

Lahontan Regional Water Quality Control Board

**PUBLIC WORKSHOP-May 28, 2015, 1pm**  
Facilitated discussion on six main policy issues to help parties reach consensus on a draft order requiring Pacific Gas & Electric to cleanup and abatement its discharges of chromium to groundwater in the Hinkley area.

*A quorum of the Water Board may be present at the workshop, but no action or voting will take place.*

The workshop purpose is to bring the various parties together, and through a facilitated discussion, reach consensus on six main policy issues in the proposed Cleanup and Abatement Order (CAO). No additional comment on the proposed CAO will be taken at the workshop, but the Water Board Advisory Team will forward the consensus points to the Water Board for its consideration in adoption of a final CAO, tentatively scheduled for September 16-17, 2015.

## AGENDA

Location: *Hampton Inn & Suites, Jackrabbit Room  
2710 Lenwood Road, Barstow, CA*  
Facilitator: *Ms. Gita Kapahi, State Water Board*

### May 28, 2015

1:00pm – WELCOME followed by brief presentation on background and summary of six main policy questions (see attached), then facilitated discussion on key policy questions.

3:30pm – BREAK

7:00pm – Continuation of facilitated discussion

9:30pm – Summary of consensus points\*\*\*

9:45pm – Next steps\*\*\*

### May 29, 2015

8:30am – Continuation of discussion and wrap-up, if needed\*\*\*

\*\*\*Depending on the progress of the facilitated discussion, the Summary of Consensus Points and Next Steps may be moved to the following morning on May 29, 2015, at 8:30am to accommodate continued discussion.

For more information about the workshop, please contact Douglas F. Smith, at [doug.smith@waterboards.ca.gov](mailto:doug.smith@waterboards.ca.gov) 530-542-5453

## **Key Policy Issues for Discussion at May 28 Workshop**

### **1. Prescriptive versus Performance Based Requirements**

Should the CAO be prescriptive in setting out requirements, rely on performance-based requirements, combine both types of requirements, or transition from one to the other?

### **2. Northern and Western Areas and USGS Background Study**

What should the CAO require of PG&E in the interim period while the USGS background study is being completed?

### **3. Specific Deadlines versus Remediation Goals with Adaptive Management**

Should the CAO establish remediation goals that allow for an adaptive management strategy or specific remediation deadlines? Or should deadlines be set, but used mainly to confirm the performance of the adaptive management?

### **4. Replacement Water Requirements**

With the Cr6 MCL set, should the historical one-mile buffer zone be retained, modified, deleted, or replaced with a transition plan to move from the historical one-mile buffer to something else?

### **5. Monitoring and Reporting Program**

Should the monitoring and report program be prescriptive, performance-based, a hybrid of prescription/performance, or transition to a different approach?

### **6. Community Involvement**

What is the best structure to engage with and involve the community members in the CAO implementation? What are the community's biggest concerns with the implementation of the CAO, and how best do we address those concerns?

## Matrix Spreadsheet

The following is a spreadsheet that shows a matrix of the six “Key Policy Issues” for the May Workshop and related Findings and Orders. It is provided to help the interested party navigate the proposed CAO.

The matrix spreadsheet includes selected comments from PG&E, the Independent Review Panel (IRP) Manager, and individuals. It is organized by select Findings and Orders (in the proposed CAO) and by comments received on the proposed CAO. A Finding or Order is assigned to one or more pertinent issue of the six “key policy issues” questions of Attachment 2. For example, the matrix spreadsheet shows that the term “affected area” is discussed in Findings 41 – 43, Order VII, and in PG&E’s comments.

The matrix spreadsheet is not intended to be an exhaustive listing or notation of all the issues. No is it intended to reproduce all comments. (All comments can be found at: [http://www.waterboards.ca.gov/rwqcb6/water\\_issues/projects/pge/cao/](http://www.waterboards.ca.gov/rwqcb6/water_issues/projects/pge/cao/))

Finding or Order Number	Issue	PG&E Comments	IRP Comments	Comments from Individuals
<b>Prescriptive versus Performance-based Requirements</b>				
Finding #18, Order IV Attachment 8, Section III	Mapping requirements for plume delineation	1) Infeasible to delineate plume using current background values in North. Overly prescriptive requirements to map a plume 2) "Plume" term not applicable until USGS Background Study (BGS) is complete 3) Use "interim background levels" instead of "max background levels" until BGS complete 4) Map preparation requirements are prescriptive and inconsistent with industry practice. 5) Removal of limits of saturated alluvium in upper aquifer from maps would technically weaken the presentation as the limits are important lateral boundaries to groundwater within the alluvium. 6) Mandating maximum concentration detected used for contouring, irrespective of other evidence or technical information; over-prescribes mapping methodology.		
Order IV B	"Continuously" operate groundwater extraction versus "maintain and operate"	1) Not necessary to contain hydraulic containment and doesn't allow for downtime for maintenance, etc 2) Cannot specify manner of compliance		
Order V D	Hydraulic capture metrics	1) Need to allow alternative methods for demonstrating hydraulic containment where data do not reflect actual containment status. Overly prescriptive requirements. 2) Clarify that compliance is met if PG&E complies with requirements to identify when capture is not achieved and submits and implements contingency plan		
Order V D 3	Plume Migration - proposed CAO does not allow Cr(VI)/Cr(T) boundaries to migrate or expand by 1,000 feet or more from current boundaries.	1) Inhibits efficiency of remediation; Overly prescriptive requirements 2) Variations in plume geometry should be allowed within overall progress of remedial goals as long as hydraulic capture is maintained and documented through capture metrics.		
Order VI A	If a change in corrective action by more than 10%, requires Water Board concurrence prior to implementation	1) Cannot specify manner of compliance 2) Great flexibility needed to make operational adjustments to optimize treatment 3) PG&E ultimately responsible for treating plume and restoring groundwater and should retain ability to determine best method of implementing remediation and minimizing by-product generation.		

