



April 4, 2016

Reference No. 054041-10

Ms. Lauri Kemper, Assistant Executive Officer
California Regional Water Quality Board
2501 Lake Tahoe Boulevard
South Lake Tahoe, California 96150

Ms. Lisa Dernbach, PG, CHG, CEG
California Regional Water Quality Board
2501 Lake Tahoe Boulevard
South Lake Tahoe, California 96150

Dear Ms. Kemper and Ms. Dernbach:

**Re: Comments on Proposed Amendment to CAO R6-2008-0034A4
Former Desert View Dairy - Hinkley, California**

On behalf of Mr. Paul Ryken, GHD has prepared this letter and attached information representing our comments on the proposed changes to the DVD CAO. We have serious concerns with several items presented in this proposed CAO, which are covered under three general issues:

1. The Establishment of "Background Concentrations" is not representative of actual conditions.
2. Wells north of Thompson Road are not impacted by DVD past activities and expansion of the affected area is not reasonable and should not be Mr. Ryken's responsibility.
3. Whole house water replacement is unprecedented and should not be required unless it is uniformly applied.

Each of these issues is discussed in more detail below. GHD understands that the Board is very familiar with the geology, hydrogeology and groundwater chemistry of this area having worked on this project for many years. GHD's review of the background information is limited due to the financial constraints of one dairyman trying to fund this type of environmental work. We hope the Board acknowledges that Mr. Ryken has made a good faith effort and has completed a significant amount of work required under the CAO over the last eight years.

Establishment of Background Concentrations

The proposed CAO states that background total dissolved solids (TDS) concentrations south of the compressor station range from 228-266 milligrams per liter (mg/L) and these are unaffected by dairy or farming operations. While this statement is correct, it does not accurately represent true background TDS concentrations immediately up-gradient of DVD. The selected background wells used to establish background concentrations are more than 2.5 miles up-gradient (south) and next to recharge from the Mohave River. Recent data provided by CH2MHill shows that wells up-gradient of DVD have TDS concentrations ranging from 1,150 to 1,500 mg/L, as represented by wells MW-108S and MW-151S. These up-gradient wells more accurately represent true background TDS concentrations unaffected by DVD. Figure 2 (Total Dissolved Solids Concentration in Shallow Aquifer) shows data from 2010-2013. As shown, there are very few wells, regardless of proximity to DVD) that have TDS concentrations below the SMCL.

Clearly, one cannot dismiss 70 years of legacy agricultural operations and the contribution of salts to groundwater. These constituents (TDS, chloride, sulfates and nitrate) do not readily absorb, attenuate, or degrade and will persist until they are diluted or dispersed by clean recharge water.

In addition, DVD believes that TDS by itself does not constitute an impact related to their operations and believes that unless other compounds, such as nitrates, are also found with elevated TDS, then DVD should not be held responsible for their poor water quality. In addition, Item 19 states that chloride and sulfate are salts in dairy waste. While chloride is present in dairy waste it is also present in commercial fertilizer and found as a naturally occurring salt in the environment. Sulfate in Dairy waste is something GHD has not seen at other Dairy operations in California or across the United States and we ask what data was used to make this conclusion. We do acknowledge that sulfate is a common salt in commercial fertilizers and has been used for decades.

Wells north of Thompson Road are not impacted by DVD past activities and expansion of the affected area is not reasonable.

The affected area outlined on Attachment 1 of the proposed CAO extends the northern boundary to Sonoma Street based on groundwater concentrations of TDS above the SMCL. The TDS concentrations referenced in item 13 of the proposed order were between 550 mg/l to 1,600 mg/l which is said to be caused by DVD operations. This conclusion is incorrect because background concentrations up-gradient of DVD are already above the SMCL for TDS as discussed in the previous item. Again, if DVD was the only source of TDS, chloride or sulfates, which it isn't, there would be elevated levels of nitrate since both TDS and nitrate migrate at the same relative rate (nitrate, sulfate, chloride, sodium and other ions make up the measured TDS). In fact, nitrate concentrations decrease quickly and there is no nitrate above the MCL north of Thompson Rd. but TDS concentrations remain above the SMCL. In fact monitoring wells MW-80S, 86S, 87S and 88S are all above 1,200 mg/l TDS but are cross gradient of DVD, which is another example of elevated background TDS concentrations unrelated to DVD. These data are summarized on the attached Figure 2 titled Total Dissolved Solids Concentration in the Shallow Zone of the Upper Aquifer.

