CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

MEETING OF JANUARY 8-9, 2014
BARTSOW

ITEM: **4**

SUBJECT: **PACIFIC GAS AND ELECTRIC COMPANY (PG&E), HINKLEY COMPRESSOR STATION, SAN BERNARDINO COUNTY – STATUS REPORT ON ACTIVITIES CONCERNING CHROMIUM CONTAMINATION FROM PACIFIC GAS AND ELECTRIC COMPANY'S HINKLEY COMPRESSOR STATION**

CHRONOLOGY: This chronology lists Water Board actions related to the cleanup of chromium in groundwater.

Aug. 6, 2008	Cleanup and Abatement Order (CAO) No. R6V-2008-0002 directed PG&E, among other things, to continue interim remedial actions and to develop and implement a comprehensive cleanup strategy for chromium in groundwater.
Jan. 7, 2011	CAO No. R6V-2011-0005 and amendments directed PG&E to provide interim water supply (I.e., bottled water) and permanent replacement water supply to Hinkley residents having chromium in domestic wells within the affected area.
Jan. 6, 2013	Amended CAO R6V-2008-0002A4 directed PG&E to implement additional investigations for defining the full extent of chromium in groundwater.
July 17, 2013	Adopted final EIR for comprehensive cleanup of chromium in groundwater.

STATUS: This is a routine standing item for southern board meetings.

The November Status of Actions sheet distributed to the Hinkley Community Advisory Committee is enclosed describing Water Board activities in that month.

Water Board staff will also provide an update on the following topics:

- Action Plan for chromium in Western Area (Enclosure 2)
- Chromium plume map in the third quarter 2013 Groundwater Monitoring Report and request for work plan (Enclosure 3)
- Whole House Water program and requested changes (Enclosure 4)
- Supplemental Environmental Project
- Next actions

The Community Advisor, Project Navigator, will provide an update to these topics (Enclosure 5):

- Technical Working Group meetings
- Community Advisory Committee
- Background Study review/discussions/meetings
- Comments on PG&E technical reports

PG&E did not provide the Water Board with slides but plans to discuss its activities since October.

RECOMMMENDA-TION

This is an information item only. The Water Board may provide direction to staff as appropriate.

ENCLOSURES:

ENCLOSURE	ITEM	BATE NUMBER
1	November 2013 Status of Actions Sheet	**4-5**
2	October 30, 2013 letter to PG&E re Action Plan for the Western Area	**4-9**
3	December 12, 2013 letter to PG&E re Third Quarter 2013 plume Map	**4-19**
4	November 19, 2013 letter to PG&E re changes to the WHRW program	**4-35**
5	Community Advisory Committee Presentation by Project Navigator	**4-40**

ENCLOSURE 1

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Status of Actions For
PG&E Hinkley Chromium Contamination
November 2013

Enforcement

1. **Supplemental Environmental Project (SEP):** The ACL settlement adopted by the Board on March 14, 2012 allows PG&E to spend at least $1.8 million to update the drinking water system at the Hinkley School by the end of 2017. PG&E has reported that construction started in October on the Hinkley School water upgrade project. The project will likely progress through the next summer, involving a new supply well, pipeline installation, and water system upgrades. The project is scheduled to be handed over to the Barstow Unified School District in 3rd quarter 2014.
2. **Cleanup and Abatement Order for Whole House Water (WHW) Supply:** Revised Order (R6V-2011-0005A2) was issued on June 7, 2012 directing PG&E to provide whole house replacement water to residences in the affected area. The Water Board received two requests to modify this order. The first request by a few residents concerned expanding the affected area to include chromium detections within one mile of non-continuous plume lines. The second request, made by PG&E, asked to continue providing whole house replacement water to existing participants and only add new households to the program when domestic wells are at or above 3.1 ppb Cr(VI)/3.2 ppb Cr(T) and within the contiguous plume boundary. The Water Board Executive Officer reviewed all comments received on the issue, and on November 19, issued her decision to not make any changes to the WHW Order at this time.
3. **Cleanup and Abatement Order for Plume Definition:** Amended Order (R6V-2008-0002A4) issued on January 8, 2013 requires PG&E to delineate the extent of the chromium plume in groundwater and determine threats to domestic wells. PG&E has petitioned the CAO to the State Water Board. Until the State Board makes a decision, PG&E is obligated to comply with tasks and deadlines in the CAO.

   On October 30, 2013, PG&E submitted the 3rd quarter 2013 groundwater monitoring report containing the results of chromium plume investigation required in CAO R6V-2008-0002A4. The report is being reviewed by Water Board staff.

Investigative and Reporting Orders

1. **Chromium Plume Boundary**
   The third quarter 2013 chromium plume map is posted on the Water Board website at: www.waterboards.ca.gov/lahontan, on the "PG&E Hinkley Chromium Cleanup" page, at the bottom of page. The 4th quarter 2013 plume map is due at the end of January.
2. **Chromium Detections in the West**
   Pursuant to Water Board orders, PG&E submitted an Action Plan in September to reduce chromium detections in groundwater in the area of the Heifer Ranch, between Serra and Hinkley Roads. On October 30, the Water Board issued a letter conditionally accepting the Action Plan for conducting a pumping test at the agricultural well on the Heifer Ranch and installing two injection wells at the Northwest Freshwater Injection system to replace two wells that had reduced injection rates in the past.

3. **Chromium Plume Containment**
   Pursuant to the amended March 2012 CAO, PG&E submitted the monthly Plume Capture Report on October 15, 2013 evaluating chromium capture south of Thompson Road. The report states that overall data indicates the chromium plume capture was maintained during the reporting period. This means that the main chromium plume associated with groundwater from beneath the Compressor Station is being contained at Thompson Road. The report complies with CAO requirements.
4. **Inactive Domestic Wells**
   On November 5, PG&E submitted a letter to the Water Board listing 37 inactive domestic wells on PG&E-acquired properties that are planned to be abandoned. All wells proposed for abandonment are screened across the upper and lower aquifers and pose a cross-contamination threat to groundwater. On November 13, the Water Board issued a request seeking public comments by November 25 on the proposed list to abandon inactive domestic wells.
5. **Manganese Plume Investigation & Cleanup - Investigative Order (R6V-2012-0060)**
   The manganese and IRZ byproduct investigation report is due to the Water Board by Nov. 20, 2013. Upon receipt, the report will be reviewed and discussed with the Hinkley Technical Working Group (including the CAC) before the Water Board issues a response letter.
5. **Whole House Water System - Investigative Order (R6V-2013-0001) –** According to PG&E, WHW systems are in operation at 37 residences. Water samples collected from the ion exchange and the reverse osmosis systems at the new locations were all of good quality--no exceedances for chromium or other metals. PG&E is in negotiations to install a treatment system at one prior household.

Status of Permitting for Expanded Cleanup Actions

August 29, 2013: Discussion of options for expanding agricultural treatment at a technical meeting in Hinkley with PG&E, Water Board staff, CAC members, and the IRP manager.

October 9, 2013: Water Board workshop to discuss agricultural treatment unit permitting options at regular meeting in Barstow.

December 2013: Release draft Waste Discharge Requirements (permit) for agricultural treatment units for public review.

January 8, 2014: Water Board workshop to discuss draft permit and hear public comments.

Status of Revised Chromium Background Study

Water Board staff, members of the CAC and its IRP, PG&E and its consultants, and Dr. John Izbicki of the US Geological Survey (USGS) continue to meet monthly to develop a revised chromium background study plan. Dr. Izbicki distributed a draft proposal for the USGS's activities in the revised study at the September 19 meeting. Members of the background study working group submitted their comments on the proposal to Dr. Izbicki in October. The Water Board plans to hear a presentation and discuss the study plan at its January 8, 2014 Board Meeting.

ENCLOSURE 2

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October 30, 2013

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ACCEPTANCE OF ACTION PLAN WITH ADDITIONAL CONDITIONS AND INVESTIGATIVE ORDER R6V-2013-0087 REQUIRING TECHNICAL REPORTS UPON PACIFIC GAS AND ELECTRIC (PG&E) IMPLEMENTING THE ACTION PLAN FOR THE AREA WEST OF THE NORTHWEST FRESHWATER INJECTION SYSTEM, PG&E COMPRESSOR STATION, HINKLEY, SAN BERNARDINO COUNTY (WDID 6B369107001)

Lahontan Regional Water Quality Control Board (Water Board) staff has reviewed PG&E's September 24, 2013 Revised Action Plan required by letter dated August 2, 2013 (Action Plan). This Order provides acceptance of the Action Plan with conditions, and requires PG&E to submit a technical report after implementing the Action Plan.

The technical reports ordered in this letter are required pursuant to section 13267 of the Water Code and are to describe the effectiveness of the Action Plan to reduce hexavalent and total chromium concentrations west of the NWFI system. The report is to provide the information necessary to determine whether the Action Plan is working to reduce the chromium in the western area.

Water Board staff continues to find hexavalent and total chromium concentrations above background levels west of the NWFI system. We acknowledge there are several hypotheses for these increased chromium concentrations and there continues to remain uncertainty around the actual causes of the chromium increases in this area. However, based on the current information, the Water Board has determined there is insufficient evidence to refute the conclusion that the increasing chromium concentrations are related to PG&E's actions. Until such time as new information is gathered as part of the Background Study, the Water Board will not consider changing its determination.

A. ACTION PLAN CONCURRENCE WITH ADDITIONAL CONDITIONS

The Water Board continues to urge PG&E to take any and all measures possible to contain chromium plume migration and to remediate elevated hexavalent and total chromium concentrations as required in CAO No. R6V-2008-0002. The Action Plan submitted to address the increasing chromium concentrations west of the NWFI system is accepted with the following conditions for specific actions.

1. Maintain and/or Enhance Freshwater Injection

The NWFI system was installed to assist with keeping PG&E's chromium release in groundwater east of the NWFI system. Since chromium increased west of the NWFI system at the same time decreases in freshwater injection occurred, returning to previous or increased injection rates should reduce the chromium concentrations west of the system.

The Action Plan explains that PG&E intends to install a new injection well at IN-03 since sand intrusion may render the well inoperable in the future. PG&E, at the Water Board's request, has also agreed to install an additional injection well near IN-02 to increase the total amount of freshwater injection. The Action Plan states that PG&E will conduct chemical well rehabilitation as the specific injection capacity of wells in the system decline over time.

