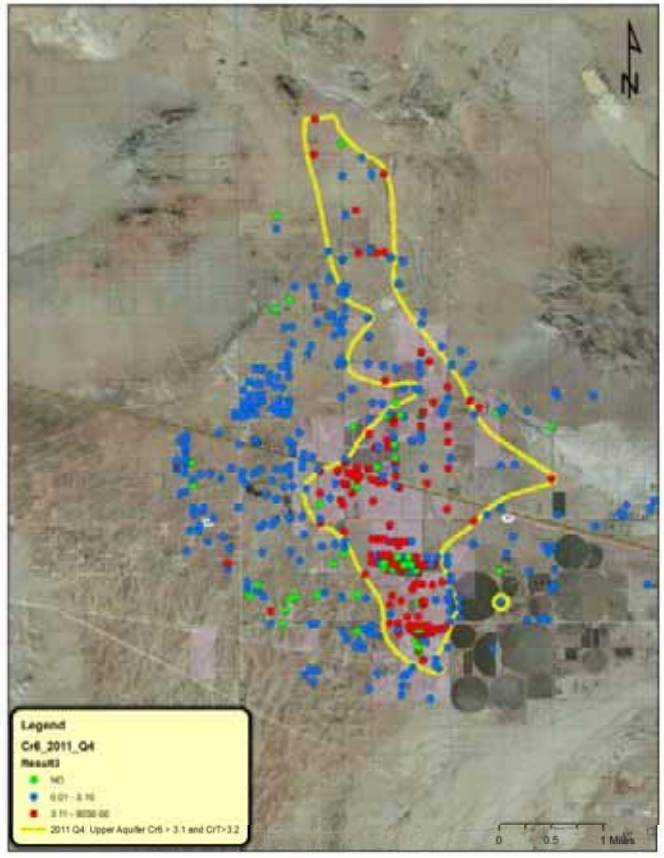
Hinkley Groundwater Remediation Project – IRP Manager Community Briefing No. 2

Community Meeting, Hinkley, CA
April 26, 2012

- Reflections from the March 2012 Community Meeting
- Issues which Concern the Community
- PG&E's Proposed Water Replacement Program



Prepared for

Community Advisory Committee and Hinkley Community at Large

Prepared by

Ian A. Webster,
Project Navigator, Ltd.,
in the
Role of Independent Review Panel (IRP) Manager

Last Month's First IRP Manager Discussion

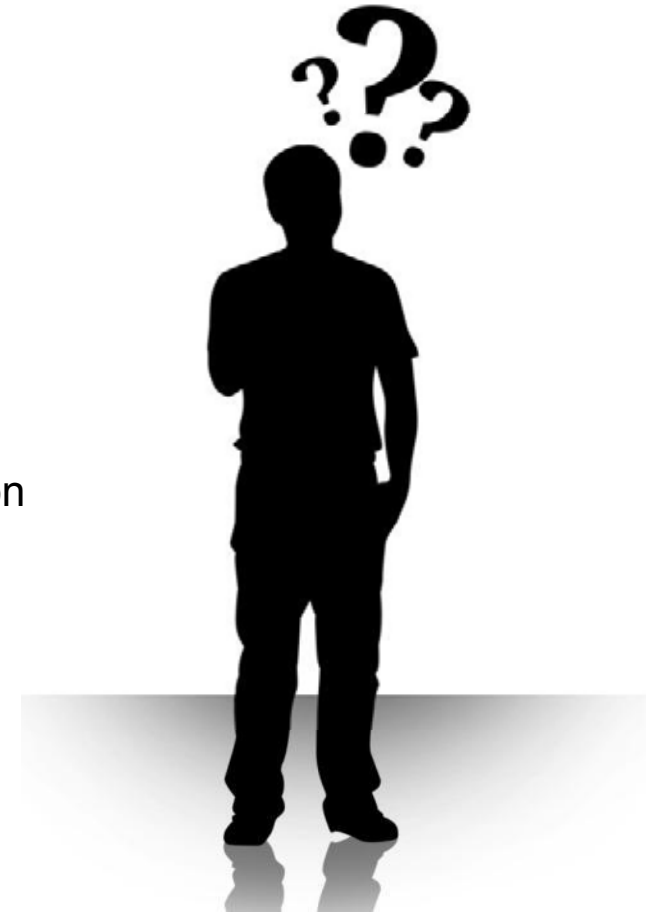
- **The Role of the Community's IRP Manager**
- **Overview of What PG&E is Doing:**
  - Continued monitoring for Cr6 plume characterization
  - Interim plume treatment operations
  - Final remedy feasibility study
  - New Background Cr6 assessment study
  - Promoting conclusion of Water Board managed EIR for remedy
  - Whole house water replacement feasibility study
- **Tonight's Technical Focus Topic**
  - More on My Goal: Assist with Community Understanding of Overall Project
  - Whole House Water Replacement Program
- **Conclusions**

