May 9, 2013

Sheryl Bilbrey
Director, Remediation Program Office
Pacific Gas and Electric Company
3401 Crow Canyon Road
San Ramon, CA 94105-1814

Dear Ms. Bilbrey:

In letters dated January 10, and February 7, 2013, you made several requests on behalf of Pacific Gas and Electric Company (PG&E) for modifications of existing California Regional Water Quality Control Board, Lahontan Region (Water Board) Orders. Your first letter requested modifications to monitoring of the whole house replacement water (WHRW) ion exchange (IX) and under-sink reverse osmosis (RO) systems. These requests were reiterated in a letter of March 11, 2013, and supplemented with several additional requests, including increasing the minimum hexavalent chromium concentration from the IX effluent from 0.06 to 2 µg/L, and moving the compliance point from the effluent from each RO unit to the IX treated water. Your February 7 letter set out an additional four requests: 1) a 90-day extension of the deadlines for the WHRW program, in order to reexamine the options for providing water to eligible homes in Hinkley; 2) an ability for residents to decline the RO systems; 3) ability to meet requirements for interim replacement (bottled) water by providing commercially available bottled drinking water; and 4) re-evaluation of the need to expand the 1-mile buffer zone in the future.

After considering comments from the Community Advisory Committee (CAC), through its technical advisors at Project Navigator; four individual members of the public; and the Lahontan Regional Water Board's prosecution team, I have made the following determinations.

1. Requests of January 10 and March 11 for Changes to Monitoring of IX and RO Systems

Your January 10, 2013 letter requested two specific modifications to its permanent replacement water supply monitoring plan that is required under Order 2.c.8 of Cleanup and Abatement Order No. R6V-2011-0005A1 (referred to hereafter as the CAO): 1) monitor leachates from the IX resin on a batch basis, rather than at each home during start up, and 2) monitor each RO unit during start-up and then every six months

thereafter rather than the biweekly or as needed basis stated in its current plan.[1] PG&E in its March 11, 2013 letter reiterated its request #2, above, and additionally requested that the compliance point should be the IX treated water and not at each RO unit effluent.

In addition to reviewing the comments from the Water Board Prosecution Team and from other interested stakeholders, the Regional Board advisory team has reviewed Exhibit 1, Reverse Osmosis Investigation Report by Arcadis, enclosed in the March 11, 2013 letter. I am providing the following rulings on PG&E's requested modifications to its permanent replacement water supply monitoring program:

A. **I am denying the request for IX resin leachate monitoring at each property.** Although batch testing may provide useful information, batch testing is unable to collect data specific to each IX unit and, therefore, cannot be used to determine if each IX unit is working properly.

B. **I accept the proposal to monitor each RO unit at start-up then every six months thereafter.** The start-up testing is critical to ensure the RO unit is well-flushed and working properly. The reduced monitoring after start-up should be less inconvenient to each residence and provide assurance that each RO unit is working properly.

C. **For those households that decline installation of the RO unit, I am accepting the compliance point to be the water treated from the IX unit. However, if an RO unit is accepted by the residence, then PG&E must perform the required monitoring, and compliance will be at the outlet of each RO unit.** This is a reasonable solution to accommodate the individual household needs while still ensuring water quality compliance.

2. Request from February 7 for 90 Day Extension to Reexamine WHRW Options

You had requested a 90 day extension of all applicable deadlines contained in the WHRW Program in order to address community concerns, evaluate technologies analyzed in the June 2012 Feasibility Study, and incorporate lessons learned during WHRW Program startup and implementation. You propose to issue a Feasibility Study Addendum that will identify and address changes required for the WHRW program.

I am denying your request for a 90 day extension of all applicable deadlines contained in the WHRW Program, but I would be willing to accept your Addendum and continue discussions about effective ways to provide alternative drinking

[1] Two pages of text and a two-page table from PG&E's June 6, 2012 Replacement Water Feasibility Study contain all elements of PG&E's current monitoring plan (PDF copy enclosed for reference) for its permanent replacement water supply.

water supplies to the community. As a practical matter, 90 days has already passed since your initial request. I believe, however, that it is still important to re-examine the WHRW Program and incorporate lessons learned and feedback from the community. Moreover, I have already granted a five month extension for those properties that have not signed an access agreement in my April 18, 2013 letter.

3. Request from February 7 Letter to Allow Residents to Decline an RO Unit

With respect to your request for residents who have elected a WHRW system, which consists of an IX and under-sink RO unit, to be allowed to decline installation of the RO unit, **I have decided to grant this request conditioned on the provision that PG&E provide the resident(s) with clear information regarding how this decision may affect the quality of the water delivered inside their homes through the IX system alone.** It is important that residents understand that although hexavalent chromium should be removed by the IX system, other constituents found in their domestic well may not be removed without the operation of the RO unit.