The Water Board accepts PG&E's proposed actions to install IN-03R and IN-02R with two conditions:

a. Locate the new injection wells to prevent potential gaps and reduce the current 1,200 feet distance between injection wells.

b. Complete installation, system connections, and begin injection by April 2, 2014.

In its Action Plan, PG&E again requests approval to use Aqua Gard in their injection well chemical rehabilitation process. On October 24, 2013 PG&E submitted additional information clarifying that the Agua Gard process involves use of 100% carbon dioxide in a gas or cryogenic form (essentially, pressurized dry ice) to dislodge scale from well casings. The Water Board agrees with the use of Aqua Gard for well rehabilitation. To verify no changes in water quality occur from its use, monitoring of pH and electrical conductivity during well rehabilitation is required as part of this Order.

2. Additional Extraction in the East

The Action Plan proposes to enhance eastward gradient of groundwater flow by increasing groundwater extraction east of the NWFI system. This action would assist current efforts to prevent the westward flow of chromium in groundwater. PG&E proposes to discharge the extracted groundwater to new agricultural treatment units. This action is contingent upon receiving new WDRs by the Water Board (anticipated in March 2014), and biological clearance from fish and wildlife agencies. The Water Board agrees that increasing extraction in the east will assist in preventing the westward flow of chromium in groundwater. However, the unknown schedule to achieve biological clearances at new treatment units may make implementation of this action unrealistic as a viable option. We encourage PG&E to consider all options to expedite increased extraction and disposal of this water.

PG&E also proposes in the Action Plan to increase groundwater extraction in the east along and east of Mountain View Road and discharge to new treatment units to be located in the South Central Re-Injection Area (SCRIA). This proposal, however, may have the same biological limitations as discussed above. Water Board staff would also

like PG&E to consider discharge to existing In-situ Remediation Zone (IRZ) injection wells within the SCRIA, since this alternative can likely begin within a few months. The SCRIA is a permitted IRZ between Community Boulevard and Frontier Road under General WDR Board Order No. R6V-2008-0014. Extraction wells and pipeline to the SCRIA are already in place and would not require additional permitting from the Water Board. Current extraction and discharge rates to the SCRIA are up to 62 gallons per minute (gpm). Because PG&E's April 7, 2009, Notice of Applicability under Board Order No. R6V-2008-0014 allows PG&E to discharge up to 110 gpm, PG&E may increase its discharge to the SCRIA by an additional 48 gpm. Water Board staff have discussed these options with PG&E staff and are open to these and other alternatives that will allow PG&E to increase extraction rates as soon as possible.

3. Aquifer Pump Testing

In its Action Plan, PG&E states that it will conduct aquifer pump testing at agricultural well 27-03 at the Heifer Ranch to determine hydrogeologic conditions needed for the design of a potential western extraction system. Well 27-03 is screened in both the upper aquifer and fractured bedrock. The Action Plan contains a scope of work for the aquifer pump testing that includes measuring water levels in existing wells and considers installing piezometers to monitor groundwater levels when well 27-03 is pumped.

At the end of the September 19, 2013 Technical Working Group meeting in Hinkley, CH2MHill requested approval to install the piezometers mentioned in the original Action Plan, prior to submittal of the revised Action Plan on September 24, 2013. Lisa Dernbach of this office provided this approval conditional to the piezometers being installed in a location north of the agricultural well where few monitoring locations existed. The response from CH2MHill was that the suggested location should not be a problem and work to install the piezometers was planned to proceed immediately.

The Water Board accepts PG&E's scope of work for the Aquifer Pump Test at agricultural well 27-03 at the Heifer Ranch with the following conditions.

a. Install at least one piezometer at two differing depths north of the agricultural well and on the Heifer Ranch property, since few other wells exist in this location compared to east and west locations. New piezometers shall measure the water table elevation and the extent of pumping by the agricultural well.

b. To evaluate the extent of hydraulic capture out towards Acacia Street to the north, where hexavalent and total chromium concentrations exceeded background levels in second quarter 2013, conduct a second constant discharge test at a higher pumping rate than in the first discharge test. The results of the higher rate pumping test will be needed to evaluate effectiveness and to design a western extraction system for reducing chromium concentrations. PG&E must conduct the second pumping test as described in the Action Plan unless Water Board staff agrees that sufficient information from the first pumping tests adequately demonstrates that additional testing is unnecessary.

c. If chromium concentrations exceed 3.1 ppb hexavalent chromium or 3.2 ppb total chromium in the extracted water, PG&E may only discharge it to a permitted facility such as those areas with WDRs previously issued by the Water Board.

4. Add Western Extraction

Following the aquifer pumping test, the Action Plan discusses the option of extracting groundwater west of the NWFI system to further reduce chromium concentrations in groundwater, if needed. Groundwater extraction could occur at the Heifer Ranch agricultural well (27-03) or potential extraction wells installed in the western area. Extracted water could be piped east and applied to existing, new or expanded agricultural treatment units.

The aquifer pump test will have only limited effect on chromium concentrations since the test is expected to take place over just seven days. Additional actions, although interim, may be needed to reduce chromium concentrations in groundwater which threaten nearby domestic wells.

The Water Board accepts the plan for western extraction as discussed in the Action Plan to reduce chromium concentrations in groundwater with conditions on disposing the extracted water.

a. PG&E must consider and recommend additional interim actions to implement in the first half of 2014 to reduce hexavalent chromium concentrations to below 3.1 ppb.

b. PG&E shall propose and implement other options for disposing the extracted water if agricultural treatment units cannot be used for disposal within the first six months of 2014. Options may include on-site storage tanks and transport to a permitted facility, such as proposed for water disposal from the aquifer pump test. Another option would be to use a mobile treatment facility to reduce chromium concentrations to less than background concentrations prior to disposal to ground or into injection wells.

5. Other Proposed Investigations

The Action Plan contains proposed additional investigations for determining hydrogeologic conditions and potential chromium sources west of the NWFI system, including geophysical surveys, pore water sampling, etc. Water Board staff considers these proposed actions as not related to reducing chromium concentrations in groundwater west of the NWFI system. These investigations are part of the revised background study under consideration.

B. REQUIRED TECHNICAL REPORT – ACTION PLAN IMPLEMENTATION

Pursuant to section 13267 of the Water Code, PG&E is hereby ordered to submit to the Water Board a technical report by **January 10, 2014**, containing the following items on implementing its Action Plan required pursuant to CAO No. R6V-2008-0002. This technical report is necessary to investigate the water quality in the Hinkley basin during

PG&E's additional investigation and remediation activities proposed by the Action Plan to reduce/cleanup elevated chromium. The need for this technical report outweighs the burden on PG&E to report on implementing its Action Plan.

1. Maintain and/or Enhance Freshwater Injection

PG&E is to include the following information in its technical report:

a. A full description of completed and planned actions to install two additional injection wells to the NWFI system. The report shall contain a written analysis describing why specific locations were chosen for wells IN-03R and IN-02R in relation to the other injection wells in the system.

b. A description of rehabilitation chemicals (Aqua Gard), and volumes that were discharged, if applicable, into each new injection well in the NWFI system. Report results of pH and electrical conductivity (EC) analyses taken before, during and following well rehabilitation and purging. Analyses must continue until pH and EC stabilize.

2. Additional Extraction in the East

PG&E is to include in its technical report a full description of completed and planned actions to increase groundwater extraction east of the NWFI system and propose disposal methods to be implemented during first half 2014.

3. Aquifer Pump Testing

PG&E is to include in its technical report information on the aquifer pump testing that includes the following:

a. A full and complete description of the aquifer pumping tests, consisting of a step drawdown test and two constant rate discharge tests. Also describe downhole measurements and water samples results coordinated with the U.S. Geological Survey and collected from the Heifer Ranch agricultural well.

b. A full and complete description of the groundwater area affected by each pumping test.

c. Site maps showing the location of all wells used to measure groundwater level during pumping tests. Show drawn areas of groundwater affected by each pumping test.

d. An analysis describing why PG&E chose the specific locations for the newly installed piezometers.

e. A full and complete description of the disposal of groundwater extracted during pumping tests, including volume disposed, laboratory results of water samples, dates and location of disposal. Include a site map displaying the disposal location(s).

4. Add Western Extraction

PG&E is to include in its technical report information on adding western extraction that includes the following:

a. Describe what interim actions PG&E is recommending to implement during the first half 2014 to reduce hexavalent chromium concentrations below 3.1 ppb.

b. A full and complete description of the disposal of groundwater extracted, including volume disposed laboratory results of water samples, dates and location of disposal. Include a site map displaying the disposal location(s). Describe what other options for disposing the extracted water were considered any why the disposal method used was chosen.

5. Additional Reporting Requirements

In its technical report, PG&E shall comply with the following:

a. Describe fully in the text portion of the report data and information in tables and figures.

b. All site maps and figures must comply with mapping requirements according to previous Water Board orders. This was not done in the Action Plan and needs to be corrected in future reports to the Water Board.

c. The technical report shall be signed and stamped by a California licensed geologist or civil engineer.

C. REQUIRED TECHNICAL REPORTS– HINKLEY SCHOOL WELLS

The Action Plans states PG&E plans to continue monthly sampling of Hinkley School wells for the next six months, as discussed at the September 13, 2013, meeting with Water Board staff. Pursuant to section 13267 of the Water Code**, PG&E is hereby ordered to submit to the Water Board monthly technical reports by the tenth of each month from November 2013 to April 2014**, to cover the sampling periods of fourth quarter 2013 and first quarter 2014. PG&E has been testing the school wells monthly in the recent past; this Order requires PG&E to continue the testing it has already been conducting for another six months. These monthly technical reports are necessary to investigate the water quality in the Hinkley basin during PG&E's initial cleanup of chromium on the western area of the NWFI system. Monthly technical reports shall include the following information: sampling date, well number, description of laboratory results, copy of laboratory sheet with results, and tabulated well results over at least six months. The need for these technical reports outweighs the burden on PG&E to report on implementing its Action Plan.

Failure to furnish or provide a technical report meeting the requirements in this investigative Order may subject PG&E to civil liability up to $1,000 per day for each violation pursuant to Water Code section 13268. Failure to implement the Action Plan may subject PG&E to civil liability up to $5,000 per day for each violation pursuant to

Water Code section 13350. The Water Board reserves its right to take any enforcement action authorized by law.

If you should have any questions about this conditional approval of the Action Plan or the required technical report, please contact me at (530) 542-5436 or Lauri.Kemper@waterboards.ca.gov, or contact Staff Counsel Laura Drabandt at (916) 341-5180 or Laura.Drabandt@waterboards.ca.gov.

