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June 10, 2005

Norman Shopay  
Project Manager  
California Department of Toxic Substances Control  
Geology and Corrective Action Branch  
700 Heinz Avenue, Suite 200  
Berkeley, California 94710

Subject: Groundwater Elevation Maps for IM No. 3 Injection Area  
PG&E Topock Compressor Station, Needles, California

Dear Mr. Shopay:

The letter transmits groundwater elevation contour maps for the Interim Measures No. 3 injection well field area, which are submitted in compliance with the Item 3 requirement in the Department of Toxic Substances Control's (DTSC) May 24, 2005 letter. The groundwater elevation maps were prepared from water level data collected March 22 and May 18, 2005 and include the following:

- March 22, 2005 water level survey - Groundwater Elevation Contours for Shallow Wells, Mid-depth Wells, and Deep Wells (Figures 5-8a, 5-8b, 5-8c, respectively)
- May 18, 2005 water level survey - Groundwater Elevation Contours for Shallow Wells, Mid-depth Wells, and Deep Wells (Figures 5-8d, 5-8e, 5-8f, respectively)

The above-listed groundwater elevation maps and hydraulic gradient measurements will be presented and discussed in the forthcoming submittal of the final *Groundwater and Hydrogeologic Investigation Report for Interim Measures No. 3 Injection Area*.

The groundwater elevation maps were prepared from salinity/temperature adjusted manual water level measurements collected at the shallow, mid-depth, and deep monitoring and observation wells in the IM No. 3 injection area. The resultant lateral gradients depicted on these figures show transient conditions in the aquifer at the time of measurement and may not reflect the expected average annual groundwater flow directions.

To assist in reviewing the attached maps, a hydrograph of the Colorado River level during the period of January through mid-May 2005 (Figure 1) is also attached. The hydrograph documents the rather abrupt seasonal rise in river level that occurred during the March 22 water level survey. The second water level survey was conducted 8 weeks later when the average river level was approximately 5 feet higher than January-March levels. As observed

Mr. Norman Shopay  
June 10, 2005  
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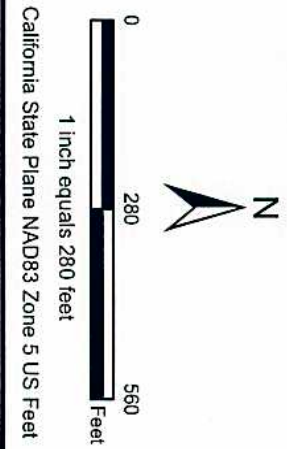
in ongoing hydraulic monitoring, the aquifer across the site responds to changes in river level. The attached March and May 2005 gradient maps for the IM No. 3 injection area reflect transient "snap-shot" views of hydraulic conditions in the aquifer at one point in time.

If you have any questions on the attached maps, please call me at (805) 546-5243.

Sincerely,

A handwritten signature in blue ink that reads "Julie Ekins for Yvonne Neales". The signature is written in a cursive, flowing style.

Cc: Kate Burger  
Karen Baker  
Fred Zanoria  
Aaron Yue



- LEGEND
- ⊗ IM-3 Injection Well
  - Groundwater Monitoring, Compliance, and Observation Well

