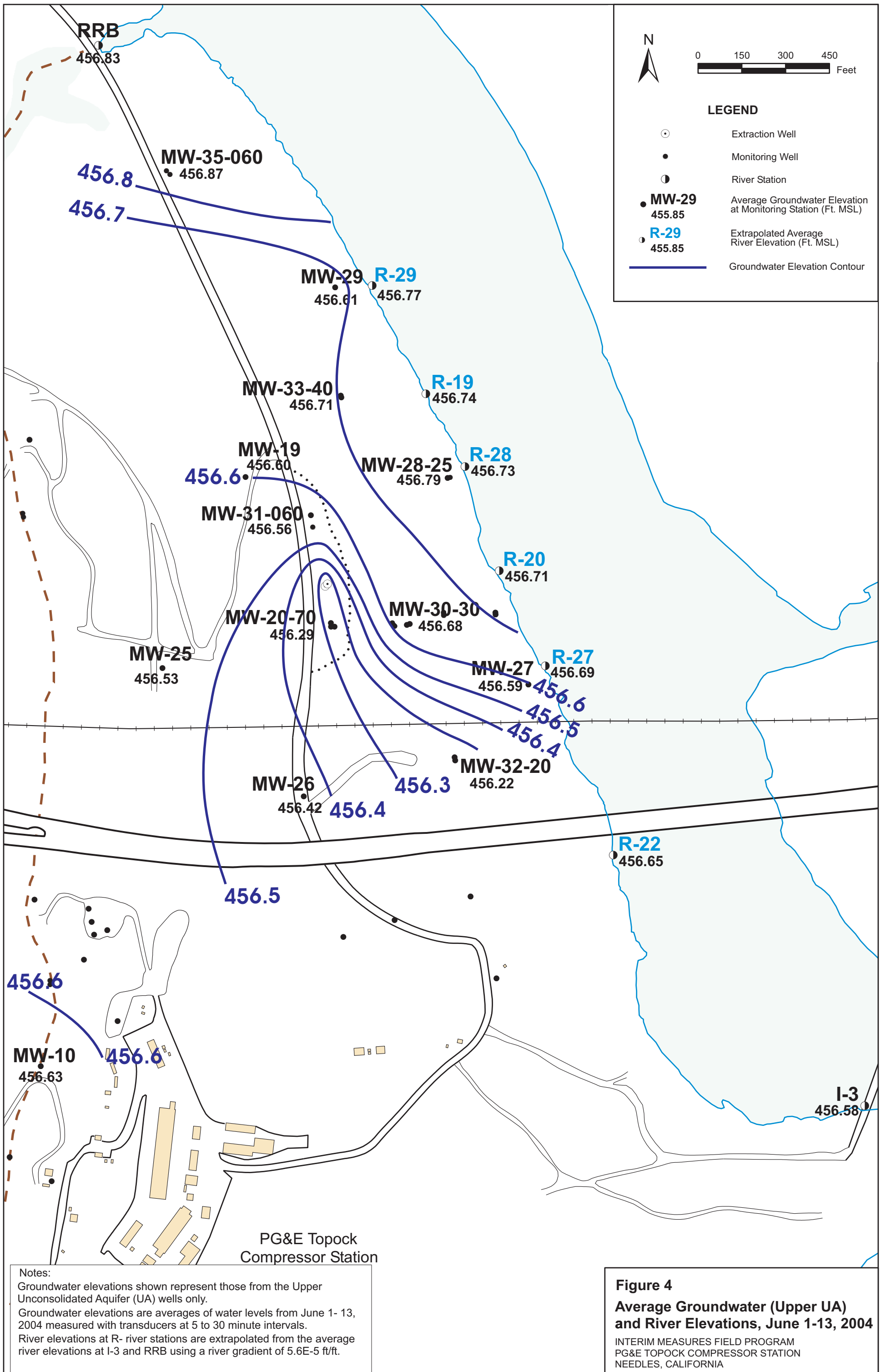
315024.IM.05.00_Section B1 - June GW elev June 15-30_7/12/04_ccc_sfo



Notes:
Groundwater elevations shown represent those from the Upper Unconsolidated Aquifer (UA) wells only.
Groundwater elevations are averages of water levels from June 1- 13, 2004 measured with transducers at 5 to 30 minute intervals.
River elevations at R- river stations are extrapolated from the average river elevations at I-3 and RRB using a river gradient of 5.6E-5 ft/ft.

Figure 4

Average Groundwater (Upper UA) and River Elevations, June 1-13, 2004

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NEEDLES, CALIFORNIA

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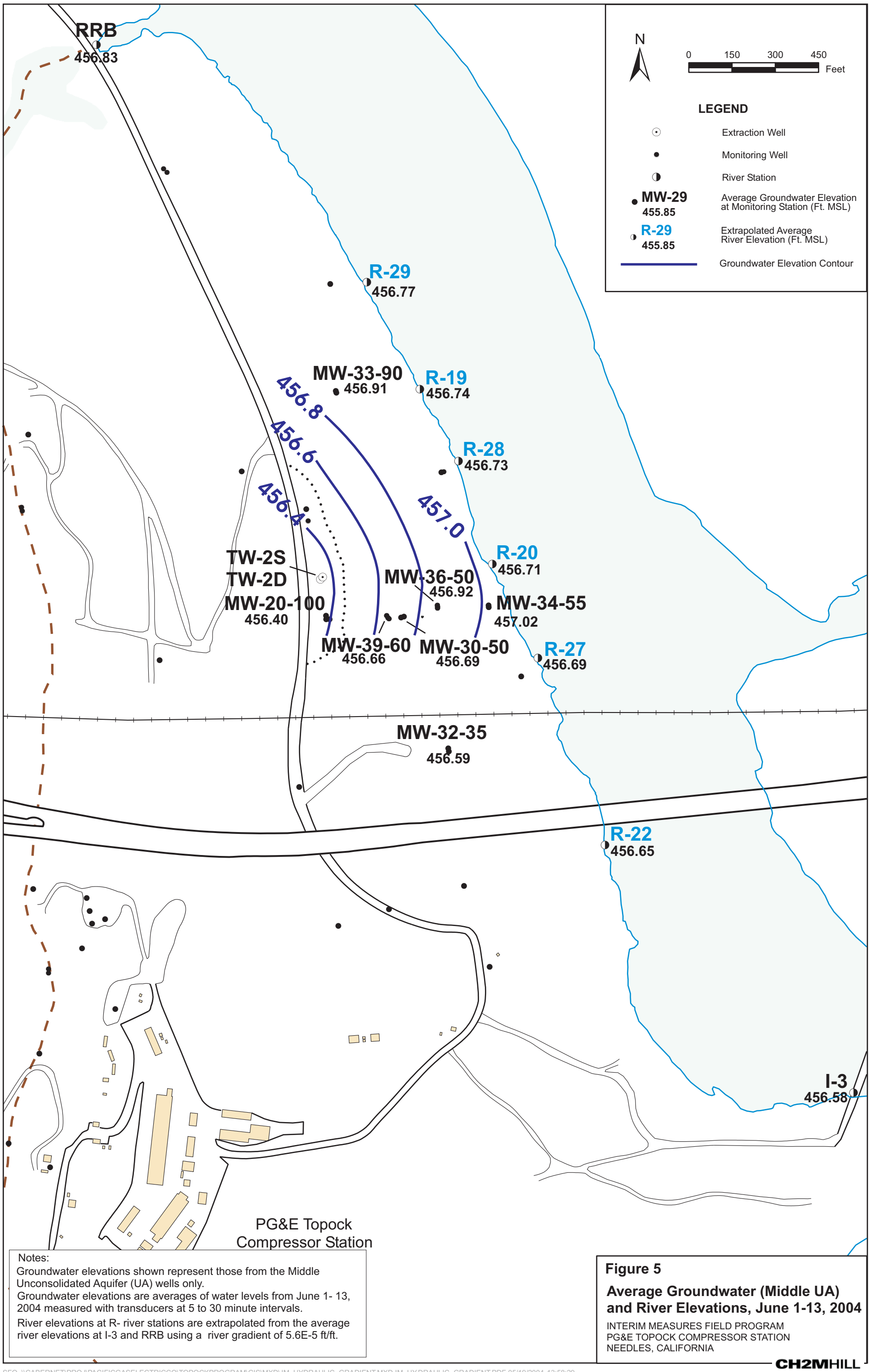

Notes:
Groundwater elevations shown represent those from the Middle Unconsolidated Aquifer (UA) wells only.
Groundwater elevations are averages of water levels from June 1- 13, 2004 measured with transducers at 5 to 30 minute intervals.
River elevations at R- river stations are extrapolated from the average river elevations at I-3 and RRB using a river gradient of 5.6E-5 ft/ft.