Finding or Order Number	Issue	PG&E Comments	IRP Comments	Comments from Individuals
<b>Northern and Western Areas and USGS Background Study (BGS)</b>				
Note: the following issues are related to Findings 7,8,10,15,17 and Orders IV and VI				
(see note above)	Cr6 in the North and West may not be PG&E's	1) Term "plume" term not applicable to north and western region until BGS is complete 2) Refer to "areas of groundwater with chromium above the interim background levels" instead of defining north as part of plume 3) Infeasible to delineate plume with existing background values.		
(see note above)	Background/Cleanup levels for chromium	1) Establishing cleanup values not appropriate until BGS is complete. 2) Water Board cannot require cleanup to below background concentrations 3) Feasibility study analyses to evaluate remedial alternatives and provide technical basis for timeframes have not been conducted for northern, western or lower aquifer		
(see note above)	USGS Background Study (BGS) a. Needed to define plume(s) and its/their extent b. Needed to inform cleanup level(s)	CAO should describe uncertainty in background values, identify current values as "interim" and acknowledge importance of the USGS BGS to informing cleanup goals.	Discuss the existence of the USGS background study, with reference to adaptive management practices; discuss how BGS-generated data and information could be considered in making future modifications to the MP (reference BGS in decision tree).	
(see note above)	Northern Area	PG&E disagrees with the Water Board staff as to whether or not the existing data supports that northern area chromium detections above background are part of the chromium plume. Background values are inaccurate, particularly for Northern area.	We await the results of the BGS which will help answer how significant PG&E's Cr6 contribution might be to the northern-measured impacts which exceed 3.1 ppb Cr6.	Sam Knott - The Water board has shown proof that chromium in the north is PGE's. The northern plume is just as important as the southern plume.
(see note above)	Western Area (also known as the "Western Finger")	Source of chromium in this area is uncertain; Water Board cannot require PG&E to cleanup chromium that isn't theirs.		
(see note above)	Lower Aquifer background level for Cr6	No background value has not been determined for the lower aquifer for chromium. Non-detect may not be accurate.		
Finding #8c	Three "hot spots" in the North	Source of chromium in this area is uncertain and may be naturally occurring (PG&E cites an attachment to their comments as a technical document supporting their contention)		
Findings #4 and #9	Extent of Cr6 from PG&E's release	Plume does not extend to Harper Lake, perhaps even less 1) Flatter gradient in the North 2) Ag pumping caused depression		

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Remediation Goals	Remediation Goals with Adaptive Management versus Specific Deadlines			
Finding #20, Order VI.B.1	Applicability of remediation time frames to Northern and Western Areas	<p>1) Remedial Timeframe Assessment did not apply to northern and western areas or lower aquifer and no technical basis to apply basis from Remedial Timeframe Assessment to these areas.</p> <p>2) Recommends deleting applicability of requirements to those areas; allow process of determining background values, completing delineation, and conducting feasibility studies in progressive sequence consistent with 92-49.</p>		
Order V.B.1.	Cleanup Cr6 in the Lower Aquifer to non-detect	<p>1) Study needed to determine background levels of Cr6 in the Lower Aquifer</p> <p>2) Need acknowledgement that near margins of aquitard there is significant hydraulic communication between upper and lower aquifers, which requires cleanup of both aquifers in concert</p>	Provide clarification and logic on how the Water Board determined the cleanup timeframe for the Lower Aquifer	
Order VI A	Compliance with hydraulic metric	1) Requests clarification that compliance with hydraulic metric occurs if PG&E complies with requirements to operate, monitor, identify when capture is not achieved, submit contingency plans with schedules by the required deadlines, and implement the contingency plan on schedule.		
Order VI. B	Too much uncertainty in modeling for enforceable deadlines for cleanup in southern core plume	<p>1) Remedial Timeframe Assessment is a guide and does not provide definitive predictions of remedy timeframe, and should not be used in CAO with the expectation of certainty.</p> <p>2) Inherent uncertainty of modeling and use of assumptions may change should be recognized.</p> <p>3) Timeframes should be goals or milestones rather than enforceable deadlines</p>	The cleanup requirements timeframe targets required under the proposed CAO may not be feasible as presented in PG&E Remedial Timeframe Assessment. The remedial timeframe assessment was conducted only for the southern plume and targeted the 10 ppb and 50 ppb threshold.	