4. Request from February 7 Letter that Provision of Interim Replacement Water be Satisfied with Commercially Available Bottled Water

You have requested that the CAO requirements for interim replacement water (bottled water) be satisfied by PG&E's provision of commercially available bottled drinking water, without the requirement of further testing to ensure that the bottled water is non-detect for hexavalent chromium. **This request is denied; however, I am willing to change the requirements for replacement water quality from non-detect for hexavalent chromium to 1.2 ppb, which is the average background of hexavalent chromium for the Hinkley Valley, established by the Water Board in Amended CAO R6V-2008-0002A1.** I believe that this change will meet the requirements of Water Code section 13304, which requires that the replacement water not only meet all applicable federal, state, and local drinking water standards, but that it also have a comparable quality to that pumped by the private well owner prior to the discharge of waste. Recognizing that there is no drinking water standard for hexavalent chromium, and that bottled water, which is regulated by the Food and Drug Administration (FDA), may have up to 100 ppb total chromium (see http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm203620.htm#EnsuringQualityandSafety), requiring bottled water to meet 1.2 ppb of hexavalent chromium would give the community replacement water of a comparable quality to that pumped by the well owner, in the absence of a more restrictive drinking water standard. Although I understand that the additional testing and warehousing of water provides additional and challenging order requirements, PG&E is currently meeting those requirements, and has established a monitoring program to ensure that the water they are providing does not have levels of hexavalent chromium that exceed what residents may naturally have in their wells.

5. Request from February 7 Letter to Re-evaluate the 1 mile buffer

Lastly, you are requesting approval from the Water Board to re-evaluate the need to expand the 1-mile buffer zone in the future. You have based this request on your assessment that the chromium plume is not continuing to migrate to the west. **At this time I will not change the 1-mile buffer, but I am willing to consider all relevant scientifically-based technical information to establish a buffer zone. As additional relevant data becomes available, PG&E should disseminate that information to stakeholders, including the Water Board and the CAC and its technical consultant, for subsequent review and analyses under a technical exchange meeting process**.

In closing, I would like to acknowledge the work that PG&E has done to meet the requirements of the Water Board's orders, including the Order to provide WHRW to all residences within one-mile up-gradient or cross-gradient of the plume whose wells have detections of hexavalent chromium. I believe that we are on our way to providing the community a safe, reliable, and convenient source of water for their homes. I do believe, however, that we still have a lot of work to do. I encourage PG&E to keep working to find ways to make this process convenient for the residents of Hinkley, and welcome additional suggestions that you or the community may have. Although the Water Board's jurisdiction is over water quality and related nuisance, we don't want solutions to the existing water quality problems to be blind to the effect that they have on the community at large, and encourage you to work with the community to find solutions that not only address water quality, but also help the community to remain whole.

Sincerely,

Patty Z. Kouyoumdjian

Patty Z. Kouyoumdjian
Executive Officer

Enclosures: January 10, 2013 PG&E Letter
February 7, 2013 PG&E Letter
March 11, 2013 PG&E Letter
April 18, 2013 Lahontan Water Board Letter

ecc: Jeffrey McCarthy, Remediation Site Manager –Hinkley, PG&E
Hinkley CAC Members
Craig Dishmon, Hinkley Resident
Lauri Kemper, Assistant Executive Officer, Lahontan Water Board

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January 10, 2013

Ms. Patty Kouyoumdjian
Executive Officer
California Regional Water Control Board, Lahontan Region
2401 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

Re: Whole House Replacement Water (WHRW) Monitoring
Proposal to Amend Reverse Osmosis and Ion Exchange Leachate Monitoring

Dear Ms. Kouyoumdjian:

Pacific Gas and Electric Company (PG&E) has installed WHRW ion exchange (IX) and undersink reverse osmosis (RO) systems at two eligible properties and has been monitoring these systems according to the monitoring plan included in the June 2012 Replacement Water Supply Feasibility Study Update ("Feasibility Study"). Based on our experience to date, there are two changes to the monitoring plan we feel would be beneficial for the overall effectiveness of the program and to minimize the inconvenience to Hinkley residents. The proposed modifications are detailed below.

Ion Exchange Resin Leachates Monitoring

The monitoring plan includes sampling at specified locations for ion exchange resin leachate constituents during startup of the WHRW system. The objective of IX resin leachate monitoring is to ensure that the vendor's resin does not leach constituents in excess of State or Federal maximum contaminant levels (MCLs). The current monitoring plan requires testing for resin leachates at three different locations in the WHRW system during the system start-up. There is no requirement to perform subsequent resin leachate testing.

PG&E procures National Sanitation Foundation (NSF) certified IX resin in batches to fill multiple WHRW IX treatment vessels used throughout the program. Each resin shipment is accompanied by a vendor Certificate of Analysis that includes the batch identification number, resin capacity, moisture content, and resin integrity. Since resin leachates will be specific to each batch, PG&E proposes that leachates be monitored on a batch basis, rather than at each home during startup. PG&E will work with the resin supplier to establish protocols for collecting representative samples and performing laboratory analysis consistent with the leachate constituents identified in the Feasibility Study monitoring plan. The batch test results will be included in future quarterly WHRW Monitoring Reports required under CAO RGV-2011-0005A1, Paragraph 2.g.

The benefits associated with monitoring leachates on a batch basis include:

- Resin would be tested throughout the program life rather than only at system start-up. While start-up testing provides confidence that the resin does not contain leachates above MCLs, testing each batch would provide greater certainty that all the resin used in subsequent media replacements would also comply with water quality standards.

- Start-up and sampling of the WHRW systems and inconveniences to Hinkley residents would be significantly reduced. The current monitoring plan calls for obtaining IX resin leachate samples downstream of both IX vessels and at each under-sink RO unit in the home. Monitoring for resin leachates takes between one and two hours per location. With up to five RO units installed in the homes, leachate monitoring can add up to 5 hours to the start-up process in each home.