Tonight's Presentation Outline

- **IRP Manager's Mission of More Detailed Community Understanding**
  - Addressing Topics You are Skeptical About
- **IRP Manager's "Watch List"**
- **Whole House Water Replacement Program**
- **Conclusions**

IRP Manager's Mission of More Detailed Community Understanding

- **How Do I Best Serve the Hinkley Community in My Assigned Role?**
- **Some of My Takeaways from Last Month's Meeting**
  - Vocal, passionate interest and involvement in the Cr6 groundwater impacts
  - The issue personally affects *you*, and there's frustration
  - Skepticism (bordering on lack of belief) regarding technical facts and briefings
  - Frustration regarding the speed of the program…"why so long?"
  - I want "safe water" for my home and family…now!



IRP Manager's Mission of More Detailed Community Understanding (cont.)

- **Mechanisms**
  - Identify the maybe "10 main issues of skepticism" and discuss them in the months ahead
    - ♦ Separate "rumor and perception" from "facts"
  - Better describe how the components of the entire Cr6 cleanup program fit together (or…what's the timeline?)
  - While interacting with you, the IRP Manager function needs to be an excellent listener, and act, as merited, on your suggestions
  - Openly describe the "watch list" of PG&E initiatives we are interfacing with PG&E on

Addressing 10 (More or Less?) Issues of Skepticism

1. How do all of the **Individual Programs Integrate Together** towards a Final Solution?
    1. Is this the Right Approach and How Long?
2. Competency and Results from **2007 Cr6 Background Study**
3. The **New 2012 Background Study Plan**
4. **Chromium 6+ Vs. Chromium 3+**
    1. Their relative presence in the environment
    2. Differentiating “one from the other” in a groundwater sample
5. **Health Risks** and **Final Clean Up Standard** for Cr6
6. **Plume Definition** and Continuing Monitoring
7. Domestic Well **Monitoring**
    1. How’s it performed?
    2. How am I Eligible?
11. The **School’s Supplemental Environmental Project** (SEP) for a “New, Permanent, Water Supply”

 # The New 2012 Background Study Plan

 # Chromium 6+ Vs. Chromium 3+

- Their relative presence in the environment
- Differentiating “one from the other” in groundwater samples

