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**VIA HAND DELIVERY**

July 12, 2011

Harold Singer  
Executive Officer  
California Regional Water Quality Control Board  
Lahontan Region  
2501 Lake Tahoe Blvd.  
South Lake Tahoe, CA 96150

Dear Mr. Singer:

Thank you for the opportunity to comment on the Draft Amended Cleanup and Abatement Order No. R6V-2011-0005A1 (the "Draft CAO") which, if adopted, would require PG&E to supply replacement water meeting certain quality standards to Hinkley residents. We respectfully request your careful consideration of the comments contained in this letter:

**I. Introduction**

PG&E has for many years acknowledged with genuine regret its responsibility for chromium contamination that contributed to the burdens and concerns of members of the Hinkley community. PG&E is committed to continuing to work cooperatively with the Lahontan Water Board, interested agencies and the Hinkley community to address these environmental impacts and community concerns stemming from our past operations at the Compressor Station located in Hinkley.

As part of our responsibility for remediation, PG&E currently operates the largest *in-situ* chromium remediation system in the world, as well as a large land treatment unit at the Desert View Dairy. PG&E has also been controlling the plume with a large fresh water injection system, which PG&E recently expanded. In addition, PG&E recently expanded agricultural pumping to further control plume movement that will result in a more than 350% increase in plume control pumping. PG&E is also actively pursuing additional remedial options as part of what is being called the final remedy.

In addition to these extensive remedial activities, PG&E has been actively working to reduce the ongoing concerns of Hinkley residents. We have undertaken a number of voluntary actions to address and respond to these concerns, including:

- PG&E offered to test chromium levels in any well within one mile of the plume.
- PG&E offered to purchase numerous properties near the plume – and its purchases have all been significantly above the appraised value.

- PG&E has provided bottled water to all well owners with chromium six levels above natural background levels,<sup>1</sup> as well as to the Hinkley School and the Hinkley Senior Center. This existing program satisfied the subsequent requirement of the Lahontan Board's original replacement water Order, which required bottled drinking water for Hinkley residents with chromium six levels above natural background.

- PG&E has also offered to supply bottled drinking water to any resident within one mile of the chromium plume, regardless of whether their well water exceeds background levels.

In light of these actions, which were voluntary and are above-and-beyond prior Lahontan Board direction, there is no reason to believe that any member of the Hinkley community is drinking water that contains an unsafe level of chromium six. Nonetheless, PG&E acknowledges that there is confusion and concern among some members of the Hinkley community regarding the safety of drinking water. We urge the Lahontan Board to partner with public health officials in an effort to educate and inform the Hinkley community and to address their concerns.

PG&E believes that the Board's new Draft CAO represents an unsupported and unreasonable expansion of water replacement requirements, and sends a confusing message to the Hinkley community. It would order interim replacement water for all wells within one mile of the plume that have chromium six concentrations greater than approximately 0.6 percent of natural background levels. It also mandates the permanent provision of water to any well with increased chromium six concentrations, even if they remain well below the natural background level. The Draft CAO is not supported by state law, science, engineering or public policy. As you observed in a May 26, 2011 e-mail on the subject: "Given that the groundwater in this area is well below the current MCL [Maximum Contaminant Level] for total chromium and that a public health goal is still in draft form, any order would likely have significant technical, legal and policy considerations." This letter outlines several of the significant technical, legal and policy concerns stemming from the Draft CAO.

#### **Draft CAO Not Authorized by State Law**

PG&E's position is that for several reasons, any one of which would invalidate the Draft CAO, California law does not authorize the replacement water Draft CAO under these circumstances:

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<sup>1</sup> A total of twelve domestic wells in Hinkley have been found to contain chromium six above background levels. PG&E has agreements to purchase nine of the affected properties. Two of these wells were recently sampled, even though (i) they are approximately one mile outside the current plume boundary and (ii) there are significant reasons to conclude that the chromium six levels are not related to PG&E's activities. For example, well 34-65 is up-gradient from the plume and a fault acts as a barrier between the plume and that well. Nevertheless, PG&E provided bottled drinking water to both well users within days of the first sample showing chromium six levels above background, and PG&E is working with the Lahontan Board staff to determine whether there is any connection between PG&E's activities and the chromium six found in these wells.