LAURI KEMPER, P.E.
ASSISTANT EXECUTIVE OFFICER

Enclosure: Section 13267 Fact Sheet

cc: PG&E Hinkley Lyris List (and web posting)
PG&E Technical Mail List
Kevin Sullivan, PG&E
Tom Wilson, PG&E

LSD/adw/T: R6V-2013-0087 Action Plan approval 13267 (lk)(ld)(sue)
File: WDID (VVL) 6B369107001

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ENCLOSURE 3

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December 12, 2013

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REVIEW OF CHROMIUM PLUME MAPS, THIRD QUARTER 2013 GROUNDWATER MONITORING REPORT AND AGREEMENT WITH NORTHERN INVESTIGATION CONCEPT, PACIFIC GAS AND ELECTRIC COMPANY, HINKLEY, SAN BERNARDINO COUNTY (CLEANUP AND ABATEMENT ORDER NO. R6V-2008-0002A4) WDID 6B369107001

At our technical meeting on Friday December 6, 2013, we discussed the information contained in your 3rd Quarter 2013 Groundwater Monitoring Report (Report), including the "compliance map" and the "interpretive map," and the October 30, 2013 report submitted pursuant to Cleanup and Abatement Order (CAO) R6V-2008-0002A4. As a result of our meeting and my staff's review of the chromium plume boundary maps, supporting information and analysis submitted by PG&E, I concur that the data supports that several areas with chromium concentrations above background do not appear to originate from PG&E's historical releases from the compressor station. However, as I describe below, I disagree with some of the information and analysis supporting your conclusion that certain areas with chromium concentrations above background do not relate to PG&E's historical discharges, and also find that there are still several areas where additional plume delineation is needed. I understand that PG&E plans to submit a work plan to investigate the chromium concentrations in the northern-most plume area, north of Thompson Road, and this letter further describes the areas we discussed. In addition, this letter requires PG&E to submit a new plume map that is consistent with the findings herein, and notify any residents eligible for the Whole House Replacement Water (WHRW) Program.

PLUME DELINEATION MAPS: COMPLIANCE V. INTERPRETED

The Report includes two different maps showing the extent of the total and hexavalent chromium plume in groundwater in Hinkley. One map (Figure 5-5) showed the plume boundary by connecting all monitoring wells with detections above the background levels of 3.1 parts per billion (ppb) hexavalent chromium (Cr6) and 3.2 ppb total chromium (CrT) that are within 2,600 feet of each other. PG&E referred to this map as its "compliance" map. The other map is referred to as the "interpreted" map in that PG&E drew the chromium boundary based on its professional judgment. In its Report, PG&E explained the reasons why it believes the interpreted map more accurately depicts the chromium plume boundary related to its historical releases as compared to the compliance map.

WATER BOARD'S DETERMINATIONS ON PG&E'S PLUME DELINEATION MAPS SUBMITTED AS PART OF ITS REPORT

Eastern Area

Water Board staff has reviewed information in the Report and other referenced documents justifying the interpreted chromium plume boundaries in Figure 5-6 that are based upon PG&E's professional judgment. We agree with PG&E that chromium detected in groundwater in the eastern area of the Hinkley Valley is not likely related to the historical chromium releases at the compressor station. This interpretation is supported by the potentiometric maps in Figures 3-1 and 3-2 and historical data showing the flow direction of groundwater in the east as being towards the northwest. Such information indicates that chromium detections on Dixie Road and eastward did not likely originate from the compressor station. Chromium detections in monitoring wells between Dixie Road and Summerset Road, however, could have originated from the compressor station then were pulled eastward by historical pumping wells on nearby agricultural fields, overcoming natural groundwater flow. Therefore, until further information becomes available to support an alternative conclusion, chromium detections between Dixie Road and Summerset Road are assumed to be from PG&E's historical releases and should be drawn as such in future plume maps. However, plume boundary lines depicting maximum chromium concentrations on and east of Dixie Road no longer need to be drawn on future plume maps.

Southwestern Area

The Water Board also agrees with PG&E's professional judgment that chromium detected in groundwater in the southwestern area of the Hinkley Valley is not likely related to the past chromium releases at the compressor station. This conclusion is supported by the potentiometric maps in Figures 3-1 and 3-2, and historical data showing the flow direction of groundwater in the southwest as moving towards the northeast. Such information indicates that chromium detections in monitoring wells near the intersection of Community Boulevard and Hinkley Road (MW-159, MW-160, MW-163) are in the upgradient flow direction of the Lockhart Fault. Therefore, because past chromium releases likely did not flow upgradient nor were pulled upgradient, until further information becomes available to support an alternative conclusion, plume boundary lines depicting maximum chromium concentrations in this area no longer need to be drawn on future plume maps.

Western Area

Following review of information in the Report and other referenced documents, we do not agree with PG&E's conclusion that chromium detected in groundwater north of the contiguous plume and west towards the Heifer Ranch on Hinkley Road is not related to historical releases at the compressor station. Our rationale for the western area was presented in Water Board's August 2, 2013 letter (attached). Based upon chromium detections at and above background levels in monitoring wells MW-169S2, MW-121S, and MW-153 during third quarter 2013, the chromium plume lines must be drawn to connect the contiguous plume with these wells west of Serra Road.

Northern Area

Water Board disagrees with PG&E's conclusions that the chromium plume should not be drawn north of Thompson Road using the adopted background values of 3.1 ppb Cr6 and 3.2 ppb CrT because those background values were based on a background study using long-screen wells in the southern portion of the Hinkley Valley. Although the Water Board recognizes limitations in PG&E's original 2007 Background Chromium Study, the Water Board adopted the 3.1 ppb Cr6 and 3.2 ppb CrT as its background levels because it was based on the best scientific information that we had at the time, and the Water Board reaffirmed at the June 2012 Board meeting the use of that number pending the conclusion of the USGS Background Study, recognizing that it was protective of the Hinkley community.

In addition, there is substantial evidence to support the contention that the water from the compressor station historically moved north of Thompson Road and into the Harper Dry Lake Valley. Finding No. 12 of CAO R6V-2008-0002A4 conservatively calculates the length of the plume using an average groundwater flow rate of 2 feet per day[1] since the time of the initial 1952 discharge (assuming time between current time and discharge is 60 years, minus 7 years for the waste to percolate to groundwater). This calculation puts the leading plume edge at 7.3 miles, which is well into the Harper Dry Lake Valley. This distance is based on an average flow velocity and does not take into consideration significant water level increases and migration during flood years, when the chromium plume was likely pushed out even further. Therefore, because of the lack of any other information at this time on which to establish an alternative background number, the Water Board in June 2012 decided to continue to use 3.1 ppb Cr6 and 3.2 ppb CrT established in CAO R6V-2008-0002A1 as the background number for the purposes of drawing the plume map until additional information becomes available from the proposed USGS Background Study.

NORTHERN INVESTIGATION

At our December 6, 2013 meeting with PG&E, we discussed the fact that insufficient information exists to fully understand the occurrence of chromium in the groundwater in the northern-most areas above Thompson Road, and that additional investigation is needed. The following areas were identified to be included in a future work plan:

a. The "gap" near the intersection of American Way and Fossil Road
b. The area north of domestic well 33N-01, near intersection of Sunset Road and American Avenue; and south of well 33N-01, near intersection of Roy Road and Holstead Road
c. The area east of Hinkley Road that is north of the northern Mountain General Road
d. The potentially occupied parcels north of Grass Hopper Road

To address the lack of groundwater information surrounding the potentially occupied parcels north of Grass Hopper Road, we agree that an appropriate first step could include sampling and analysis of the domestic supply wells in this area. Once located and verified, please show all these domestic supply wells on the quarterly plume maps, and also include the domestic supply wells located between Grass Hopper and Holsted Roads.

[1] Calculation was based on a groundwater flow velocity rate of migration from 1 to 4 feet per day (Feasibility Study, Haley & Aldrich, August 2010)

Two other areas that we believe should be investigated are 1) the area east of MW-141S near the intersection of Coon Canyon Road and the southern Mountain General Road, and 2) the area west of MW-113S. If additional domestic supply wells are identified in these areas, please include them on future maps.

No later than January 17, 2014, please submit, for our review and acceptance, a work plan to investigate the chromium concentrations in the areas described above, north of Thompson Road.

PLUME MAP REVISION REQUEST

No later than January 3, 2014, please provide a revised chromium plume map that reflects the conclusions by the Water Board in this letter. As described above, the revised map and future maps do not need to include as part of the plume boundary lines those detections of hexavalent chromium above the background levels that are on and east of Dixie Road, and no further monitoring wells are needed in this area to refine plume delineation. The plume boundary lines on the plume map must, however, continue to include chromium detections between Dixie and Summerset that exceed maximum background concentrations. Chromium detections in monitoring wells near the intersection of Community Boulevard and Hinkley Road (MW-159, MW-160, MW163) that are in the upgradient flow direction of the Lockhart Fault do not need to be included as part of the mapped plume. However, until further evidence is available to support a contrary conclusion, PG&E must draw the chromium plume boundaries extending to monitoring wells located west of Serra Road, downgradient of the Lockhart Fault, and to locations north of Thompson Road that contain chromium concentrations that exceed the established background levels. Plume boundary lines on the plume map shall connect monitoring wells that have chromium detections that exceed maximum background concentrations and that are within 2,600 feet of each other.

Although there may be situations where it is more appropriate to provide three separate maps of the plume identifying the chromium detections in the three aquifer zones, here, for the purposes of posting a quarterly plume map, it is important for the public to be able to see one chromium plume map for the combined aquifer zones. In addition, based upon the fate and migration of the chromium plume over 60 plus years and PG&E's indication that it is difficult to gain access to large parcels in the northern Hinkley Valley and northward that limit its ability to put in monitoring wells to more accurately define the plume in the north, the Water Board is continuing to require that chromium plume boundaries be drawn around monitoring wells within 2,600 feet of each other when chromium is detected above background levels.

As set forth in CAO R6V-2008-0002-A4, if PG&E believes that chromium data in groundwater is not related to its historic chromium discharges and should not be drawn as part of the plume boundary, it is able to use its professional judgment to submit additional information, as PG&E did as part of the 3rd Quarter Report. As the USGS background study progresses, we are willing to consider new information and whether it supports an alternative determination about the source of the chromium, particularly as it relates to the detections above Thompson Road.

