

March 20, 2013

Patty Kouyoumdjian
Executive Officer
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

Re: Lahontan Regional Water Quality Control Board Request for Public Comments on the Modification of Whole House Replacement Cleanup and Abatement Order (R6V-2011-0005A1 & R6V-2011-0005A2) dated February 20, 2013

Key Words: PG&E's Five (5) Requests Pertaining to Amending Ordered Work Under the Whole House Replacement Water Program (January 10th and February 7th, 2013); Water Board's Request for Public Comments (February 20th, 2013); CAC and IRP Manager's Opinions and Comments.

OK Regarding Monitoring Plan Modifications, Resident's Right to Refuse Reverse Osmosis Units (once offered), and PG&E's Ability to Supply Commercially Available Bottled Water *in lieu* of Cr-6 Non-Detect Water.

OK with the Formulation of a Rigorous WHRW Feasibility Study (FS) Addendum, *but within the Existing Project Schedule*. OK with the Establishment of Rigorous Engineering and Analytical Processes (to Include Hands on Data Collection and Analysis by PG&E and USGS with Oversight and Agreement by IRP Manager and CAC) to Better Establish Cr6 Plume Boundaries and thereby the Location of the Affected Area.

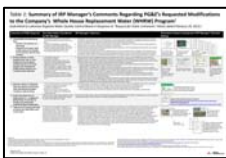


Table 1

Quick Read: The IRP Manager's opinions regarding PG&E's requests are summarized in Table 1.

Dear Executive Officer Kouyoumdjian:

The Community Advisory Committee (CAC) and the Independent Review Panel (IRP) Manager are submitting comments regarding the Lahontan Regional Water Quality Control Board's (Water Board) February 20, 2013 request for public comments on PG&E's proposed modifications to the Whole House Replacement

Water (WHRW) Cleanup and Abatement Orders (CAO) No.R6V-2011-0005A1 and No.R6V-2011-0005A2¹ and the WHRW Programs being subsequently implemented pursuant to the Orders. Included in the Request for Public Comments were two letters from PG&E submitted to the Water Board on January 10, 2013² and February 7, 2013³.

Grand Overview of CAC and IRP Manager's Comments

Figure 1, which was discussed with the Hinkley Community at the CAC-hosted, monthly Community meeting on February 28, 2013 summarizes PG&E's requested modifications to the WHRW Program. The CAC's specific comments⁴ regarding these requests are provided in the following text. In addition, **Table 1** summarizes more detailed IRP Manager's opinions regarding the proposed modifications.

Detailed Discussion of PG&E's Requested Modifications and CAC/IRP Manager's Opinions

1. PG&E's January 10, 2013 Requests

The PG&E letter of January 10, 2013 requested the following modifications to the WHRW Monitoring Program:

1. Ion Exchange (IX) Resin Leachate Monitoring: As described in the letter the objective of IX resin leachate monitoring is to ensure that the vendor's resin does not leach constituents in excess of State or Federal maximum contaminant levels (MCLs). The current monitoring plan⁵ tests for resin leachates at three different locations in the WHRW system during the system startup. PG&E proposes that leachates be monitored on a batch basis, rather than at each home during startup. The batch testing of the resin would be conducted throughout the entire life of the program rather than only during system start-up.
2. Under-sink Reverse Osmosis (RO) Unit Monitoring: PG&E proposes the following changes to the monitoring plan⁶ to reduce inconveniences⁷ to the homeowners:

¹ Letter Request for Public Comment on Modification of Whole House Replacement Cleanup and Abatement Order (R6V-2011-0005A1 & R6V-2011-0005A2) from the Lahontan Regional Water Control Board dated February 20, 2013

² Letter from PG&E to the Lahontan Regional Water Control Board regarding Whole House Replacement (WHRW) Monitoring to Amend Osmosis and Ion Exchange Leachate Monitoring dated January 10, 2013

³ Letter from PG&E to Lahontan Regional Water Control Board regarding Formal Request for Modification of Replacement Water Order dated February 7, 2013

⁴ CAC specific comments are shown in quotes ("abc")

⁵ Monitoring Plan is outline in Arcadis Revised Replacement Water Supply Feasibility Study Report June 2012, page 86 through` 90

⁶ Revised WHRW FS proposed monitoring each RO units bi-weekly for the first six months

⁷ Inconveniences, as expressed to the IRP Manager, include the presence of PG&E vendors in the home for extended time periods to collect water samples from the RO units, and the need for residents to be present during day and evening times when the sampling is conducted.

- Monitoring each under-sink RO unit during startup for constituents outlined in the monitoring plan to confirm that the units are operating in accordance with their State certification⁸ before they are turned over to residents, and
- Monitoring under sink RO units in the kitchen every six months for all constituents outlined in the monitoring plan.

With regards to the January 10, 2013 PG&E requests, the IRP Manager and the CAC offer the following comments (see also Table 1):

Regarding the Ion-Exchange Resin Leachate Monitoring Modification:

The CAC believes⁹ that “all units should be tested as a single integrated system and not in a batch. Every system is going to be different due to being exposed to different levels of contamination.”

In addition, the IRP Manager and the CAC would like to see the “modeling results” mentioned in Section 6.4 of the Revised, June 2012 WHRW FS.

Under-sink RO Monitoring Modifications:

The CAC believes¹⁰ that “PG&E is having an issue with the RO units, not because a resident has a problem with the functionality of the RO units. The concerns stem from the intrusiveness of PG&E coming into our homes much more than originally stated by both their experts and PG&E. If the RO unit can be placed under the sink and only needs annual or semi annual checks to replace filters it is acceptable. Otherwise the CAC and Water Board can only come to the one conclusion that the RO unit does not work properly. In which case PG&E, who researched and chose the system, and had the appropriate time to test it's efficiency is in violation of the revised Order and original Order should be reapplied.”

Many Community members have expressed concerns about the length of time and intrusiveness of RO unit monitoring¹¹. The CAC does understand that the degree of monitoring and servicing of the RO units becomes a balancing act for PG&E: i.e. enough monitoring to insure operational performance, but at a low enough frequency, to maintain a cordial working relationship with the homeowner. We are also basing our opinion on the fact that each RO unit will operate with the State-required automatic shutdown feature referred to in Footnote 7. However, we are

⁸ State certification of RO units also requires that the units are equipped with a fail-safe shutdown feature which is activated after a pre-determined quantity of water has been processed. This feature helps insure water quality even in the absence of regular real time sampling, since the lifetime of satisfactory operation will have been computed and dialed into the shut-down mechanism.

⁹ The following language regarding WHRW systems' testing was formulated by the CAC.

¹⁰ The following language regarding WHRW systems' testing was formulated by the CAC.

¹¹ It has been reported to the CAC that some Hinkley residents have had to leave their jobs early to allow PG&E's personnel access to their property.

recommending that ***all under-sink RO units*** are tested every six months, and not just the unit located in the kitchen.

We would also like supplied for our review the information on the performance of each WHRW treatment system.

2. PG&E's February 7, 2013 Requests

PG&E's second letter submitted to the Water Board on February 7, 2013 requested additional modifications to the WHRW Monitoring Program, namely:

1. A 90-day extension on all *applicable* deadlines to re-examine the WHRW options originally considered in the WHRW Feasibility Study (FS) of June 2012. The re-examination would result in an Addendum to the FS.
2. Allow residents who have elected to receive an IX-RO system to immediately¹² decline the installation of the under sink RO units.
3. Allow PG&E to fulfill the Order requirement for interim water replacement by providing commercially available bottled water, which meets State drinking water standards, without requiring additional testing to ensure that the bottled water has non-detect levels of Cr6 (i.e. less than 0.06 ppb).
4. Approval to re-evaluate the need to expand the 1-mile buffer zone in the future based upon new information and data which is being continuously generated in ongoing parallel programs such as the Western Investigation, the Manganese Study and the Background Study.

With regards to PG&E's second request for additional modifications to the WHRW Program, the IRP Manager and the CAC offer the following comments (see also **Table 1**):

Request for a 90-day Extension on all Applicable Deadlines to Re-examine the WHRW Options and Issue a Feasibility Study Addendum:

The CAC believes¹³ that "PG&E should not be given a delay for 90 days on this project. They would not listen to the community in the beginning and they had lots of time to test these systems before "they" decided to pick this path and push it on to the community as one of the options."

However, the CAC does agree with PG&E on the need for a comprehensive re-evaluation of WHRW delivery options for the Hinkley Community, but also feels there is sufficient time (well before the August 31, 2013) to prepare the proposed amendment to the Revised WHRW FS.

¹² "Immediately" means that the resident would not need to wait for the results from the proposed FS Addendum.

¹³ The following language regarding selection of the IX/RO units as the preferred method for delivering WHRW was provided by the CAC.

The CAC makes this statement with the belief that given the slow installation success of the IX/RO units and their associated technical problems, that the PG&E Team must have been, all along, continuously assessing incoming data and overall project performance, and can now readily “switch on” the work required to formulate the proposed FS Addendum. CAC members feel that both the bottled water and IX/RO individual “home-by-home systems” are *short-term solutions* for the Hinkley Community and are looking for PG&E to propose a *long-term solution, now*, via the work required to produce the Addendum to the Revised WHRW FS.

Since the scope of the installation of the WHRW treatment system was reduced from an initial estimate of 317 home to a possible 72 homes¹⁴, the CAC believes PG&E has ample time to complete the installation of the WHRW systems and recommends that the PG&E request for all extensions is not granted.

Request to Allow Residents Who Have Elected an IX-RO to Decline the Installation of the Under Sink RO Units:

The CAC’s opinions¹⁵ are that “testing at the sinks is very important for this is the place where the residents come in contact with the filtered water. The CAC agrees with offering the residents the option not to have the RO units, however, we would like for the residents to be informed of the pros and cons of the RO units during communications between PG&E and the home owner. Also, the CAC and the Community believe that PG&E decided to not continue with the deeper well option because of several reasons: cost, difficulty of drilling in some geological formations, possibility of seepage of discharge into lower aquifer and less data that may show a larger distribution of PG&E’s contamination into the lower aquifer.”

The CAC therefore feels that the Hinkley Community WHRW options have been reduced to a single option. For months PG&E did not provide details (apart from informal verbal updates when questioned at Community meetings) or a report outlining the reason why the deeper well option was eliminated from the WHRW program until recently¹⁶. According to the recent Stantec Report, PG&E recommended that the deeper well alternative should be eliminated under the WHRW program as a result of poor groundwater quality (Cr6, Arsenic, Chloride, Manganese, etc.) in the lower aquifer. The CAC recommends that since one option in the WHRW was eliminated then another option should be made available to the Hinkley Community. These statements are made with the expectation that a permanent, long-term water supply system will be defined via the aforementioned FS Addendum process.

¹⁴ Perspective on the reduction in WHRW installation locations is provided in Appendix A.

¹⁵ The following language regarding the ability of a home owner to decide on acceptance/non-acceptance of an RO unit was prepared by the CAC.

¹⁶ Stantec, Assessment of Alternative 5 – Whole House Replacement Water Program, February 27, 2013

Request to be Able to Fulfill the Order's Requirement for Interim Water Replacement (Bottled Water) by Providing Commercially Available Bottled Water

The CAC and the IRP Manager agree with allowing PG&E to fulfill the Order's requirement of interim water replacement by providing commercial available bottle water with no additional testing of the commercial water. Currently PG&E is using Culligan and Sparkletts water, which meets State drinking water standards, to fulfill the requirement of interim water supply.