- All domestic wells in Hinkley meet the state drinking water standard and, therefore, there is no legal support for an order requiring replacement water.
- It is improper to rely on a draft Public Health Goal (“PHG”) to require replacement water. Doing so would elevate a draft goal to a *de facto* public drinking water standard without having first followed the required regulatory process for a drinking water standard or even for a final public health goal.
- State law does not allow remediation orders, including replacement water, for wells that contain chromium six levels below natural background levels. The Draft CAO’s interim requirement to provide replacement water to all users whose wells are above 0.02 ppb chromium six within one mile of the plume, as well as the permanent requirement to provide water to any users whose wells indicate increased chromium six concentrations, are clearly at odds with this law.
- There is no evidence, much less substantial evidence as required by state law, that PG&E has affected the groundwater one mile beyond the plume boundaries. In fact, the Draft CAO would – contrary to state law – require PG&E to demonstrate that it has not impacted each well in the Hinkley area.
- State law does not permit an order, as proposed in the Draft CAO, that requires replacement water that is of higher quality than natural background water.
- The Draft CAO is void for vagueness. For example, it does not define the wells subject to the Draft CAO or the volume of water to be supplied.

#### **Lack Of Scientific Support For The Draft CAO**

As explained in more detail in Section II below, the Draft CAO is not supported by science. Based on the draft PHG, the Draft CAO states that chromium six in domestic wells above 0.02 ppb poses an immediate health risk to Hinkley residents. However, the language in the draft PHG, as well as an understanding of the science and purpose behind the PHG, demonstrates that such a conclusion is inappropriate. In addition, the draft PHG does not reflect emerging science indicating that there is a level below which chromium six does not have an adverse effect. The draft PHG’s reliance on supposed swamp cooler or similar inhalation risks is not supported by the scientific record. And, even if the draft PHG were a valid regulatory tool, the science behind the draft PHG indicates that the most reasonable way to eliminate the purported risk would be to supply bottled drinking water to well owners with chromium six levels above natural background.

#### **Compliance With The Draft CAO Is Not Feasible**

The Draft CAO’s requirements are so sweeping and the level of compliance (0.02 ppb chromium six) so low that it is simply not feasible to comply with them given current testing methods and water treatment technologies. A team of experts retained by PG&E concluded that there is no water source or treatment method in existence today that could reliably produce water below 0.02 ppb at the

volumes required by the Draft CAO. Indeed, even many bottled water sources contain chromium above the limits set in the Draft CAO. In addition, it is not even possible to reliably test water at levels below 0.1 ppb chromium six. Finally, as noted below in Section IV(C), the interim and permanent replacement water provisions contradict one another and would result in wasteful and unnecessary activities at best.

### **Public Policy Concerns**

The Draft CAO would create a statewide public policy precedent with significant ramifications. The Draft CAO's claim that drinking water above 0.02 ppb chromium six poses an immediate risk to human health would require all entities within the Lahontan region and, indeed, throughout California to stop distributing water with greater than 0.02 ppb chromium six levels. A large number of California cities, including cities near Hinkley such as Victorville and Apple Valley, have water supplies with chromium six levels hundreds of times higher than the draft PHG. As a result, the precedent set by the Draft CAO could create significant uncertainty statewide, as could the precedent of relying on a draft regulation.

PG&E asks that you exercise your discretion and not issue the Draft CAO in its current form in light of PG&E's extensive remediation activities and the fact that the Draft CAO is not supported by state law, is contrary to the latest scientific research, is infeasible, and would create far reaching statewide implications.

## **II. State Law Does Not Provide Authority To Order Replacement Water In Hinkley**

### **A. It Is Improper To Order Replacement Water Where Contaminant Concentrations In Applicable Wells Are Below State Drinking Water Standards**

California has a Maximum Contaminant Level ("MCL") that applies to chromium six. As the Department of Public Health – the agency that sets MCLs in California – confirms: "Chromium-6 (hexavalent chromium) is currently regulated under the 50 ppb maximum contaminant level (MCL) for total chromium."<sup>2</sup> The State Board has made clear that it is improper for regional boards to require replacement water for wells that meet established drinking water standards, and it recently rejected a similar attempt by the Central Coast Board to require replacement water in such circumstances.<sup>3</sup>

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<sup>2</sup> *Chromium-6 MCL Update*, available at <http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Chromium6.aspx>. See also email from Harold Singer to Laurie Kemper, dated May 26, 2011, and attached to this letter as Exhibit A ("I understand that the Water Board Prosecution Team is developing an order to address a directive from the Water Board to evaluate the need for whole-house replacement water for Hinkley residents affected by the historic chromium discharge from the PG&E Compressor Station. Given that the groundwater in this area is well below the current MCL for total chromium and that a public health goal is still in draft form, any order would likely have significant technical, legal and policy considerations." (Emphasis added.))