Figure 5

Average Groundwater (Middle UA) and River Elevations, June 1-13, 2004

INTERIM MEASURES FIELD PROGRAM
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NEEDLES, CALIFORNIA

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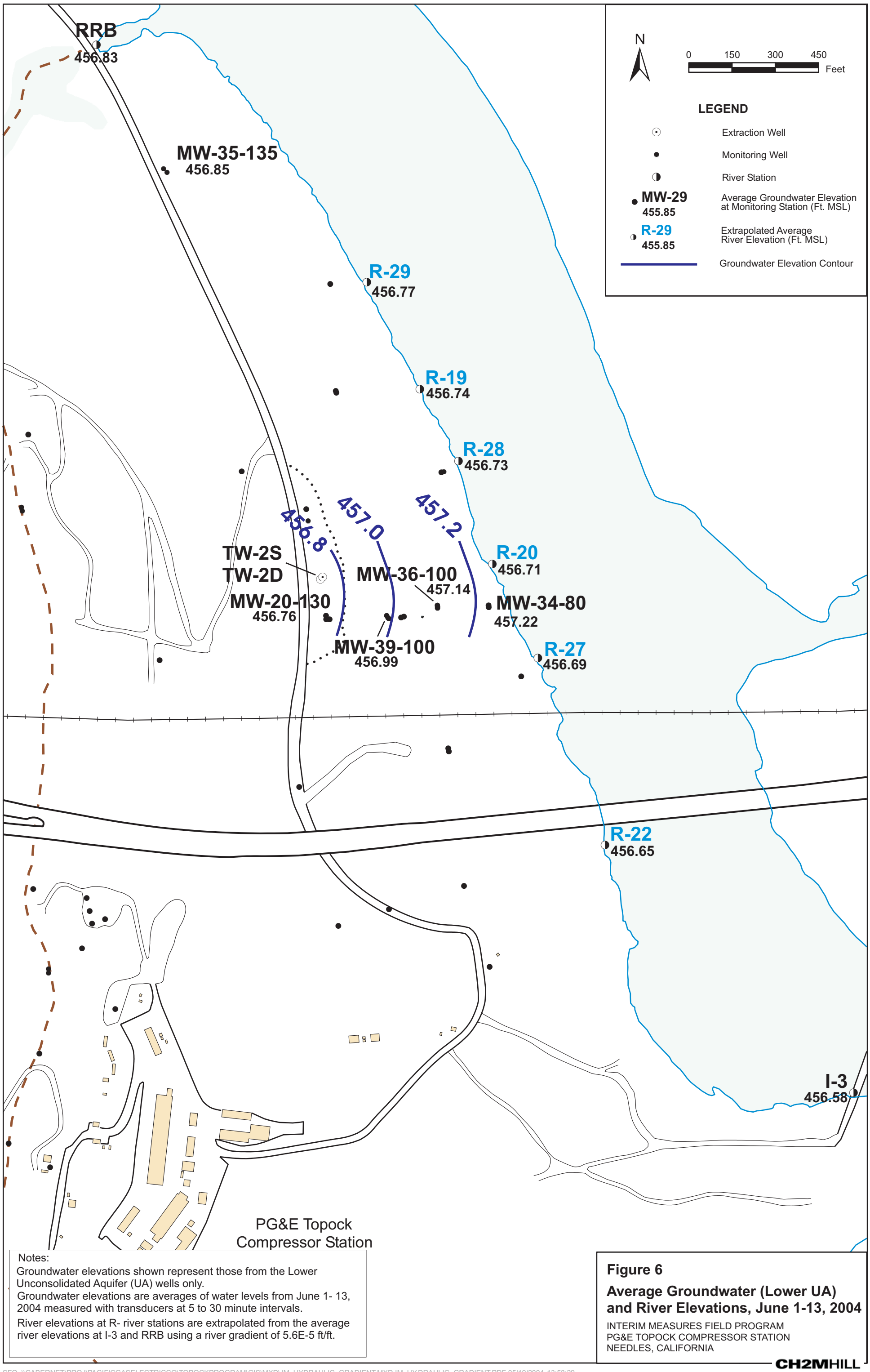

Notes:
Groundwater elevations shown represent those from the Lower Unconsolidated Aquifer (UA) wells only.
Groundwater elevations are averages of water levels from June 1- 13, 2004 measured with transducers at 5 to 30 minute intervals.
River elevations at R- river stations are extrapolated from the average river elevations at I-3 and RRB using a river gradient of 5.6E-5 ft/ft.

Figure 6

Average Groundwater (Lower UA) and River Elevations, June 1-13, 2004

INTERIM MEASURES FIELD PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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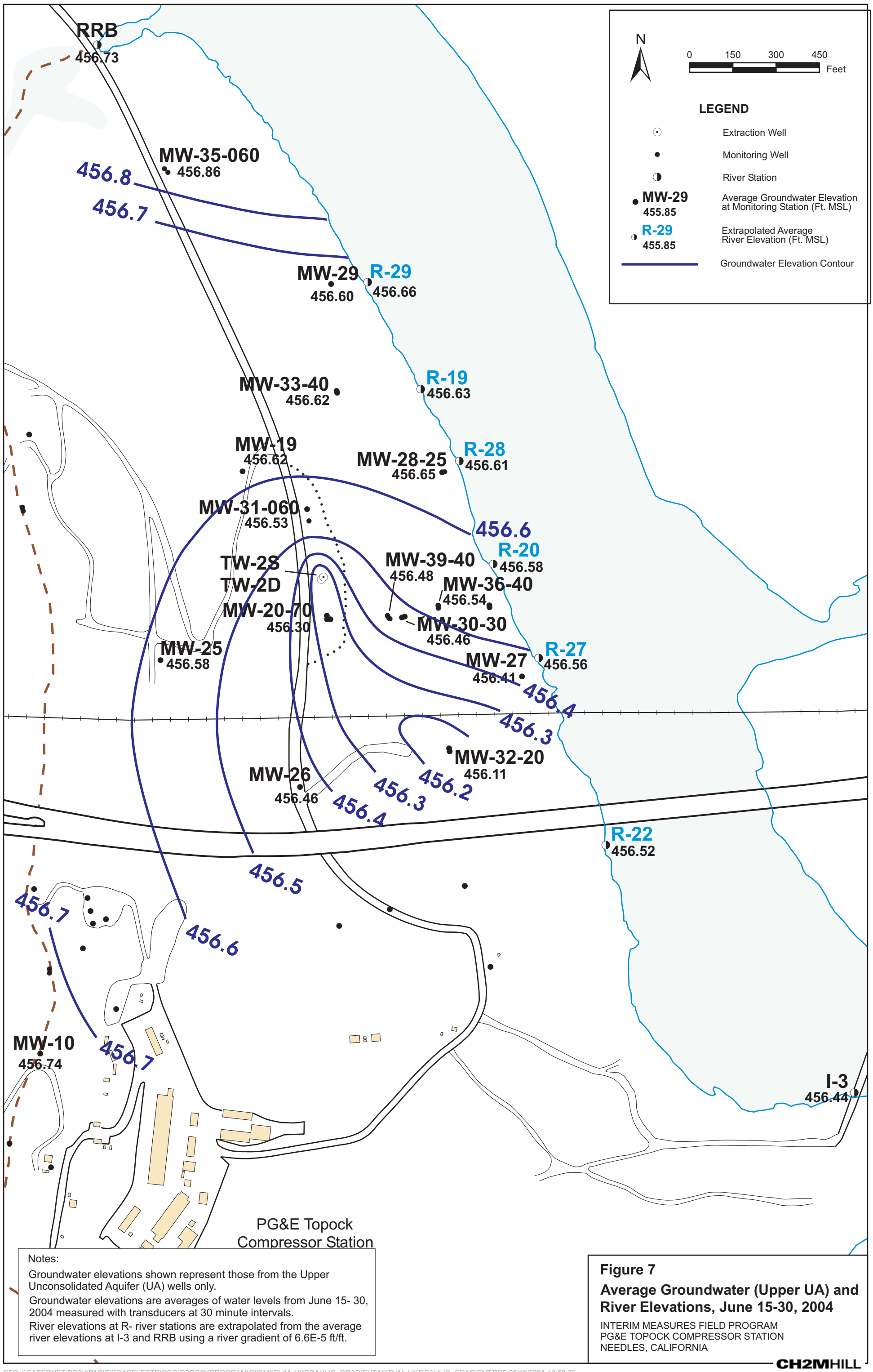

Notes:

Groundwater elevations shown represent those from the Upper Unconsolidated Aquifer (UA) wells only.