The CAC has been advocating since the initiation of the first WHRW Order that the bottled water program and the installation of the WHRW treatment systems are an interim solution for providing WHRW to the Hinkley Community.

Request for Approval to Re-Evaluate the Need to Expand the 1-mile Buffer Zone

The CAC believes¹⁷ that "the one mile buffer needs to also be expanded if any measurable amounts of chromium 6 are determined to be due to PG&E's discharge whether the measurable number is below or above (the current, upper background of) 3.1 ppb Cr6. The buffer zone also needs to also include any measurable amounts of bi-products or any contamination due to PG&E's discharge or remediation. Basically the Plume is still not defined."

The CAC and the IRP Manager agree that the generation of the 1-mile buffer zone and contouring of the greater than 3.1 µg/L Cr6 plume should *not only* be based on Chromium data¹⁸ but also should consider new key variables¹⁹, such as:

- Historical and current groundwater level, pumping and groundwater flow direction data
- Effects of local faulting
- Geochemical data
- Isotopic data

The CAC and the IRP Manager recommend that a Technical Exchange Meeting (TEM)²⁰ process, involving key stakeholders (PG&E, Water Board and USGS),

¹⁷ The CAC supplied the following language specific to the 1-mile buffer zone.

¹⁸ Cr6 data has been historically used to contour the plume. A large database exists.

¹⁹ The "new variables" and their possible application in assisting plume contouring have been the subject of recent discussions amongst technical team members. A re-focus on many of these assisting parameters has been initiated via the participation of Dr. John Izbicki from USGS.

²⁰ In that there is technical overlap between plume definition and the location of the buffer zone, with other ongoing technical exchange meetings subjects (e.g. background study and manganese sources definition) all subjects could be managed at single, regularly scheduled TEMs.

should be initiated to determine how to proceed with re-evaluating the 1-mile buffer zone.

Should you have any questions or comments please feel free to contact me at 714-388-1800 or by email at jwebster@projectnavigator.com.

Respectfully Submitted,



Ian A. Webster, Sc.D.
IRP Manager

- Cc: Hinkley Community Advisory Committee (CAC)
PG&E Contacts
- Devin Hassett, Keadjian & Associates
 - Kevin Sullivan, PG&E

Attachments

- Figure 1: Path Forward for the Modifications to the Whole House Replacement Water (WHRW) Program
- Table 1: Summary of IRP Manager's Comments Regarding PG&E's Requested Modifications to the Company's Whole House Replacement Water (WHRW) Program
- Appendix A: Perspective on the Reduction of WHRW Locations

FIGURE 1: Path Forward for the Modifications to the Whole House Replacement Water (WHRW) Program.

Camino a Seguir Para las Modificaciones al Programa del Agua de Reemplazo Para Toda La Casa.

Slide as presented at Feb 28, 2013 Community Meeting.

PG&E 1/10/2013 Letter to WB

PG&E requested **modifications to the WHRW** monitoring and sampling plan

PG&E 2/07/2013 Letter to WB

PG&E Requests the following:

- Allow residents to decline the under sink RO units
- Not require additional testing for commercially available drinking bottle water to meet the ND requirement of Cr6 for interim replacement water
- Re-evaluate how the "Affected Area" is defined
- **90-day extension of all deadlines to reexamine the WHRW options**
- Extend the August 31, 2013 WHRW completion date another 6 months

WB 02/20/2013 Letter to Public

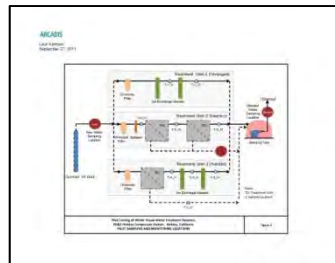
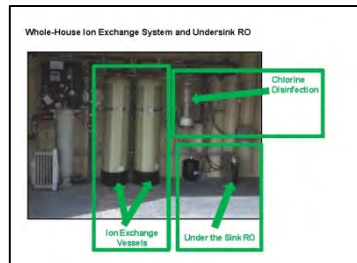
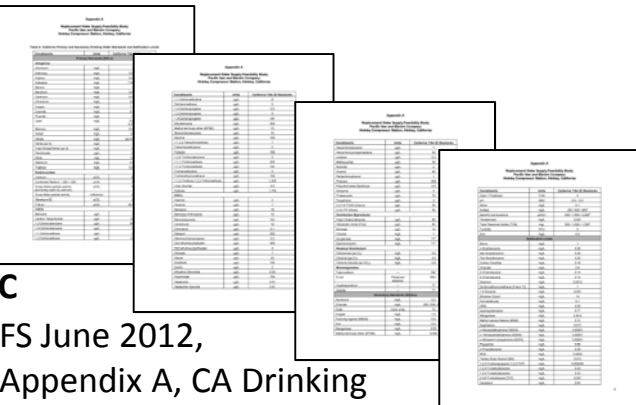

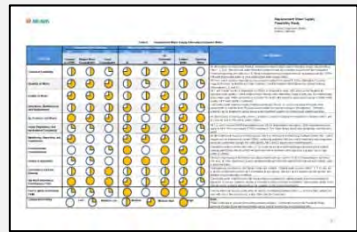
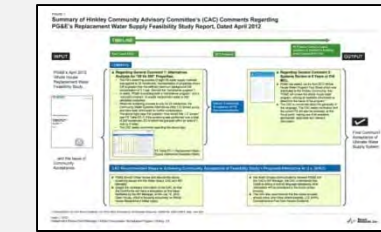

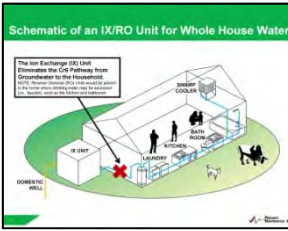


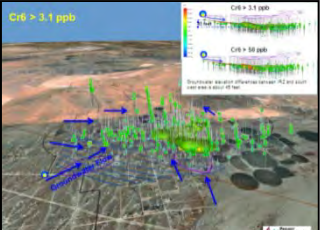
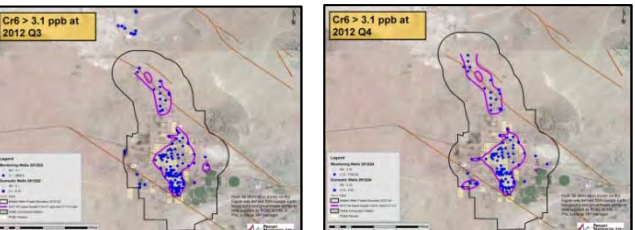

Water Board is requesting public comments on modification to the WHRW CAO by PG&E by March 20, 2013

Path-Forward

WB will receive all public comments and make appropriate modifications to the WHRW CAO

Table 1: Summary of IRP Manager's Comments Regarding PG&E's Requested Modifications to the Company's Whole House Replacement Water (WHRW) Program¹

(Submitted to Lahontan Regional Water Quality Control Board in Response to "Request for Public Comments" Notice dated February 20, 2013.)

Summary of PG&E Requests	Key Information Considered by IRP Manager	IRP Manager's Opinions	Illustrative Content Considered in IRP Manager's Decision-Making
<p>1. Amend IX/RO Units Monitoring Plan²</p> <ul style="list-style-type: none"> Monitor resin leachates on a batch basis Change RO unit output water quality testing from biweekly to (a) at startup, then (b) every 6 months 	<ul style="list-style-type: none"> IX/RO Units Monitoring Plan as described in Final WHRW FS Report, June 2012, Sect. 6.4, pp 86-87 WHRW Monitoring Reports, submitted in response to CAO R6V-2011-0005A1, Para 2.g Proposal to Amend IX/RO Leachate Monitoring, Letter from Jeff McCarthy (PG&E) to Patty Kouyoumdjian (WB), dated Jan. 10, 2013 	<ol style="list-style-type: none"> IRP Manager is fully cognizant of the unforeseen burden and inconvenience placed on residents by sampling requirements currently required at in-home reverse osmosis units. IRP Manager's opinions regarding the installation and sampling inconveniences have been learned from dialog and input received informally and at the monthly CAC Community meetings. The resin has proven to be very effective for the removal of primary MCL constituents Cr6, CrT, nitrate, arsenic and radionuclides. IRP Manager agrees with request to monitor resin leachates on a batch basis. RO units are receiving water devoid of the aforementioned primary constituents, and are performing backend treatment for secondary constituents such as TDS, sulfate and chlorine. At time of writing, IRP Manager does not have enough information in hand to understand how "predictably" the secondary MCLs are being attained during systems operations to endorse the change from bi-weekly to every 6 months monitoring, but does agree that if the secondary MCLs are being met, routinely and predictably, then the change should be made to reduce inconvenience to residents. 	 <p>A FS June 2012, Fig 3, Pilot Testing of WHW Treatment Systems</p>  <p>B FS June 2012, Section 2.4, Whole-House IX/RO Unit</p>  <p>C FS June 2012, Appendix A, CA Drinking Water Standards</p>
<p>2. 90-Day Extension on Order Deadlines (esp. Aug. 31, 2013 deadline to have all systems installed) Use the Time for the Purpose of Re-Analyzing the WHRW Delivery Systems via a Feasibility Study Addendum</p>	<ul style="list-style-type: none"> CAO's listed in Footnote 1 Overall project schedule Significant work performed by PG&E in the preparation of the treatability and feasibility studies from Aug 2011 to June 2012 PG&E's agreement to a program which would forecast installation of approximately 17 IX/RO units by Oct 2012, and between 200-300 units by August 31, 2013³ PG&E's existing, significant WHRW FS work, especially in performing an alternatives analysis for 8 treatment-and-delivery systems (FS Table ES-1)² 	<ol style="list-style-type: none"> Recommend that the Order's deadlines should not be extended at this moment. The CAC and the IRP Manager wish to have the deadline of Aug 31, 2013 retained to incentivize the immediate re-analysis of the WHRW delivery systems. Once the FS re-analysis is underway, and the CAC has had an opportunity to contribute to planning discussions on the Addendum's objectives and scope, then the CAC will comment further on their opinions pertaining to Order time extensions. In particular: <ul style="list-style-type: none"> PG&E has accumulated significant field and, presumably, associated technical information pertaining to the performance and implementability of WHRW delivery systems since the FS of June 2012. PG&E agreed⁷ to IRP Manager/CAC submitted comments⁸ regarding the need for a future comprehensive review of the WHRW delivery program. Namely: "Upon adoption of the CA drinking water standards for Cr6, or no later than 5 years from implementation, PG&E should review the WHRW program. The program review should utilize all available information, etc." IRP Manager believes that, given the unexpectedly slow pace and technical challenges faced by the IX/RO units, the recently proposed FS "Addendum" should be formulated as soon as possible, and not be limited to a new source of water south of the compressor station and water trucking alternatives. Based on the results of the FS Addendum, and options proposed, the CAC will further evaluate its opinions regarding order deadlines (especially as they apply to R6V-2011-0005A1's Section 3.a requiring PG&E to identify wells within the affected area that have been impacted by their discharge when Cr6 is greater than the PHG, and less than 3.1ppb). 	 <p>A Harold J. Singer's March 22, 2012 Solicitation of Comments Regarding the Order's Section 3.a</p>  <p>B FS June 2012 Alternatives Evaluation Matrix, Table 8</p>  <p>C CAC Comments re: Replacement Water Supply FS, April 2012</p>  <p>D 17 Identified Wells for Initial Whole House Water Program (with Existing Domestic Wells)</p>
<p>3. Resident's Option to Voluntarily Reject the Need for the RO Units, while Still Maintaining PG&E's Compliance with the Orders</p>	<ul style="list-style-type: none"> Extent of communication and outreach provided to residents regarding the operational performance of IX/RO units⁴ Reported inconveniences experienced by residents in the startup and monitoring of the under-sink RO units⁵ 	<ol style="list-style-type: none"> IRP Manager agrees that a resident should have the option, and personal choice, to reject the installation of an RO unit, while PG&E remains in compliance with the Orders. IRP Manager's opinion is based upon the facts and understanding that: <ul style="list-style-type: none"> PG&E "has made an offer" such that the said offer can be subsequently rejected by the resident, and An understanding that PG&E cannot force an outcome at a private residence simply to be in compliance with the Orders 	 <p>A IRP Manager created figure used to explain the WHRW systems at Open Houses and Community Meetings.</p>
<p>4. Order's Non-Detect for Cr6 Requirement (i.e., < 0.06ppb) for Bottled Water Can Be Met via Provision of Commercially Available Bottled Drinking Water</p>	<p>California drinking water quality standards are met by commercially available bottled water supplied by the likes of Sparkletts and Culligan⁶</p>	<p>Commercially available bottled water, from reputable State-regulated bottled drinking water vendors, is appropriate to use for the supply of "drinking water quality" water to residences in Hinkley, located within the affected area</p>	 <p>A Sparkletts Water Quality Standards and Reports http://www.sparkletts.com/water-delivery-service/water-quality-standards.isf; Culligan Water Quality Reports http://www.culliganbottledwater.com/bottled_water/resources/water-quality-reports.</p>
<p>5. "Approval to Re-Evaluate the Need to Expand the 1-Mile Buffer Zone in the Future"</p>	<p>Per CAO No. R6V-2011-0005A1, Finding No. 30, the Affected Area is defined as "all domestic wells located laterally within 1 mile down-gradient or cross-gradient from the 3.1µg/L total chromium plume boundaries based upon monitoring well data drawn in the most current quarterly site-wide groundwater monitoring report submitted by the discharger. The affected area may change based on new data collected and evaluated each quarter:"</p>	<ul style="list-style-type: none"> PG&E is requesting approvals to re-evaluate the 1-mile buffer zone, (also known as the "affected area"). While harboring concerns from a community perspective about the proposed re-evaluation becoming a pathway to the immediate reduction in the extent of the "affected area," the IRP Manager also believes that ongoing data gathering and transport hypotheses formulations need to be considered and filtered into more accurately defining the "affected area." Such work is consistent with ongoing technical initiatives involving Dr. John Izbicki (USGS), by-product monitoring at the IRZ (in response to Order R6V-2012-0060), improved Cr6 plume definition, and the future Background Study, which is currently in the planning stages (with CAC involvement). The IRP Manager wishes to especially note that the improved Cr6 plume definition "rules and criteria" need to be developed, which in addition to the sole consideration of Cr6 measurements, as occurs at present, would recognize localized geochemistry and groundwater flow direction information. Again such thinking, and the consideration of other types of groundwater characterization data (e.g. tritium measurements) for defining the plume and thereby the "affected area," much of which has been recently introduced to the project via Dr. Izbicki of USGS, is fully endorsed by the CAC and the IRP Manager. 	 <p>A Estimated Locations of 17 Identified Wells whose Properties are Candidates for PG&E's WHRW Program</p>  <p>B IRP Manager's Recent (March, 2013) EVS Contouring of Cr6 Groundwater Data</p>  <p>C Q3 and Q4, 2012 Plume maps</p>  <p>D Dr. Izbicki's 2-page list of possible groundwater measurements presented at Background Study Planning Meeting in Hinkley, with WB, PG&E, CAC and IRP Manager, January 16, 2013.</p>