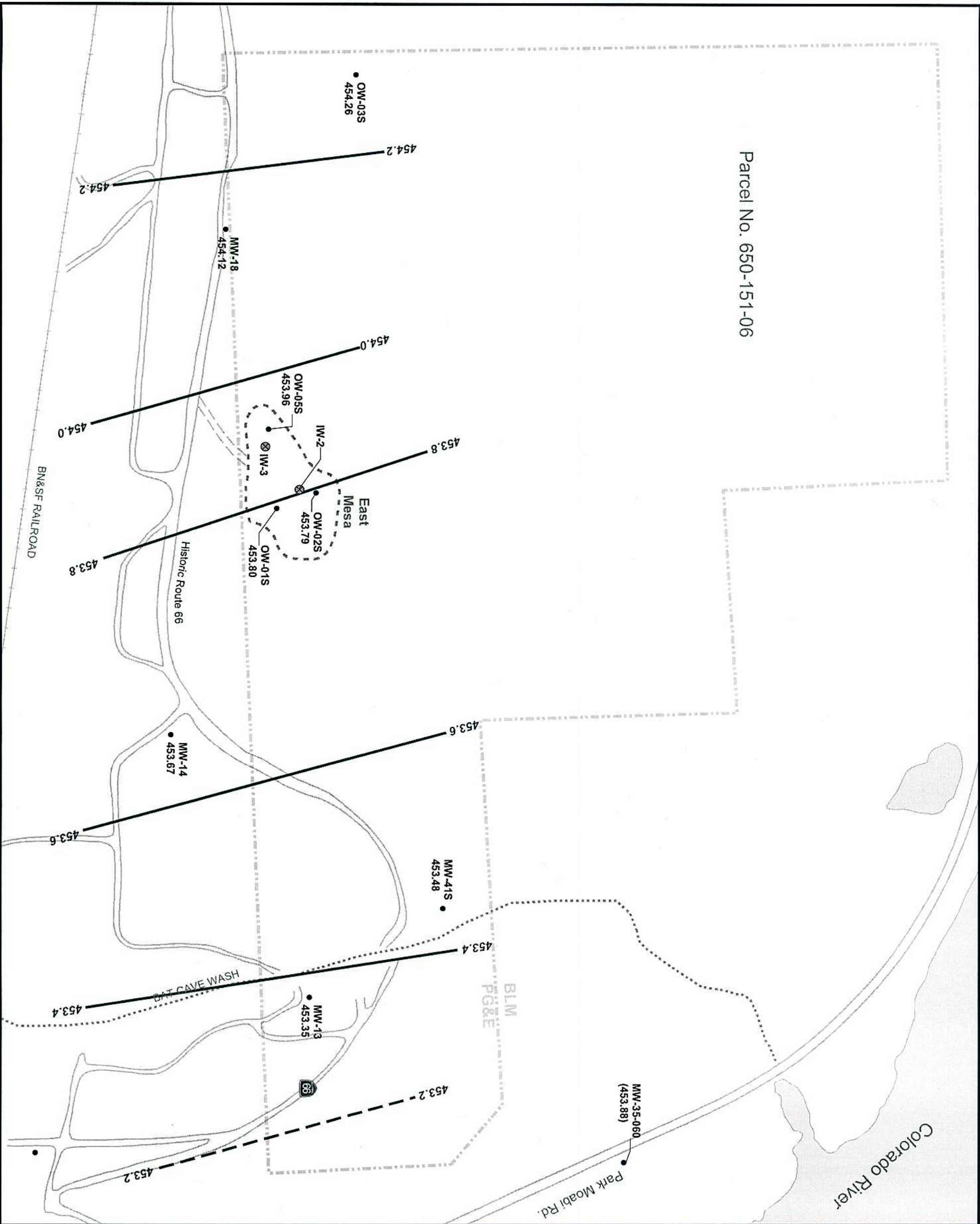
Groundwater Elevations for Shallow Wells in the IM-3 Injection Area

Manual water level measurements collected March 22, 2005 (9:05 - 9:49 am)

MW-41M Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)  
● 454.75

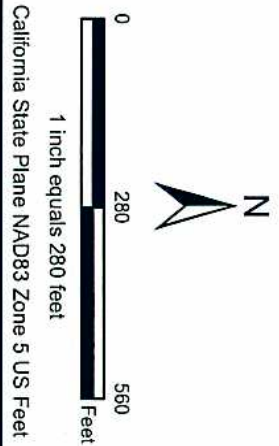
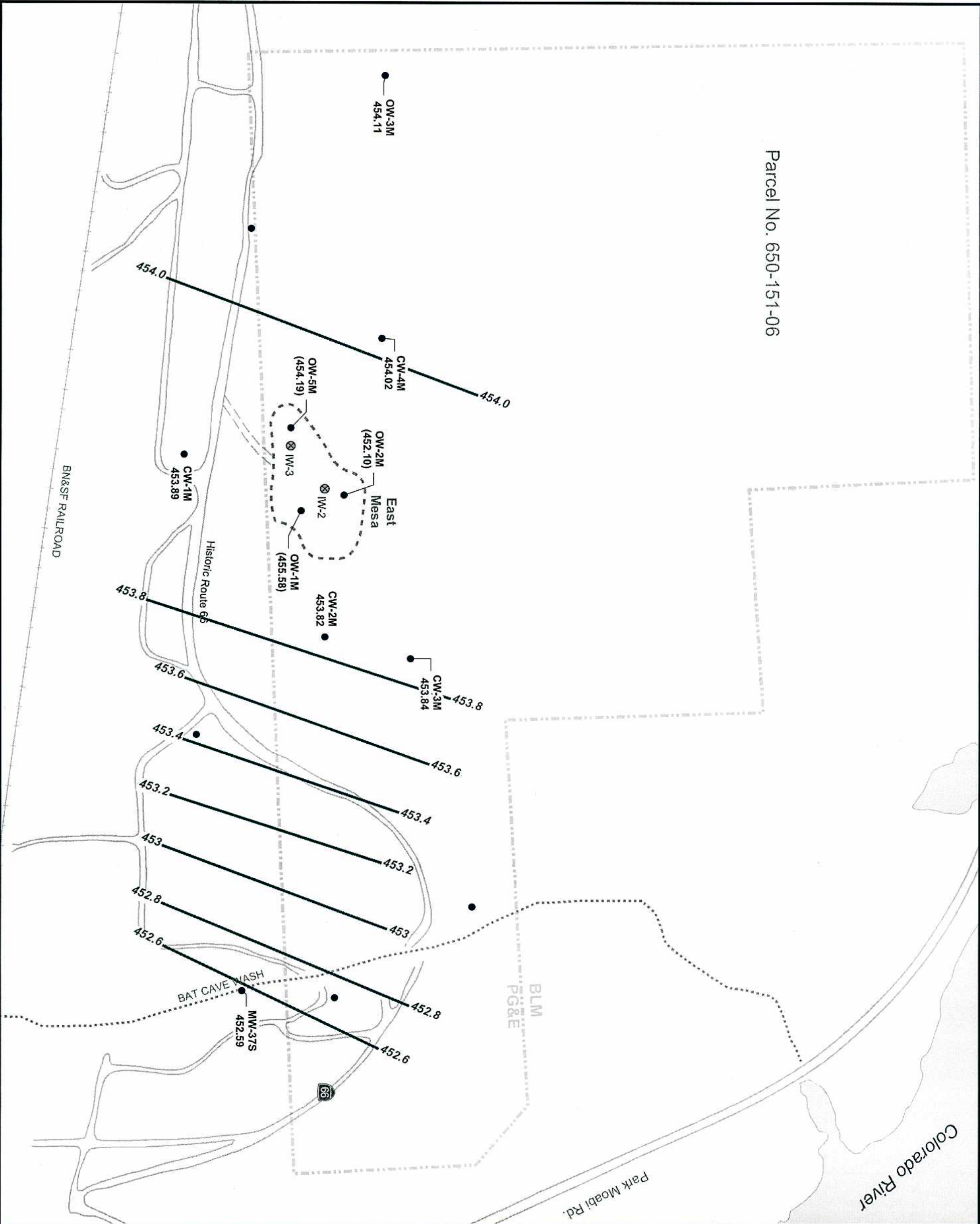
MW-41M Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL) (not used for contouring)  
● (454.75)