<sup>3</sup> See SWRCB Order 005-0007, p. 6: "Wells 'affected' by a discharge of waste include those wells in which water does not meet the federal, state, and local drinking water standards." (Emphasis added). The State Board further stated: "The logical

Therefore, the Draft CAO raises statewide policy questions. All of the domestic wells in the Hinkley area meet the current state MCL for chromium. On this basis alone, the provisions in the Draft CAO requiring PG&E to provide replacement water to occupants whose wells meet existing MCLs should not stand.

## **B. It Is Improper To Treat A Draft PHG As A Drinking Water Standard**

In spite of the existence of the total chromium MCL, the Draft CAO improperly relies on a draft chromium six PHG as a drinking water standard. The Draft CAO attempts to justify its use of the 0.02 ppb draft PHG for chromium six by asserting that “[w]here OEHHA [the Office of Health Hazard Assessment] has established a PHG but DPH has not established an MCL, the State Water Resources Control Board . . . has determined that it is appropriate for a regional water board to require replacement water for wells affected at levels exceeding the PHG.” (Draft CAO, Authority – Legal Requirements, § 18, p. 5.) This assertion misrepresents both the current facts and the applicable law.

First, there is no PHG for chromium six. The 0.02 ppb standard created by the Draft CAO is based on a *draft* – and not a *final* – PHG currently under review by OEHHA. Second, even if the draft PHG for chromium six were final, a PHG, unlike an MCL, does not constitute a drinking water standard (Health & Safety Code § 116365(a), (c)) and, thus, cannot form the basis for requiring replacement water. Finally, the Draft CAO misreads *In The Matter Of The Petitions Of Olin Corporation And Standard Fusee* and would actually violate the State Board’s direction by setting an enforceable chromium six standard based on the Lahontan Board’s independent review of the scientific literature, instead of relying on DPH.

### **1. The Draft PHG Is A Work In Progress**

The Draft CAO elevates the draft PHG for chromium six to a *de facto* drinking water standard. This is improper on multiple fronts. First, the draft PHG is by definition a work in progress, not the final PHG. But it is the final PHG – and not any draft – that DPH will ultimately use to issue or revise any MCL for chromium six in the future. (Health & Safety Code § 116365(b)(1).) Thus, the draft PHG number relied on in the Draft CAO is at least *two* levels (and two public notice and comment processes) removed from being an enforceable drinking water standard. Moreover, OEHHA has already revised the draft PHG for chromium six at least once and is currently revising the draft PHG again in response to public comments, including scientific analysis directly contradicting some of its central

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result of the Central Coast Water Board’s argument that the State Water Board Res. 92-49 requirement for cleanup to background contaminant levels justifies its water replacement levels would routinely require water replacement for groundwater constituent levels that may be many times lower than that determined safe by state and federal agencies. Simply put, while cleaning up to background may be required, that does not mean that replacement water is always necessary until the cleanup is complete, regardless of the amount of contamination.” (Id. at 6, fn. 23.)

conclusions.<sup>4</sup> As discussed in detail below, the use of a draft PHG raises serious statewide precedent and public policy issues.

## 2. A PHG Is Not (And Is Not Intended To Be) A Drinking Water Standard

The Lahontan Board should not rely on even a final PHG to create an enforceable drinking water standard. OEHHA is clear that the PHG for chromium six is not intended to mark the line between safe and unsafe concentrations, and is not intended to create an enforceable drinking water standard: “The PHG is not meant to be the maximum ‘safe’ level of chromium 6 in drinking water. It represents a stringent health-protective goal that CDPH will use to develop an *enforceable* regulatory standard for chromium 6 in drinking water.” (Press Release, *OEHHA Releases Revised Draft Public Health Goal for Hexavalent Chromium*, Dec. 31, 2010; emphasis added.) OEHHA has also explained:

A PHG is NOT a boundary line between a “safe” and “dangerous” level of a contaminant. Drinking water can still be acceptable for public consumption if it contains contaminants at levels higher than the PHG. A PHG is a health-protective level of a contaminant in drinking water that California’s public water systems should strive to achieve *if* it is technically and economically feasible.