Groundwater elevations are averages of water levels from June 15- 30, 2004 measured with transducers at 30 minute intervals.

River elevations at R- river stations are extrapolated from the average river elevations at I-3 and RRB using a river gradient of 6.6E-5 ft/ft.

Figure 7

Average Groundwater (Upper UA) and River Elevations, June 15-30, 2004

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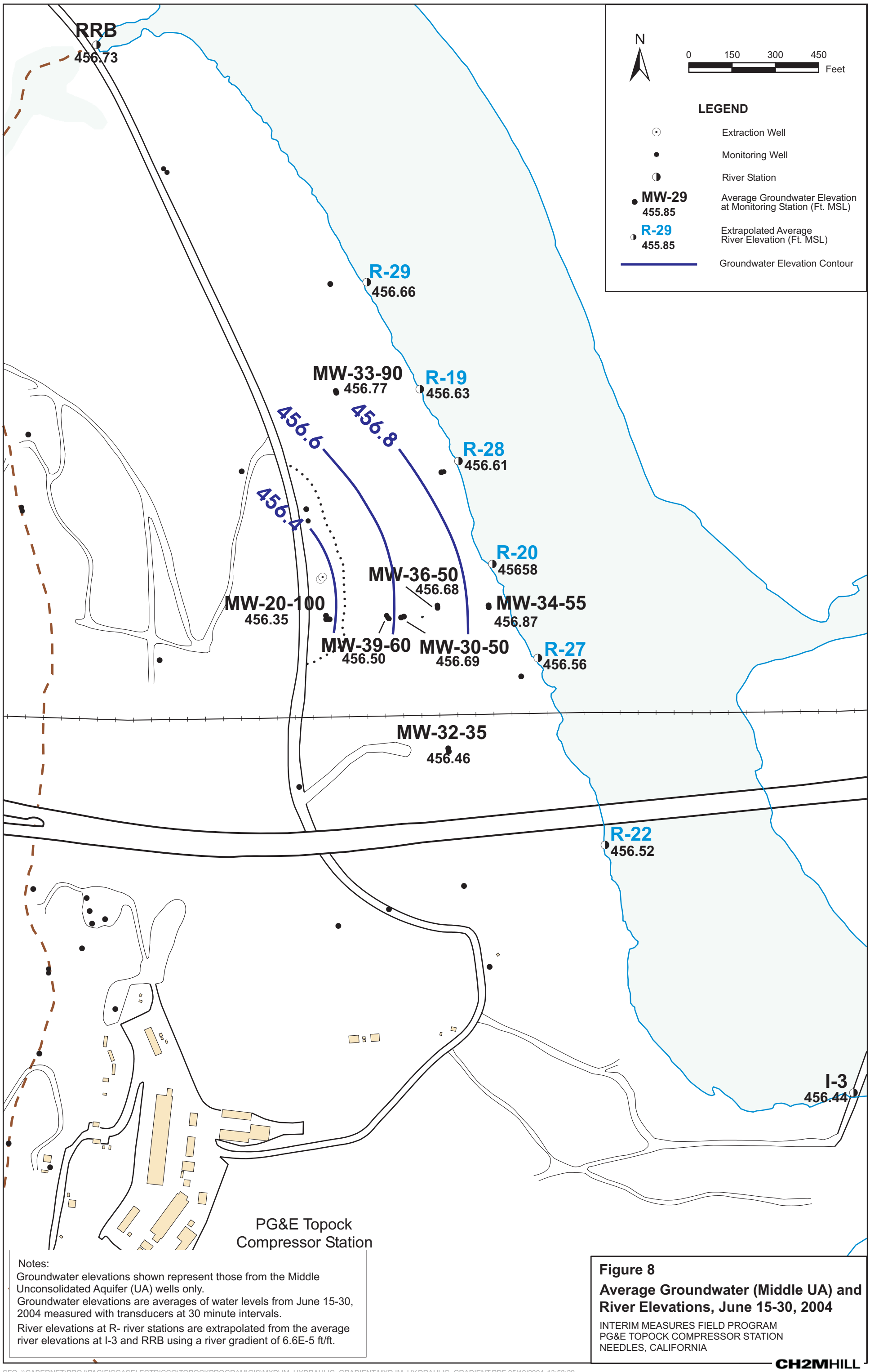

Notes:
Groundwater elevations shown represent those from the Middle Unconsolidated Aquifer (UA) wells only.
Groundwater elevations are averages of water levels from June 15-30, 2004 measured with transducers at 30 minute intervals.
River elevations at R- river stations are extrapolated from the average river elevations at I-3 and RRB using a river gradient of 6.6E-5 ft/ft.

Figure 8

Average Groundwater (Middle UA) and River Elevations, June 15-30, 2004

INTERIM MEASURES FIELD PROGRAM
PG&E TOPOCK COMPRESSOR STATION
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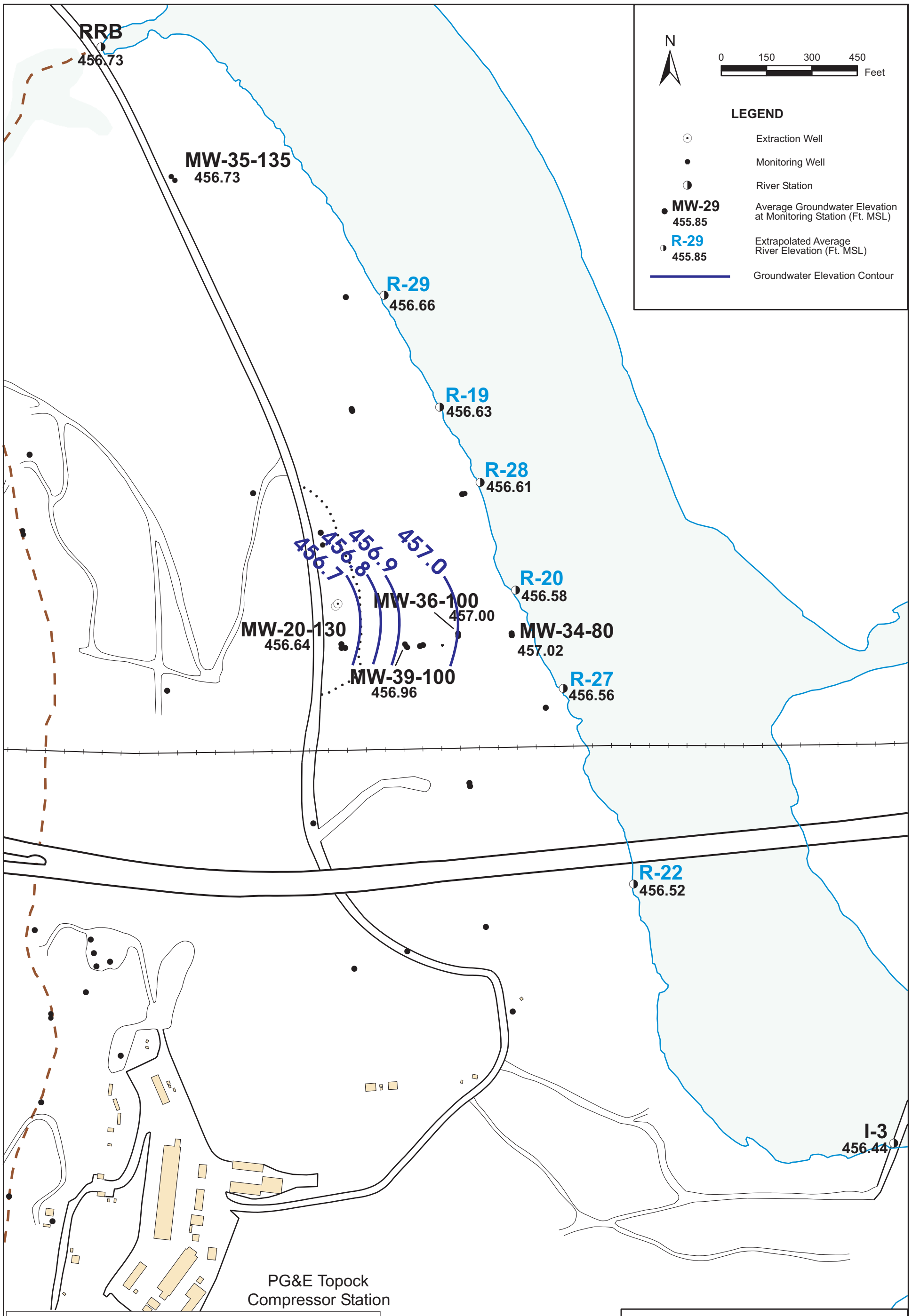

Notes:
Groundwater elevations shown represent those from the Lower Unconsolidated Aquifer (UA) wells only.
Groundwater elevations are averages of water levels from June 15- 30, 2004 measured with transducers at 30 minute intervals.
River elevations at R- river stations are extrapolated from the average river elevations at I-3 and RRB using a river gradient of 6.6E-5 ft/ft.