Groundwater elevation contour feet above MSL (0.2 foot interval)  
— 454.2



Note: Gradients shown on this figure show transient conditions in the aquifer at the time of measurement and may not reflect the expected average annual groundwater flow directions.

FIGURE 5-8a  
GROUNDWATER ELEVATION  
CONTOURS FOR SHALLOW WELLS  
MARCH 22, 2005  
IM-3 GROUNDWATER INVESTIGATION  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



LEGEND

- ⊗ IM-3 Injection Well
- Groundwater Monitoring, Compliance, and Observation Well

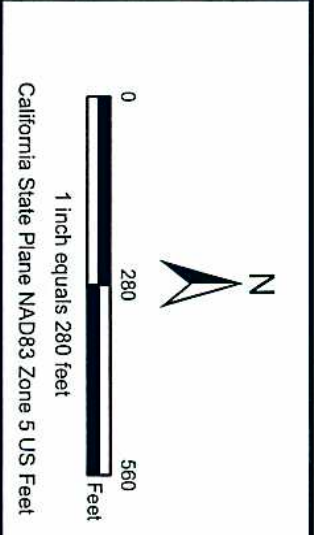
Groundwater Elevations for Middle Wells in IM3 Injection Area

Manual water level measurements collected March 22, 2005 (9:05 - 9:49 am)

- CW-1M Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)
- CW-1M Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL) (not used for contouring)
- Groundwater elevation contour feet above MSL (0.2 foot interval)

Note: Gradients shown on this figure show transient conditions in the aquifer at the time of measurement and may not reflect the expected average annual groundwater flow directions.

FIGURE 5-8b  
GROUNDWATER ELEVATION  
CONTOURS FOR MID-DEPTH WELLS  
MARCH 22, 2005  
IM-3 GROUNDWATER INVESTIGATION  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