FOOTNOTES

¹ WHRW is governed by Water Board Orders R6V-2011-0005A1 (October 11, 2011) and R6V-2011-0005A2 (June 7, 2012)

² WHRW Feasibility Study Report, Revised, Arcadis for PG&E, June 2012

³ While the listed deadline dates for completion of the "compliant" (residences with Cr6 > 3.1ppb) and "voluntary" programs (residences with Cr6 < 0.06ppb and within the 1 mile "affected area"), are dictated by the Orders listed in Footnote 1, PG&E does note at FS p.E-5 that "it may be difficult for any of the alternatives described to be implemented within 90 days of the acceptance of the plan by the Water Board. The timing to implement any of the replacement water supply alternatives is highly dependent on the permitting and procurement process."

⁴ WHRW Feasibility Study, June 2012, Table 1, Engagement Activities to Date, p. 19, and IRP Manager hosted "Open House" Meetings on the Whole House Water Replacement Program on July 11 and 12, 2012.

⁵ Jeff McCarthy, Letter to Water Board's Patty Kouyoumdjian, p. 2, Under-sink RO Monitoring, January 10, 2013.

⁶ Sparkletts Water Quality Standards and Reports: <http://www.sparkletts.com/water-delivery-service/water-quality-standards.isf>; Culligan Water Quality Reports: http://www.culliganbottledwater.com/bottled_water/resources/water-quality-reports.

⁷ Sheryl Billbrey, Letter to Water Board's Patty Kouyoumdjian, p. 5, regarding "CAC and IRP Manager Comment, re: WHRW FS," July 9, 2012

⁸ CAC, Letter to Water Board's Laurie Kemper, General Comment 2, p. 6, regarding "CAC Comments Regarding PG&E's Replacement Water Feasibility Study (FS) of April 9, 2012," June 1, 2012

The Following Figures are Displayed on the Right-hand Side of Table 1 and Reproduced
in this Section for Clarity

TABLE 1, FIGURE 1A

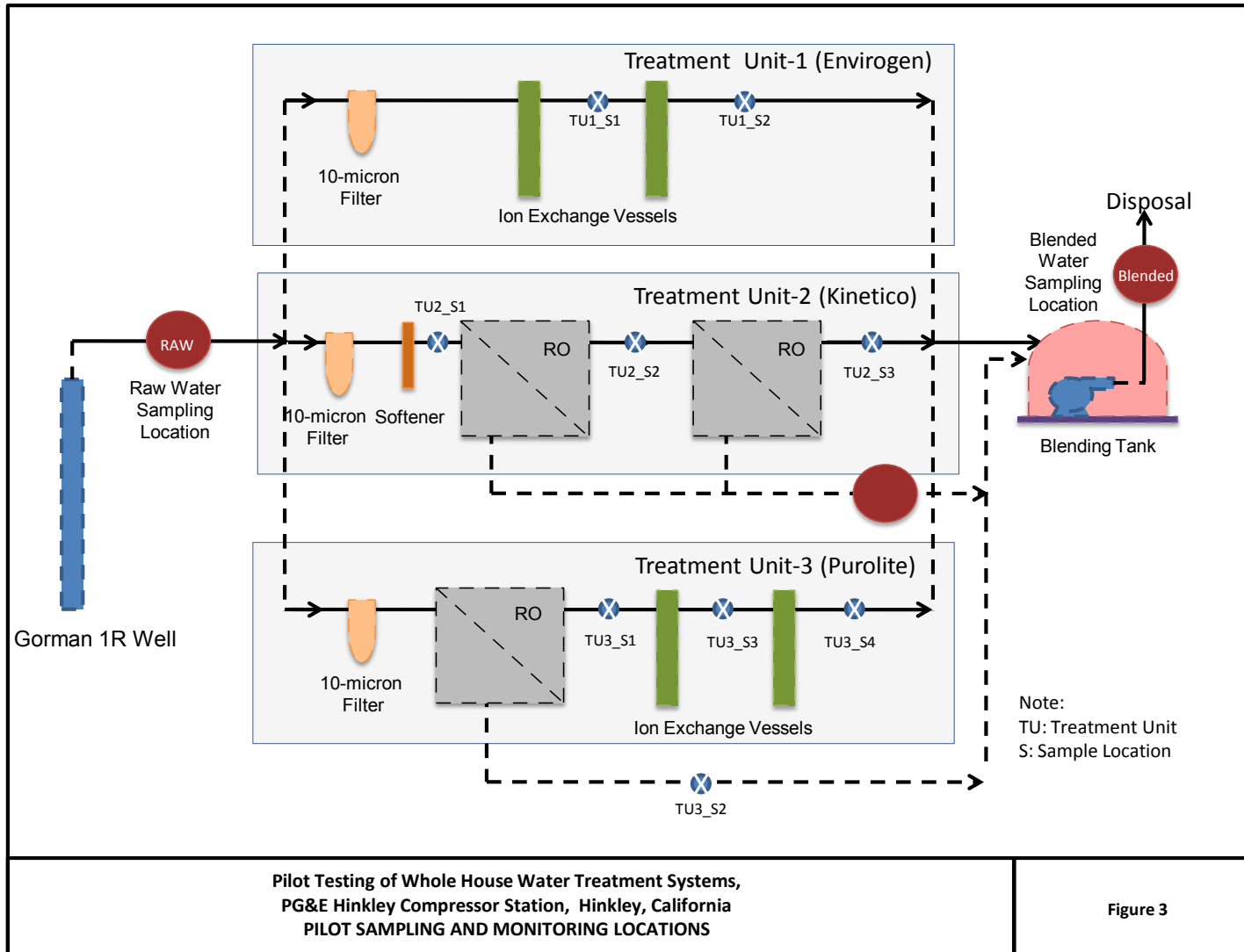


TABLE 1, FIGURE 1B



Whole-House Ion Exchange System and Undersink RO



2.5 Water Quality Monitoring

Water quality and operating data were collected from the test well and treatment systems throughout the pilot testing following the procedures outlined in the *Whole House Water Treatment Pilot Study – Test Plan* (Attachment A). Table 1 provides an overview of the parameters monitored, methods used, MRLs, and primary and secondary drinking water standards. The field and laboratory water quality monitoring parameters that were used to evaluate the treatment systems performance are shown in Table 2.

The figure below shows an image of the sampling and monitoring locations for the pilot study under the initial Pilot Study Test Plan.

The Modified system configuration and sampling locations based on preliminary pilot test results and Water Board comments is shown in the figure thereafter.

TABLE 1, FIGURE 1C

Appendix A

Replacement Water Supply Feasibility Study Pacific Gas and Electric Company Hinkley Compressor Station, Hinkley, California

Table A: California Primary and Secondary Drinking Water Standards and Notification Levels

Constituents	Units	California Title 22 Standards
Primary Standards (MCLs)		
Inorganics		
Aluminum	mg/L	1
Antimony	mg/L	0.006
Arsenic	mg/L	0.010
Asbestos	mg/L	7 MFL ^a
Barium	mg/L	1
Beryllium	mg/L	0.004
Cadmium	mg/L	0.005
Chromium	mg/L	0.05
Copper	mg/L	1.3 ^b
Cyanide	mg/L	0.15
Fluoride	mg/L	2
Lead	mg/L	0.05 ^c 0.015 ^b
Mercury	mg/L	0.002
Nickel	mg/L	0.1
Nitrate	mg/L	(as NO ₃) 45
Nitrite (as N)	mg/L	1
Total Nitrate/Nitrite (as N)	mg/L	10
Perchlorate	µg/L	6
Silver	mg/L	NA
Selenium	mg/L	0.05
Thallium	mg/L	0.002
Radionuclides		
Uranium	pCi/L	20
Combined Radium – 226 + 228	pCi/L	5
Gross Alpha particle activity (excluding radon & uranium)	pCi/L	15
Gross Beta particle activity	millirem/yr	4 ^h
Strontium-90	pCi/L	8
Tritium	pCi/L	20,000
VOCS		
Benzene	µg/L	1
Carbon Tetrachloride	µg/L	0.5
1,2-Dichlorobenzene	µg/L	600
1,4-Dichlorobenzene	µg/L	5
1,1-Dichloroethane	µg/L	5
1,2-Dichloroethane	µg/L	0.5

TABLE 1, FIGURE 1C (cont.)