NOTIFICATION TO NEWLY ELIGIBLE RESIDENTS

As required by CAO R6V-2011-0005A2 (p.4, 2.c.) and **within five days of the date of this letter**, PG&E is directed to notify owners of domestic wells that are eligible for the WHRW Program due to any expansion of the buffer area in its 3rd Quarter 2013 Report, consistent with the findings set forth in this letter. This letter clarifies that the 5-day notification for newly eligible residents that are outside of the plume occurs after the Water Board has reviewed the quarterly map and made any necessary determinations about the plume delineation boundaries. This letter triggers the 5-day requirement for notifying the residents that are newly eligible for the WHRW Program due to changes in the plume boundary based on the 3rd Quarter 2013 Report and the conclusions of this letter. Please provide the Water Board copies of these notifications by **January 3, 2014** and include well numbers and resident's names.

If you have any questions about the information in this letter, please contact me or Lauri Kemper at (530) 542-5436 or lkemper@waterboards.ca.gov.

Patty Z. Kouyoumdjian

PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Enclosure: August 2, 2013 letter from Water Board to PG&E

cc: PG&E Hinkley Lyris List (and web posting)

August 2, 2013

Sheryl Bilbrey
Director, Remediation Program Office
Pacific Gas and Electric Company
77 Beale Street, B28A
San Francisco, CA 94105

REQUEST FOR AN ACTION PLAN AND MORE INFORMATION IN REPORTS REQUIRED BY CLEANUP AND ABATEMENT ORDER NO. R6V-2008-0002 AND INVESTIGATIVE ORDER R6V-2013-0041

PACIFIC GAS AND ELECTRIC (PG&E) COMPRESSOR STATION, HINKLEY, SAN BERNARDINO COUNTY (WDID 6B369107001)

The primary purpose of this letter is to require PG&E to submit an Action Plan by September 9, 2013 to reduce chromium concentrations in the area west of the Northwest Freshwater Injection System where chromium concentrations has been increasing over at least seven quarters. This Action Plan is required pursuant to Cleanup and Abatement Order (CAO) No. R6V-2008-0002[1].

Additionally, Water Board staff is providing responses to information received in PG&E's March 29, 2013 Semiannual Remediation Status Report and in a supplemental report dated June 25, 2013 submitted in response to Investigative Order R6V-2013-0041. This letter also serves as notice that PG&E failed to comply with reporting requirements in Cleanup and Abatement Order (CAO) No. R6V-2008-0002. PG&E's Semiannual Report failed to discuss the chromium plume western extension and significant reductions in cleanup actions. Lastly, Water Board staff is requesting additional information related to the responses provided pursuant to Investigative Order R6V-2013-0041.

I. CAO R6V-2008-0002 Reporting Violations

CAO R6V-2008-0002 requires, in part, PG&E to provide semi-annual status reports[2] on actions it has taken to remediate chromium-impacted groundwater and to contain plume migration (CAO R6V-2008-0002 Directive 6.3, p. 9). PG&E is required to not only provide the groundwater monitoring data, but to also discuss the actual effectiveness of the remediation compared to its predicted effectiveness. The semiannual report is to provide recommendations and an implementation schedule for increasing the

[1] For the purposes of this letter, any reference to CAO R6V-2008-0002 includes its four amendments.
[2] All reports submitted by PG&E are available online at : http://geotracker.waterboards.ca.gov

remediation effectiveness if the plume is not being contained and the expected chromium concentration reductions are not occurring.
On March 29, 2013, the Water Board received the Semiannual Remediation Status Report for the second half of 2012. Water Board staff reviewed the report and concludes that PG&E failed to comply fully with Directive 6.3 of Order R6V-2008-0002, specifically:

> The report must provide groundwater monitoring data and discuss the actual effectiveness of the implemented remedy compared to its predicted effectiveness. Any adverse environmental or public health impacts created from the project must be reported along with remedies taken to correct such problems. The report must provide recommendations and an implementation schedule for increasing effectiveness if current actions are not achieving plume containment and expected reductions in chromium concentrations in groundwater...

a. PG&E failed to describe the chromium detections in groundwater and drawn plume boundary west of Serra Road, indicating plume migration.

The Semiannual Report depicts a new plume boundary but fails to discuss new chromium detections above background levels in groundwater west of Serra Road. The report does not mention or describe a new chromium boundary configuration between freshwater injection wells IN-02 and IN-03 that led to the plume boundary being drawn 2,100 feet to monitoring well MW-153S. This new plume configuration is significantly different from past plume maps, requiring a written description and discussion in the report.

b. PG&E failed to describe the significant reductions or other changes made to operations in the Northwest Freshwater Injection System and its impacts on the remediation's effectiveness.

The Semiannual Report fails to mention significant reductions in operation of the Northwest Freshwater Injection System. Table A-3 in the report shows that from third quarter to fourth quarter 2012, the Northwest Freshwater Injection System operated at a reduced number of days of injections, and at a reduced rate of injection. The table shows that injection to IN-03 was reduced from an average rate of 12 gallons per minute (gpm) for the period during third quarter to 5 gpm for the period during fourth quarter, which is a 58% reduction. In addition, injection operations were reduced in injection well IN-03 from an average of 29 operating days per month to 20 operating days per month, or a 31% reduction. Table 2-4 provides an operation chronology and an abbreviated reasoning for these reductions. Overall, the report fails to explain why PG&E was reducing freshwater injection operations contrary to what was described in its September 2008 Notice of Intent and addendums, approved by the Water Board in April 2009 by Order R6V-2008-0014 for general waste discharge requirements.

c. PG&E failed to provide recommendations and an implementation schedule for increasing the effectiveness of the freshwater injection.

Finally, the Semiannual Report fails to provide recommendations and an implementation schedule to correct and improve the effectiveness of the Northwest Freshwater Injection System. Well IN-03 is located in the middle of the line of five injections wells along Serra Road that operate to create a freshwater barrier to prevent plume migration to the west. The combination of reductions in operation time and injection rates at IN-03 likely contributed to a reduced area (laterally and vertically) of the freshwater barrier in the upper aquifer. The report fails to discuss the change in the effectiveness of the freshwater injection in the area of IN-03, or to compare the actual effectiveness to the predicted effectiveness relative to chromium detections to the west between IN-02 and IN-03. The Semiannual Report needed to provide recommendations, such as improving maintenance on injection wells to increase the effectiveness of the freshwater barrier to prevent chromium increases westward of the injection wells.

The increases in hexavalent chromium (Cr(VI)) levels indicate that the plume is not contained. The report fails to provide recommendations and an implementation schedule to reduce hexavalent chromium concentrations west of the Northwest Freshwater Injection System.

II. Response to Investigative Order R6V-2013-0041

Investigative Order R6V-2013-0041, issued May 24, 2013, requires PG&E to submit an addendum report to its Fourth Quarter 2012 and First Quarter 2013 reports containing information on the operation and maintenance of the Northwest Freshwater Injection System. PG&E timely submitted its report on June 25, 2013. Of the numerous items addressed in the report, four responses in particular were deficient and/or incomplete. The requirements are contained on page 3 of the Order.

a. Explain operation and maintenance activities for all injection wells; describe any deviances from prior quarters.

The June 25, 2013 report that PG&E submitted in response to the Investigative Order discussed operation and maintenance activities at the Northwest Freshwater Injection System. Maintenance was described as including system repairs, routine injection well backwashing, and chemical rehabilitation. The discussion indicated maintenance actions were completed at IN-03 and that there was downtime, but how much downtime was not disclosed in the text of the report. Rather, the reader had to refer to the table in Attachment 3 of Appendix A to find the dates that operation at IN-03 ceased and the dates that operations were restarted and calculate the difference. For instance, the table shows that IN-03 ceased operating on October 18 and then was restarted on November 5, 2012, for a difference of 18 days. The table also shows that IN-03 ceased operating on November 28 and then restarted on December 3, for a difference of 5 days. The two down periods come to a total of 23 days, which is 25% of the total 92 days in the period. Such significant downtime should have been discussed in the text of the report.

The report indicates that despite routine backwashing of injection wells, injection rates in IN-03 have significantly declined over time due to well fouling, requiring additional maintenance including chemical rehabilitation conducted in June 2013. Chemical rehabilitation was able to increase the injection rate in IN-03 by twice the previous amount. The report did not describe the chemical rehabilitation activities in any detail, nor did it describe why such an effective maintenance action was not conducted during 2012 when injection rates were obviously decreasing with time.

The report does not provide any information on why the twelve compounds previously approved for use[3] are no longer preferred to improve well efficiency in the Northwest Freshwater Injection System. In the report, PG&E renews its request to use Aqua Gard for well rehabilitation. Know that the Water Board has not rejected PG&E's request, but has requested additional information from PG&E to demonstrate that the product contains compounds that are already approved in the 2008 General Permit (Board Order R6V-2008-0014) and the April 2009 Notice of Applicability prior to PG&E using the product.[4]

Data in the revised Table 2-11 from the report indicate that well development compounds were used in IN-04 in January 2013, which improved flow rates from 14 to 21 gpm in February 2013, for a 50% increase. However, the revised Table 2-11 shows that no well development chemicals were used in IN-03 during fourth quarter 2012 and first quarter 2013 even though there was a more than 50% flow rate reduction from the previous two quarters. The actions taken at the two wells appear inconsistent and require an explanation before one can fully understand PG&E's remediation activities at this location. We understood from previous information shared that the reason IN-03 had reduced injection rates and operating days in fourth quarter 2012 and first quarter 2013 was because of chemical well rehabilitation. However, this information conflicts with Table 2-11 of the report that lists the discharge of well rehabilitation chemicals was to well IN-04. A more complete discussion would assist with understanding PG&E's operations.

b. Discuss the type, amount, and concentration of chemicals used for well development.

In its report, PG&E includes the type and the amount of the chemicals (well development compounds), but fails to describe the concentrations of chemicals discharged. Water Board staff requests more information related to chemicals used for well development, specifically the concentrations of chemicals discharged into each well and the timing of well rehabilitation.

c. Amend Table 2-11 to show the total calculation of all columns for the quarter being reported.

The revised Table 2-11 contained in Attachment 1 to the report was not amended to include the total calculations during first quarter 2013 for four columns: total days in period pumping, % of period actively pumping, average injection rate when pumping, and average injection rate for period.