Another item that affects groundwater quality north of DVD is general groundwater flow direction in this area. There are major bedrock outcrops on the east and west sides of the Hinkley area that affect groundwater movement. The bedrock acts as a low permeable barrier causing groundwater to flow around it. This can be seen on Figure 16-Groundwater Elevation Contours In Upper/Lower Aquifers-Winter 1958-59. This figure shows groundwater southeast and southwest of DVD generally flowing towards and under the DVD area and continues north. While localized groundwater contours have changed due to all the pumping and injection, this same general flow direction continues. This has and will continue to effect groundwater quality as the inorganics present east, west and south of DVD (and unrelated to DVD) will migrate under and north of DVD ultimately reaching the residential wells north of Thompson Road.

The elevated TDS levels being blamed on DVD operations are unfounded. These elevated concentrations have migrated from areas outside of any DVD operations.

Whole house Water Replacement is unprecedented and not uniformly applied.

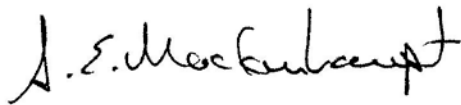
The proposed amendment to the CAO adds an additional requirement to provide whole house replacement water to any home that has TDS, chloride or sulfate above their respective SMCL's. To our knowledge, this is the first time such a requirement has been considered for any CAO in the area based on the CAO's for Hinkley Dairy, Harmsen Dairy, N&M Dairy, B&E Dairy and Ryken Heifer Ranch. Our client would like to understand the technical reasons why this amendment is necessary.

We believe that DVD is being unfairly singled out and more stringent requirements are being applied to DVD due to the association with PG&E as property owner and that DVD happens to be the farthest downgradient facility. If whole house water replacement is going to be required of DVD (based on secondary MCL's) then the Water Board should require this of all facilities operating who have been issued a CAO. The Water Board, to be fair to all entities, should issue new CAO's to other agricultural operations such as Lyereley Dairy who are currently not required to do anything. Groundwater downgradient of this facility has similar concentrations of nitrate, TDS, chloride and sulfate all of which are migrating north to the wells north of DVD.

We hope you will consider our comments and consider what is fair to all parties. Please feel free to contact us with any questions you may have.