Appendix A

Replacement Water Supply Feasibility Study Pacific Gas and Electric Company Hinkley Compressor Station, Hinkley, California

Constituents	Units	California Title 22 Standards
1,1-Dichloroethylene	µg/L	6
Dichloromethane	µg/L	5
1,3-Dichloropropene	µg/L	0.5
1,2-Dichloropropane	µg/L	5
1,3-Dichloropropane	µg/L	NA
Ethylbenzene	µg/L	300
Methyl-tert-butyl ether (MTBE)	µg/L	13
Monochlorobenzene	µg/L	70
Styrene	µg/L	100
1,1,2,2-Tetrachloroethane	µg/L	1
Tetrachloroethylene	µg/L	5
Toluene	µg/L	150
1,2,4 Trichlorobenzene	µg/L	5
1,1,1-Trichloroethane	µg/L	200
1,1,2-Trichloroethane	µg/L	NA
Trichloroethylene	µg/L	5
Trichlorofluoromethane	µg/L	150
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	1,200
Vinyl chloride	µg/L	0.5
Xylenes	µg/L	1,750
SOCs		
Alachlor	µg/L	2
Atrazine	µg/L	1
Bentazon	µg/L	18
Benzo(a) Anthracene	µg/L	10
Benzo(a)pyrene	µg/L	NA
Carbofuran	µg/L	18
Chlordane	µg/L	0.1
Dalapon	µg/L	200
Dibromochloropropane	µg/L	0.2
Di(2-ethylhexyl)adipate	µg/L	400
Di(2-ethylhexyl)phthalate	µg/L	4
Dinoseb	µg/L	7
Diquat	µg/L	20
Endothall	µg/L	100
Endrin	µg/L	2
Ethylene Dibromide	µg/L	0.05
Glyphosate	µg/L	700
Heptachlor	µg/L	0.01
Heptachlor Epoxide	µg/L	0.01

TABLE 1, FIGURE 1C (cont.)

Appendix A

Replacement Water Supply Feasibility Study Pacific Gas and Electric Company Hinkley Compressor Station, Hinkley, California

Constituents	Units	California Title 22 Standards
Hexachlorobenzene	µg/L	1
Hexachlorocyclopentadiene	µg/L	50
Lindane	µg/L	0.2
Methoxychlor	µg/L	30
Molinate	µg/L	2
Oxamyl	µg/L	50
Pentachlorophenol	µg/L	1
Picloram	µg/L	500
Polychlorinated Biphenyls	µg/L	0.5
Simazine	µg/L	4
Thiobencarb	µg/L	70
Toxaphene	µg/L	3
2,3,7,8-TCDD (Dioxin)	pg/L	30
2,4,5-TP (Silvex)	µg/L	50
Disinfection Byproducts		
Total Trihalomethanes	µg/L	80
Haloacetic Acids (Five)	µg/L	60
Bromate	µg/L	10
Chlorite	mg/L	1
Acrylamide	mg/L	TT ^d
Epichlorohydrin	mg/L	TT ^d
Residual Disinfectant		
Chloramine (as Cl ₂)	mg/L	4.0
Chlorine (as Cl ₂)	mg/L	4.0
Chlorine Dioxide (as ClO ₂)	mg/L	0.8
Microorganisms		
Total coliform	---	5% ^e
E.coli	Presence/ absence	MCL ^f
<i>Cryptosporidium</i>	---	TT
<i>Giardia</i>	---	TT
Secondary Standards (SMCLs)		
Aluminum	mg/L	0.2
Chloride	mg/L	250 / 500 / 600 ^g
Color	Color units	15
Copper	mg/L	1.0
Foaming Agents (MBAS)	mg/L	0.5
Iron	mg/L	0.3
Manganese	mg/L	0.05
Methyl- <i>tert</i> -butyl ether (MTBE)	mg/L	0.005

TABLE 1, FIGURE 1C (cont.)

Appendix A

Replacement Water Supply Feasibility Study Pacific Gas and Electric Company Hinkley Compressor Station, Hinkley, California

Constituents	Units	California Title 22 Standards
Odor—Threshold	TON	3
pH	SBU	6.5 – 8.5
Silver	mg/L	0.1
Sulfate	mg/L	250 / 500 / 600 ^g
Specific Conductance	μS/cm	900 / 1,600 / 2,200 ^g
Thiobencarb	mg/L	0.001
Total Dissolved Solids (TDS)	mg/L	500 / 1,000 / 1,500 ^g
Turbidity	NTU	5
Zinc	mg/L	5.0
Notification Levels		
Boron	mg/L	1
n-Butylbenzene	mg/L	0.26
Sec-Butylbenzene	mg/L	0.26
Tert-Butylbenzene	mg/L	0.26
Carbon Disulfide	mg/L	0.16
Chlorate	mg/L	0.8
2-Chlorotoluene	mg/L	0.14
4-Chlorotoluene	mg/L	0.14
Diazinon	mg/L	0.0012
Dichlorodifluoromethane (Freon 12)	mg/L	1
1,4-Dioxane	mg/L	0.001
Ethylene Glycol	mg/L	14
Formaldehyde	mg/L	0.1
HMX	mg/L	0.35
Isopropylbenzene	mg/L	0.77
Manganese	mg/L	0.50.5
Methyl Isobutyl Ketone (MIBK)	mg/L	0.12
Napthalene	mg/L	0.017
n-Nitrosodiethylamine (NDEA)	mg/L	0.00001
n- Nitrosodimethylamine (NDMA)	mg/L	0.00001
n-Nitrosodi-n-propylamine (NDPA)	mg/L	0.00001
Propachlor	mg/L	0.09
n-Propylbenzene	mg/L	0.26
RDX	mg/L	0.0003
Tertiary Butyl Alcohol (tBA)	mg/L	0.012
1,2,3-Trichloropropane (1,2,3-TCP)	mg/L	0.000005
1,2,4-Trimethylbenzene	mg/L	0.33
1,3,5-Trimethylbenzene	mg/L	0.33
2,4,6-Trinitrotoluene (TNT)	mg/L	0.001
Vanadium	mg/L	0.05

TABLE 1, FIGURE 1C (cont.)

Appendix A

Replacement Water Supply Feasibility Study Pacific Gas and Electric Company Hinkley Compressor Station, Hinkley, California

Notes:

NA – not applicable (no standard)

a. MFL = million fibers per liter, with fiber length > 10 microns.

b. Regulatory Action Level; if system exceeds, it must take certain actions such as additional monitoring, corrosion control studies and treatment, and for lead, a public education program; replaces MCL.

c. The MCL for lead was rescinded with the adoption of the regulatory action level described in footnote b.

d. TT = treatment technique, because an MCL is not feasible.

e. No more than 5.0 percent samples total coliform-positive in a month.

f. A routine sample that is E.coli positive triggers repeat sample. If any repeat sample is total coliform, fecal coliform, or E.coli-positive the system has an acute MCL violation.

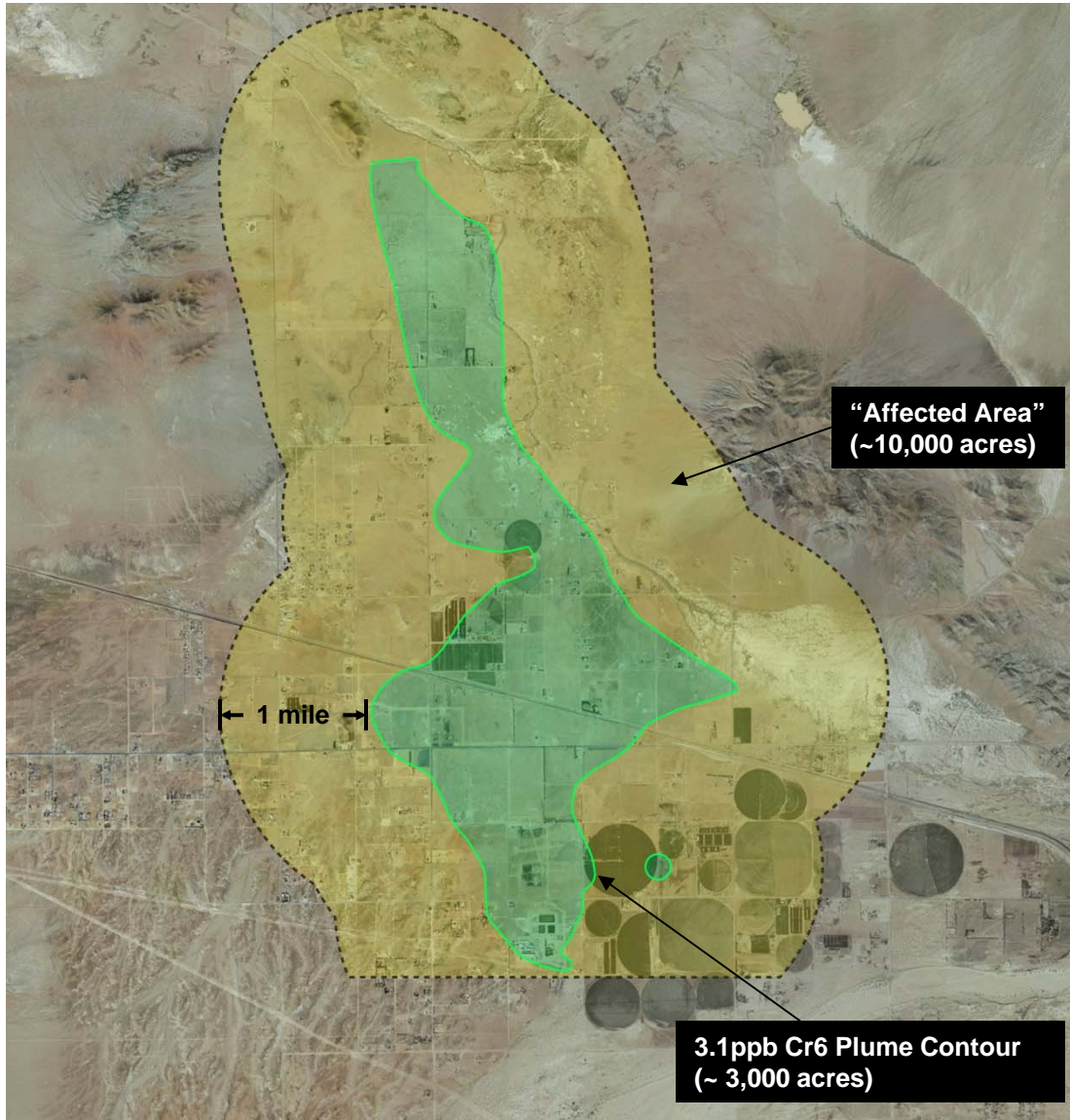
g. Recommended / Upper / Short Term

h. The gross beta particle activity MCL is 4 millirem/year annual dose equivalent to the total body or any internal organ. The screening level is 50 pCi/L. The CDPH Detection Limit for Reporting (DLR) is 4 pCi/L.