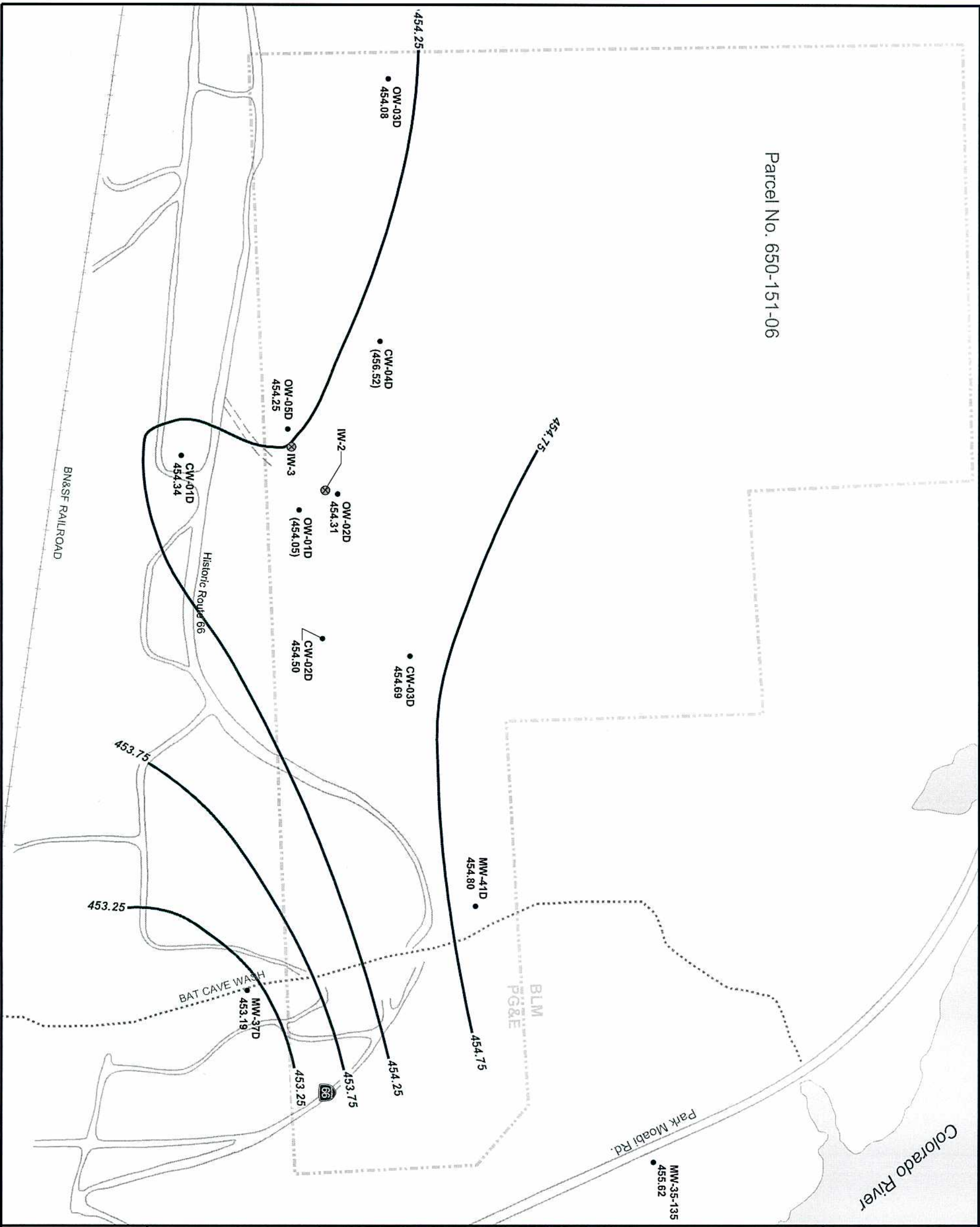
- LEGEND
- Groundwater monitoring / observation well
  - IM-3 Injection Well