Under-sink RO Unit Monitoring

As representatives of PG&E discussed with the Water Board on December 18, 2012, monitoring of the internal RO units at each installed location has proven to be a significant inconvenience to Hinkley residents. PG&E has made every effort to accommodate the residents preferred schedule for sampling the undersink RO units, including sampling after-hours and on weekends. One resident has already requested that no further sampling of the RO units be conducted. The monitoring plan proposed in PG&E's Feasibility Study called for bi-weekly monitoring of hexavalent chromium, total chromium and parameters that exceed 90 percent of State and Federal MCLs/SMCLs for the first six months and then quarterly for the remainder of the program. Depending on the number of RO systems installed in each home and the water quality parameters that need to be monitored, the time to collect under-sink RO samples for each home may vary between 30 and 60 minutes per unit. Per the current monitoring plan, the sampling technicians could be spending between 1 to 3 hours inside the homes on bi-weekly basis for the first six months.

PG&E is proposing the following changes to the monitoring plan to reduce inconvenience to homeowners:

- Monitor each under-sink RO unit during start-up for hexavalent chromium, total chromium and other water quality constituents of concern (above 90 percent of State and Federal MCLs/SMCLs as described in the Monitoring Plan). Sampling during start-up will confirm that the units are operating in accordance with their State certification before they are turned over to the residents.
- Monitor the under-sink RO unit in the kitchen every six months for hexavalent chromium, total chromium and water quality constituents of concern (above 90 percent of State and Federal MCLs/SMCLs as described in the Monitoring Plan). At the time of sample collection, PG&E will also service all of the units, replacing necessary cartridges per the manufacturer recommendations in an effort to minimize further disturbances to Hinkley residents.

In addition to minimizing the inconvenience to residents, justification for streamlining under-sink RO monitoring includes:

- **Under-sink RO Systems are State Certified** – The under-sink RO systems are certified by the State of California. The certification tests the system's ability to treat water containing elevated concentrations of constituents commonly found in drinking water. One of the intents of the State certification program is to provide residents reasonable assurance that a water treatment device can perform as indicated without burdening the homeowner with regular sampling. As part of State requirements, systems must be equipped with shutdown capabilities after a set amount of water has been processed. The indicator light and shutdown measures allow delivery of water of consistent quality that meets the drinking water standards for which the unit was certified.

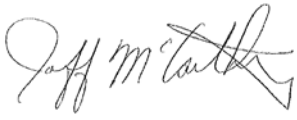
- **Servicing the Under-sink RO Units in the Future** – Based upon concerns expressed to date, PG&E is concerned frequent monitoring during the first six months may jeopardize the relationship between PG&E and the resident. As water is consumed from these units, they will require periodic maintenance in order to maintain State certification. As a proactive measure, PG&E wishes to maintain a relationship with residents so units can be serviced in the future to ensure they are continually performing in accordance with State requirements and manufacturer claims.

- **Consistent Water Quality of Under-sink RO Systems** – For the recent installations, the individual under-sink RO systems were sampled and monitored to demonstrate consistent performance of the RO systems. To date, all under-sink RO units have met State and Federal MCLs/SMCLs for respective constituents of concern. Monitoring of the installed systems has shown infrequent and inconsistent detections of low concentrations of hexavalent chromium above 0.06 µg/L. As reported to the Water Board, PG&E will continue to investigate the potential sources of hexavalent chromium utilizing various bench and full scale testing protocols at a PG&E owned, unoccupied residence and undertake appropriate measures to further reduce any detections.

PG&E would appreciate receiving the Water Board's approval of PG&E's proposal to modify the monitoring program for resin leachates and under-sink RO units by January 24, 2013 so that we can incorporate the changes in the next group of WHRW units scheduled for startup in late January 2013. Thank you for your consideration. Please do not hesitate to contact me at 760-253-7822 if you have any questions regarding this report, or if you need additional information.

I hereby certify that I have examined this report, and based on my examination and my inquiries of those individuals who assisted in the preparation of the report, I believe the report to be true, complete and accurate.

Sincerely,



Jeff McCarthy

Pacific Gas and Electric Company®

Sheryl Bilbrey
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February 7, 2013

Patty Kouyoumdjian
Executive Officer
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Blvd
So. Lake Tahoe, CA 96150

Re: Formal Request for Modification of Replacement Water Orders

Dear Executive Officer Kouyoumdjian,

Pacific Gas and Electric Company (PG&E) takes its responsibility for chromium contamination in the Hinkley community seriously and remains committed to continuing our significant progress on the cleanup. Working cooperatively with the California Regional Water Quality Control Board, Lahontan Region (Regional Board), the Independent Review Panel (IRP) Manager and the community of Hinkley, PG&E has implemented significant interim remedial actions to clean-up the groundwater contamination resulting from PG&E's historical operations at the Hinkley Compressor Station while also addressing the community's concerns about their drinking water. PG&E's bottle water program, launched in November 2012, and its voluntary Whole House Replacement Water (WHRW) program, launched in April 2012, successfully decoupled issues related to the groundwater cleanup from the concerns regarding the drinking water. The purpose of this letter is to request a 90-day period for PG&E to conduct an evaluation of the current WHRW program to incorporate what we have heard from the community. This evaluation will afford us the opportunity to take another look at the technologies that were originally analyzed in the Feasibility Study (June 2012) and incorporate lessons learned during the implementation and startup process. We strongly believe that taking the time now to assess the WHRW program will allow us to meet our shared commitment of ensuring that the WHRW program continues to meet the needs of the community.