Figure 9
Average Groundwater (Lower UA) and River Elevations, June 15-30, 2004
INTERIM MEASURES FIELD PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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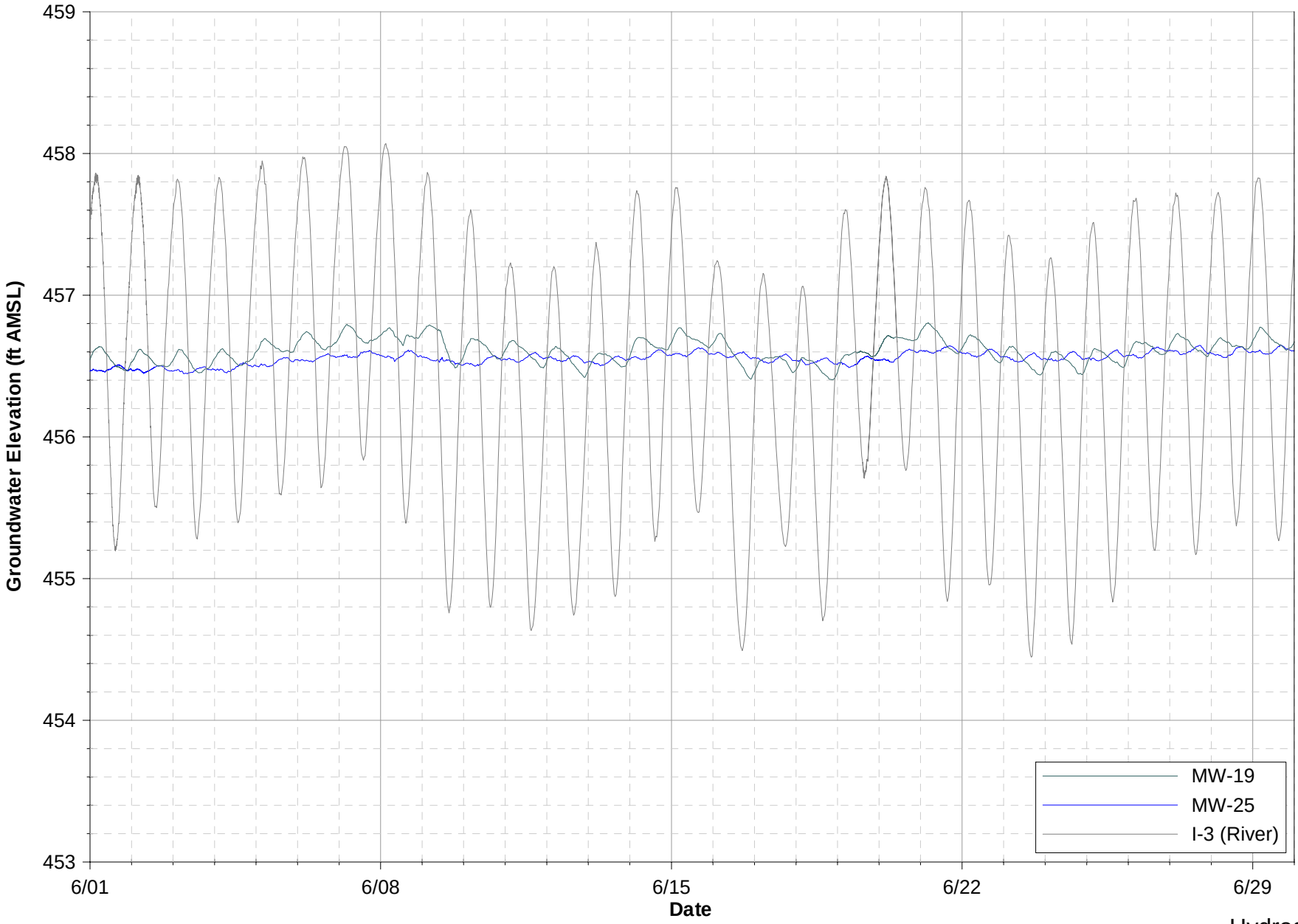
Attachment 1
Hydrographs



Note: Data subject to review.

Hydrograph
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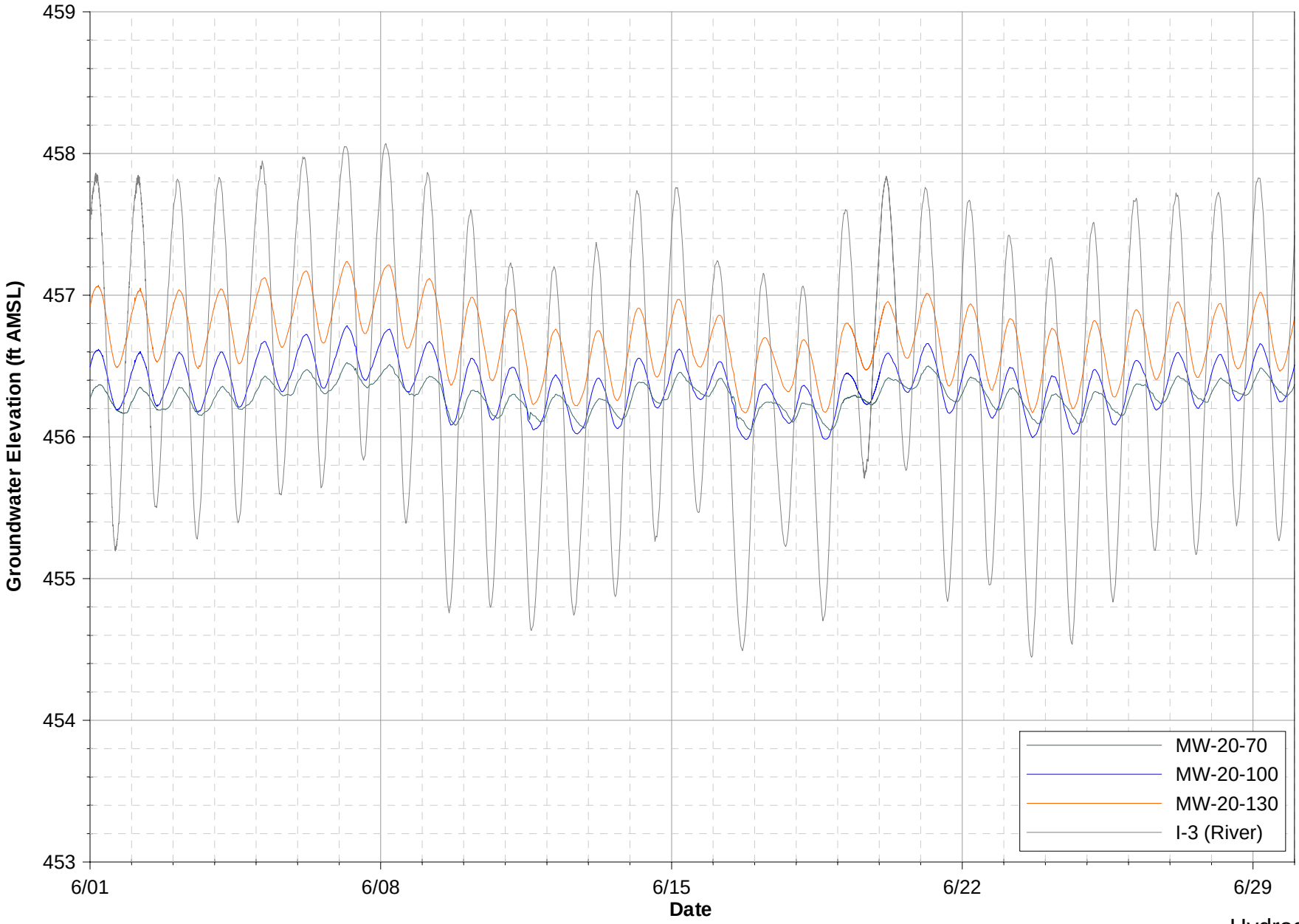

Note: Data subject to review.

Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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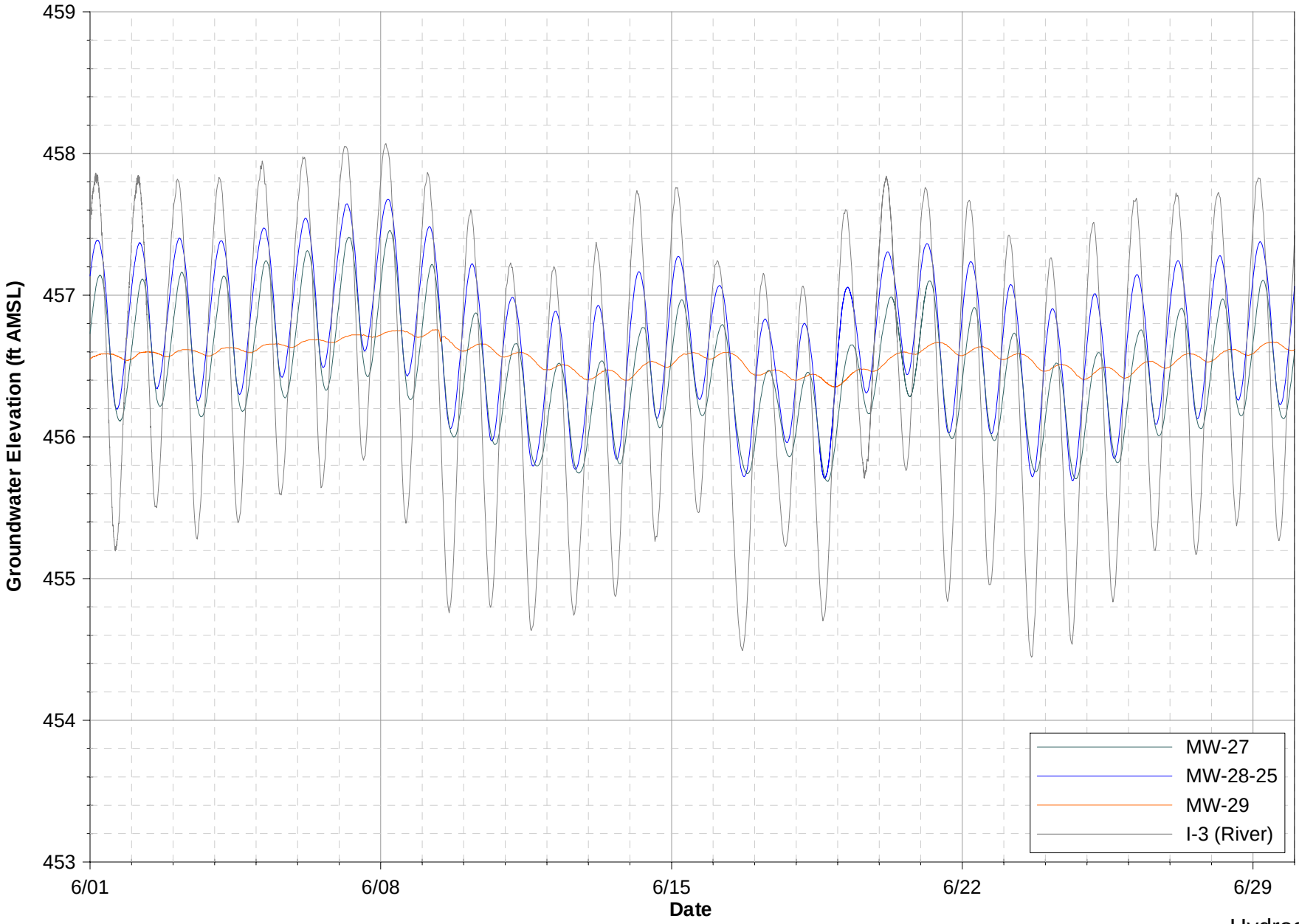

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Hydrograph
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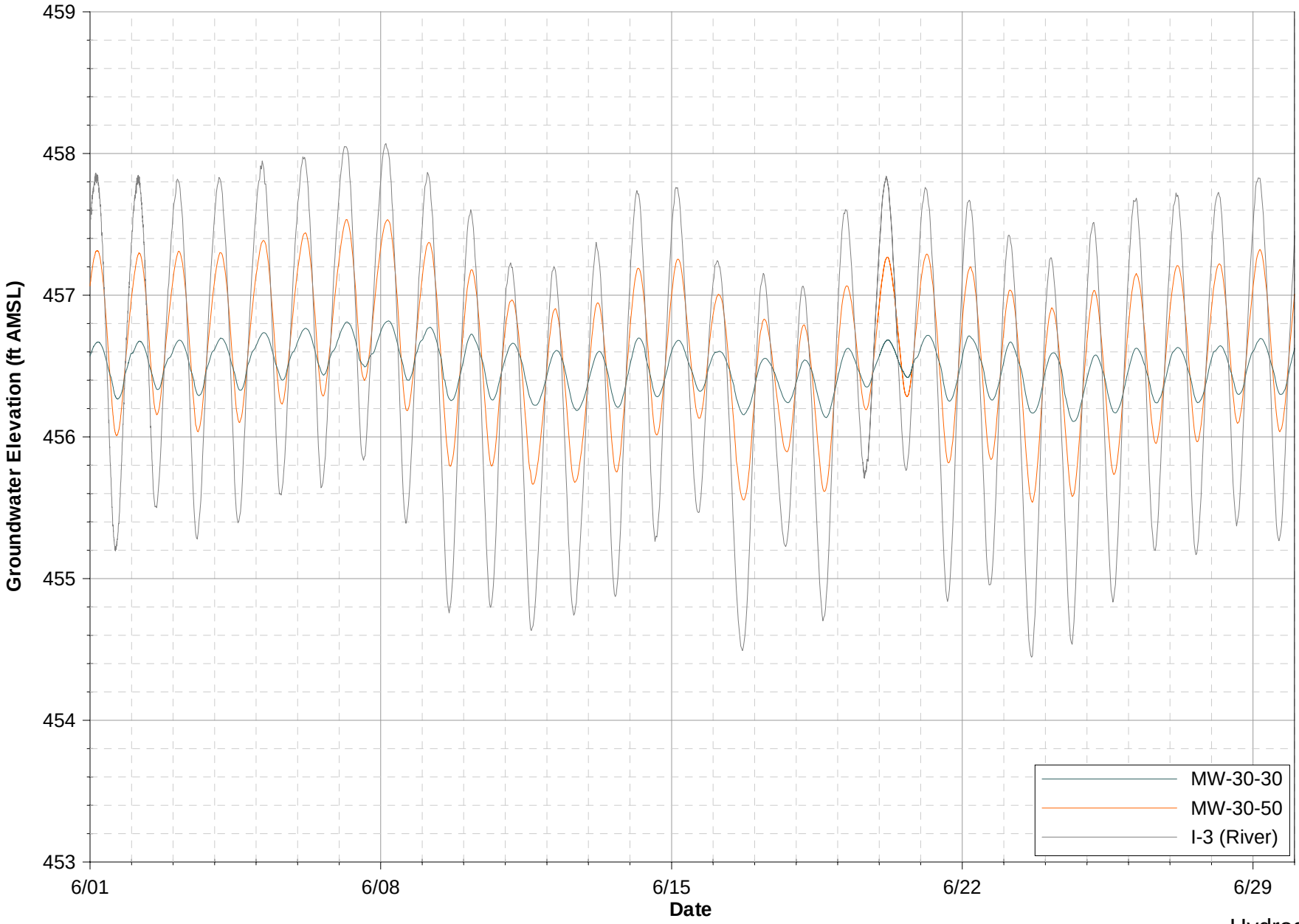