Sincerely,

GHD

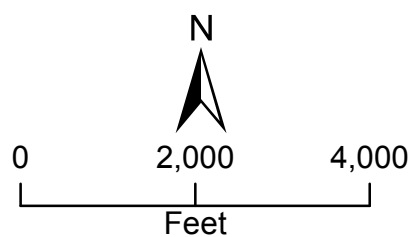
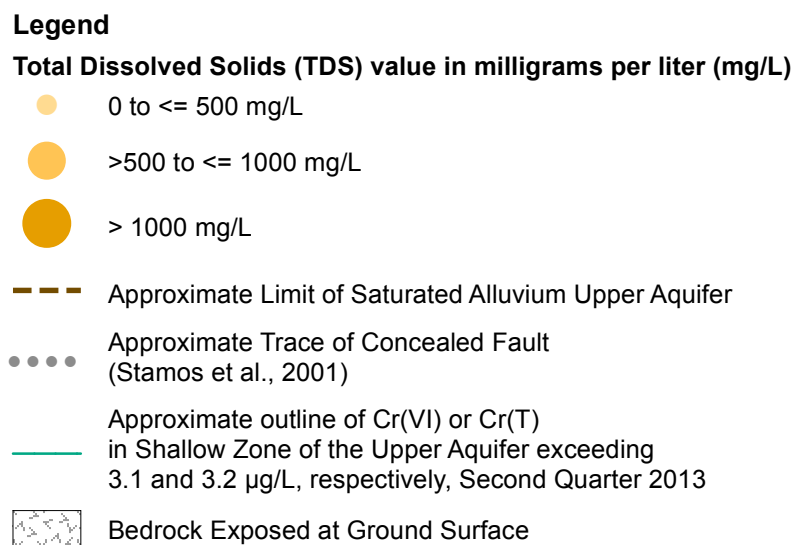
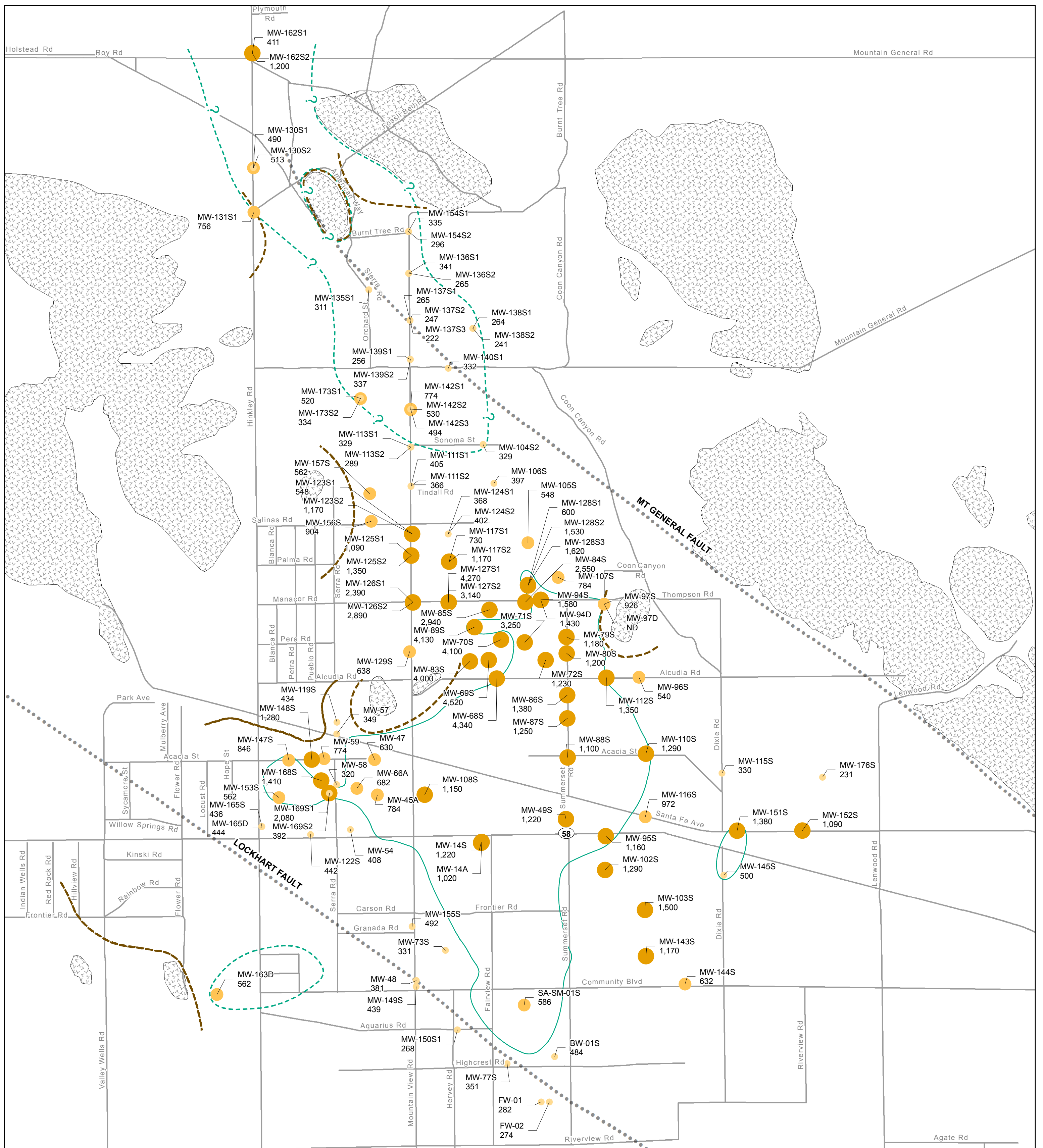
A handwritten signature in black ink that reads "S. E. Mockenhaupt". The signature is written in a cursive, slightly slanted style.

Steve Mockenhaupt

SM/ma/1

Encl.