In community meetings which both PG&E and the Regional Board attended in 2011, we heard two main messages from the community. Many community members asked for replacement water for household uses; but we also heard others wanted the option of having PG&E purchase their property. In response, last April, PG&E launched an unprecedented program to voluntarily provide WHRW treatment systems or property purchase for any resident that lived within 1-mile of the hexavalent chromium plume that had any detection of hexavalent chromium. To date, over 300 eligible residents (or roughly half of the town of Hinkley) have

elected to participate in our program. Further, just this week we expanded our program based on data collected during the 4th quarter of 2012 as presented in the February 6, 2013 Quarterly Monitoring Report. The newly potentially eligible residents (as reported in Attachment 1) have been notified of their potential eligibility for WHRW treatment systems and those not already receiving it have been offered interim bottled water.

While our WHRW program successfully met its objective of addressing concerns of residents whose domestic wells may be impacted by contamination potentially attributable to PG&E's historic releases, we have also heard feedback from residents that some aspects of our program, in particular the frequency of the ion exchange/reverse osmosis systems sampling, maintenance and monitoring requirements, are too intrusive. These concerns were raised by residents during the Regional Board meeting on January 15th in Barstow. Further, when we originally studied the feasibility of providing a permanent replacement water supply that would meet the Public Health Goal of 0.02 parts per billion (ppb) we assumed that most eligible residents would elect the water treatment option over property purchase. That assumption has proven to be inaccurate. To date, less than 15% of eligible households have elected to receive the water treatment option. This is an important change from the original scope of the Feasibility Study when we assumed 300 residents as part of our analysis. Having fewer residents may change the outcome of the comparative analysis and recommendation on the best replacement water technology.

From community feedback and our experience in implementing the program, there are legitimate concerns that ongoing system analysis, monitoring, maintenance and testing of the treatment systems pose an unreasonable burden on residents. PG&E seeks to modify the program in order to ensure that eligible residents have acceptable and effective replacement water options that will provide reasonable assurance that the quality of the water they have available in their homes in Hinkley is as good, or better, than they might find in nearby communities. It is important to note that we understand that many Hinkley residents who elected to have PG&E purchase their property are planning to move to Barstow and Apple Valley, where low levels of hexavalent chromium are regularly detected in available drinking water sources.

Given all of the factors listed above, PG&E believes that this is the right time to thoughtfully re-examine our program and incorporate lessons learned and feedback from the community. Further, taking the time now will not put anyone at risk given that all eligible residents who have requested bottled water are receiving interim bottled water. We will continue to implement the existing program for all residents identified to date, including those newly identified based on the 4th quarter 2012 plume map. However, it would be prudent at this point to take time to allow the Regional Board and the community to consider the changed circumstances set out above and to allow all residents that have elected the whole house replacement water option (36 residents have elected this option to date) the opportunity to avail themselves of acceptable improvements to our program.

As such, PG&E is proposing the following modifications to our Whole House Replacement Water Program:

1) PG&E requests a 90-day extension of all applicable deadlines during which it will re-examine the whole house replacement water options originally considered in the Replacement Water Supply Feasibility Study revised June 2012 and will present the results and recommendations to the Board in a Feasibility Study Addendum. This addendum will include an evaluation of a range of additional replacement water options, including, but not limited to: a) finding a new source of water south of PG&E's Compressor Station and b) trucking in water from Golden State Water in Barstow. During this time, PG&E would contact residents that have already elected a WHRW system and inform them of the evaluation and time frame for a Feasibility Study Addendum. If upon hearing of the evaluation, residents want to wait to have their WHRW unit installed, PG&E respectfully requests relief from applicable implementation deadlines currently applicable to the WHRW Program in order to provide the Regional Board and the community time to consider these additional options. Proposed modifications to relevant ordering provisions to accomplish this are set for on Attachment 4.

2) As to those residents who have elected an Ion Exchange-Reverse Osmosis Unit and do not want to wait for the Feasibility Study Addendum, PG&E requests that residents be allowed to decline the Reverse Osmosis (RO) units, which are designed to improve taste and odor but do not treat hexavalent chromium. As noted above, many residents have objected to the intrusive nature of these units and required sampling and monitoring. At a minimum, PG&E requests that the Regional Board approve the proposed modifications to the Ion-Exchange Leachate and Reverse Osmosis monitoring programs requested on January 10, 2013 in order to improve the effectiveness of the current program and reduce the inconvenience experienced by residents to date.

3) PG&E requests that the order requirements for interim water replacement (bottled water) be satisfied by PG&E's provision of commercially available bottled drinking water. It has been PG&E's experience that providing bottled water from prominent nationwide commercial vendors of bottled water service is an effective way of providing high quality water to meet drinking water needs and allay any concerns about drinking water quality. It is unfortunate that the additional and challenging order requirements, such as the requirement that bottled water have non-detectable levels of hexavalent chromium, creates unnecessary uncertainty and alarm in the community about the quality of bottled water service, which is no different from the bottled water they can purchase off the shelf from their local grocer.