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Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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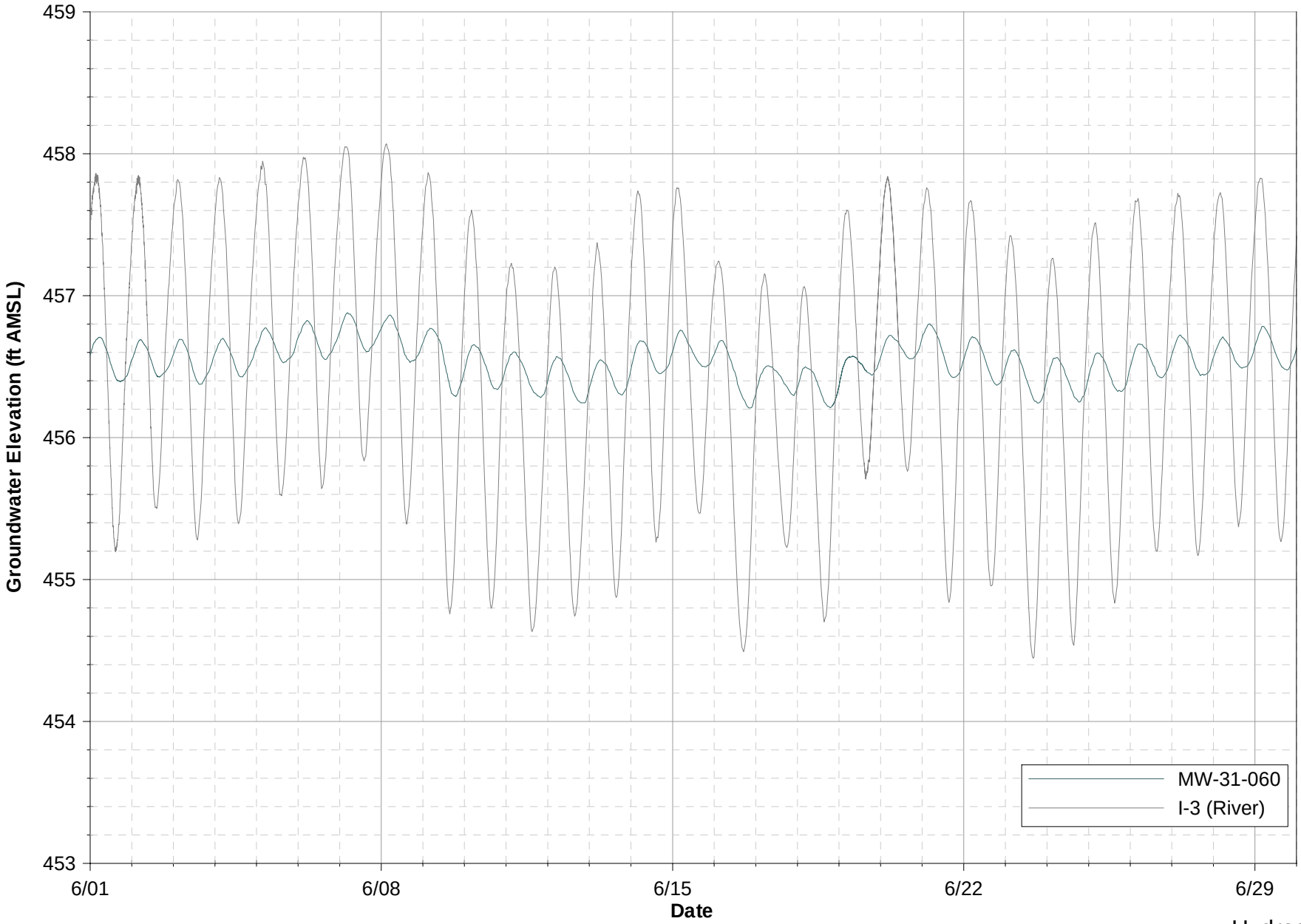

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Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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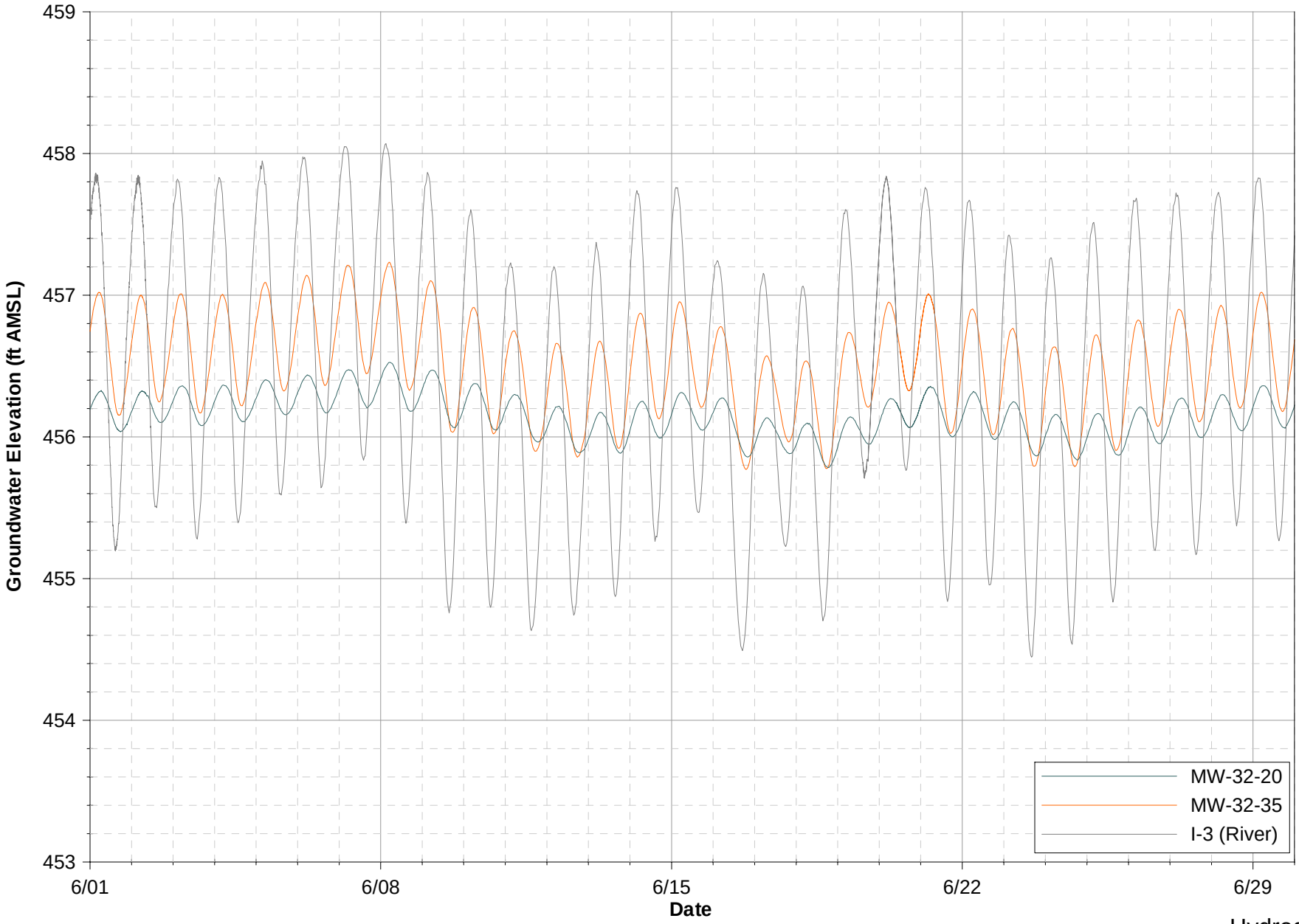

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Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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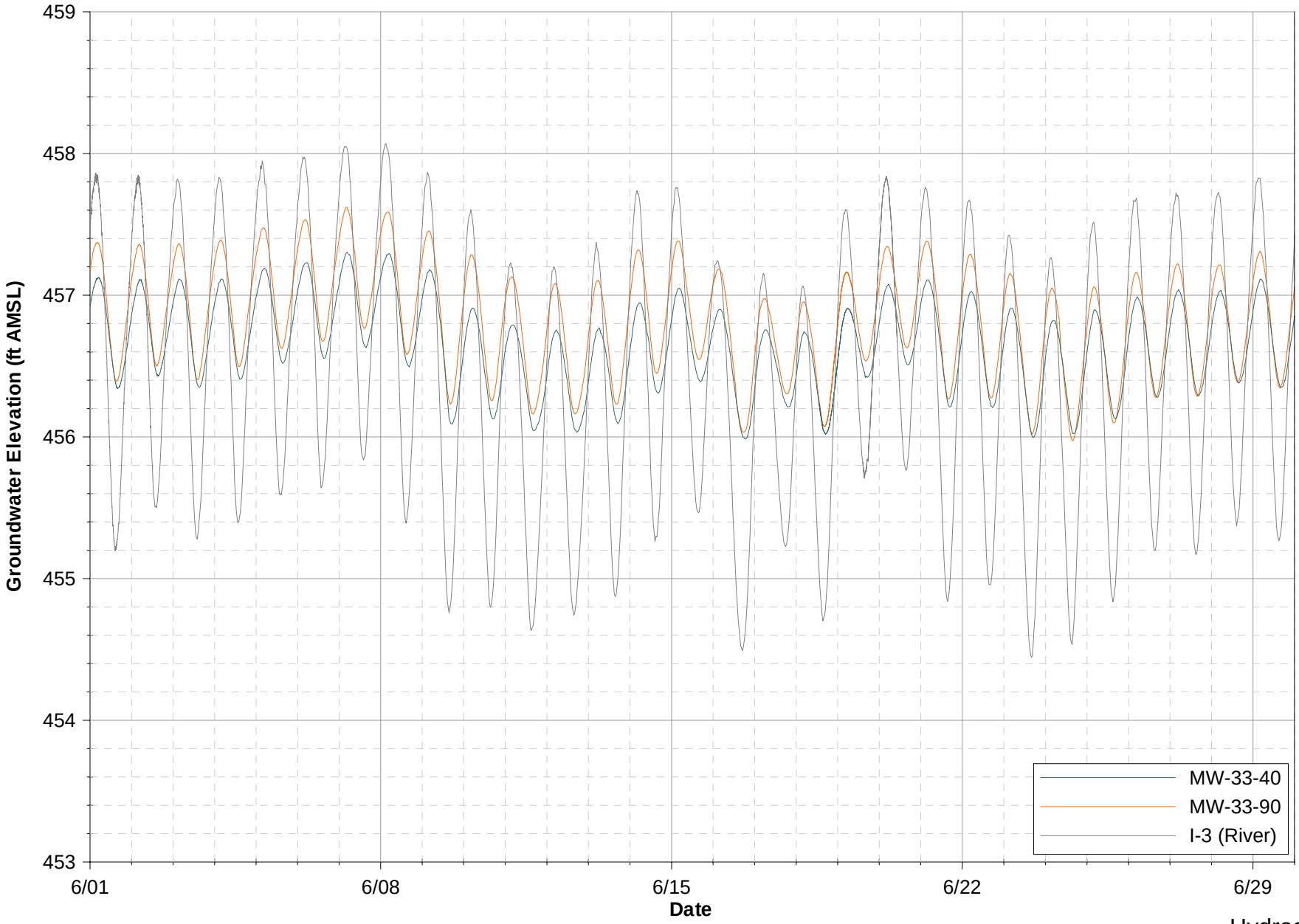