Groundwater Elevations for Deep Wells in IM3 Injection Area

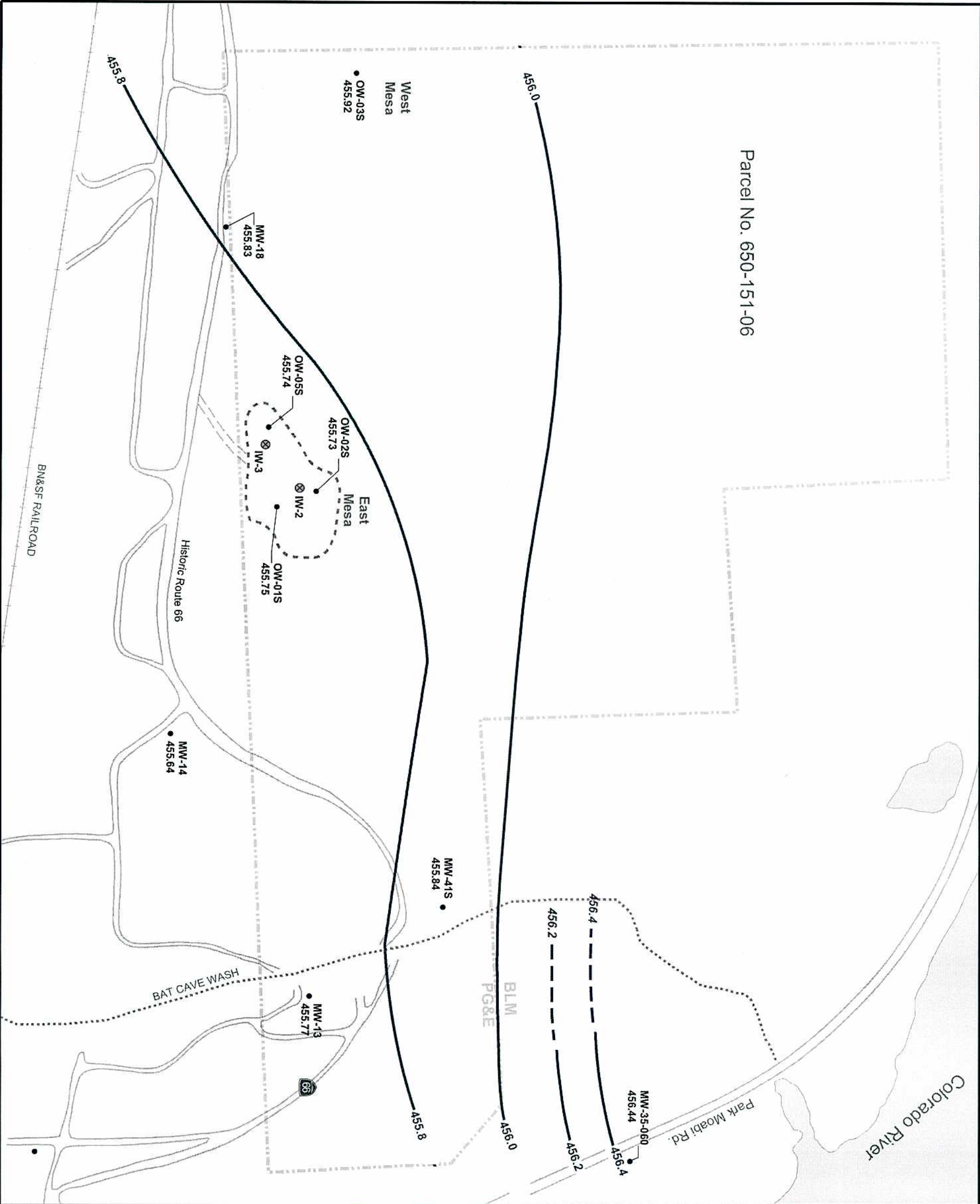
Manual water level measurements collected March 22, 2005 (9:05 - 9:49 am)

- 454.75  
MW-41M  
Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)
- 454.75  
MW-41M  
Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL) (not used for contouring)
- 454.75  
Groundwater elevation contour feet above MSL (0.5 foot interval)

FIGURE 5-8c  
GROUNDWATER ELEVATION  
CONTOURS FOR DEEP WELLS  
MARCH 22, 2005  
IM-3 GROUNDWATER INVESTIGATION  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



Note: Gradients shown on this figure show transient conditions in the aquifer at the time of measurement and may not reflect the expected average annual groundwater flow directions.



N

0

280

560

1 inch equals 280 feet

Feet

California State Plane NAD83 Zone 5 US Feet

- LEGEND
- Groundwater Monitoring, Compliance, and Observation Well
- ⊗

IM-3 Injection Well

Groundwater Elevations for Shallow Wells in IM-3 Injection Area

Manual water level measurements collected May 18, 2005 (6:00 - 7:30 am)

●

MW-41M ground-water head elevation in feet above mean sea level (MSL)  
454.75

—

Groundwater elevation contour feet above MSL (0.2 foot interval)  
454.2

Note: Gradients on this figure show transient conditions in the aquifer at the time of measurement and may not reflect the expected average annual groundwater flow directions.