TABLE 1, FIGURE 2A

FIGURE 1

Lahontan RWQCB Order No. R6V-2011-0005A1 Issued to PG&E. Harold J. Singer's March 22, 2012 Solicitation of Comments Regarding the Order's Section 3.a.



Key Background Facts to Future Decision Making Regarding Order Section 3.a.

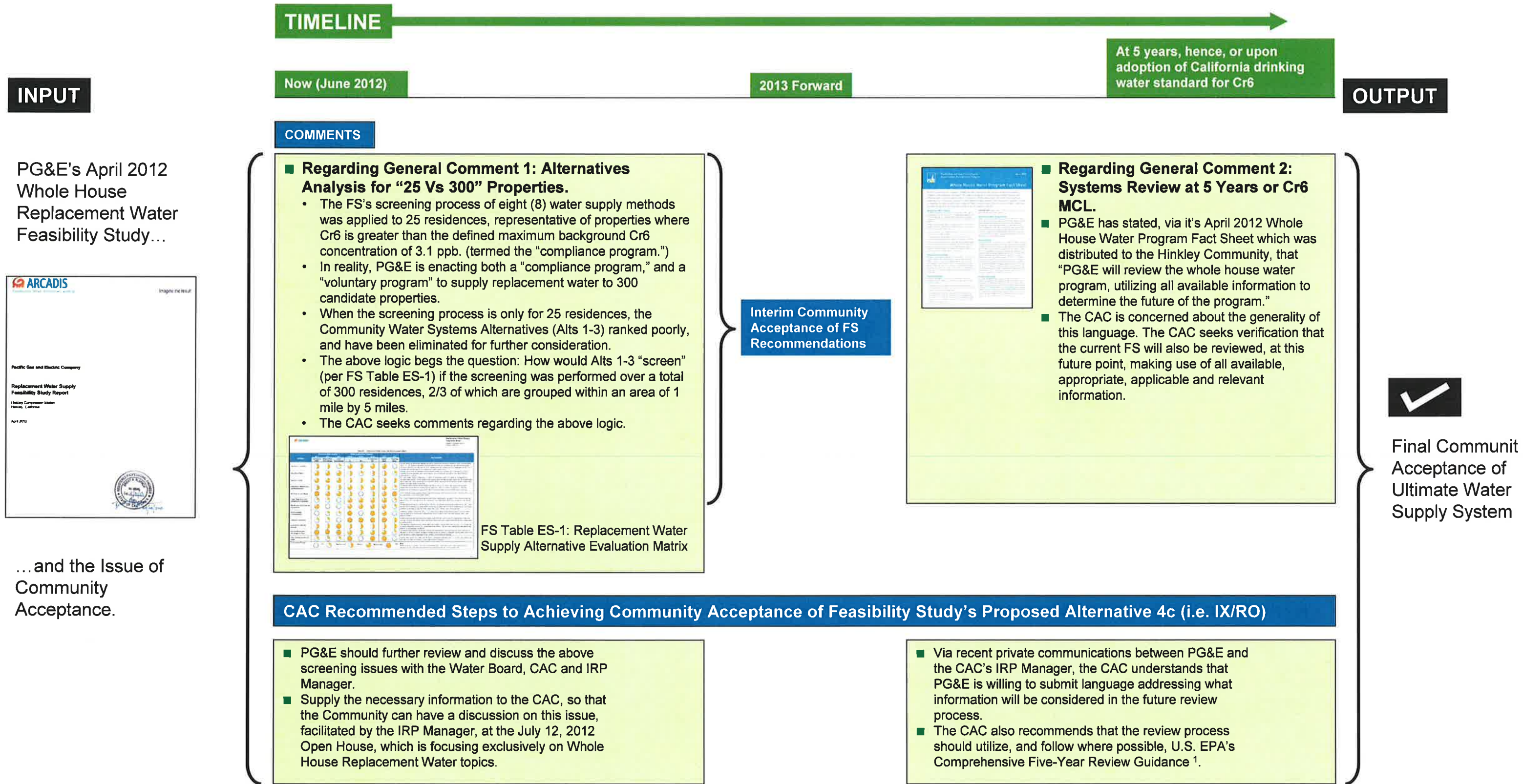
- "Impacted Wells" are those containing Cr6 greater than 3.1ppb in the "Affected Area," or, wells within the "Affected Area" with Cr6 greater than 0.02ppb, where the Cr6 is proven to have been discharged by PG&E.
- "Affected Area" is defined as all domestic wells located laterally within 1 mile, down gradient or cross gradient of the 3.1ppb Cr6 plume.
- The Order's Section 3.a. requires PG&E to submit a methodology to determine if Cr6 in domestic wells in the "Affected Area" were caused, in whole or in part, by PG&E's discharge.
- PG&E has responded (23 Nov 2011, and 22 Dec 2011) by stating that they have "found no technically sound and implementable methodology for determining impacts to domestic wells below naturally occurring background levels, as required by Ordering paragraph 3.a."
- The Water Board has concluded (April 12, 2012) that "at least two of the statistical methods discussed by PG&E would meet the requirements of Section 3.a. of the Order," and therefore "Water Board staff disagree with PG&E's reasons."

Graphic created by Project Navigator, Ltd., is approximate, and is not intended to be used for compliance determination purposes.

Table 8 Replacement Water Supply Alternative Evaluation Matrix

CRITERIA	Community Water Systems			Whole-House Water Treatment			Alt 5	Alt 6	Key Highlights
	Alt 1	Alt 2	Alt 3	Alt 4a	Alt 4b	Alt 4c			
	Connect to GSWC	Mojave River Groundwater	Local Groundwater	IX	RO	IX/ Undersink RO	Deeper Wells	Trucking Water	
Technical Feasibility									All alternatives are technically feasible; centralized systems would require extensive design and permitting (Alts 1, 2, 3, 6); Whole-house water treatment systems would be innovative but can meet the hexavalent chromium reporting limit (Alts 4a-c, 5); Brine management may present technical challenges (Alt 4b); CDPH indicated that hauling water is not a replacement water supply (Alt 6).
Quantity of Water									Alts 4a-c and 5 could be impacted by low production yields from domestic wells; Alternative 6 could be impacted by truck availability and road conditions; Central treatment alternatives may require flushing (Alternatives 1, 2, and 3).
Quality of Water									Alt 1 and 3 water quality is dependent on GSWC or remediation wells; Alt 2 wells can be targeted for favorable water quality; Central treatment and hauling water alternatives water quality may be compromised due to water age; Water corrosivity is a concern for Alt 4b; Alts 4a and 4c will produce similar or better water quality; Alt 5 water quality is unknown.
Operations, Maintenance, and Replacement									Community water systems require certified operator(s); Alts 4a, 4c, and 5 may require frequent resin replacement or maintenance; Alt 4b produces waste that require excessive management. Telemetry systems can be installed on whole-house water treatment systems to communicate system warnings.
By-Products and Waste									Alt 4b produces a large quantity of brine; residuals or wastes resulting from treatment in Barstow (Alts 1 and 6) could be sent to the central sewer system.
Legal, Regulatory, and Institutional Complexity									Alt 1,2, and 3 require DWSPs/amendments and CEQA requirements may apply; CEQA requirements may apply to Alt 6; Alt 3 may require 97-005 compliance; The Water Board would have jurisdiction over Alts 4a-c and 5.
Monitoring, Reporting, and Compliance									All alternatives will require a monitoring plan; Alts 4a-c will require monitoring at multiple homes; Alts 1 and 6 require only an extension of current GSWC monitoring activities; Alts 4a-c and 5 monitoring and compliance would be coordinated through the Water Board; Alts 2 and 3 require new monitoring plans.
Environmental Considerations									Distribution system construction (Alts 1, 2, 3) could impact desert tortoise/Mojave ground squirrel habitat; Hauling water/brine (Alts 4b and 6) will generate vehicle emissions and may pose a greater risk to road safety in Hinkley.
Timing to Implement									Whole house treatment alternatives and deeper wells (Alts 4a-c and 5) could be implemented in less than one year; all other alternatives require design/permitting/construction/agreements that will add multiple years to implementation.
Consistency with the Remedy									Hydrogeologic conditions in the Hinkley Valley are variable. Outside water sources (Alts 1, 2, 3, 6) may aid in plume containment but only Alt 3 contributes to the remedy; Alts 4a-c and 5 impacts are site-specific and depend on hydrogeologic conditions.
System Redundancy (Contingency Plan)									Community water systems have built in redundancy requirements; individual wells are more vulnerable to disruption in service; however, storage is provided to reduce impacts to residents; Hauling water and/or brine (Alts 4b and 6) is highly dependent on the condition of the roads and vehicles.
Cost (Capital and Annual O&M)									Hauling water can be very costly (Alts. 4b and 6); Centralized treatment (Alts 1, 2, 3) has a high capital cost and, with only a few connections, a high O&M cost per connection.
Comparative Rating	Low	Medium-Low		Medium	Medium-High		High		Note: PG&E continues to conduct community outreach activities. Community input on the Feasibility Study garnered through these planned activities will be used to develop the recommended Plan.

Summary of Hinkley Community Advisory Committee's (CAC) Comments Regarding PG&E's Replacement Water Supply Feasibility Study Report, Dated April 2012

