

Lahontan Regional Water Quality Control Board

March 30, 2016

Betsy Brunswick
Pacific Gas and Electric Company
77 Beale Street, B28P
San Francisco, CA 94105

ADDITIONAL INFORMATION REQUEST FOR TECHNICAL MEMORANDUM INVESTIGATION WORK PLAN, PACIFIC GAS AND ELECTRIC (PG&E), HINKLEY COMPRESSOR STATION, SAN BERNARDINO COUNTY (CLEANUP AND ABATEMENT ORDER NO. R6V-2015-0068)

Water Board staff is requesting that PG&E's provide additional information in its Technical Memorandum Investigation Work Plan (Work Plan), dated December 4, 2015. The Work Plan was submitted to comply with directives in Cleanup and Abatement Order (CAO) No. R6V-2015-0068, section I.V.B to define, with sufficient resolution, the extent of chromium in groundwater in the upper aquifer from PG&E historical releases at the Hinkley Compressor Station.

Background

The Work Plan, prepared by Stantec, identifies five investigation areas throughout the plume length from the compressor station to the Harper Dry Lake Valley (Enclosure 1). In the Southern plume (Area I), three multi-depth monitoring wells are proposed west, north, and east of MW-110 in the eastern plume boundary where property access is secured. The Work Plan notes that a greater than 1,320-foot gap exists between MW-110 and MW-116, located north of Santa Fe Avenue. PG&E will attempt to gain access to the one private parcel in this area consistent with the process described in the Work Plan. The Work Plan further states there are three other areas in the southern plume where more than 1,320-foot distance between monitoring wells exist. Limited supporting information is provided describing why it is unnecessary to install additional wells in these areas.

Where property access is not secured in the northern Hinkley Valley (Area II) and is not related to endangered species habitat, the Work Plan states attempts will be made to contact private property owners to gain access to properties for installing two multi-depth monitoring wells.

No monitoring wells are proposed in the remaining three areas (Areas III, IV, and V) in the Hinkley Gap and the Harper Dry Lake Valley. The Work Plan recommends waiting until the results of the U.S. Geological Survey's chromium background study are known before conducting further investigations of the chromium plume.

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Lastly, the Work Plan proposes to submit a property access status update for monitoring well installations no later than March 31, 2016. By that time, PG&E will likely have determined which properties may or may not be suitable for access.

Comments

The December 4, 2015, Work Plan was based upon third quarter 2015 chromium data. Since then, the fourth quarter 2015 chromium data was released in the site-wide Groundwater Monitoring Report, dated February 10, 2016. Using this most recent data, Water Board staff has the following comments concerning the Work Plan.

A. Proposed Monitoring Wells in the Southern Plume

The proposal to install three multi-depth monitoring wells in the vicinity of MW-110 (Area I) and attempt to gain access to another location south of MW-110 (Enclosure 2) is acceptable to the Water Board. If access to the location south of MW-110 cannot be obtained, then please propose an alternate location between MW-95 and Acacia Road where access is more likely.

B. Best Professional Judgment for Three Additional Areas Adjacent to the Southern Plume

The Work Plan identifies three additional areas adjacent to the Southern Plume where monitoring wells do not meet the "sufficient resolution" criteria of 1,320-foot spacing as put forth in Provision IV.A of the CAO. For these areas, the Work Plan provides best professional judgment to describe why additional monitoring well installations are unnecessary in the areas of MW-97, MW-203D, and BW-01S/D.

Following review of the information provided as well as other technical reports for the site, Water Board staff agrees with the recommendations for MW-203D and MW-97 but not for BW-01S/D. We concur that additional monitoring well installation is not needed for MW-203D on Mulberry Avenue due to the two monitoring wells (MW-164S/D and MW-201S/D) showing less than background levels between it and the western plume boundary. For MW-97S/D, no additional monitoring wells are needed since maps show there are no domestic wells south or north of the location, and that bedrock outcropping to the east prevents further access.