FIGURE 5-8d

GROUNDWATER ELEVATION

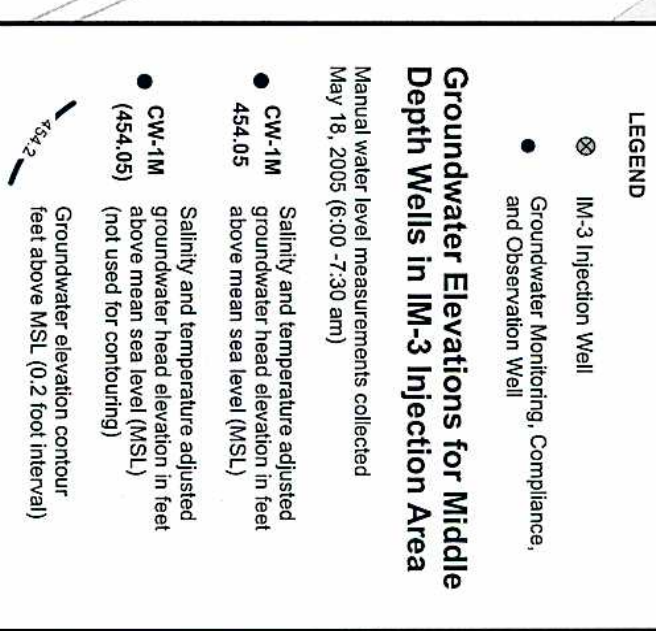
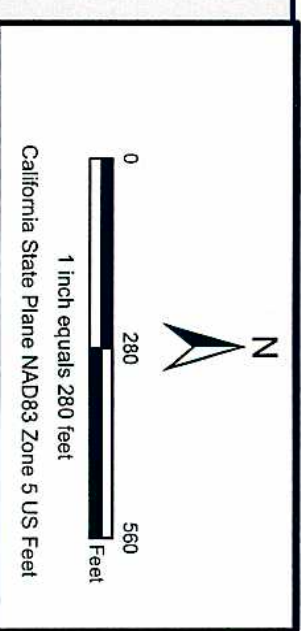
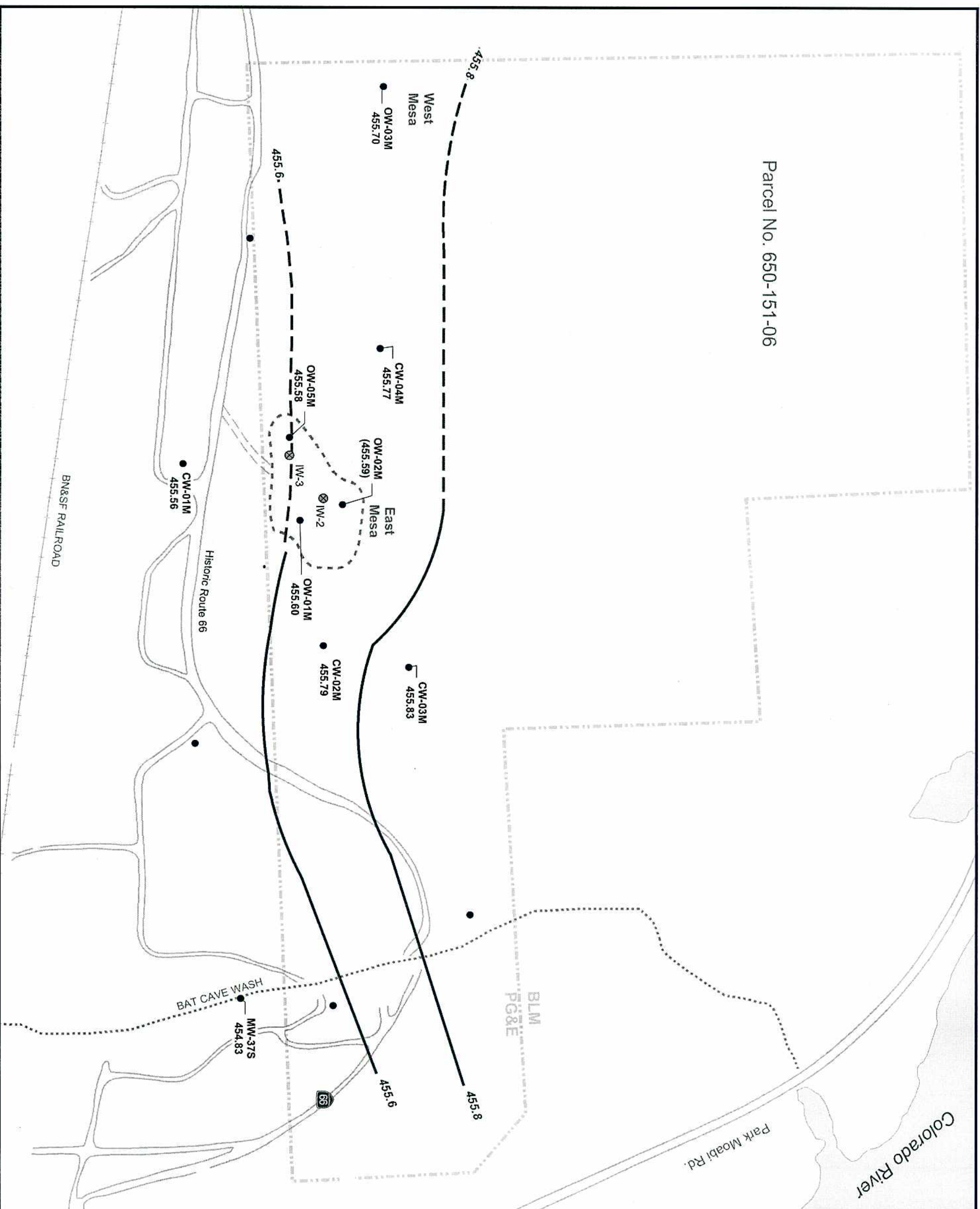
CONTOURS FOR SHALLOW WELLS