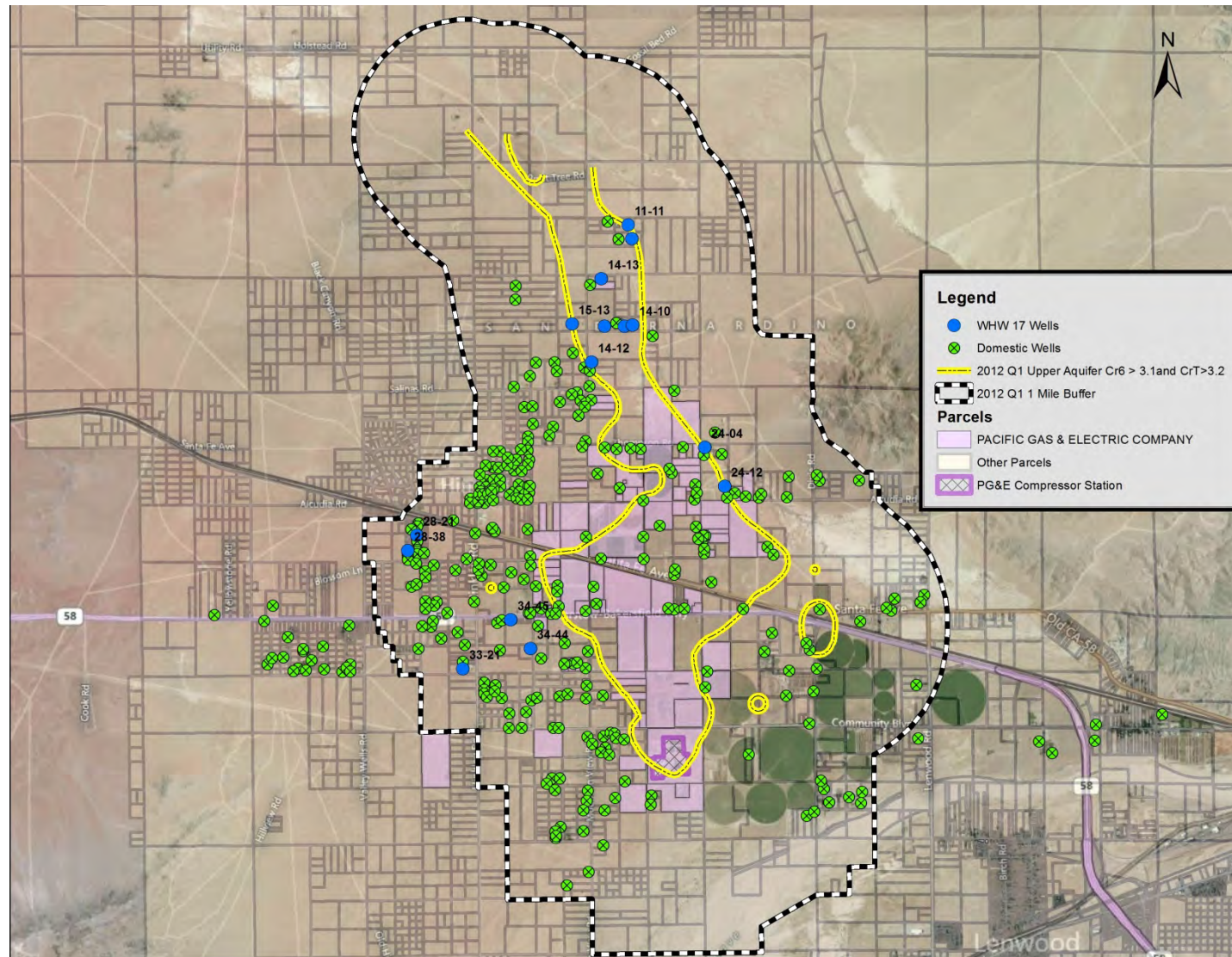


¹Comprehensive Five-Year Review Guidance, U.S. EPA, Office of Emergency and Remedial Response, OSWER No. 9355.7-03B-P, 60pp, June 2001

Hinkley GW:

TABLE 1, FIGURE 2D

17 Identified Well for Initial Whole House Water Program (with Existing Domestic Wells)



Note: All information shown on this Figure was derived from Google Earth topography and groundwater sampling data supplied by PG&E to PNL in PNL's role as IRP Manager.

TABLE 1, FIGURE 3A

Schematic of an IX/RO Unit for Whole House Water

**The Ion Exchange (IX) Unit
Eliminates the Cr6 Pathway from
Groundwater to the Household.**

NOTE: Reverse Osmosis (RO) Units would be placed
in the home where drinking water may be accessed
(i.e., faucets), such as the kitchen and bathroom.

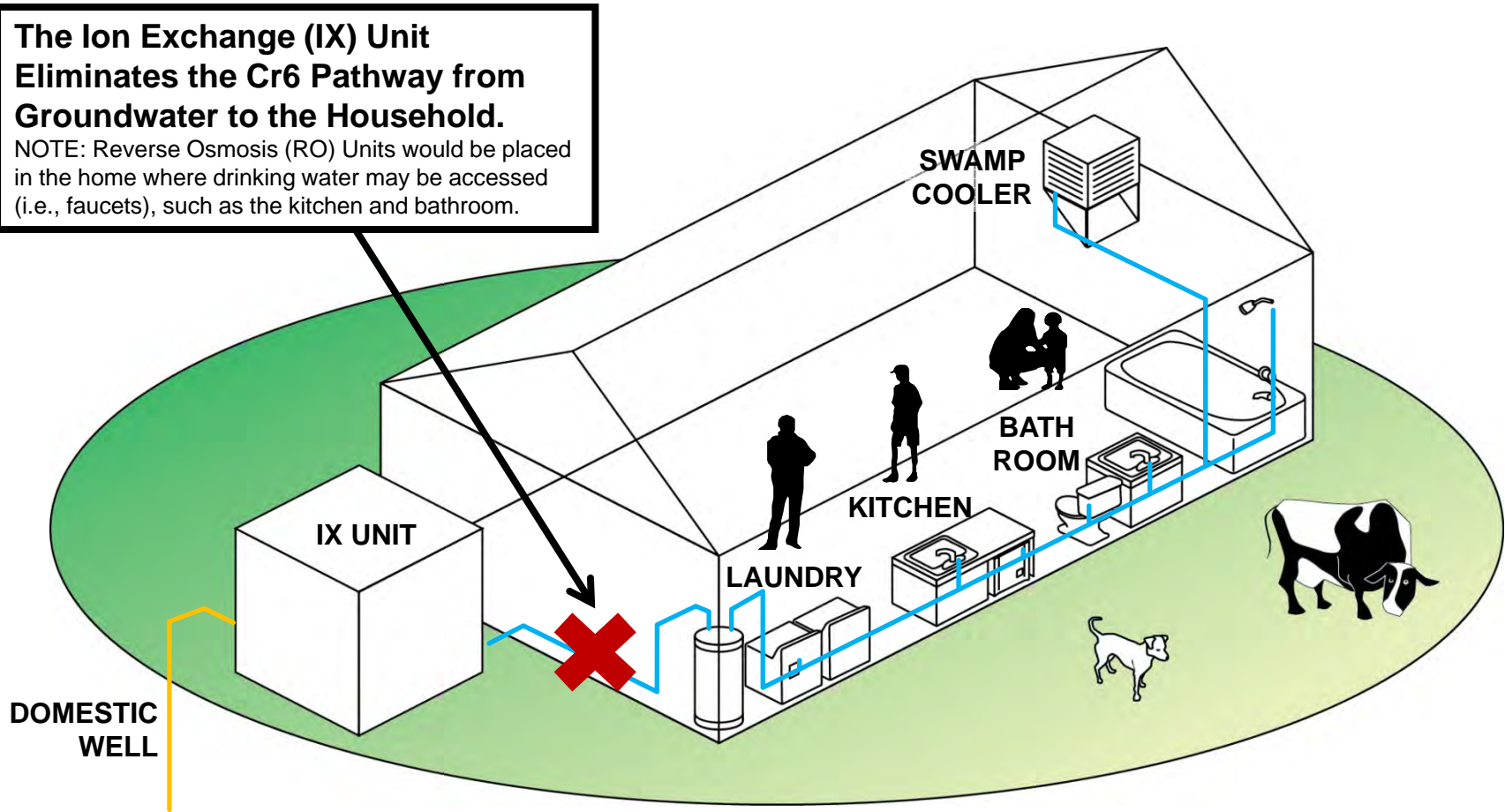
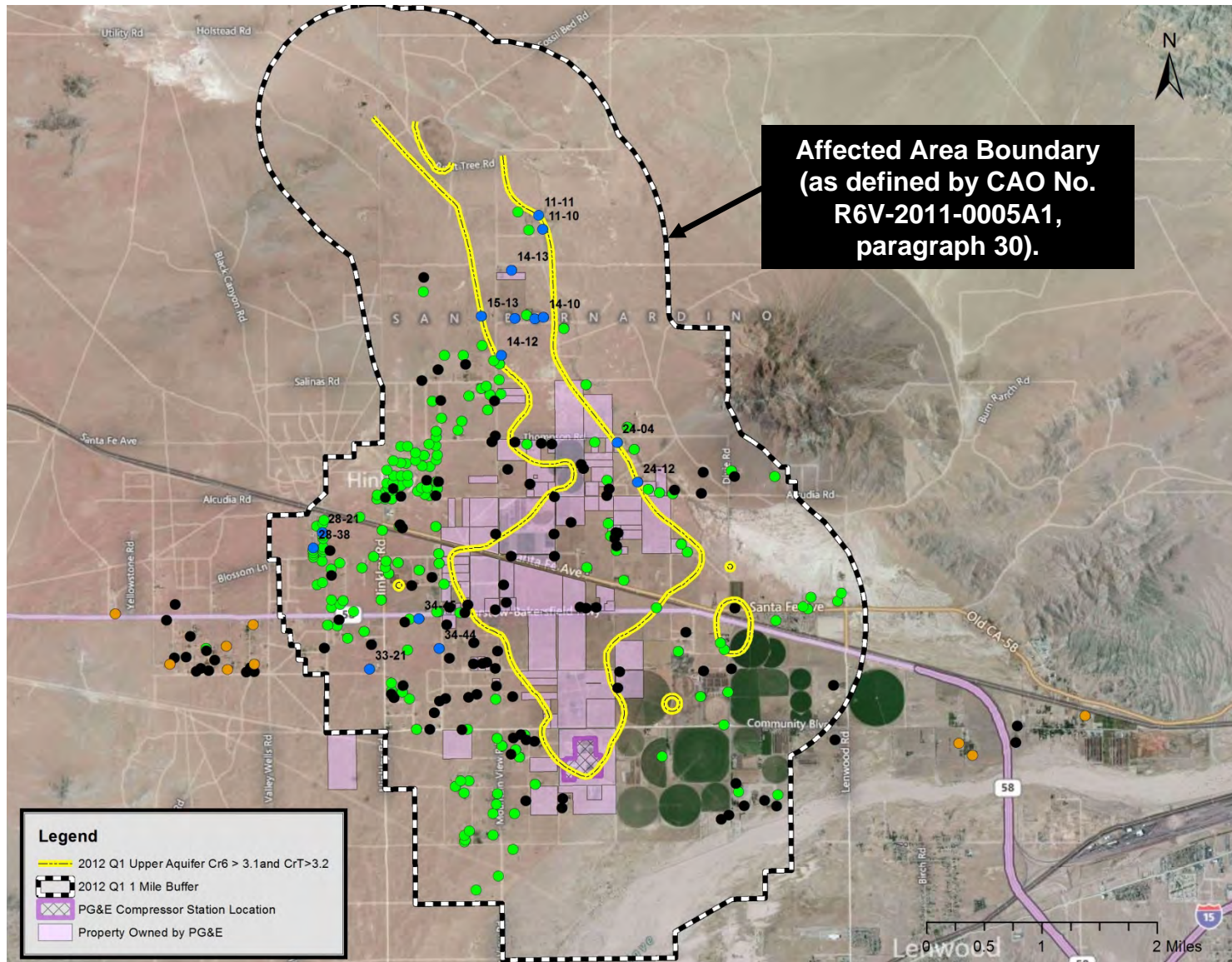


TABLE 1, FIGURE 5A

FIGURE 2

Estimated Locations of the Seventeen (17) Identified Wells (in Blue) whose Properties are Candidates for PG&E’s (“Compliance”) Whole House Water Replacement Program