4) PG&E requests approval to re-evaluate the need to expand the 1-mile buffer zone in the future. When we proposed our voluntary program in early 2012, we opted to offer our programs to residents living within a mile of the groundwater plume until such time that we had sufficient hydrogeologic data to provide certainty on the plume boundary. By extending our replacement water programs well beyond the plume boundary, it was intended to create a buffer to permit evolving data and analysis to inform the remediation process. As we discussed in our Western Investigation Report and Technical Memorandum (Attachment 2), PG&E believes that we now have sufficient data to demonstrate that the plume is not continuing to migrate to the West (as further discussed in Attachment 3).

PG&E has achieved several technical milestones in the past year, including the ability to demonstrate plume capture at Thompson Road as reported to the Regional Board beginning in April 2012. We have also sought to enhance our community engagement efforts to allow more information sharing and collaboration between PG&E, the Regional Board, the Community Advisory Committee (CAC), the IRP Manager and the United States Geological Survey (USGS) through technical working meetings. These meetings allow for all parties to transparently share information, openly discuss issues and find mutually agreeable solutions to various technical challenges associated with the project. The recent meetings on the Revised Background Study Work Plan and the series of meetings on the Manganese issue are excellent examples of this process. PG&E understands that the all parties have agreed to the path forward on the Background Study; and as such, we look forward to receiving your approval of the Revised Background Study Work Plan which updates the February 2012 Background Study Work Plan. PG&E strongly believes that implementation of a revised, peer reviewed Background Study is a critical step to ensuring that major project decision-making is based on sound science.

We share the mutual goal of ensuring safe, reliable drinking water for the residents of Hinkley and easing concerns about the quality of the water in their homes. While we believe the program has been extremely successful, we also believe that now is the time to re-examine the program, taking into account all that we have learned and heard from the community. We are committed to continuing to implement a program that meets the needs of the community and assures that the water in their homes is of comparable quality to the water available in other residential areas in the State of California. PG&E is bringing this urgent matter to your attention and is requesting administrative action and relief. In order to provide PG&E the opportunity to modify the WHRW Program in response to community feedback, we respectfully request relief from the relevant ordering provisions in the Cleanup and Abatement Orders R6V-2011-0005 A1 and A2 as specified in Attachment 4. Through this modification request, we hope to resolve our concerns at the Regional Board level. If PG&E's request is not granted, PG&E will seek relief under California Water Code Section 13320.

We look forward to your response and appreciate your timely consideration of our request. Please contact me directly if you have any questions regarding this request.

Sincerely,

Sheryl Bilbrey

Sheryl Bilbrey
Director, Chromium Remediation

Pacific Gas and Electric Company

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Hinkley Site Manager

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March 11, 2013

Ms. Patty Kouyoumdjian
Executive Officer
California Regional Water Quality Control Board, Lahontan Region
2401 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

Subject: PG&E's Reverse Osmosis Investigation Report Under Ordering Paragraph 4 of Investigative Order No. R6V-2013-0001

Dear Ms. Kouyoumdjian,

Pacific Gas and Electric Company (PG&E) submits the following information pursuant to Ordering Paragraph 4 of Investigative Order No. R6V-2013-0001, issued January 11, 2013 (January 2013 Order) for the Hinkley Compressor Station. Ordering Paragraph 4 requires that PG&E submit a report within 60 days from the date of the Order, presenting results of investigations of the reverse osmosis (RO) system and household plumbing/fixtures at whole house replacement water (WHRW) treatment systems to "…evaluate potential sources of chromium that have been detected between the ion exchange (IX) and RO systems." As reported to the Water Board on December 18, 2012, some sporadic low level hexavalent chromium detections have been observed in water produced from the undersink RO units installed at two properties.

At the request of PG&E, ARCADIS implemented a systematic approach to investigate potential sources of hexavalent chromium at the WHRW treatment systems (Exhibit 1 – Reverse Osmosis Investigation Report). The potential sources of chromium were assessed via literature reviews, discussions with vendors and technical experts, desktop evaluations of laboratory data and WHRW system performance data, limited bench-scale testing, and full-scale assessments.

The investigation focused on four potential explanations for low-level hexavalent chromium detections in water produced from the undersink RO units:

- False positives resulting from laboratory analysis – *the results do not support this as a source of low-level detections.*
- Contribution from chemicals / materials used in the WHRW treatment system or household plumbing – *the results indicate this can occur and is likely broadly occurring in water systems throughout the U.S., especially at the low-level chromium levels applied at Hinkley.*

Pacific Gas and Electric Company

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- Oxidation of trivalent chromium to hexavalent chromium as a result of chlorine addition, aeration, and/or biological activity – *the results indicate this is not a likely source at Hinkley.*
- RO system not providing reliable polishing treatment to remove chromium introduced downstream the IX treated water to the low levels applied at Hinkley – *the results indicate that chromium containing components within the RO unit are a possible source of low-level hexavalent chromium at Hinkley. The RO units are functioning within expected performance parameters.*

The WHRW systems incorporate two best available technologies identified by the U.S. Environmental Protection Agency for chromium removal, IX and RO, and are operated according to manufacturer-recommended procedures. RO systems are performing as intended, meeting all primary and secondary drinking water standards for monitored constituents of concern. Results from the investigation indicate that equipment leaching can contribute enough chromium to inhibit routine achievement of the 0.06 µg/L target. This can occur despite use of NSF certified plumbing materials and process components.