These criteria, however, are not found at BW-01S/D, located within the chromium plume in the southeast corner of the compressor station property. There are no monitoring wells for more than 1,320 feet to define the outside plume boundaries on the southern and eastern property lines (Enclosure 3). The justification in the Work Plan stating that further plume investigation is not needed because they are hydraulically upgradient and cross gradient to the known plume is not valid, since it appears there are other supply wells (PG&E and private) pumping in this vicinity that could be affecting the gradients. The current shape of the boundary as drawn

appears to be the result of groundwater being pulled towards supply wells south and east of the compressor station property. Better understanding of groundwater gradients and chromium concentrations in this area is needed both south **and** east of BW-01S/D to determine threat to these supply wells and impacted areas for future remediation purposes. Please provide a plan to improve plume definition in this area.

C. Additional Monitoring Wells Needed in the Southern Plume But Not Mentioned in Work Plan

In accordance with the CAO, sufficient resolution is needed to define the extent of chromium in groundwater with no more than 1,320 feet between monitoring locations. The following locations along the Southern plume boundary have monitoring wells exceeding the 1,320-foot distance criteria and where additional evaluation is needed to determine extent of chromium and the threat to domestic wells in these areas:

- At the compressor station, east of MW-179D showing 29 ppb Cr6 and MW- 03 showing 47 ppb Cr6 on the eastern plume boundary for evaluating the threat to domestic well 01-01A, located 1,700 feet to the east (Enclosure 3).
- Chromium concentrations in the deeper portion of the upper aquifer are unknown in and around the vicinity of shallow wells MW-07, MW-09, SC-MW-10S, CA-MW-411S, and CA-MW-317S. Additional evaluation is needed to better define vertically the eastern plume boundary west of Summerset Road, south of Highway 58 (Enclosure 2). Deep monitoring wells are needed to better understand deeper contamination and effects of remediation in this area since adjacent multi-depth monitoring wells at MW-14B, CA-MW-510D, and CA-MW-315D show chromium at concentrations up to 29 ppb, 15 ppb, and 72 ppb, respectively. Similarly, deeper zone chromium concentrations are unknown in the 2,000-foot gap between CA-MW-510 and Summerset Road.
- Hexavalent chromium detection of 6.2 ppb at MW-128S1 indicates better resolution is needed to define the northwestern plume boundary in the 3,000-foot gap between Thompson and Salinas Roads, separating the Southern plume from the northern Hinkley Valley plume (Enclosure 4). The half-mile gap between MW-105 and MW-124, trending east and west, further justifies the need for additional information on groundwater quality in this location. Please propose a multi-depth monitoring well or alternate sampling method in the area at the east end of Salinas Road.
- A monitoring well or sampling location is needed to define the western plume boundary in the 2,000-foot gap between MW-83S (4.7 ppb CrT) and domestic well 23-30 (3.3 ppb CrT), north of the Desert View Dairy.(Enclosure 5). For the past four quarters, MW-83S has seen an increase of 88% in total chromium concentrations. In addition, MW-127S1/S2, located adjacent to well 23-30 on Thompson Road, have seen an increase of 30% and 46%, respectively, over the same period. These increasing trends support the need for a monitoring point between MW-83S and MW-127S1/S2.

D. Additional Monitoring Wells Needed in the Hinkley Gap Area

In the Hinkley Gap (Area III), the Work Plan shows the plume boundary of the Harper Dry Lake Valley plume drawn around MW-130 and MW-212, where chromium concentrations greater than 3.1 ppb are detected. However, no new monitoring wells are proposed to define the chromium plume through the Hinkley Gap, which is separated with the northern Hinkley Valley plume by 4,000 feet. PG&E has stated it is inappropriate to compare the chromium results from wells in the Northern areas to the maximum background levels established for areas to the south. The Work Plan recommends waiting until the results of the U.S. Geological Survey's chromium background study are known before conducting further investigations of the chromium plume in this area.

The request to wait until background study results are known in late 2017 is not reasonable since no technical justification has been provided. Since third quarter 2013, data from monitoring wells in this area show increasing concentration trends towards the north (MW-135 to MW-133) and west (MW-154 to MW-133) (Enclosure 6). Specifically, monitoring well MW-133S1 has increased in concentration by 700% since third quarter 2013. Since the northwestern boundary of the northern Hinkley Valley plume is no longer defined, additional monitoring wells or alternate methods to evaluate chromium concentrations are needed to evaluate the threat to domestic well 10-04. This could be accomplished by installing a multi-depth monitoring well on either PG&E-owned land or County Right-of-Way along Burnt Tree Road, west of MW-133. Similarly, better plume resolution is also needed southeast of MW-130 to determine the southeastern plume boundary of the Harper Dry Lake Valley plume. To achieve this goal, a multi-depth monitoring well could be installed on PG&E-owned land, west of the intersection of Burnt Tree Road and Fossil Bed Road. Installation of monitoring wells at the above two locations should be able to reduce the distance between the two plumes by 2,000 feet.