MAY 18, 2005

IM-3 GROUNDWATER INVESTIGATION

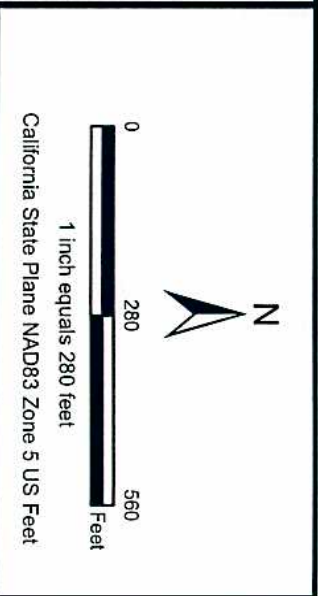
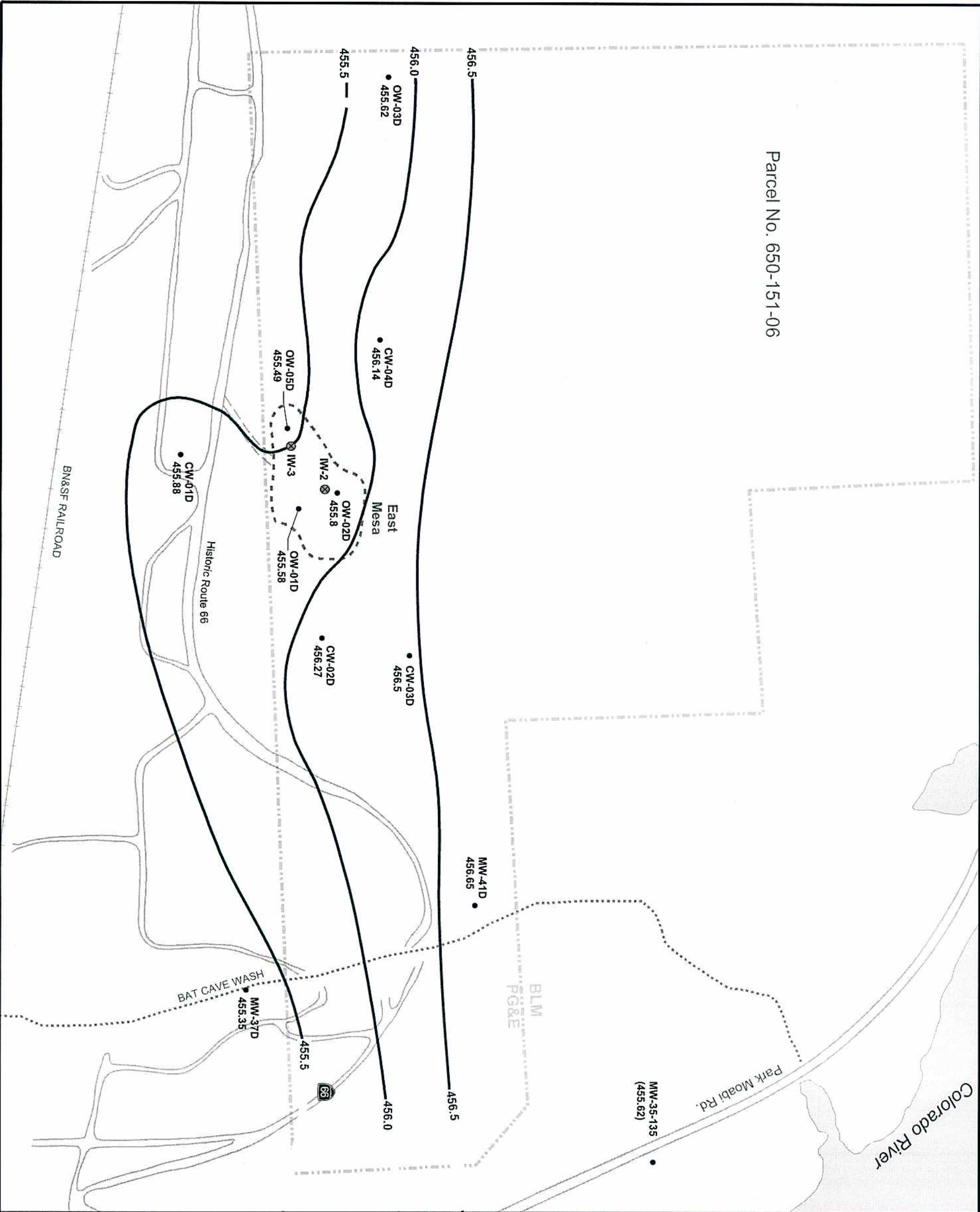
PG&E TOPOCK COMPRESSOR STATION

NEEDLES, CALIFORNIA



**Note:** Gradients shown on this figure show transient conditions in the aquifer at the time of measurement and may not reflect the expected average annual groundwater flow directions.