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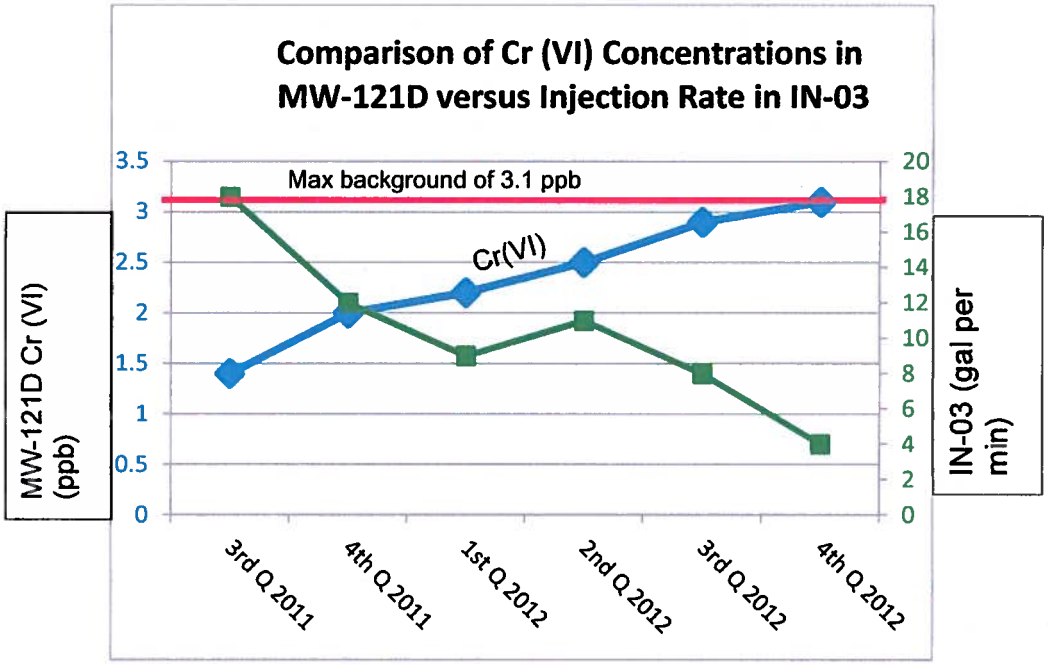
[3] See the Order R6V-2008-0014 for general waste discharge requirements and its associated Notices of Applicability.
[4] See Attachment 5 to the report, and e-mail chain from September 7, 2012 between Kevin Sullivan and Lisa Dernbach.

d. Discuss how reduced operation of certain injections wells and the Northwest Freshwater Injection System as a whole has on the areal extent of and effective depth of the freshwater barrier to prevent westward chromium plume migration.

PG&E's report discusses how reduced operation of the Northwest Freshwater Injection System as a whole has had no bearing on the effective depth of the freshwater barrier concerning plume migration. The response essentially states that any reduction in the system resulted in no reduced efficiency in preventing migration westward. However, the report did not address the effect of reduced operations in individual injection wells on the depth of the barrier in these individual areas and locations to prevent plume migration westward.

For example, it is expected that 75% reduced injections in IN-03 during fourth quarter 2012 would result in a reduced area of influence and reduced effective depth of freshwater. Data in Table 3-1 in the Fourth Quarter 2012 Groundwater Monitoring Report show that the Cr(VI) increases in MW-121D when fresh water injection in IN-03 decreases, as depicted in the graph below. Since third quarter 2011, Cr(VI) concentrations in MW-121D have increased from 1.4 ppb to 3.1 ppb Fourth Quarter 2012 (blue line in graph) and to 3.3 ppb First Quarter 2013 (not depicted below).MW-121D has a 10-foot screen across the deep zone of the upper aquifer, starting about 20 feet below the water table. Thus, the increasing Cr(VI) concentrations in MW -121D with time indicates that Cr(VI) is migrating to the west in the deeper zone of the upper aquifer.



So, while the water table elevation data may still indicate an eastward flow direction in the shallow zone, one would expect that the area of influence from 4 gpm of freshwater injected into IN-03 in December 2012 would not extend to half of the 1,200 foot distance to well IN-02 as may have occurred in prior quarters at higher injection rates (such as at 19 gpm in May 2012). The estimated effect of pumping actions from the agricultural well west of the fresh water barrier on the reduced area of the freshwater barrier near IN-03 and the chromium plume was also not discussed in the Semiannual Report.

III. 2010 Groundwater Modeling to Determine Current Effectiveness of the Freshwater Barrier to Chromium Plume Migration

PG&E's report provides the results of a 2010 groundwater model to support its rationale for operating the Northwest Freshwater Injection System at a lower rate than 80 gpm (43 gpm) and still be effective to prevent westward chromium plume migration. However, the model information used is out of date and not pertinent to the current groundwater conditions. Therefore, the results of the modeling are not persuasive. For instance, the model includes a total pumping rate of 105 gpm at four extraction wells on Mountain View Road. The total pumping rate of extraction wells on Mountain View Road has ranged from 55 to 62 gpm during 2012, which is a significant reduction of 48% to 41%, never reaching anywhere near the 105 gpm used in the modeling. It is also inconclusive whether current groundwater extraction in the Desert View Dairy area has a capture zone that extends over one mile to the Northwest Freshwater Injection system to make up the difference of the lower pumping rates compared to the model pumping rate, as was asserted in the report. In addition, the model assumes a chromium plume boundary line set at 4 ppb whereas the current boundary line is set at 3.1 ppb Cr(VI). The 22% change in plume boundary is significant and not reflected in the 2010 modeling results. Therefore, we cannot support PG&E's rationale that operation of the Northwest Freshwater Injection System at significantly lower injection rates continuously prevented chromium plume migration in fourth quarter 2012 and first quarter 2013.

IV. Chromium West of the Northwest Freshwater Injection System

Water Board staff has conducted a thorough review of all information provided by PG&E from January to July 2013 pertaining to increasing chromium detections west of the Northwest Freshwater Injection System. The information is not compelling and conclusive enough to reasonably demonstrate that chromium in groundwater from PG&E's historical releases did not contribute to ongoing increased chromium concentrations west of the Northwest Freshwater Injection System starting in fourth quarter 2012. Beside the discussions in the above sections, this decision is based on data and information concerning groundwater elevation, extraction well operation, the 2010 model, Lockhart Fault location, geologic cross sections, and geochemistry. The latter includes the isotope data from western groundwater that was found to be inconclusive based upon the interference of more than 100 million gallons of freshwater that has been injected into the Northwest Freshwater Injection system. Therefore, Water Board staff at this time find chromium concentrations above background levels west of the Northwest Freshwater Injection System on Serra Road to be from PG&E's past releases at the Hinkley Compressor Station and not from naturally-occurring chromium in the aquifer.

V. Enforcement

The Water Board continues to urge PG&E to take any and all actions to contain chromium plume migration and remediate elevated chromium concentrations as required in CAO R6V-2008-0002. Specifically, the increasing chromium concentrations west of the Northwest Freshwater Injection System are of grave concern. Remedial actions may include restoring the Northwest Freshwater Injection System operations back to conditions preceding fourth quarter 2012, installing a new injection well between IN-02 and IN-03, increasing extraction in the vicinity of the Northwest Freshwater Injection System, and/or other appropriate actions proposed by PG&E.

To return to compliance with CAO R6V-2008-002, **PG&E must provide recommendations and an implementation schedule (also known as an action plan) to reduce hexavalent chromium concentrations to below 3.1 ppb in the area west of the Northwest Freshwater Injection System and to improve the freshwater injection effectiveness.** If adequate recommendations and an implementation schedule are not provided by **September 9, 2013**, Water Board enforcement staff will consider taking additional enforcement actions authorized by law.

PG&E is also urged to describe in its future semiannual remediation status reports any significant (20% percent or more) changes to operations that affect chromium concentrations in groundwater, and/or that affect containment of the chromium plume. For the next semiannual report due by September 30, 2013, and all future semiannual reports, information needs to include:

- A full and complete description of chromium concentration changes between reporting periods in monitoring wells and supply wells located in the area bounded by Highway 58, Flower Road, Manacour/Thompson Road and Serra Road, along with an explanation or hypothesis for why the changes occurred.
- A full and complete description of the operations changes (including reductions) for remedial actions and the reasoning for such changes, including the total amount of down time if applicable, and
- A full and complete description of the change in the effectiveness of the remediation efforts for any area within or along the current chromium plume boundary line set at 3.1 ppb Cr(VI) and 3.2 ppb Cr(T).

Additionally, the Water Board requests PG&E provide a supplemental report containing the following information related to the discussion in sections II.a.-d., above.

1. Explanation of why the twelve compounds previously approved for use are no longer being used to improve well efficiency in the Northwest Freshwater Injection System.
2. Explanation on why no well development chemicals were used in IN-03 during fourth quarter 2012 and first quarter 2013 even though there was a more than 50% flow rate reduction from the previous two quarters.
3. Concentrations (by date of discharge) of chemicals discharged into each of the injection wells

4. Describe specifically the effect of reduced operations in individual injection wells on the depth of the barrier in these individual areas and locations to prevent plume migration westward.

An electronic copy must be submitted to the Geotracker database.

We look forward to PG&E staff participating in a technical discussion with Water Board staff and Community Advisory Committee technical experts on August 30. You may contact attorney Laura Drabandt at (916) 341-5180 and at ldrabandt@waterboards.ca.gov, or me at (530) 542-5436 and at lkemper@waterboards.ca.gov if you have any questions or comments concerning this letter.

Lauri Kemper

LAURI KEMPER, P.E.
ASSISTANT EXECUTIVE OFFICER

Cc: PG&E Hinkley Lyris List
PG&E Hinkley Technical Mail List

LSD/adw/T: PG&E NOV for CAO 6-08-002 IO R6V-2013-41 8-1-13 (ld)
To be filed: (VVL) WDID. 6B369107001

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ENCLOSURE 4

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November 19, 2013

Daron Banks
via private e-mail

Sheryl Bilbrey
Director, Remediation Program Office
Pacific Gas and Electric Company
77 Beale Street, B28A
San Francisco, CA 94105
e-mail: S4BD@pge.com

Theresa Schoffstall
via private e-mail

Re: Decision on Requests by PG&E and the Members of the Hinkley Community to Change Whole House Replacement Water Program and Plume Delineation Requirements

After careful consideration of the requests submitted by the Pacific Gas and Electric Company (PG&E) and members of the public to change the requirements of the Whole House Replacement Water Program ("WHRW Program"), and after review of the comments received in response to those requests, I have decided not to make changes to the existing requirements at this time.