E. Proposal for Seeking Access in the Harper Dry Lake Valley

The Work Plan does not propose monitoring well locations in the Harper Dry Lake Valley (Areas IV and V) since attempts in the past to gain access to private properties in the past were unsuccessful and domestic well owners were offered reverse osmosis systems. The Work Plan recommends waiting until the results of the U.S. Geological Survey's chromium background study are known before conducting further investigations of the chromium plume in Areas IV and V.

Water Board staff has no objection to the recommendation to delay investigations in the Harper Dry Lake Valley. We consider this a reasonable request since PG&E has not acquired additional properties that could enable monitoring well installation and the threat to well owners with reverse osmosis systems offered by PG&E is minimal.

Public Comment

A copy of the Work Plan was sent to the Hinkley independent consultant for review. A January 13, 2016, response by Project Navigator stated it had no comments or objections to the Work Plan.

Furthermore, the public was made aware of the Work Plan in the Water Board's January 2016 Status of Actions sheet distributed at the January 28, 2016 community meeting in Hinkley. We did not receive comments from the public.

Status Report and Additional Information Requested

Given the delay in getting these comments to you, an extension for the March 31, 2016, property access status report is warranted. By May 16, 2016, please provide the status report and the following information or describe other methods to improve plume definition for assessing threats to supply wells and additional areas subject to remediation, or provide additional technical justification and best professional judgment of why further evaluation is not needed.

- a. Propose monitoring locations south and east of BW-01S/D to sufficiently define the southeastern boundary of the Southern plume.
- b. Propose a monitoring location east of MW-179S/D to sufficiently define the eastern boundary of the Southern plume from the compressor station.
- c. Propose deep zone monitoring near MW-07, MW-09, SC-MW-10S, CA-MW-317S, and CA-MW-411S to sufficiently define the eastern boundary of the Southern plume south of Highway 58.
- d. The progress for obtaining access to the private property between MW-110 and MW-116 in the Southern plume. If access has not been provided to date, propose an alternate monitoring well location between MW-95 and Acacia Road.
- e. Propose a multi-depth monitoring location northwest of MW-128 and between MW-105 and MW-124 to define the northern boundary of the Southern plume.
- f. Propose a multi-depth monitoring location between MW-83 and domestic well 23-30 on Thompson Road to evaluate a potential chromium flow path in the northwestern area of the Southern plume.
- g. Propose multi-depth monitoring locations west of MW-133 and southeast of MW-130 to sufficiently define the chromium plume through the Hinkley Gap.
- h. The progress for obtaining access to private properties for other monitoring well installations. List the properties where access has been provided, if applicable, and where access is in progress, or has been denied.
- i. When access to properties for chromium investigation is not provided by property owners or San Bernardino County for right-of-way, provide supporting documentation.
- j. Map of proposed monitoring well locations that show the extent of chromium plume boundaries drawn out to 3.1 ppb, 10 ppb, and 50 ppb Cr6/CrT.
- k. A proposed schedule for installing and sampling monitoring wells within six months of workplan acceptance by Water Board, pursuant to CAO R6V-2015-0068. The schedule should include a plan to install wells where Water Board and PG&E agree as noted in this letter by September 30, 2016.

Future Work Plans

The December 4, 2015, Work Plan contained many topics over 15 pages of text but no table of contents. In the future, please include a table of contents in all work plans and proposals more than eight pages in length.

We look forward to discussing this matter at our April 26, 2016, meeting with PG&E staff and consultants. If you should have any questions about the required information, please contact me at (530) 542-5436 (Lauri.Kemper@waterboards.ca.gov) or Lisa Dernbach at (530) 542-5424 (lisa.dernbach@waterboards.ca.gov).