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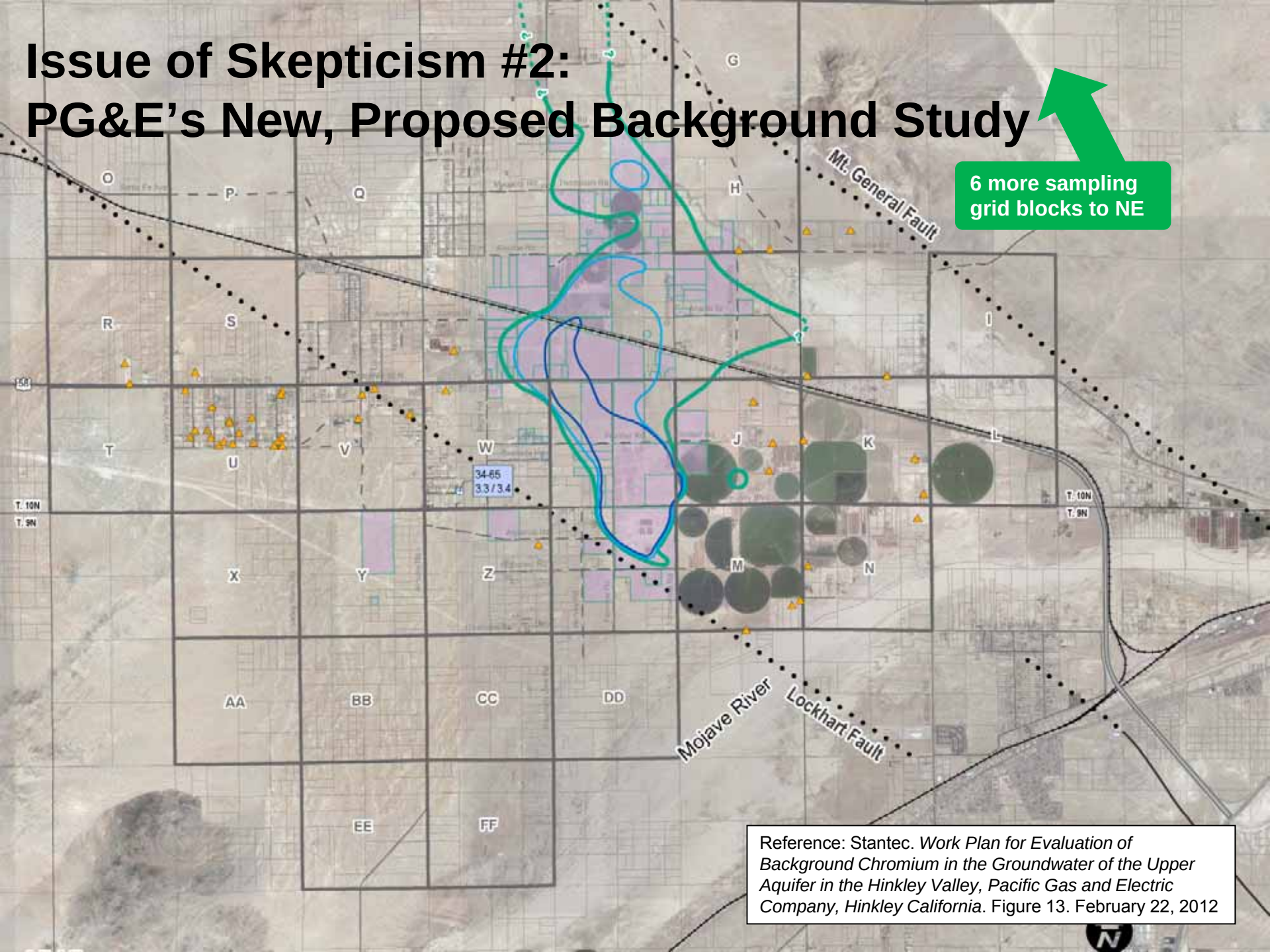
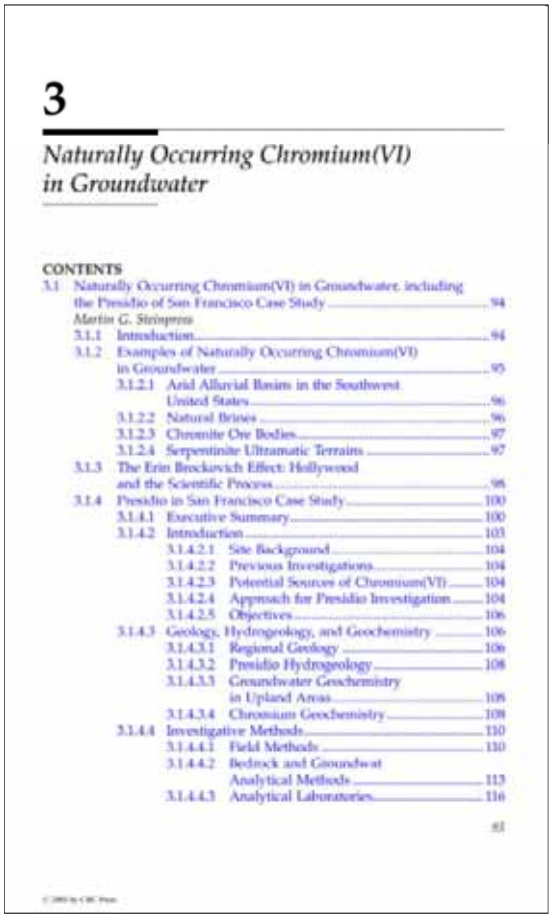
Issue of Skepticism #2:
PG&E's New, Proposed Background Study



Reference: Stantec. *Work Plan for Evaluation of Background Chromium in the Groundwater of the Upper Aquifer in the Hinkley Valley, Pacific Gas and Electric Company, Hinkley California*. Figure 13. February 22, 2012

Issue of Skepticism #1:
Cr6 Does Occur Naturally in Groundwater



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Naturally Occurring Chromium(VI) in Groundwater