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Hydrograph
PG&E TOPOCK COMPRESSOR STATION
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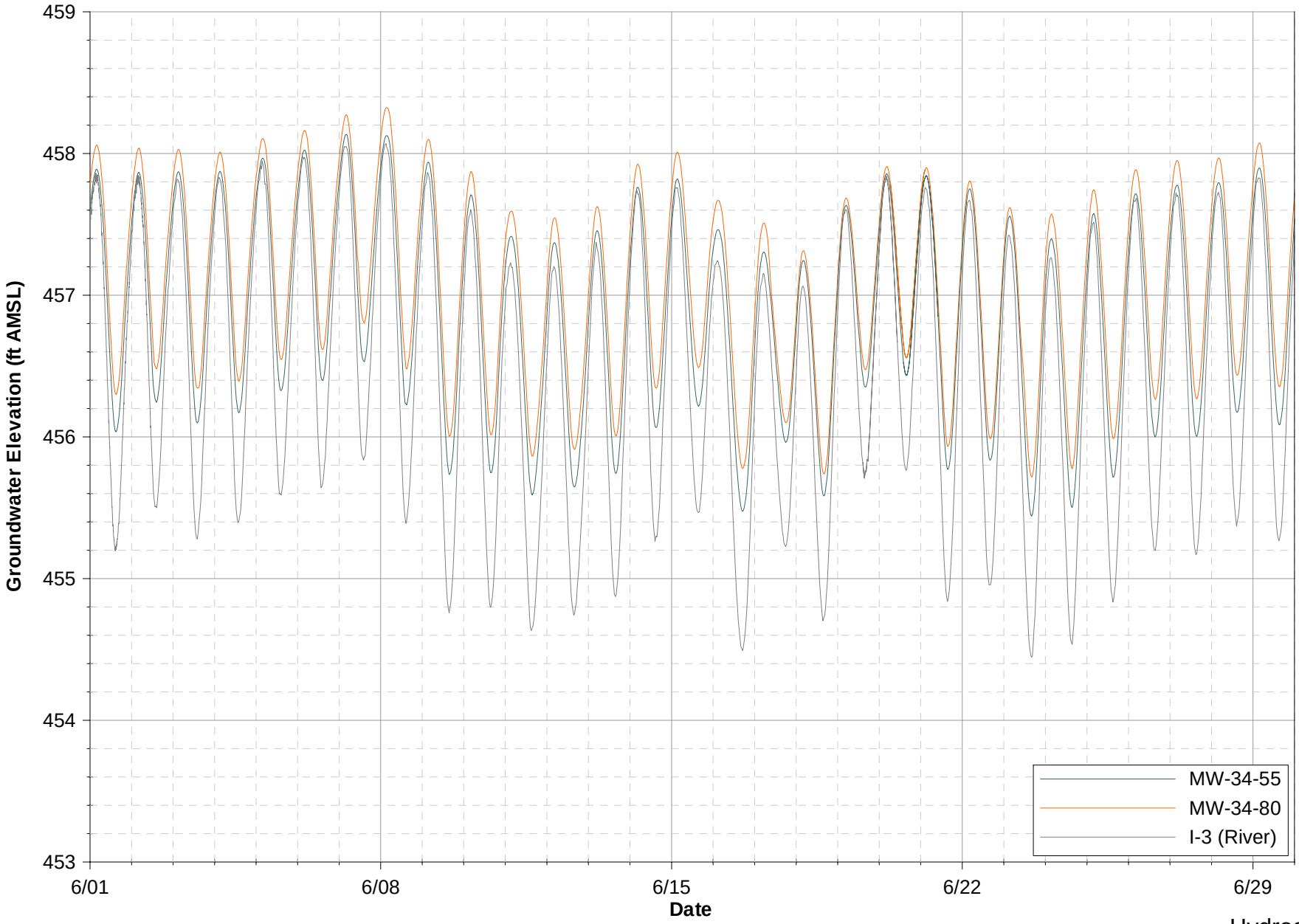

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Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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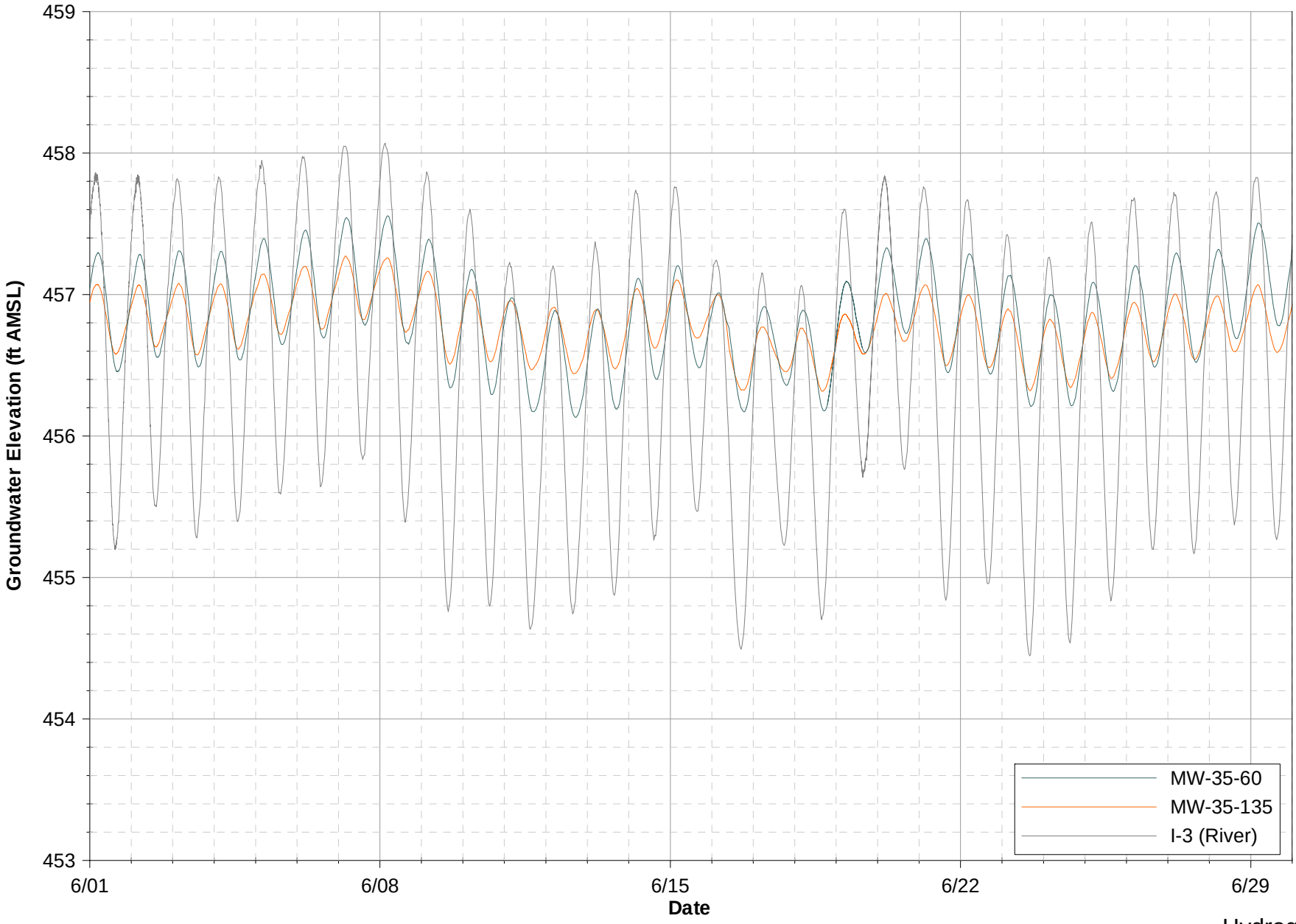