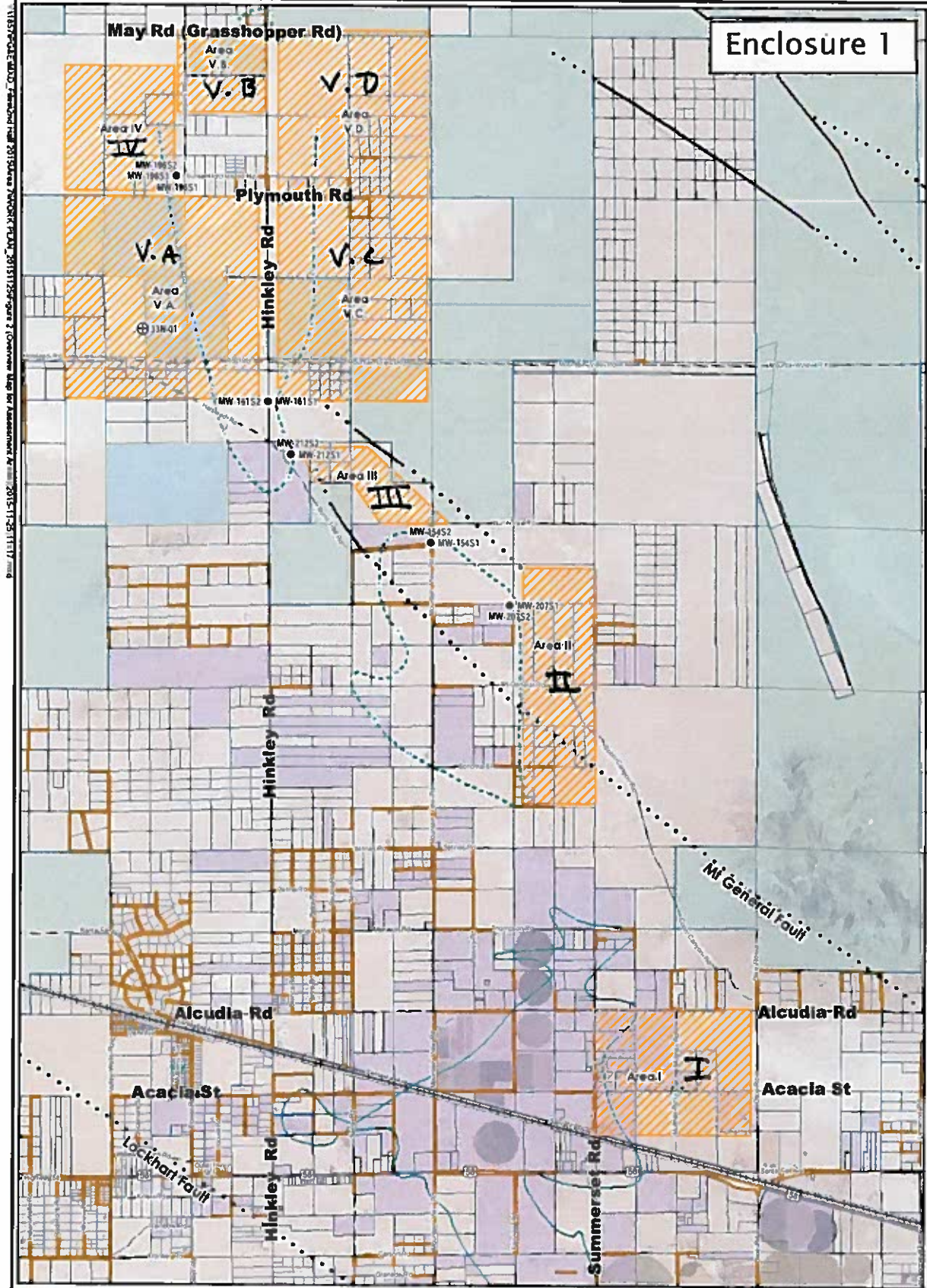


LAURI KEMPER, P.E.
ASSISTANT EXECUTIVE OFFICER

cc (via email): PG&E Hinkley Lyris List (and web posting)
Kevin Sullivan, PG&E
Lisa Dernbach, Regional Water Quality Control Board, Lahontan

Enclosures: 1. Figure 2 from Dec. 4, 2015, Stantec Work Plan
2. Map of Eastern Plume Boundary
3. Map of Compressor Station
4. Map of North End of Southern Plume
5. Map of Northwestern Area of Southern Plume
6. Map of Hinkley Gap Area

LSD/ma/T: PG&E Cr Invest workplan request for more info
File Under: WDID (VVL) 6B369107001