**FIGURE 5-8e**  
**GROUNDWATER ELEVATION**  
**CONTOURS FOR MID-DEPTH WELLS**  
**MAY 18, 2005**  
IM-3 GROUNDWATER INVESTIGATION  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



**LEGEND**

- Groundwater monitoring, Compliance, and Observation well
- IM-3 Injection Well

**Groundwater Elevations for Deep Wells in IM-3 Injection Area**

Manual water level measurements collected May 18, 2005 (6:00 -7:30 am)

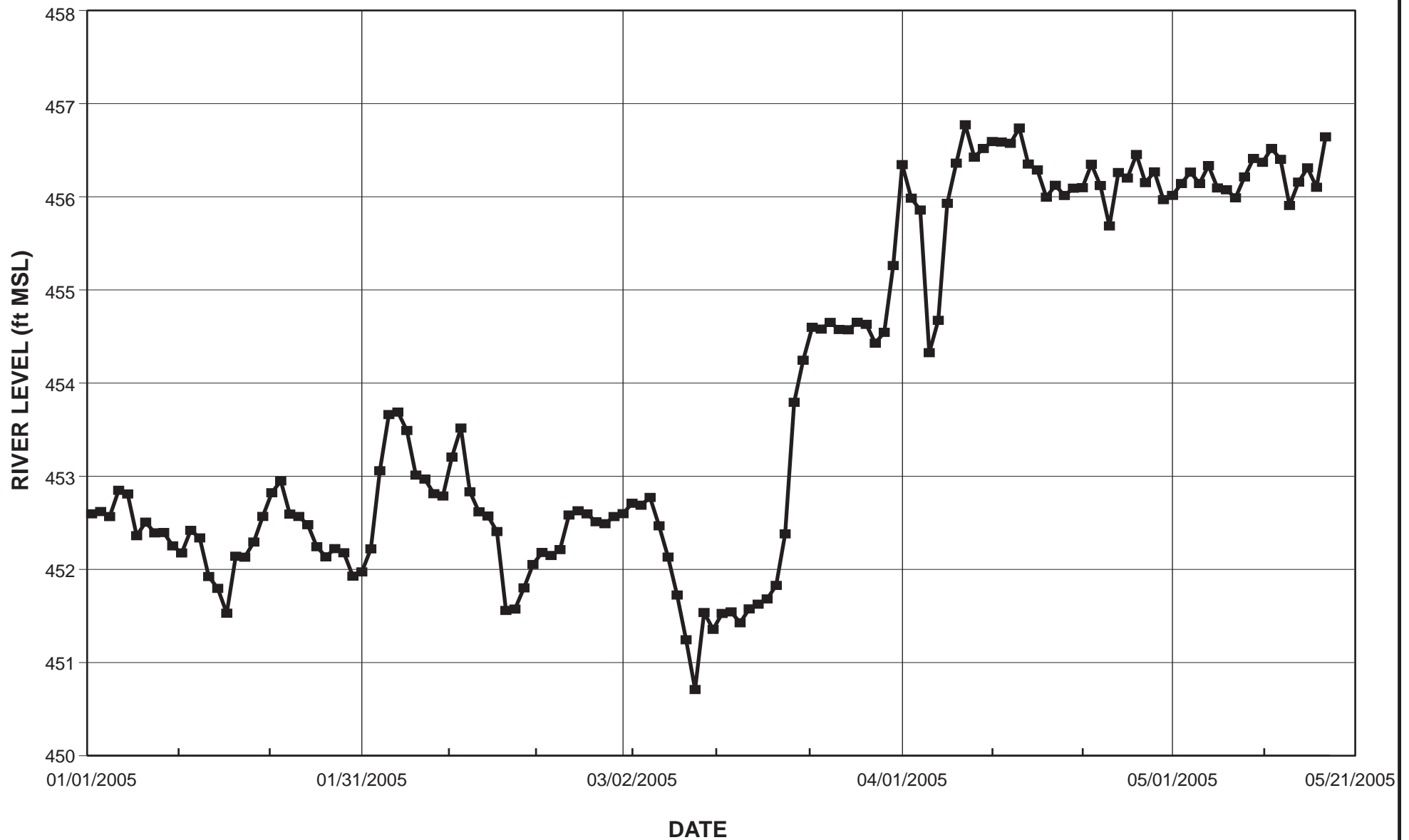
- CW-1M** Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)
- 454.05**
- CW-1M (454.05)** Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL) (not used for contouring)
- Groundwater elevation contour feet above MSL (0.5 foot interval)**

**FIGURE 5-8f**

**GROUNDWATER ELEVATION CONTOURS FOR DEEP WELLS**

**MAY 18, 2005**

IM-3 GROUNDWATER INVESTIGATION  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA



**FIGURE 1**  
**DAILY AVERAGE RIVER LEVEL**  
**AT I-3 GAUGE**  
GROUNDWATER MONITORING PROGRAM  
PG&E TOPOCK COMPRESSOR STATION  
NEEDLES, CALIFORNIA