There are several actions by other entities within the next year that have the potential to affect the WHRW Program, including the issuance of the maximum contaminant level (MCL) for hexavalent chromium by the California Department of Public Health (DPH), also referred to as the "drinking water standard", and a review by the State Water Resources Control Board (State Board) of PG&E's petition of Cleanup and Abatement Order (CAO) 2008-0002-A4. This CAO required PG&E to conform to specific mapping protocols to delineate the boundary of its plume of hexavalent chromium in Hinkley. This means that actions outside of our control have the potential to change the existing requirements within the next nine to twelve months. With impending potential changes to the existing requirements, I have determined that modifications to the WHRW Program and the plume delineations requirements at this time would introduce additional confusion and uncertainty. If I were to make changes today, by the time that modifications to the existing requirements are implemented, those changes would undoubtedly be revised again based upon the State Board and the DPH actions.

For example, on November 4, 2013, the State Board notified the Lahontan Regional Water Quality Control Board (Water Board) that it will be taking up the petition filed by PG&E on the CAO. The petition challenges the way that PG&E is required to draw the plume and the requirement to continue to install monitoring wells to delineate the plume boundary. The State Board could modify the Water Board's Order or require the Water Board to reconsider the requirements for how the plume is delineated based upon criteria it sets forth, which could affect how the plume is drawn and, therefore, who would be eligible for the WHRW Program.

Similarly, a final decision by the DPH that sets the drinking water standard for hexavalent chromium at a level above what is in people's wells in Hinkley would limit the requirements of the WHRW Order. The current WHRW Order recognizes the legal limits on the Water Board to require replacement water, and states that PG&E is only required to provide WHRW to those wells containing hexavalent chromium at levels above the MCL levels established by DPH. Therefore, once the DPH sets the final drinking water standard, the Water Board could not require replacement water for those wells whose levels of hexavalent chromium does not exceed drinking water standard.

In leaving the current requirements in place, I recognize that there will continue to be a lot of concern in how the plume is drawn and how the WHRW Program is implemented. Because PG&E has offered WHRW systems and property buyout opportunities to some Hinkley residents, the location of the plume has had financial and social repercussions for PG&E and the community. Changing the requirements today, only to have those requirements changed shortly thereafter, will introduce a level of confusion and uncertainty that I am not comfortable with.

In my October 31, 2013 letter to Ms. Sheryl Bilbrey with PG&E, I provided a temporary recusal to notify residents that would be potentially eligible for the WHRW Program due to expansion of the 3rd quarter buffer. Since my decision is now final, I expect full compliance with the requirements of any existing order. This would mean that PG&E would have to provide interim bottled water and information regarding the WHRW Program to any newly eligible property owner within the five (5) days set forth in the existing Order.

I believe there is an opportunity for PG&E and the community of Hinkley to work together to come up with solutions that satisfy most of the needs of all of the parties, and provide that certainty for themselves, especially in light of the fact that decisions by the State Board and DPH could impose requirements that are less satisfactory to all. The Water Board has facilitated those discussions in the past and I would like to offer our assistance again. We should not wait until the DPH drinking water standard is adopted to begin our discussions about how the new standard will affect the community, PG&E and Water Board requirements.

The Water Board has recently received three complex and technically related evaluation and interpretive reports that should be discussed in an open forum [i]. The new information in these three reports answers some old questions, but raises many new ones. Everyone working together is a more effective use of expertise and resources. Cooperation between PG&E and the community can produce viable solutions that are more satisfying to everyone and more directly address concerns than decisions that are made for the parties by the Water Board. In the future, I request PG&E and the community make a good faith effort to work together and find consensus before coming to the Water Board with requests for changes. As always, we are here to provide guidance and technical assistance.

If you have any questions please contact me at pzkouyoumdjian@waterboards.ca.gov (530) 542-5412 or Doug Smith at dfsmith@waterboards.ca.gov (530) 542-5453.

Patty Z. Kouyoumdjian

PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

cc: PG&E Hinkley Lyris List (and web posting)

[i] Third Quarter 2013 Groundwater Monitoring Report and Domestic Well Sampling Results, Site-wide Groundwater Monitoring Program, October 30, 2013, by CH2M Hill; Compliance with Provision 1.C. of Cleanup and Abatement Order R6V-2008-0002-A4 and Requirements of Investigation Order R6V-2013-0029, October 29, 2013, by Stantec; and Project Proposal for Occurrence of natural and anthropogenic Cr VI near a mapped plume, Hinkley, CA, September 2013, by Dr. John Izbicki with the US Geological Survey.

ENCLOSURE 5

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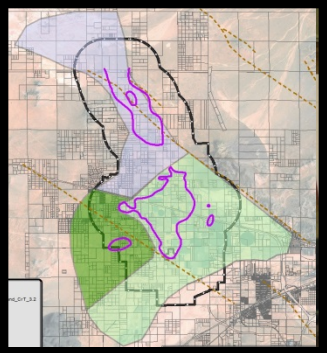
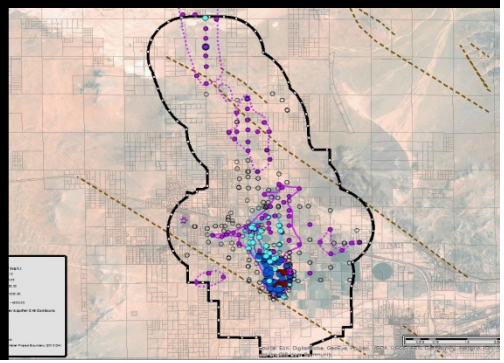


Remarks by Dr. Ian A. Webster, IRP Manager (from Project Navigator, Ltd.) At Lahontan Regional Water Quality Control Board Meeting, Barstow, CA, January 8, 2014

Contact: iwebster@projectnavigator.com or 714-388-1800

HINKLEY GROUNDWATER REMEDIATION PROJECT

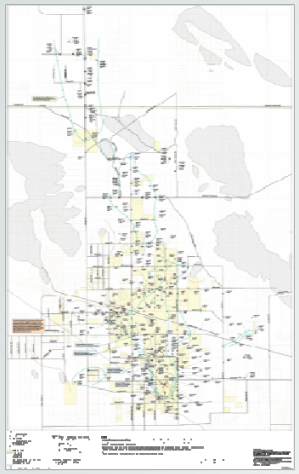
WWW.HINKLEYGROUNDWATER.COM
WWW.PROJECTNAVIGATOR.COM



CAC Continues to Meet Weekly on Technical Issues at 36236 Serra Road.

The IRP Manager and the CAC Continue to Host Monthly Community Meetings at the School.

IRP Manager Reviews Technical Reports, Consults with the CAC & Community, then Submits Comments to the Water Board.



GMP
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AU Quarterly Reports
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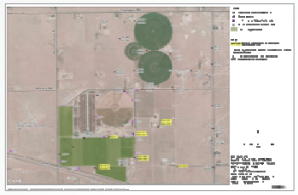

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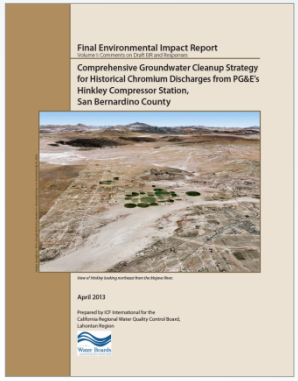

EIR
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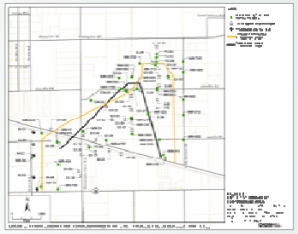

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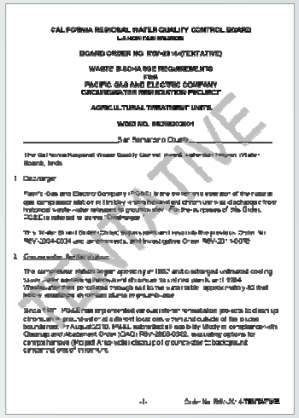

WDR's
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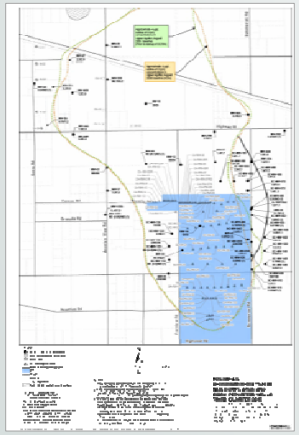

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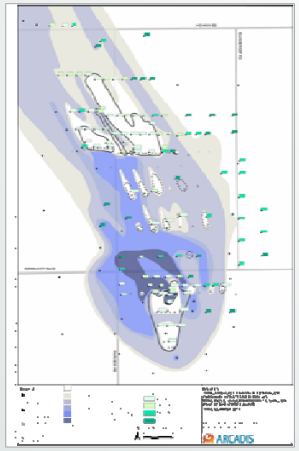
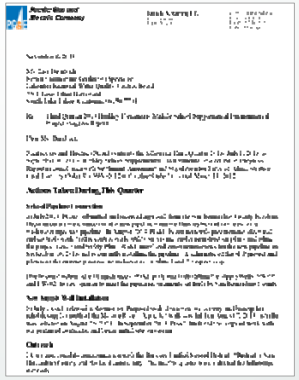
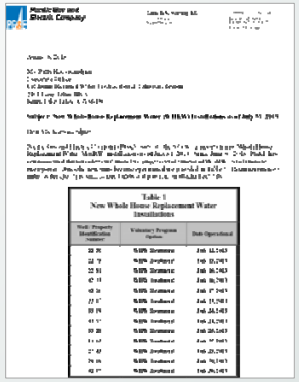