CONTENTS

Reference: Steinpress, M.G., "Naturally Occurring Chromium (VI) in Groundwater," in Chromium (VI) Handbook, Guertin, J, et al (eds), Chapter 3, CRC Press, Boca Raton, FL (2005)

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Delta Chromium-53/52 isotopic composition of native and contaminated groundwater, Mojave Desert, USA

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ABSTRACT

Chromium(VI) concentrations in groundwater sampled from three contaminant plumes in aquifers in the Mojave Desert near Hinkley, Topock and El Mirage, California, USA, were as high as 2600, 5800 and 330 µg/L, respectively. $\delta^{53/52}$Cr compositions from more than 50 samples collected within these plumes ranged from near 0‰ to almost 4‰ near the plume margins. Assuming only reductive fractionation of Cr(VI) to Cr(III) within the plume, apparent fractionation factors for $\delta^{53/52}$Cr isotopes ranged from ε_{app} = 0.3 to 0.4 within the Hinkley and Topock plumes, respectively, and only the El Mirage plume had a fractionation factor similar to the laboratory derived value of ε = 3.5. One possible explanation for the difference between field and laboratory fractionation factors at the Hinkley and Topock sites is localized reductive fractionation of Cr(VI) to Cr(III), with subsequent advective mixing of native and contaminated water near the plume margin. Chromium(VI) concentrations and $\delta^{53/52}$Cr isotopic compositions did not uniquely define the source of Cr near the plume margin, or the extent of reductive fractionation within the plume. However, Cr(VI) and $\delta^{53/52}$Cr data contribute to understanding of the interaction between reductive and mixing processes that occur within and near the margins of Cr contamination plumes. Reductive fractionation of Cr(VI) predominates in plumes having higher ε_{app}, these plumes may be suitable for monitored natural attenuation. In contrast, advective mixing predominates in plumes having lower ε_{app}, the highly dispersed margins of these plumes may be difficult to define and manage.
Published by Elsevier Ltd.

1. Introduction

Reference: Izbicki, John A. Delta Chromium-53/52 isotopic composition of native and contaminated groundwater, Mojave Desert, USA. 26 December 2011.

PROJECT NAVIGATOR, LTD.

Some Notes on Chromium in the Environment

Excerpted from: Izbicki, J.A., et al, Delta Chromium-53/52 Isotopic Composition of Native and Contaminated Groundwater, Mojave Desert, USA., Appl. Geochem, in press, 2012.

- "Chromium is the 21st Most Abundant Element in the Earth's Crust
- The Average Concentration of Cr in the Earth's Crust is 100mg/Kg
- The Most Common Cr Containing Mineral is Chromite (FeCr2O4)
- *Chromium (as Cr3 & Cr6) Occurs Naturally in Groundwater in the Mojave Desert*
- In Water, Cr is Present Either in the Cr3 or Cr6 Oxidation States
  - Cr3, an essential micronutrient for humans, is only sparingly soluble in groundwater
  - Cr concentrations in groundwater underlying the Mojave Desert can exceed the California Maximum Contaminant Level (MCL) of 50µg/l*
- Cal DPH has set a PHG of 0.02µg/l in drinking water"

* Izbicki, J.A., et al, Chromium, chromium isotopes, and selected trace elements, western Mojave Desert, USA., Appl. Geochem 23, 1325-1352 (2008)

Tonight's Presentation Outline

- IRP Manager's Mission of Improved Community Understanding
  - Addressing Topics You are Skeptical About
- **IRP Manager's "Watch List"**
- **Whole House Water Replacement Program**
- **Conclusions**

IRP Manager's Current Oversight Watch List

- Improved Schedule Understanding
- New Background Study
- Plume Lateral and Vertical Extent
- Roll Out of Water Replacement Program
- Remedy Selection
- Manganese and Arsenic Management

CAC and IRP Manager Interaction with PG&E Since the March 22, 2012 Community Meeting

- The IRP Manager's Interaction with PG&E is ramping up

Telecon with PG&E on technical issues (3/30/12)

IRP Manager has 10+ individual phone calls with PG&E regarding project technical and administrative details

PG&E telephone briefing for IRP Manager regarding "Whole House Replacement Water Feasibility Study" (4/9/12)

PG&E formal briefing to CAC on "Whole House Replacement Water Feasibility Study" (4/10/12)

CAC-PG&E meeting to discuss initial impressions of the FS (4/19/12)