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<b>Replacement Water Requirements</b>				
Findings #41, #42, #43	Affected area	"One-mile affected area" is divisive and unfounded		
Findings #41, #42, #43	Replacement water	Agrees with Cr6 MCL replacement water trigger, as long as detections are linked to PG&E's historical releases, and domestic wells are actively in use. Replacement water should be for drinking water purposes only, provided via under-sink RO units.	Understands that the Water Board cannot require PG&E to provide replacement water to Hinkley residents that is below the California Maximum Contaminant Level (MCL) of 10 ppb for Cr6, as described in the Olin Order.	Sam Knott - PG&E should supply whole house water to residents in the north that are affected by PG&E arsenic, uranium, and water elevation dropping due to their remediation.

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<b>Monitoring and Reporting Program (MRP)</b>				
Finding #36	Monitoring reduction/optimization	1)Water Board does not provide sufficient basis to reject PG&E's request for monitoring reduction other than "remediation expansion." 2) Monitoring as proposed in PG&E's draft Groundwater Monitoring Program (December 2014) should be used.	Agree with Northern Plume domestic well sampling in CAO.	Sam Knott - Northern plumes should be monitored more than what is proposed. Monitoring should include arsenic and uranium and water levels.
Finding #36	Monitoring reduction/optimization	1)There is redundancy in the current proposed MRP, especially where it overlaps with the BGS; 2) Sampling of wells below 3.1/3.2 outside of the southern plume boundary and in areas USGS is studying is unnecessarily costly and burdensome.		
Findings #43 and #44	Domestic wells	Only active domestic wells should be sampled; no affected area should be defined. The 1-mile requirement is unsupported by any findings or evidence. PG&E suggests removing affected area and instead focus on wells that have been impacted by PG&E's historical releases. No agricultural wells need be sampled.	Any domestic well within the affected area should be sampled if the wells are active and the owner allows sampling. This could be revisited in future as remediation progresses.	
Finding #36	Domestic wells	Recommend the plan PG&E submitted in December 2014 and discussed with Water Board staff, Water Board Members, and the community	The CAC continues to advocate that all monitoring and domestic wells in the current program continue to be sampled at the current frequency until the completion of the USGS background study.	
MRP	Trend analysis and adaptive management	The proposed CAO approach will not be comparable to past trend analysis techniques or trend analysis methods being used by the USGS.	Agreed-upon, universally employed statistical approach should be used. Decision-tree approach should be used to adjust sampling frequencies, along with adaptive management. Mann-Kendall should be used in decision tree for adjusting sampling frequencies.	
MRP	Trend analysis	Mann-Kendall trend analysis should be used to evaluate trends quarterly, and the monitoring program be reviewed for changes annually.		
MRP	"No monitoring area" requirements	PG&E supports no monitoring well sampling upgradient of Lockhart fault and east of Dixie Road; requests clarification that water supply well sampling also is not required.	IRP agrees with requiring no sampling for the area southwest of the Lockhart Fault and redundant monitoring wells less than 200 feet apart, screened across the same depth in the aquifer.	
MRP	"No monitoring area" requirements		The CAC has different opinions about the "no further monitoring". The CAC believes no change in monitoring well sampling should happen until the background study is completed and the source of Cr in this area has been identified.	
	Reporting Limits reduced from 0.2 ppb to 0.1 ppb	1) Existing reporting limit protective 2) Would add significant cost per sample; 3) Lowering limit would not advance the remedial objective or provide additional protectiveness		
MRP	Reporting		Agree with the reporting requirements outlined in the Proposed CAO, except for the Four-Year Comprehensive Cleanup Status and Effectiveness Reports. The USEPA requires responsible parties who are remediating a site which is in the operations and maintenance phase of work to prepare a major report every five years to evaluate the performance of the remedy. 5-Year Status Reports" could be prepared in accordance with USEPA guidelines.	

Finding or Order Number	Issue	PG&E Comments	IRP Comments	Comments from Individuals
<b>Community Involvement</b>				
Findings #45 and #46 and Order VIII	Independent Consultant	PG&E will continue to support the Independent Review Panel ("IRP") Manager. We have heard from many community members that opportunities for the public to interact on the remediation program should be sought outside of the currently prescribed process, and that the IRP Manager provides an unbiased venue for this interaction.	The Community Advisory Committee (CAC) would like the language from the original order CAO No. R6V-2011-0005A1 section 4b to be included into the current CAO No.R6V-2015-Prop.	
-	1. What is the role of the CAC? 2. Should the previous Finding stating "the CAC is the only group representing the community" be put in the proposed CAO or be silent?			Barbara Ray - "The Community Advisory Committee is the only existing group that may currently be viewed as representing the community."
-	1. What is the role of the CAC? 2. Should the previous Finding stating "the CAC is the only group representing the community" be put in the proposed CAO or be silent?			Elizabeth Hernandez - supports the CAC and the USGS BGS
-	1. What is the role of the CAC? 2. Should the previous Finding stating "the CAC is the only group representing the community" be put in the proposed CAO or be silent?			David Cheney - supports an alternative to the CAC and "better means to educate the public."