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Hydrograph
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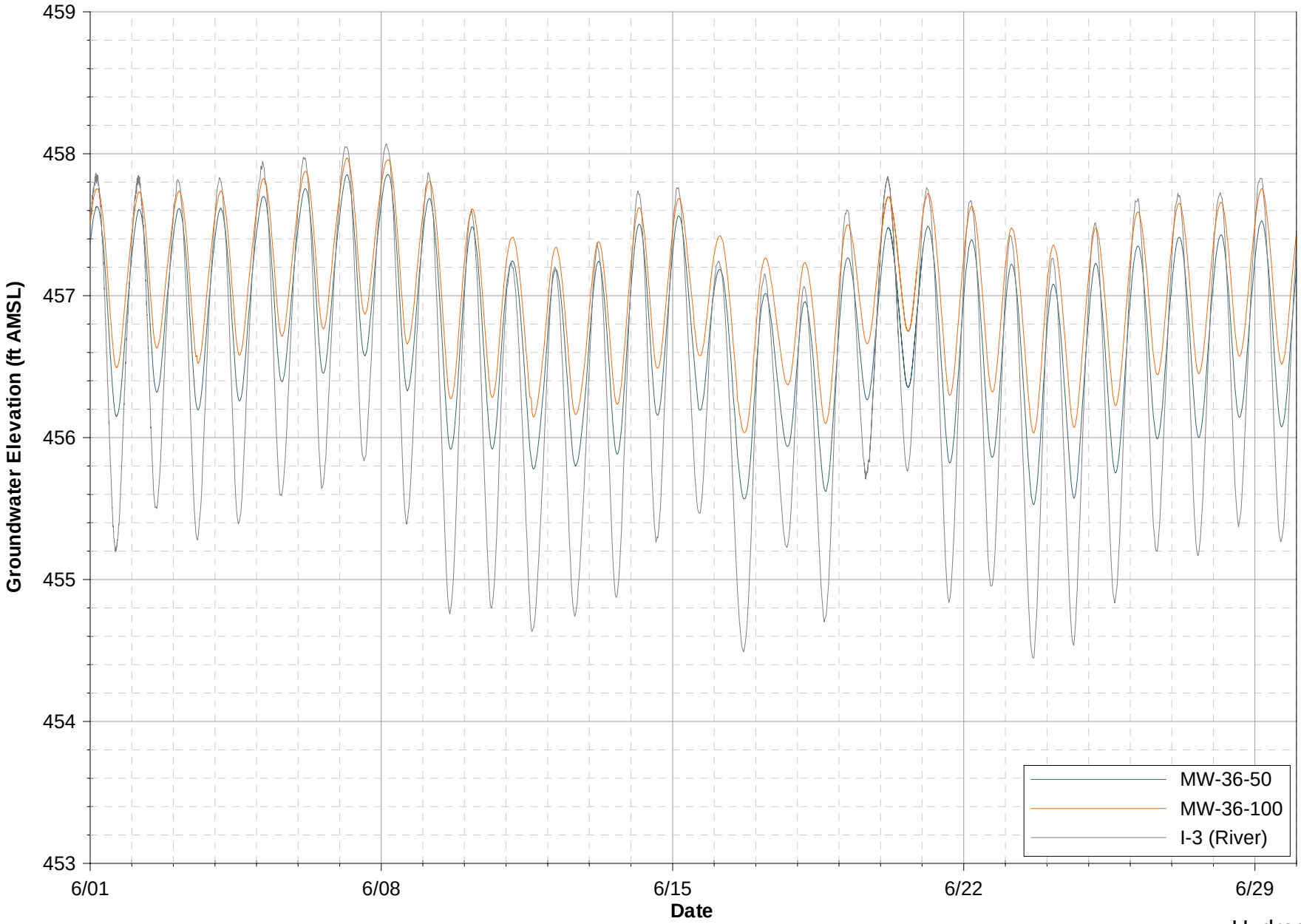

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Hydrograph
PG&E TOPOCK COMPRESSOR STATION
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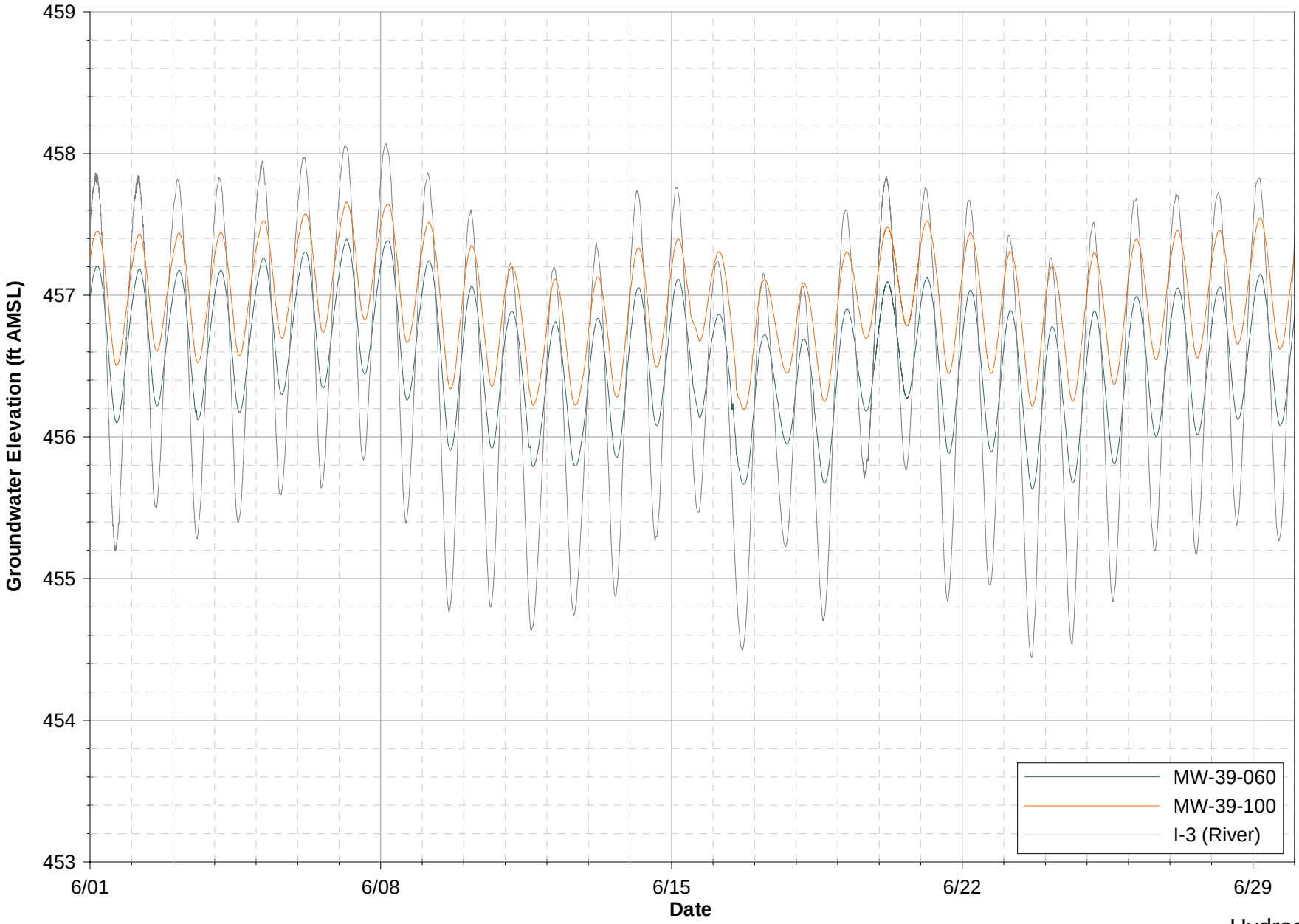

Note: Data subject to review.

Hydrograph
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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