As discussed in PG&E's letter to the Water Board dated January 10, 2013, monitoring of the internal RO units at the two installed locations has proven to be a significant inconvenience to the residents. One resident has already requested that no further sampling of the RO units be conducted. The monitoring plan proposed in PG&E's Feasibility Study called for bi-weekly monitoring of hexavalent chromium, total chromium, and parameters that exceed 90 percent of State and Federal MCLs/SMCLs for the first six months and then quarterly for the remainder of the program. Depending on the number of RO systems installed in each home and the water quality parameters that need to be monitored, the time to collect undersink RO samples for each home may vary between 30 and 60 minutes per unit. Thus, in accordance with the current monitoring plan, sampling technicians could spend between 1 to 3 hours inside the homes on bi-weekly basis for the first six months. The enclosed WHW Monitoring Resident Communication Log (Exhibit 2) which documents communications with residents relating to bi-weekly monitoring events for two WHRW systems, demonstrates the significant burden that bi-weekly in-home monitoring imposes on residents.

Based on these findings, PG&E recommends the following:

- The Water Board-mandated compliance level for the WHRW treatment systems should be reconsidered taking into account the multiple factors that contribute hexavalent chromium to drinking water in applications such as the Hinkley WHRW systems. NSF-approved chemicals typically applied at water treatment plants, and process and plumbing components used to treat and distribute potable water can add residual levels of hexavalent chromium to domestic water supplies under certain conditions. The NSF/ANSI 60 and 61 single product allowable concentration (SPAC) of 2 µg/L for

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hexavalent chromium provides a good reference point for a reasonable treated water hexavalent chromium concentration at all points beyond the immediate IX effluent orifice.

- The point of compliance for hexavalent chromium should be the IX treated water. The undersink RO units are designed to achieve primary and secondary drinking water standards without any ongoing active monitoring.
- To ensure that the undersink RO units are operating consistent with performance standards, and to reduce unnecessary inconvenience to homeowners, the monitoring program for the undersink RO units should be modified as follows:
    - Monitor each undersink RO unit during start-up for hexavalent chromium, total chromium, and other water quality constituents of concern (above 90 percent of State and Federal MCLs/SMCLs as described in the Monitoring Plan). Sampling during start-up will confirm that the units are operating in accordance with their State certification before they are turned over to the residents.
    - Monitor the undersink RO unit in the kitchen every six months for hexavalent chromium, total chromium and water quality constituents of concern (above 90 percent of State and Federal MCLs/SMCLs as described in the Monitoring Plan). At the time of sample collection, PG&E will also service all of the units, replacing necessary cartridges per the manufacturer recommendations in an effort to minimize further disturbances to Hinkley residents.

Further justification for streamlining undersink RO monitoring is provided in PG&E's letter to the Water Board dated January 10, 2013.

I hereby certify that I have examined this report, and based on my examination and my inquiries of those individuals who assisted in the preparation of the report, I believe the report to be true, complete and accurate.

Please do not hesitate to contact me if you have any questions regarding this report, or if you need additional information.

Sincerely,

Jeff McCarthy, P.E.

Enclosures:

Exhibit 1 - Reverse Osmosis Investigation Report
Exhibit 2 - WHW Monitoring Resident Communication Log

6.3 Contingency Plan for Meeting Standards and Replacing Supply

Currently, PG&E has been providing interim replacement water to impacted households, required as part of Ordering Paragraph 1. Additionally, PG&E continues its voluntary provision of bottled water to any resident who lives within 1 mile from the outermost boundary of the plume. During construction of any replacement water supply, properties with impacted wells will continue to receive interim replacement water. After the infrastructure has been constructed, tested, and commissioned, the replacement water supply should be tied into the household water supply.

Community water systems have their own safeguards and redundancies to ensure continued water service. Backup generators, wells, and treatment are standard and are required by Title 22 regulations for CWSs. Whole-house water treatment systems are more susceptible to temporary loss in water supply. Whole-house water treatment systems should be equipped with storage tanks to mitigate the potential for loss of water resulting from a well or treatment system failure.

The contingency plan for the evaluated alternatives is to haul water until the replacement water supply is back in service or a new replacement water supply is developed. Bottled water could also be provided on a short-term basis to meet domestic water needs until the replacement water is back in service.

6.4 Monitoring Plan

The monitoring plan of the whole house water treatment systems will include initial monitoring and routine monitoring. Initial monitoring will be performed to demonstrate that the whole house water treatment system is removing hexavalent chromium and nitrate to very low levels, meeting MCLs for contaminants found in the initial monitoring for drinking water and also to demonstrate that there are no leachates from the system/resin being introduced into the water. This will be compared against the modeling results. Monitoring of the lead and lag IX vessels and the undersink RO treated water for the parameters that exceed 90 percent of the MCLs will be performed on biweekly (once every two weeks) basis for the first six (6) months or until a correlation has been developed with modeling that includes at least one change out for both the IX and RO systems. Routine monitoring will commence and be performed to assess the IX resin and RO membrane replacement frequency after the first six (6) months or establishment of the IX resin and RO membrane replacement timelines. Routine monitoring of the lead and lag IX vessels will be performed at time periods

when the driver contaminant reaches 50 and 80 percent of the maximum bed volumes on the lead vessel.