Manganese Investigation Report
3rd Q 2013

NWFI Work Plan
August 26, 2013

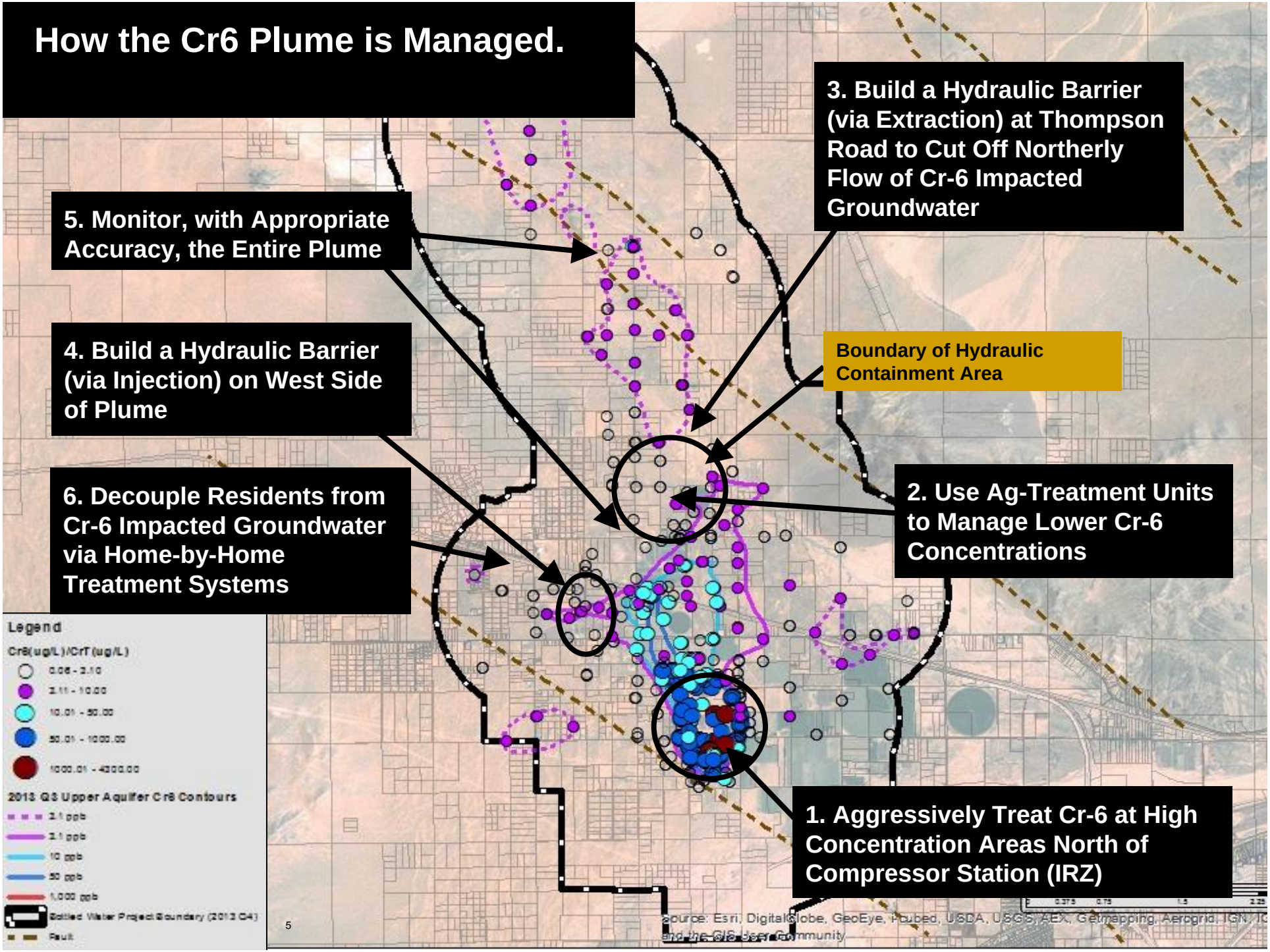


SEP Program Update
November 8, 2013

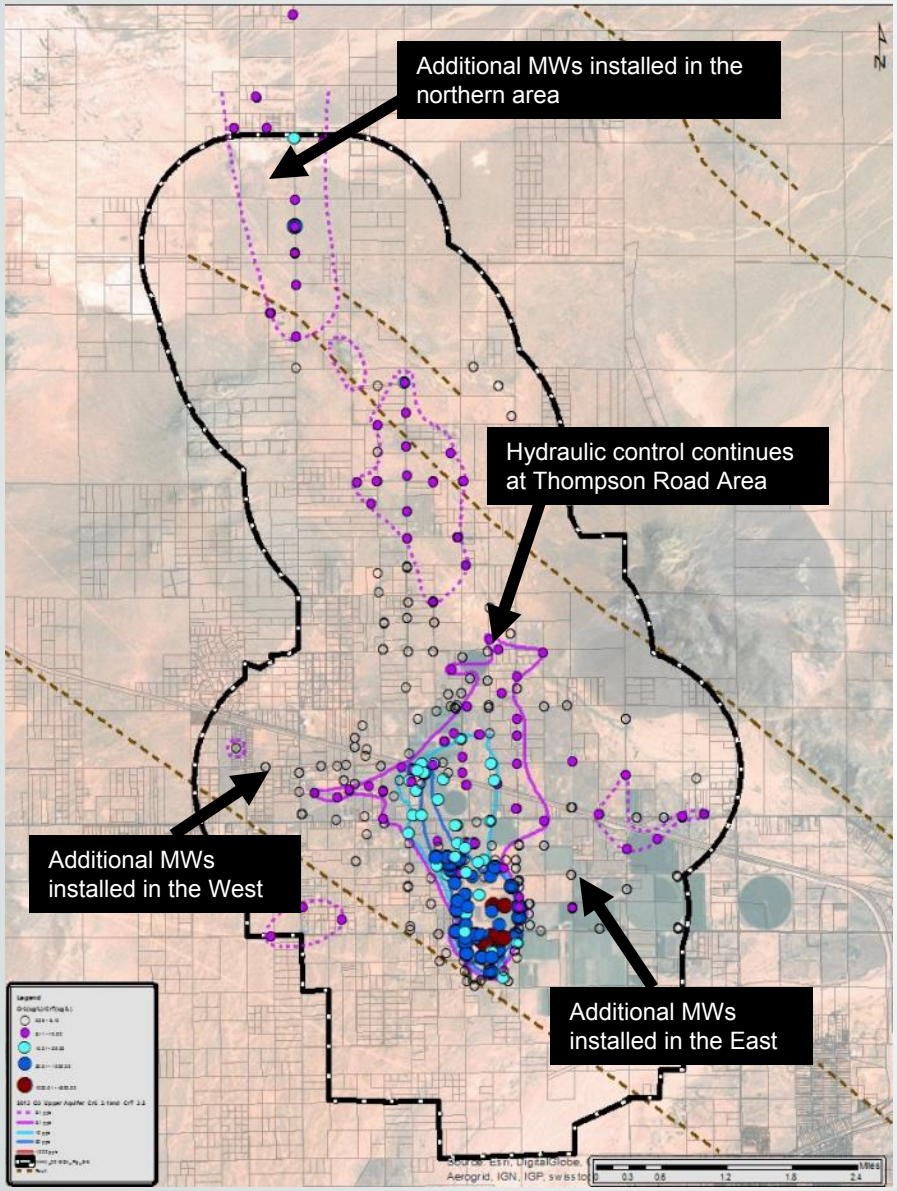


WHRW Update Reports
August 8, 2013

How the Cr6 Plume is Managed.



Improved Community Understanding of How the Cr6 Impacts are Monitored…



Key Take-Aways

- **538 Monitor Wells (MWs) Sampled**
- **194 Domestic and Other Private Wells**
- **22 Lower Aquifer Wells and 2 Private Lower Aquifer Wells**
- **11 domestic wells exceeded 3.1 mg/L (Cr6) and/or 3.2 mg/L (CrT)**
- **New MWs were installed and sampled at the following locations:**
  - Northern Area, North of Thompson Rd
  - Western Area, West of Hinkley Rd
  - Eastern Area, east of Dixie
- **Hydraulic Control continues at Thompson Rd**