PG&E continues to supply technical information to IRP Manager, as requested

CAC letter submission to Water Board regarding Cr6 measurements (4/20/12)

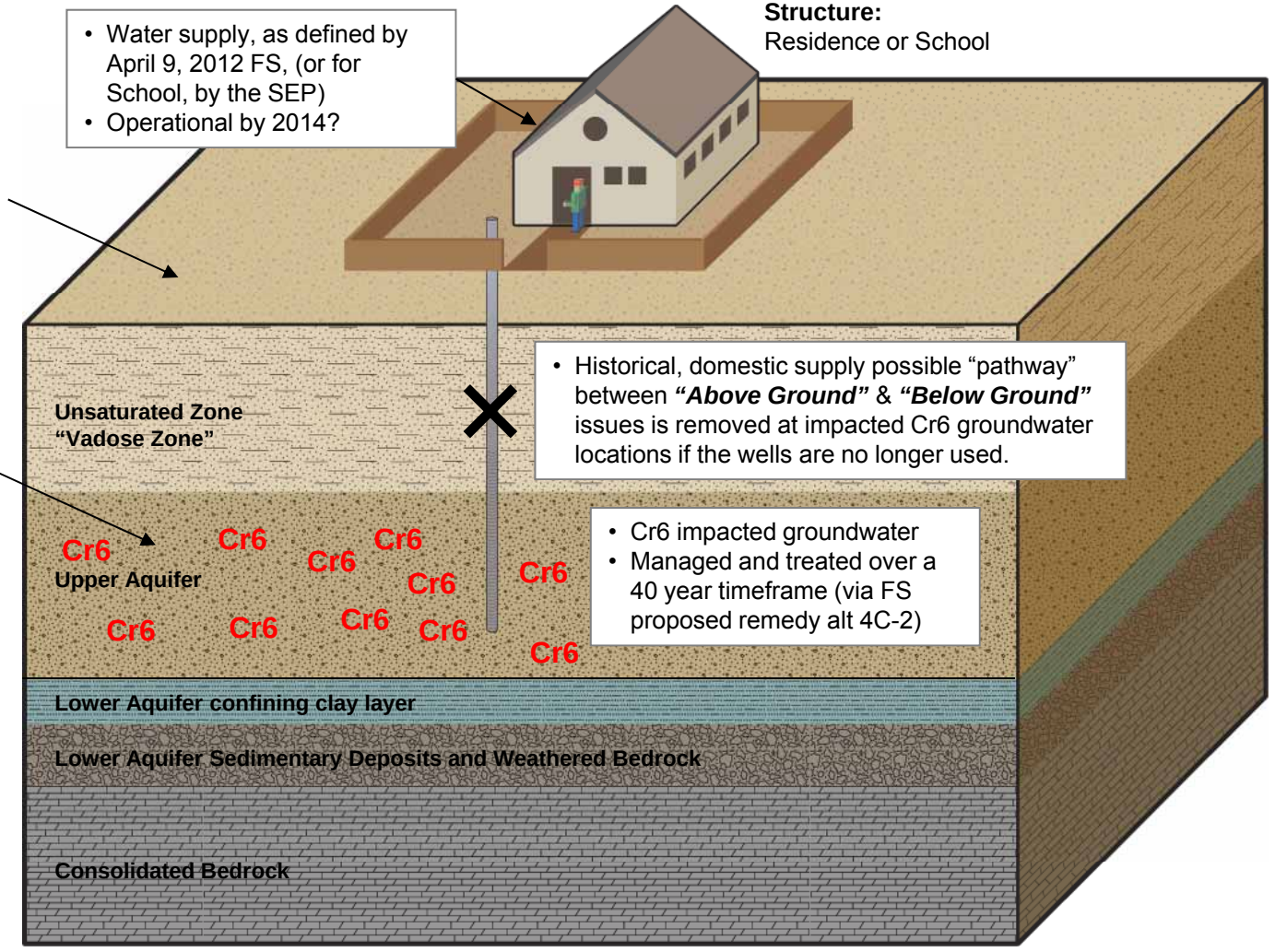
PG&E's Overall Program Can Be Divided Into Two General Work Areas…Above Ground & Below Ground

Above Ground

Community interface with the plume is possible by domestic well drawing on impacted groundwater. Exposure eliminated via the Whole House Water Replacement Program