Domestic Wells Legend

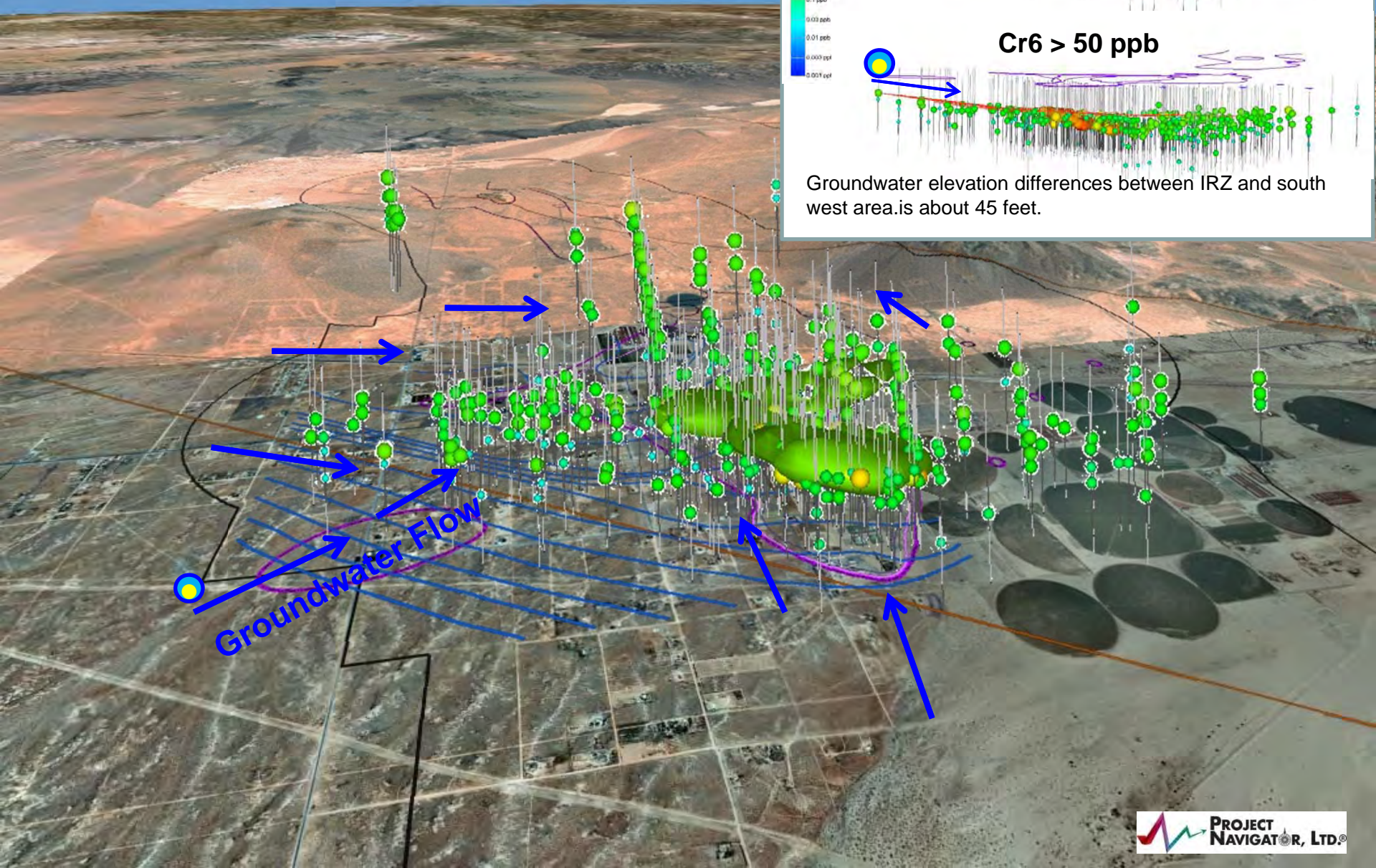
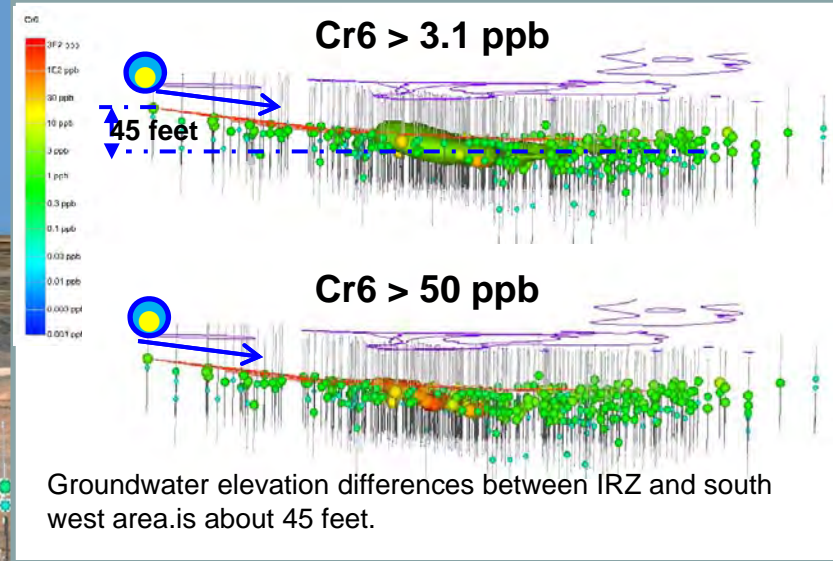
- Location of 17 Domestic Wells with Cr6 Concentrations > 3.1 ppb
- Locations of Domestic Wells, inside the Affected Area boundary with Cr6 Concentrations, < 3.1 ppb, and > 0.06 ppb
- Locations of Domestic Wells out with the Affected Area boundary, with Cr6 detects (i.e. >0.06 ppb)
- Locations of Domestic Wells, at any location, with no Cr6 detects

Notes:

1. All information shown on this Figure was derived from Google Earth topography and groundwater sampling data supplied to PNL by PG&E, as part of PNL’s role as CAC IRP Manager.
2. Tentative identification of the 17 “compliance program” locations was performed by PNL, using a GIS screening program.