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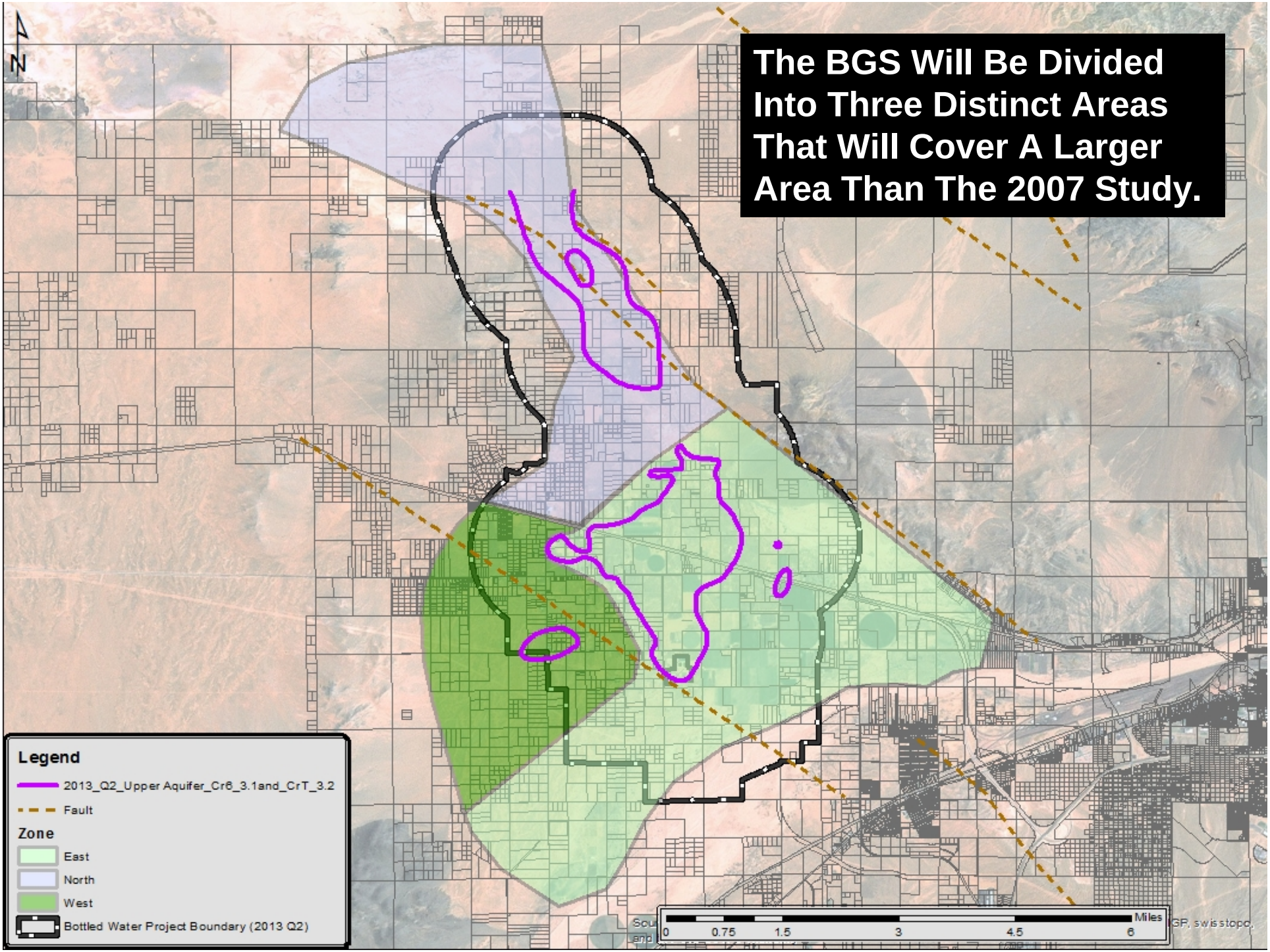
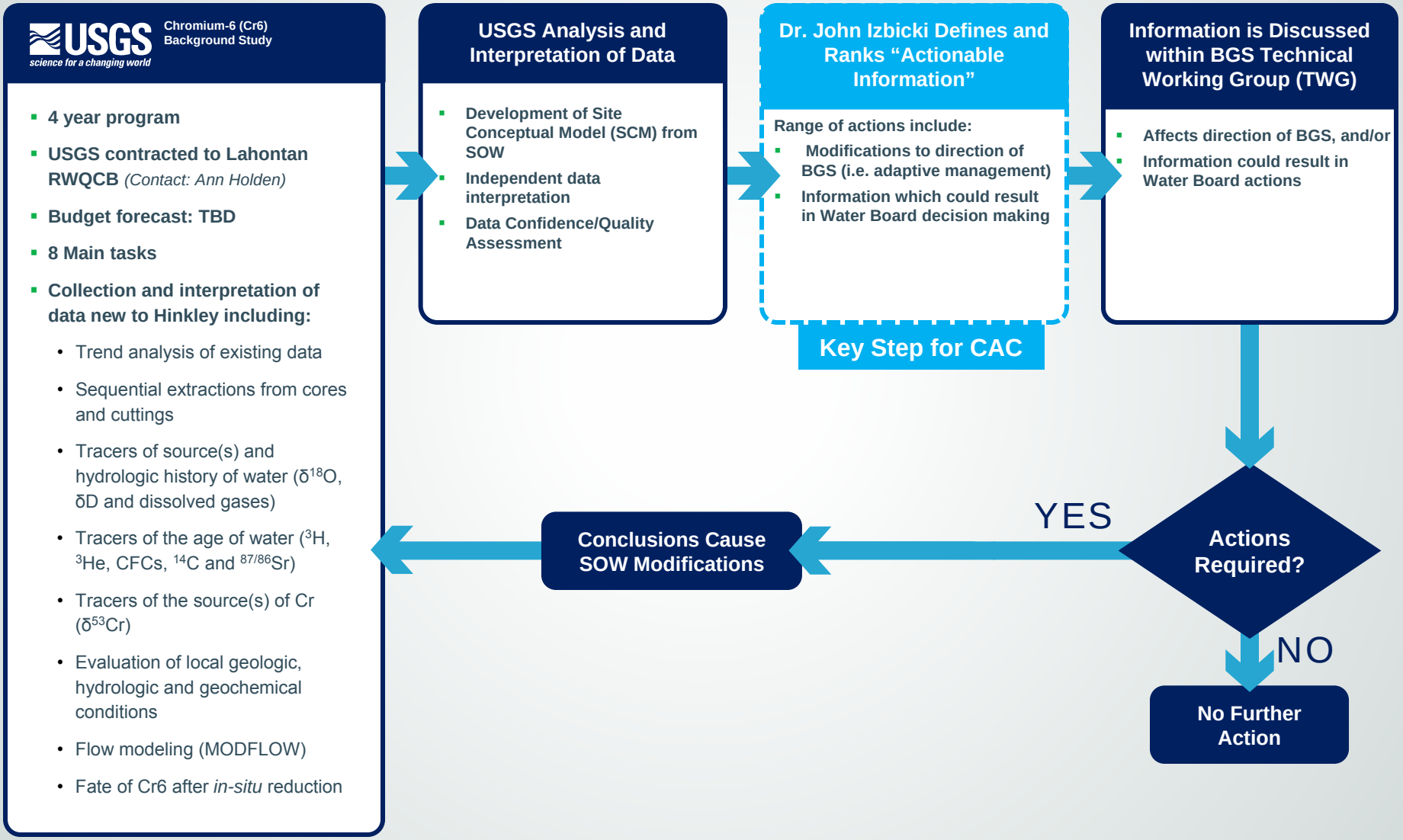
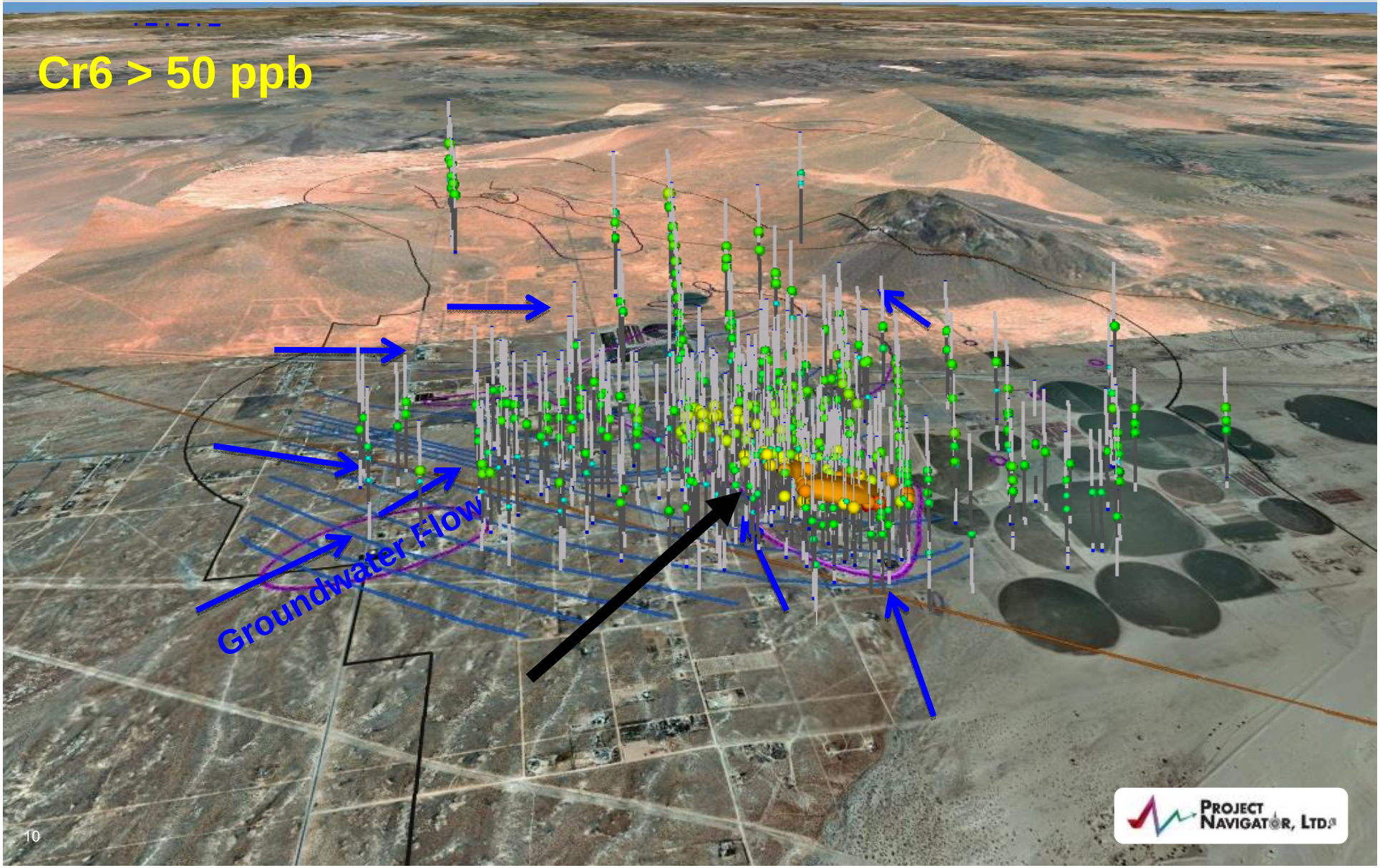
Background Study Planning Has Consumed Much Attention.


The BGS Will Be Divided Into Three Distinct Areas That Will Cover A Larger Area Than The 2007 Study.
N
Legend
2013_Q2_Upper Aquifer_Cr6_3.1and_CrT_3.2
Fault
Zone
East
North
West
Bottled Water Project Boundary (2013 Q2)
Miles
0
0.75
1.5
3
4.5
6
GP, swisstopo,

BGS Decision-Making Has Been Hammered Out Between the Stakeholders.



Task 8 in the BGS Will Evaluate Cr3 Reconversion in the IRZ… This will be “the last and final assessment of Cr3 Reconversion.”



Grand Conclusions.

- The CAC, the Hinkley Community and the IRP Manager (plus staff) ***meet regularly***
- Significant milestones in the New BGS include:
  - ***The BGS TWG meets on a monthly basis regarding the planning and implementation of the New BGS***
  - ***The BGS TWG agreed on the overall SOW of the USGS***
  - ***Task 8 of the USGS SOW will be the final assessment of the reconversion of Cr3 in the IRZ***
- ***The CAC will accept the results from the New BGS***
- ***The CAC thanks the Lahontan Water Board and PG&E*** for the significant technical outreach both have performed

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A Resource: A Significant Amount of Information Regarding the Hinkley Groundwater Remediation Project Can Be Accessed Through the IRP Manager's Website at www.HinkleyGroundwater.com.

Hinkley Groundwater Remediation Program

Community Advisory Committee Website

HOME | ABOUT | SITE INFORMATION | PATH TO CR6 MCL | FACT SHEETS | COMMUNITY MEETINGS | MEDIA | BLOG | CONTACT

The purpose of the Community Advisory Committee (CAC) is for Hinkley residents and community leaders to advise, share concerns with, and provide direct input into the Hinkley Groundwater Remediation Program.

Local phone number for IRP Manager: 760.253.2560

Updates

August 6, 2013
IRP MANAGER TO HOST COMMUNITY WORKSHOPS FOR THE MONTH OF AUGUST

May 10, 2013

Current Programs

PG&E Proposed Plan for Removal of Inactive Domestic Wells from the Domestic Well Sampling Plan
Find out which inactive domestic wells PG&E is proposing to remove from its