The monitoring plan for the undersink RO will include routine process monitoring to demonstrate the removal of water quality parameters such as TDS, chloride, and sulfate to meet drinking water standards.

Table 9 summarizes the monitoring plan. The proposed water quality monitoring includes:

- Initial start-up monitoring of parameters identified by the California guidance for private domestic well owners (A Guide for Private Domestic Well Owners, April 2011; See Attachment E) and any potential releases from ion exchange resin.
- Biweekly monitoring (once every 2 weeks) of the lead and lag IX vessels and the undersink RO treated water for the first six (6) months for total chromium, hexavalent chromium, nitrate, and contaminants that exceed 90 percent of the MCLs. Monitoring frequency for these parameters can be reduced (monthly or quarterly) after 6 months of obtaining the initial performance data for each individual well (e.g., resin replacement timelines).
- Constituents in the raw water that are below their respective MCLs/SMCLs do not need to be sampled routinely.
- Additional performance monitoring of whole house IX and undersink RO treatment systems as shown in the following table. The undersink RO treatment performance will be monitored for parameters such as TDS (which is a good indicator of membrane performance). For well waters with TDS greater than 1,000 mg/L, the RO treated water TDS will be monitored on a monthly basis to confirm system performance. For well waters with TDS less than 1,000 mg/L, the RO treated water TDS will be monitored on a quarterly basis. The RO membrane will be replaced at the manufacturer recommended frequency or whenever monitoring shows the RO treated water TDS exceeds 500 mg/L (50 percent of the maximum SMCL range), whichever occurs earlier.

Table 9 Proposed Monitoring Plan for Whole House Ion Exchange and Undersink RO

Parameter	Units	Method	Method Reporting Limits (MRLs)	Groundwater (Raw)	Whole House Ion Exchange System Treated Water	Undersink RO Treated Water
Tier 1 Parameters						
Hexavalent Chromium	µg/L	EPA 218.6	0.02	Quarterly	Biweekly or As Needed[1]	Biweekly or As Needed[1]
Total Chromium	µg/L	EPA 200.8	0.1	Quarterly	Biweekly or As Needed[1]	Biweekly or As Needed[1]
pH	SU	EPA 150.1	0.1	Quarterly	Quarterly	Quarterly
Alkalinity	mg/L as $CaCO_3$	SM 2320 B	10	Annual	Annual	Annual
Bicarbonate	mg/L as $CaCO_3$	SM 2320 B	10	Initial Start-up	Initial Start-up	Initial Start-up
Total Dissolved Solids (TDS)	mg/L	SM 2540 D	10	Quarterly	Quarterly	Monthly for TDS >1,000 mg/L; Quarterly for TDS <1,000mg/L[2]
Total Organic Carbon	mg/L	5310C	0.25	Initial Start-up	Initial Start-up	No Sampling
Metals						
Arsenic	µg/L	EPA 200.8	2	Quarterly	Quarterly	Quarterly
Aluminum	µg/L	200.7	25	Initial Start-up	Initial Start-up	Initial Start-up
Barium	µg/L	200.8	2	Initial Start-up	Initial Start-up	Initial Start-up
Boron	µg/L	200.8	0.05	Initial Start-up	Initial Start-up	Initial Start-up
Calcium	µg/L	200.7	1	Initial Start-up	Initial Start-up	Initial Start-up
Chromium	µg/L	200.8	2	Initial Start-up	Initial Start-up	Initial Start-up
Copper	µg/L	200.8	2	Initial Start-up	Initial Start-up	Initial Start-up
Iron	µg/L	200.7	0.05	Initial Start-up	Initial Start-up	Initial Start-up
Lead	µg/L	200.8	0.5	Initial Start-up	Initial Start-up	Initial Start-up
Magnesium	µg/L	200.8	0.1	Initial Start-up	Initial Start-up	Initial Start-up
Manganese	µg/L	200.8	2	Initial Start-up	Initial Start-up	Initial Start-up
Nickel	µg/L	200.8	5	Initial Start-up	Initial Start-up	Initial Start-up
Potassium	µg/L	200.7	1	Initial Start-up	Initial Start-up	Initial Start-up
Silica, Total	µg/L	200.7	0.5	Initial Start-up	Initial Start-up	Initial Start-up
Sodium	µg/L	200.7	1	Initial Start-up	Initial Start-up	Initial Start-up
Strontium	µg/L	200.8	0.3	Initial Start-up	Initial Start-up	Initial Start-up
Uranium	µg/L	200.8	1	Initial Start-up	Initial Start-up	Initial Start-up
Zinc	µg/L	200.8	5	Initial Start-up	Initial Start-up	Initial Start-up
Anions						
Chloride	mg/L	EPA 300.0	1	Annual	Annual	Annual
Nitrate (as N)	mg/L	EPA 353.2	0.1	Quarterly	Biweekly or As Needed[1]	Biweekly or As Needed[1]
Sulfate	mg/L	EPA 300.0	0.5	Annual	Annual	Annual