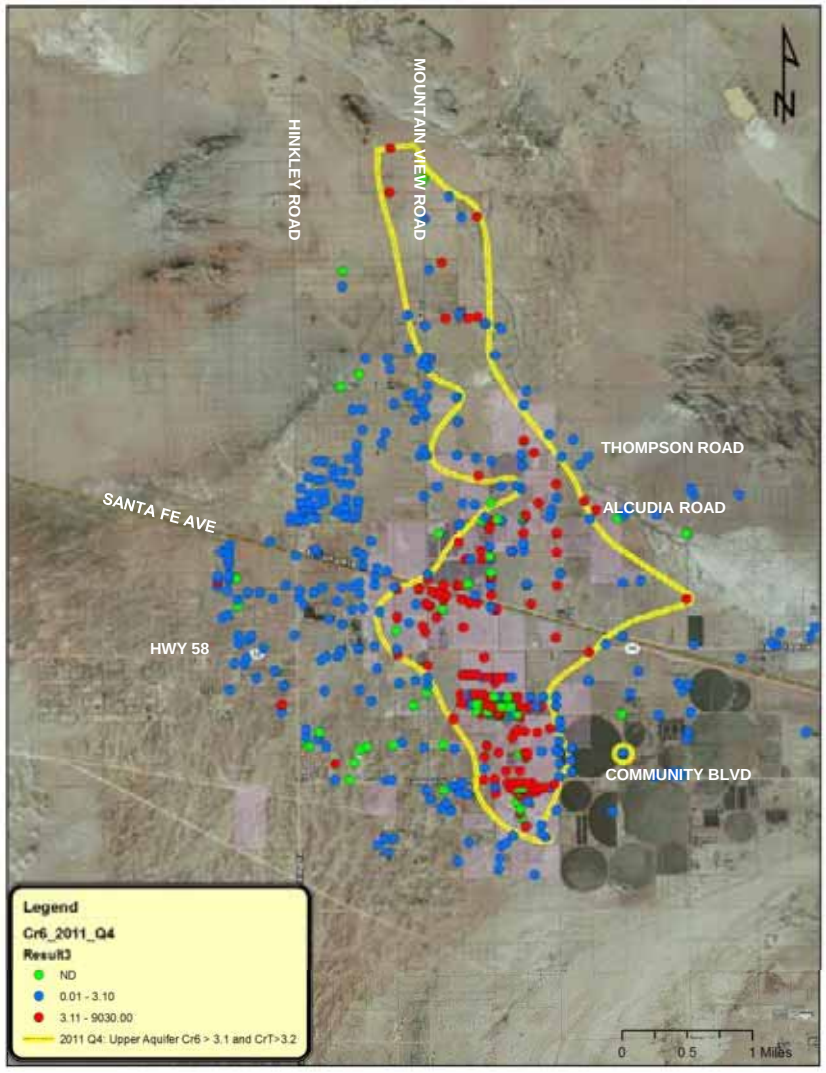
Below Ground

Plume clean up to be determined by the FS and it resulting technologies. This is a longer timeframe effort.



IRP Manager will Assist CAC & Community Interface with PG&E on the Cr6 Database: GIS Will Help

2011 Q4 GW Cr6 Concentration Distribution



General Takeaway:

- IRP Manager is in general agreement with plume shapes reported by PG&E
- Need to continually bear in mind the *distinctly different issues* of plume expansion Vs plume discovery

Tonight's Presentation Outline

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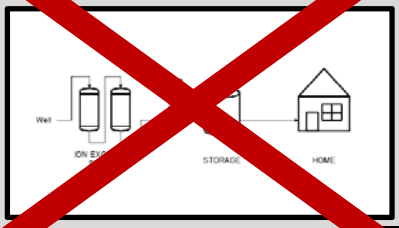
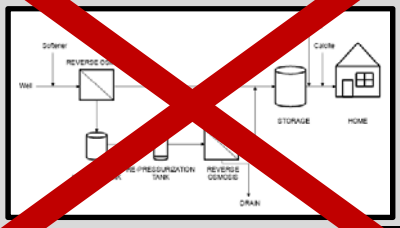
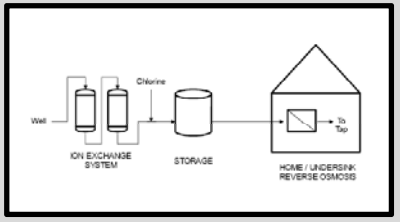
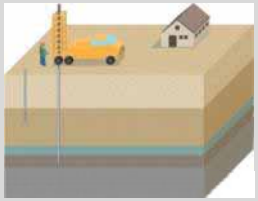
Whole House Water Replacement Program. Matrix of Alternatives…What's Selected to Install