Enclosure 1

LEGEND

- Areas of Assessment as described in Cleanup and Abatement Order Rev. 2015-0068
- PG&E Property Boundaries (09/30/15)
- BLM Properties
- Other Government Properties
- County Easement
- Monitoring Well Location
- Domestic Well Location
- Chromium Plume (Third Quarter 2015)**
Color indicates Chromium Concentration (ppb)
- 3.1 ug/l

Faults

- Geologic Fault
- Dashed Where Indefinite
- Dotted Where Concealed

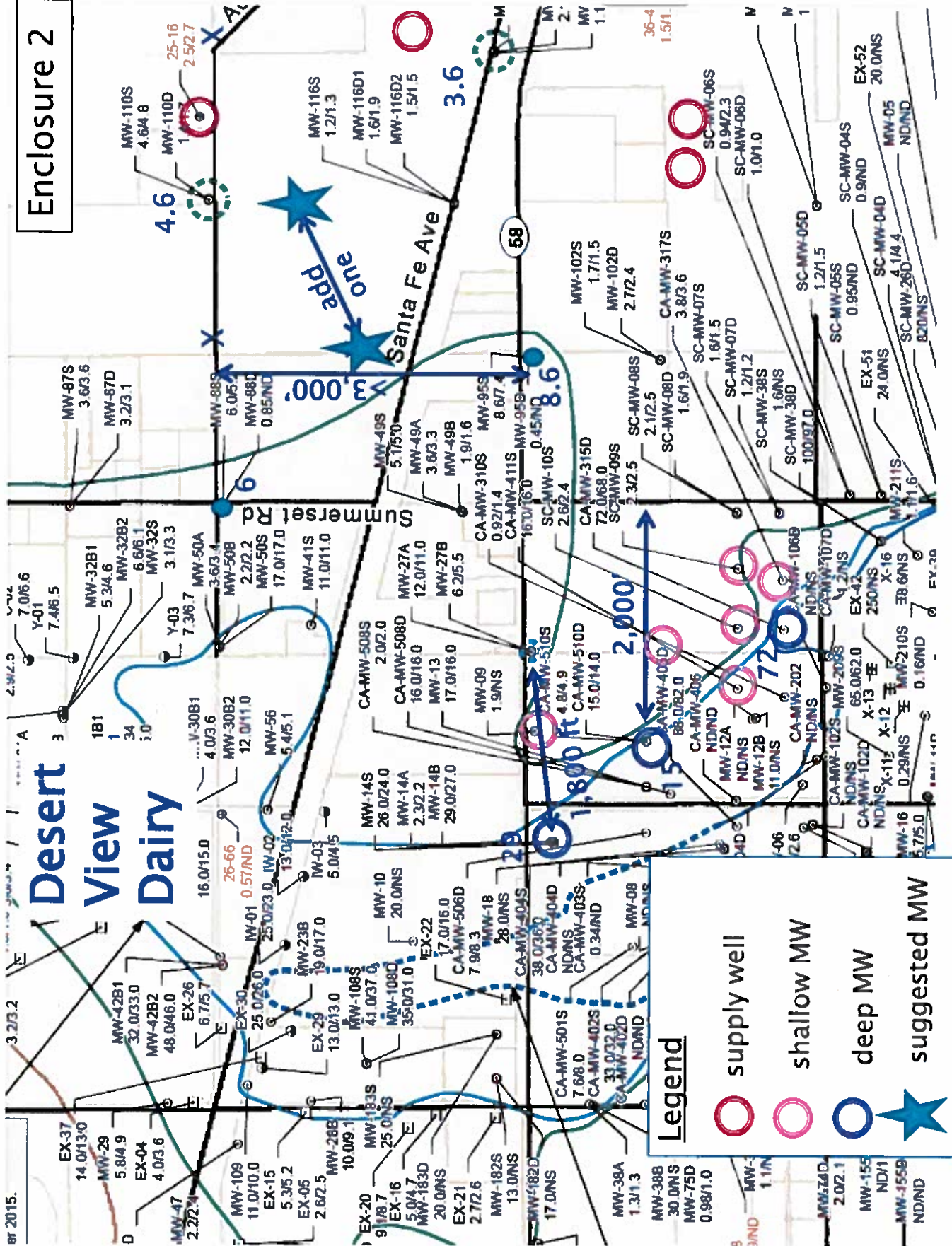
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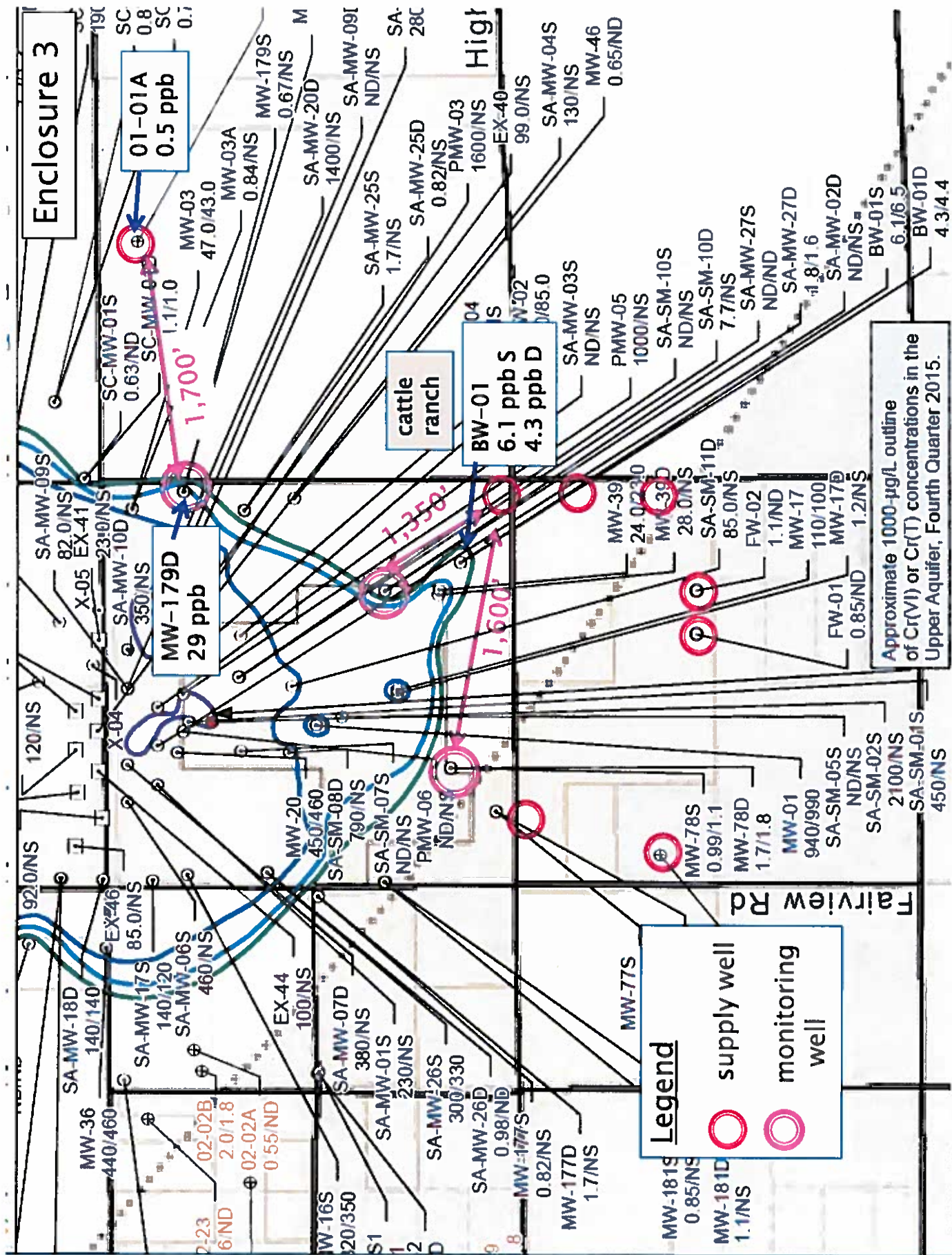
FOR
**Pacific Gas & Electric
Groundwater Remediation Project
Hinkley, California**

JOB NUMBER: 185850325
DRAWN BY: AAH
CHECKED BY: RC
APPROVED BY: CM
DATE: 12/04/15

**OVERVIEW MAP FOR
ASSESSMENT AREAS**

FIGURE
2





Enclosure 4