Table 9 Proposed Monitoring Plan for Whole House Ion Exchange and Undersink RO

Parameter	Units	Method	Method Reporting Limits (MRLs)	Groundwater (Raw)	Whole House Ion Exchange System Treated Water	Undersink RO Treated Water
Biological Parameters						
Total w/ Ecoli Coliform	MPN/100 mL	Quanti-Tray/2000	1	Annual	Annual	Annual
Fecal Coliform	MPN/100 mL	SM 9222 D	1	Annual	Annual	Annual
Heterotrophic Plate Counts (HPCs)	MPN/mL	Simplate	2	Annual	Annual	Annual
Ion Exchange Resin Leachates3						
VOCs and TICs	µg/L	524.2		Initial Start-up	Initial Start-up	Initial Start-up
BNA SVOCs	µg/L	526 and 525.2Ext		Initial Start-up	Initial Start-up	Initial Start-up
Nitrosamines	µg/L	521		Initial Start-up	Initial Start-up	Initial Start-up
Aldehydes/ Ketones	µg/L	556		Initial Start-up	Initial Start-up	Initial Start-up
Radiologicals						
Gross Alpha	pCi/L	7110B	3	Annual	Annual	Annual
Gross Beta	pCi/L	7110B	4	Annual	Annual	Annual
Radium-226	pCi/L	7500 Ra B	1	Annual	Annual	Annual
Radium-228	pCi/L	7500 Ra D	1	Annual	Annual	Annual
Radon-222	pCi/L	7500 Rn B	25	Annual	Annual	Annual

Notes:
1. Biweekly monitoring (once every two (2) weeks) of the lead and lag IX vessels and the undersink RO treated water for the first six (6) months for total chromium, hexavalent chromium, nitrate, and contaminants that exceed 90 percent of the MCLs. Monitoring frequency for these parameters can be reduced (monthly or quarterly) after six (6) months of obtaining the initial performance data for each individual well (e.g., IX resin and RO membrane replacement timelines).
2. Based on initial sampling.
3. System and resin leachates will be monitored after flushing (at factory) and installation at homes.

California Water Boards

Edmund G. Brown Jr.
Governor

Matthew Rodriquez
Secretary for
Environmental Protection

Lahontan Regional Water Quality Control Board

April 18, 2013

Sheryl Bilbrey
Director, Remediation Program Office
Pacific Gas and Electric Company
3401 Crow Canyon Road
San Ramon, CA 94105-1814

Dear Ms. Bilbrey,

You have requested that the Regional Water Quality Control Board for the Lahontan Region (Regional Water Board) clarify statements, attributed to Regional Board staff at the February 28, 2013 Community Advisory Committee (CAC) meeting, alleging that PG&E could not require a written access agreement as a condition for the installation of a treatment system, and that even without an access agreement, PG&E would be required to install the Whole House Water (WHW) systems by August 13, 2013, or be in violation of the WHW Order.

In general, I agree that the requirement for an access agreement is a reasonable prerequisite to installing a WHW system, and is a common practice to set out expectations and protect the rights of both parties. The Regional Water Board stated previously, however, that it would not provide a form access agreement or mediate disputes between PG&E and the homeowners. In addition, I would caution PG&E that it cannot avoid its obligations under the WHW Order by including unreasonable, unfair or coercive terms in the access agreement. The shortened version of the access agreement appears reasonable and PG&E may require it to be signed before it installs a system without violating the WHW Order, as long as PG&E demonstrates a good faith effort to address any homeowner objections to the agreement. As I have indicated previously, it is important for you to document your efforts to meet your obligations under the WHW Order, including working out issues with the community.

You have also expressed concerns about your ability to meet the requirement to provide WHW systems by August 31, 2013 to those that have chosen to participate in the WHW program, rather than be bought out, when you have not yet received a signed access agreement from the homeowner. Based on that concern you have requested that you be allowed to extend the deadline for all properties that have not yet submitted a signed access agreement to six months from the date of receiving such an agreement. Although I sympathize with the dilemma PG&E has in meeting its requirements under the Board's WHW Order, I do not believe a six-month delay would be appropriate. **I would, however, be willing to grant a 5 month extension for those properties that by May 10, 2013 have not provided you a signed access agreement.** This would mean that for properties that have access agreements signed by May 10, you must still meet the August 31, 2013 deadline. For any properties that did not have a signed agreement by May 10, 2013, you would have 5 months from the date of the signed agreement to provide a WHW system.

You have also expressed concerns about what the deadline would be for providing WHW systems to those whose properties that were eligible for WHW systems by the August 31, 2013 deadline, but had chosen instead to be bought out, and then changed their minds, deciding instead to stay in Hinkley and be provided a WHW system. For those people, I would also believe that a 5 month extension should be sufficient, and I would expect that PG&E would do all that it could to provide a system earlier, if it is possible. Until a system is provided, you would be required to continue to provide that homeowner with bottled water.

I am sure that there are situations that I have not addressed here that we will be required to address in the future. Where disagreement, uncertainty or confusion exist, I encourage you to approach the community and attempt to work out those issues. The Regional Water Board does not want to be in the middle of disagreements between PG&E and the Hinkley community, especially when the issues of concern are outside of, or only tangential to, our authority, such as with the access agreements. Where the Regional Water Board must intervene, our focus will be to do what is fair to the community, reasonable to request of PG&E and is protective of public health and the environment.

Sincerely,

Patty Z. Kouyoumdjian
Executive Officer

cc: Hinkley CAC Members (electronic copy only)

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