Community Systems	~~nnect to GSWC~~  ~~1~~	~~iave River Groundwat~~  ~~2~~	~~cal Groundwater~~  ~~3~~
Whole House Water Treatment	~~on-Exchange (IX)~~  ~~4a~~	~~Reverse Osmosis (RO)~~  ~~4b~~	IX with Under Sink RO  4c
Other Alternatives	Deeper (200 ft?) Replacement Wells  5	~~Truck Water~~  ~~6~~	

Summary

- 7 Alternatives
- Pilot Testing Performed
- Objective Evaluation Criteria

Whole House Water Replacement Program: What, Where (i.e. Eligibility) and When

WHAT

- Deep replacement well
  (with monitoring)

or

- House point of entry water treatment system
  (IX with RO, plus OM&M)

WHERE

- Homes within the 3.1 ppb Cr6 4Q 2011 boundary
- Homes with 1 mile of above boundary with detectable Cr6

Yellow coverage denotes the areas within 1 mile of the 3.1 ppb Cr6 4Q 2011 boundary.

WHEN

- 4/30/2012 Begin meetings
- 6/2012 Open house
- 8/31/2012 Selection deadline
- 10/1/2012 Begin installation program

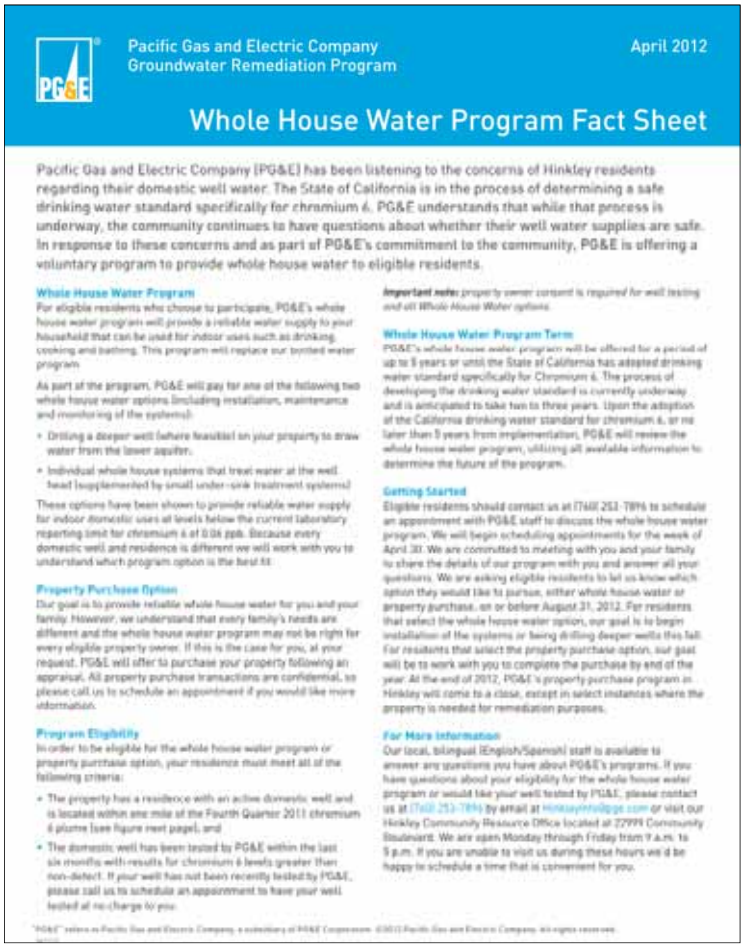
Program Duration

- Until a Cr6 MCL is established

or

- 5 years
  - Evaluate program and data
  - Make decisions for future

How This Affects You



Pacific Gas and Electric Company
Groundwater Remediation Program

April 2012

Whole House Water Program Fact Sheet

Pacific Gas and Electric Company (PG&E) has been listening to the concerns of Hinkley residents regarding their domestic well water. The State of California is in the process of determining a safe drinking water standard specifically for chromium 6. PG&E understands that while that process is underway, the community continues to have questions about whether their well water supplies are safe. In response to these concerns and as part of PG&E's commitment to the community, PG&E is offering a voluntary program to provide whole house water to eligible residents.