Cr6 > 3.1 ppb

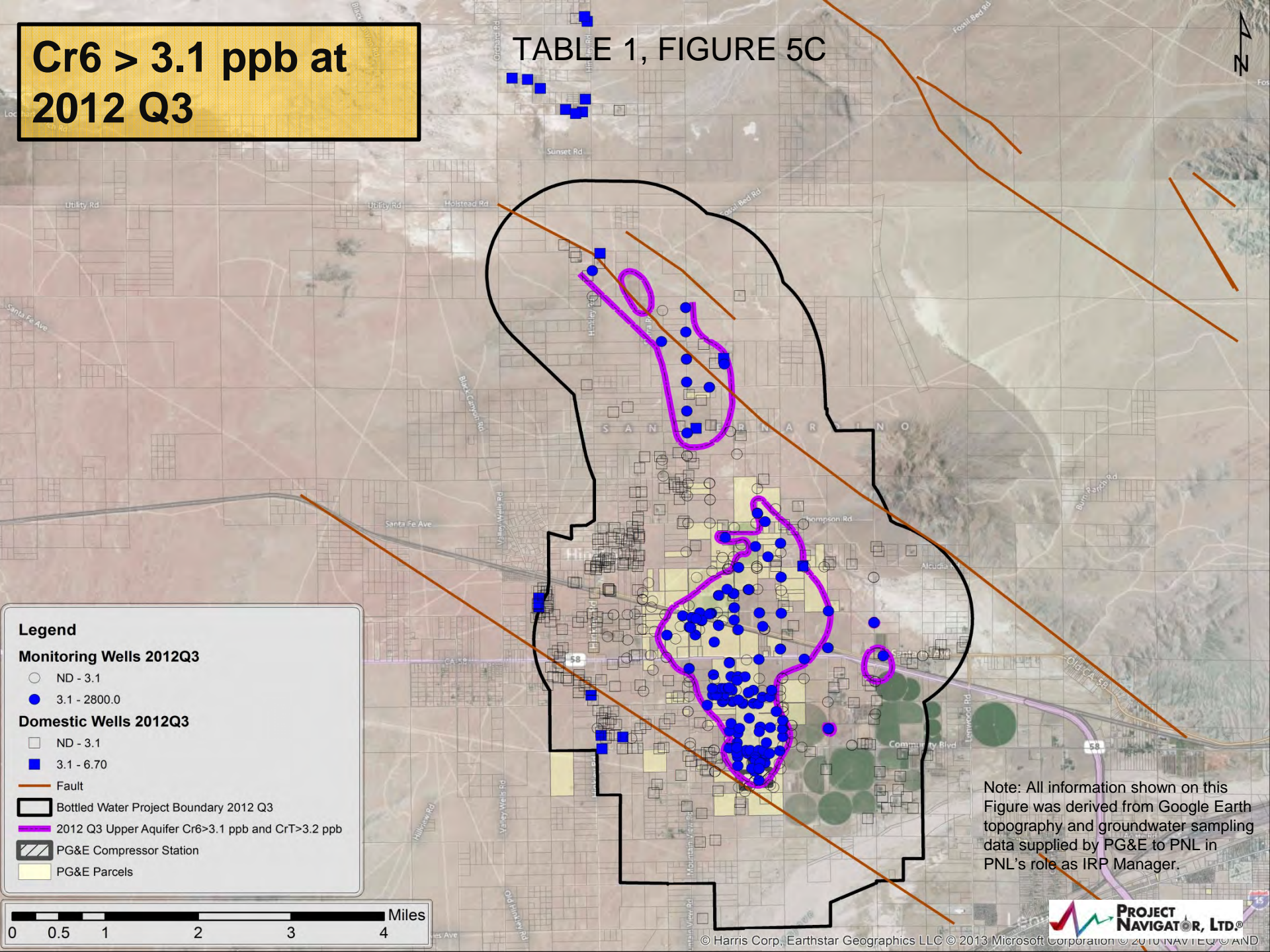
TABLE 1, FIGURE 5B



Groundwater Flow

**Cr6 > 3.1 ppb at
2012 Q3**

TABLE 1, FIGURE 5C



Legend

Monitoring Wells 2012Q3

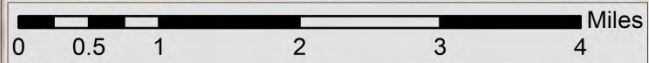
- ND - 3.1
- 3.1 - 2800.0

Domestic Wells 2012Q3

- ND - 3.1
- 3.1 - 6.70

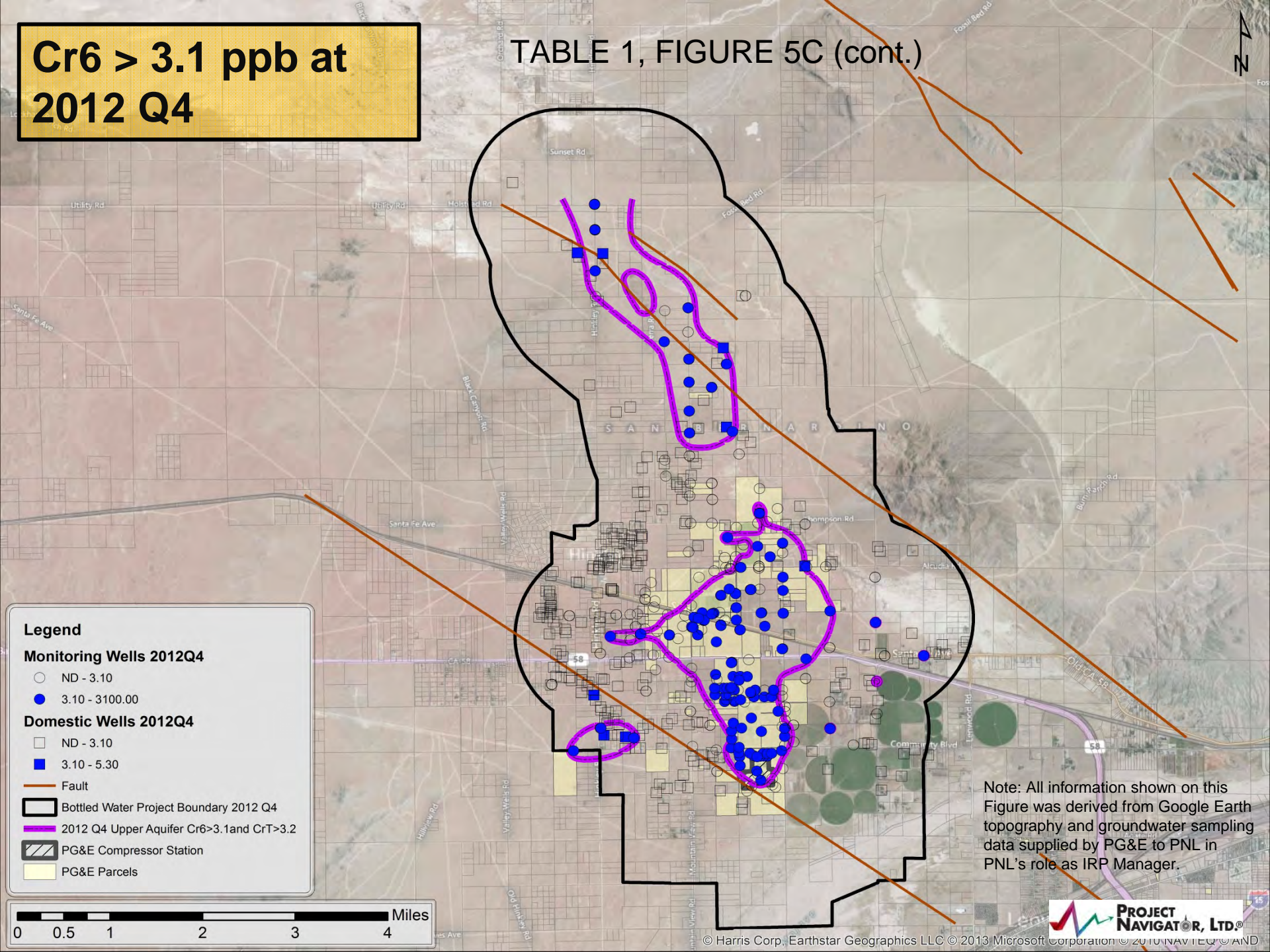
- Fault
- ▭ Bottled Water Project Boundary 2012 Q3
- ▭ 2012 Q3 Upper Aquifer Cr6>3.1 ppb and CrT>3.2 ppb
- ▨ PG&E Compressor Station
- ▭ PG&E Parcels

Note: All information shown on this Figure was derived from Google Earth topography and groundwater sampling data supplied by PG&E to PNL in PNL's role as IRP Manager.



Cr6 > 3.1 ppb at 2012 Q4

TABLE 1, FIGURE 5C (cont.)



Legend

Monitoring Wells 2012Q4

- ND - 3.10
- 3.10 - 3100.00

Domestic Wells 2012Q4

- ND - 3.10
- 3.10 - 5.30

- Fault
- ▭ Bottled Water Project Boundary 2012 Q4
- ▭ 2012 Q4 Upper Aquifer Cr6>3.1and CrT>3.2
- ▨ PG&E Compressor Station
- ▭ PG&E Parcels

Note: All information shown on this Figure was derived from Google Earth topography and groundwater sampling data supplied by PG&E to PNL in PNL's role as IRP Manager.

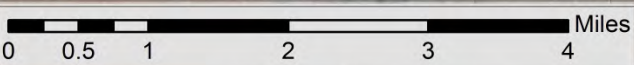


TABLE 1, FIGURE 5D

Possible work elements Hinkley, CA.—There is no silver bullet; rather, the intent is to develop an interpreted answer based on converging lines of geologic, geochemical, and hydrologic evidence.

A. CAC concern: Increased transparency and data availability

1. Continuous water-level data collection on selected wells, with GOES satellite and real-time web-access
2. GPS locate and survey well altitudes

B. Background study data collection, water samples from short-screened monitoring wells

CAC concern: Independent data collection and reporting. Data collection according to prescribed SOPs, and interpretation to be within the hydrologic framework and hydrologic history of water. Data (including blanks, replicates, and spikes) to be available on-line through NWIS-Web.

1. Cr (T) and Cr (VI)
2. Field parameters (temperature, pH, alkalinity, dissolved oxygen, ORP (?))
3. Major ions
4. Nutrients—nitrogen species, phosphorous species, dissolved organic carbon and optical properties (hydrologic history with respect to septic, dairy, and irrigation influences)
5. Selected minor ions—bromide, iodide, boron, barium, strontium (source of geologic materials)
6. Selected trace elements (arsenic, iron, manganese, uranium, vanadium)
- ✓ 7. delta Oxygen-18 and delta Deuterium—source of water (Mojave River recharge versus locally-derived recharge, evaporative history of water)
- ✓ 8. Tritium and helium-3—time-since recharge, rate of groundwater movement (implications for source of Cr (VI) and plume movement)
- ✓ 9. Dissolved gas analysis—recharge process (focused recharge from Mojave River, locally-derived recharge, irrigation return) *(e.g. noble gases, Argon) lower T water w/ Mojave River would have higher Ar.*
- Cr 52/53 10. delta Chromium-53—processes affecting chromium, source of chromium
11. delta oxygen-18 of chromate, del oxygen-17 of chromate—processes affecting chromium, source of chromium
- ✓ 12. Strontium 87/86 (source of geologic materials)

C. Regional measurement of Cr (VI)

CAC concern: What is the regional occurrence of Cr (VI) (and manganese), especially with respect to groundwater originating from the Mojave River.

1. On-site determination of Cr (VI) using mobile laboratory
2. Possible participation from Mojave Water Agency for regional Cr and manganese data dissemination

D: Land use effects

CAC concern: is there evidence for processes invoked to explain anomalous data?

1. Pore water collection and analysis at water-table interface beneath selected land uses (Izbicki and others 2008)
2. Chromium (and manganese) contributions from septic, dairy, irrigated, and native land uses

E: Coupled well-bore flow and depth-dependent water-quality sample collection from selected wells

CAC concern: Aquifer heterogeneity and rapid movement of chromium (and manganese)

1. Coupled well bore flow and depth-dependent water-quality sample collection from selected wells
2. Analyze MOLT model analysis—quantify range in hydraulic properties of aquifer materials (estimate how far pumping may pull chromium)

TABLE 1, FIGURE 5D (cont.)

F: Solid-phase analysis of aquifer materials

CAC concern: Are there natural geologic sources of chromium within the valley from locally-derived materials?

1. Mineralogy (source of chromium; Mojave River derived alluvium versus locally-derived material)
 - Optical with x-ray diffraction (source of geologic materials)
 - C-3 density separation (heavier minerals, chromium bearing minerals)
 - SEM with spectral analysis
2. Sequential extraction—chromium availability on exchange sites using operational fractions defined by Wenzel, 2001 and Chao and Sanzolone, 1989
 - Iron, manganese, aluminum—abundance of exchange sites
 - Chromium (T), vanadium, arsenic, and uranium—comparative element approach
3. Particle-size distribution
4. XANES—speciation of chromium on solid phase (mechanisms controlling Cr (VI) mobility into water)
5. Relate chromium on solid phase operational fractions to Cr (VI) in water as an exchange reaction

G: Rebound studies

CAC concern: Will insitu reduction of Cr (VI) to Cr (III) provide a permanent solution or will the site require periodic treatment to ensure reduced chromium does not reoxidize to Cr (VI)

1. Sequestration of chromium into increasingly resistive operational phases
 - Cr-51—rapid sequestration effect of clay-mineral sorption (t=0 to 6 months)
 - Cr-50 and Cr-54—longer term sequestration (greater than 6 months)
2. Use sequestration data and relation in F-5 to estimate potential rebound

H: Water-level contours and groundwater flow model evaluation

CAC concern: Present-day water-level contours do not reflect past conditions within the valley when pumpage was greater, water levels were lower, and chromium releases occurred.

1. Review of historic water-level data and preparation of historic water-level maps
2. Model review and sensitivity analysis
 - Recharge (Mojave River versus locally derived recharge including irrigation return)
 - Model response to rapid recharge
 - Lockhart Fault and other faults (barrier effects on groundwater flow may not be obvious under present-day conditions but may have been important in the past, especially when water levels were low)
 - Litologic effects (aquifer heterogeneity coarse-grained lenticular deposits and fine-grained materials)
3. Insitu groundwater flow meters—evaluate direction and movement of groundwater near faults
4. Aquifer-test analysis near fault

TBULLEN: monitor rebound using light isotopes

Detailed data collection using Geoprobe at plume margins

Appendix A

Perspective on the Reduction of WHRW Locations

The original WHRW CAO¹ required PG&E to provide WHRW for all residents with impacted Cr6 at their domestic well. In accordance with the original WHRW CAO PG&E was required to provide the following to the community of Hinkley in the “affected area”:

- Interim replacement water supply for all residents inside the “affected area”
- Submit a feasibility study (FS) to the Water Board to recommend the optimal WHRW treatment option for the “affected area”
- Determination of “impacted wells” in the “affected area”
- Installation of WHRW treatment systems
- Provide quarterly monitoring information on the quality of WHRW water service

However, PG&E was not able to identify a scientific method to determine “impacted wells” in the “affected area”. As a result PG&E proposed a voluntary program to include all wells with at least a detection of Cr in the last four quarters in the “affected area”. The Water Board then revised² the original WHRW CAO to include PG&E voluntary program and suspended the requirement to determine the “impacted wells” in the “affected area”.

The initial estimated number of eligible domestic wells for the WHRW was 317. From the 317 eligible wells only 17 had Cr6 or CrT above 3.1 µg/L and 3.2 µg/L respectively. These 17 domestic wells were required to have the WHRW system installed and operational before October 5, 2012. PG&E³ originally estimated from the 17 wells only 10 would accept a WHRW and from the remaining 300 properties only 150 properties would accept the WHRW system.

From the original 17 domestic wells that had detections of Cr6 or CrT greater than 3.1 µg/L and 3.2 µg/L respectively, only two elected to participate in the WHRW program. The rest of the eligible residents decided not to pursue WHRW and/or pursuing property purchase⁴. The two WHRW units were installed in accordance with

¹ CAO No.R6V-2011-0005A1 dated October 11, 2011

² CAO No.R6V-2011-0005A2 dated June 7, 2012

³ Letter from PG&E to the Water Board Regarding PG&E Schedule for the Voluntary Whole House Water Replacement Program Per Ordering Paragraph 2.b Amended Cleanup and Abatement Order No.R6V-2011-0005A2 dated June 21, 2012

⁴ Letter from PG&E to the Water Board Regarding Pacific Gas and Electric Report on Whole House Replacement Water (WHRW) pursuant to Amended Cleanup and Abatement Order No.R6V-2011-0005A2 dated October 5, 2012

the timeframe outline in the revised WHRW CAO. Out of the original 300 eligible residents in the voluntary program less than 15%⁵ decided to accept a WHRW treatment system. An additional forty eligible residents⁶ were identified during the first quarter of 2013 as the “affected area” was expanded to the west and north.

⁵ Letter from PG&E to the Water Board Regarding Whole House Replacement Water (WHRW) Monitoring Proposal to Amend Reverse Osmosis and Ion Exchange Leachate Monitoring dated January 10, 2013

⁶ Attachment 1 from PG&E's letter to the Water Board Regarding Formal Request for Modification of Replacement Water Orders dated February 7, 2013