cc: Paul Ryken, Desert View Dairy

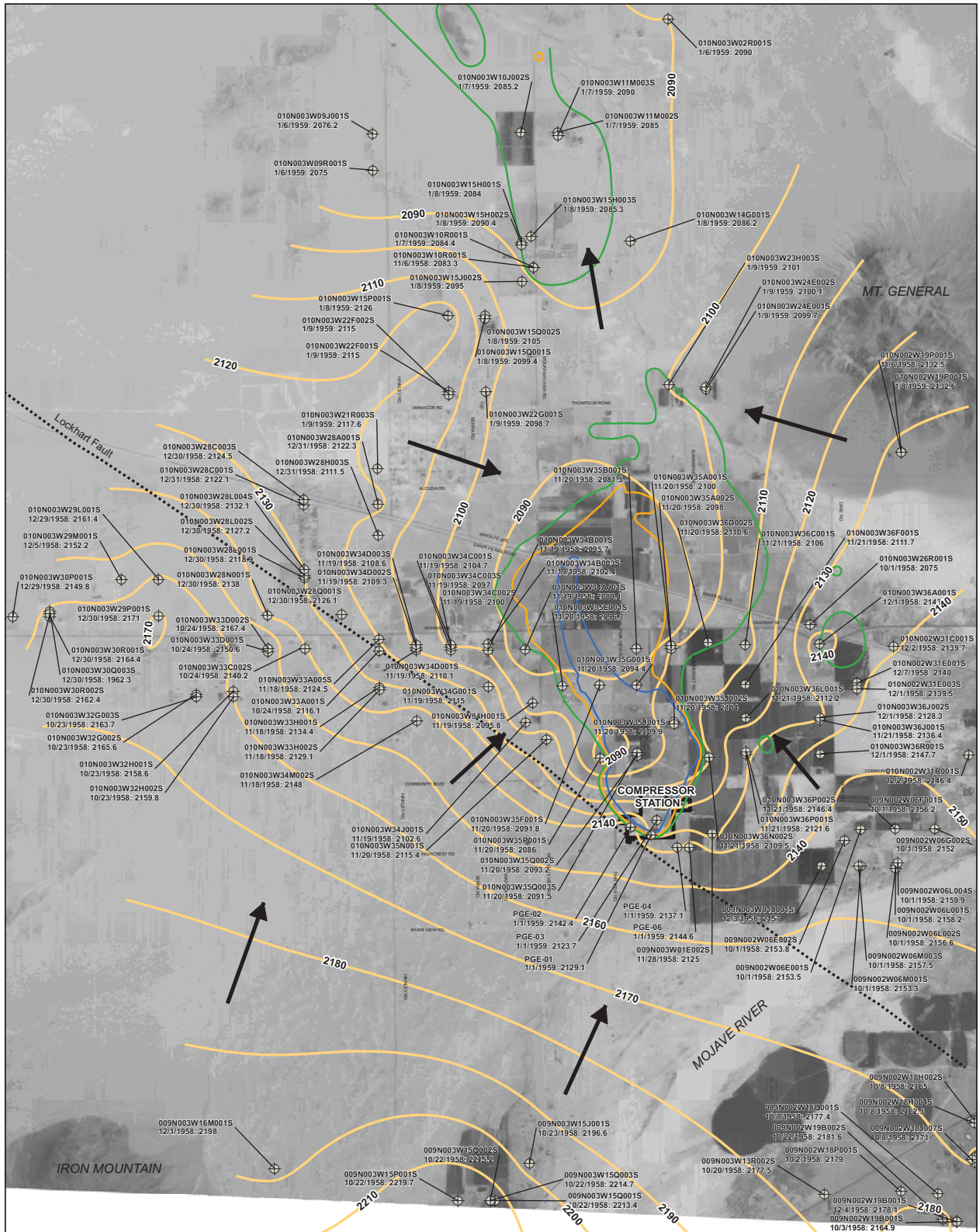


Notes:

- 1) The TDS values posted on these maps span October 2010 to March 2013. Sample dates are listed in Table A-1.
- 2) Map Source: Geologic Map of the Barstow and Daggett 15 minute quadrangles (Dibblee, 2008)

FIGURE 2
TOTAL DISSOLVED SOLIDS
CONCENTRATION IN THE SHALLOW
ZONE OF THE UPPER AQUIFER

PRELIMINARY CONCEPTUAL SITE MODEL FOR GROUNDWATER FLOW AND THE OCCURRENCE OF CHROMIUM IN GROUNDWATER OF THE HINKLEY VALLEY
 PACIFIC GAS AND ELECTRIC COMPANY
 HINKLEY COMPRESSOR STATION HINKLEY, CALIFORNIA



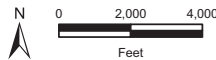
Legend

- ⊕ Reported Groundwater Elevation Measuring Point
- Approximate 50 µg/L outline of Cr(VI) or CR(T) concentrations in the Shallow Zone of the Upper Aquifer, Third Quarter, 2012
- Approximate 10 µg/L outline of Cr(VI) or CR(T) concentrations in the Shallow Zone of the Upper Aquifer, Third Quarter, 2012
- Approximate outline of Cr(VI) or CR(T) in Shallow Zone of the Upper Aquifer exceeding background values of 3.1 and 3.2 µg/L, Respectively, Third Quarter, 2012
- Potentiometric Elevation Contours (feet above mean sea level, 10 ft contour interval)

- ⋯ Approximate Surface Trace of Lockhart Fault (Stamos et al., 2001)
- ➔ General Groundwater Flow Direction

Notes:

1. Locations of wells are approximate and some were reported to the nearest 1/16th tract. As such, contours are approximate.
2. Groundwater elevation data are from the United States Geological Survey (USGS, 2004) and USGS Water Resources of CA website. <http://waterdata.usgs.gov/ca/nwis/nwis>
3. Data posted are from 10/1/1958 through 1/9/1959.
4. Background photo is from 1968 and is provided solely for reference. An aerial photograph from 1958-1959 is not available.
5. µg/L = micrograms per liter.



**FIGURE 16
GROUNDWATER ELEVATION
CONTOURS IN UPPER AND
LOWER AQUIFERS,
WINTER 1958-1959**

CONCEPTUAL SITE MODEL FOR GROUNDWATER FLOW AND THE OCCURRENCE OF CHROMIUM IN GROUNDWATER OF THE WESTERN AREA PACIFIC GAS AND ELECTRIC COMPANY HINKLEY COMPRESSOR STATION HINKLEY, CALIFORNIA