Whole House Water Program

For eligible residents who choose to participate, PG&E's whole house water program will provide a reliable water supply to your household that can be used for indoor uses such as drinking, cooking and bathing. This program will replace our bottled water program.

As part of the program, PG&E will pay for one of the following two whole house water options (including installation, maintenance and monitoring of the systems):

- Drilling a deeper well (where feasible) on your property to draw water from the lower aquifer.
- Individual whole house systems that treat water at the well head (supplemented by small under-sink treatment systems).

These options have been shown to provide reliable water supply for indoor domestic uses at levels below the current laboratory reporting limit for chromium 6 of 0.06 ppb. Because every domestic well and residence is different we will work with you to understand which program option is the best fit.

Property Purchase Option

Our goal is to provide reliable whole house water for you and your family. However, we understand that every family's needs are different and the whole house water program may not be right for every eligible property owner. If this is the case for you, at your request, PG&E will offer to purchase your property following an appraisal. All property purchase transactions are confidential, so please call us to schedule an appointment if you would like more information.

Program Eligibility

In order to be eligible for the whole house water program or property purchase option, your residence must meet all of the following criteria:

- The property has a residence with an active domestic well and is located within one mile of the Fourth Quarter 2011 chromium 6 plume (see figure next page), and
- The domestic well has been tested by PG&E within the last six months with results for chromium 6 levels greater than non-detect. If your well has not been recently tested by PG&E, please call us to schedule an appointment to have your well tested at no charge to you.

Important note: *property owner consent is required for well testing and all Whole House Water options.*

Whole House Water Program Term

PG&E's whole house water program will be offered for a period of up to 5 years or until the State of California has adopted drinking water standard specifically for Chromium 6. The process of developing the drinking water standard is currently underway and is anticipated to take two to three years. Upon the adoption of the California drinking water standard for chromium 6, or no later than 5 years from implementation, PG&E will review the whole house water program, utilizing all available information to determine the future of the program.

Getting Started

Eligible residents should contact us at (760) 253-7896 to schedule an appointment with PG&E staff to discuss the whole house water program. We will begin scheduling appointments for the week of April 30. We are committed to meeting with you and your family to share the details of our program with you and answer all your questions. We are asking eligible residents to let us know which option they would like to pursue, either whole house water or property purchase, on or before August 31, 2012. For residents that select the whole house water option, our goal is to begin installation of the systems or being drilling deeper wells this fall. For residents that select the property purchase option, our goal will be to work with you to complete the purchase by end of the year. At the end of 2012, PG&E's property purchase program in Hinkley will come to a close, except in select instances where the property is needed for remediation purposes.

For More Information

Our local, bilingual (English/Spanish) staff is available to answer any questions you have about PG&E's programs. If you have questions about your eligibility for the whole house water program or would like your well tested by PG&E, please contact us at (760) 253-7896 by email at hinkleyinfo@pge.com or visit our Hinkley Community Resource Office located at 27999 Community Boulevard. We are open Monday through Friday from 9 a.m. to 5 p.m. If you are unable to visit us during these hours we'd be happy to schedule a time that is convenient for you.

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Apr 2012 Whole House Water Program Fact Sheet

- **PG&E will visit you personally to discuss your well's condition**
- **PG&E is intent on making sure you have the right information to make an informed decision regarding which option**
- **Ask questions!!**
- **PG&E sent a recent Newsletter (opposite)**

Suggested Questions for PG&E When You Meet

- **Please explain the Whole House Replacement Water Options to me.**
  - Explain to me my role in the decision-making process.
- **How long will the program take?**
- **What do you know about the Cr6 concentrations in groundwater under my property?**
- **Have you tested my well?**
- **What are the results?**
- **Please review the information and data you'll collect to decide if my house will receive a *New Deeper Well* or a *Point of Entry, Ion Exchange System.***
  - Once collected, will you review this information with me?
- **Please explain the Whole House Water monitoring programs you will perform for each option.**
- **Please discuss costs with me.**
  - PG&E will pay for all installation, operating and monitoring costs .
  - What happens later?
  - How can I find out what the future costs may be?

Conclusions

- **The Hinkley Community is Going to be Decoupled from the Cr6 Plume**
- **An Accelerated Whole House Replacement Water Program is Underway**
- **Interim Clean Up on the Plume will Continue as Final Remedy is Approved**
- **Approaches to Establishing a Long-term Clean Up Goal are Underway**

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