(Fact Sheet, *Draft Public Health Goal for Hexavalent Chromium*, Aug, 2009; emphasis in original.)

The PHG itself recognizes the limitations of a PHG:

PHGs *are not regulatory requirements*, but instead represent non-mandatory goals. Using the criteria described above, PHGs are developed for use by [DPH] in establishing primary drinking water standards (State Maximum Contaminant Levels, or MCLs). Thus, PHGs are not developed as target levels for cleanup of ground or ambient surface water contamination, and may not be applicable for such purposes, given the regulatory mandates of other environmental programs.

(Draft PHG, at iii (emphasis added).)

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<sup>4</sup> For example, one of the comments OEHHA must address the substantial critique of OEHHA’s methodology found in an October 23, 2008 Memorandum by the Department of Toxic Substances Control’s Senior Toxicologists. This memorandum, which is attached to this letter as Exhibit B, concluded that “generation of a PHG for hexavalent chromium at this time may be premature as it is not possible to assign a dose-response relationship – other than the default OEHHA assumptions and methods used since 1985. Additional investigations are indicated and should be considered before public release of the PHG value or its documentation.” (DTSC October 23, 2008 Memorandum at 9.)

As DPH made clear in its June 27, 2011 letter to you commenting on the Draft CAO:

The Lahontan Water Board's finding in the draft [CAO] is that the draft PHG level "is an appropriate standard to rely on to protect the public from contaminated drinking water, despite the fact that it has not been formally promulgated." *CDPH thinks it is premature, and has potentially far overreaching implication to domestic water supply wells in the state, to use the draft PHG for this purpose.*

(Emphasis added.)

The Draft CAO would immediately elevate a *draft* PHG to an enforceable drinking water standard and, in so doing, skip over the extensive process California follows to create an enforceable standard. It would eliminate all of the analysis mandated for creating an enforceable standard, including the analysis of technical and economic feasibility of complying with the standard.<sup>5</sup> In so doing, the Draft CAO would create serious public policy concerns statewide.

Tellingly, one of the lead authors of the draft PHG told Hinkley residents that he felt it was safe to use the water in Hinkley. In comments before the Lahontan Board in January 2011, Dr. Robert Howd, one of the lead authors of the chromium six PHG at OEHHA, opined that "people should be safe drinking water at the levels [of chromium six] found in drinking water wells in Hinkley." ("Chromium 6 Plume Boundary Shows Slight Changes," *Desert Dispatch*, 1/27/2011.)

**3. The Draft CAO Misreads *In The Matter Of The Petitions Of Olin Corporation And Standard Fusee* And Would Actually Violate Its Direction By Creating A New Drinking Water Standard Without Deferring To The State Agencies Charged With That Task**

The Draft CAO relies on a prior State Board decision, but the decision does not support the Draft CAO. SWRCB Order WQ 2005-0007 was rendered in *In The Matter Of The Petitions Of Olin Corporation And Standard Fusee* ("*In re Olin*"). The petitioners had discharged potassium perchlorate

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<sup>5</sup> As described later in these comments, PG&E's expert team has determined that it is technically and economically infeasible to comply with the Draft CAO. PG&E's team performed the very analysis that is required by state law, but which should be performed by DPH prior to creating an enforceable drinking water standard. (See Health & Safety Code § 116365(b)(1) ("The [California Department of Public Health] shall consider all of the following criteria when it adopts a primary drinking water standard: (1) The public health goal for the contaminant adopted by the Office of Environmental Health Hazard Assessment pursuant to subdivision (c); (2) The national primary drinking water standard for the contaminant, if any, adopted by the United States Environmental Protection Agency; (3) The technological and economic feasibility of compliance with the proposed primary drinking water standard. For the purposes of determining economic feasibility pursuant to this paragraph, the department shall consider the costs of compliance to public water systems, customers, and other affected parties with the proposed primary drinking water standard, including the cost per customer and aggregate cost of compliance, using best available technology."))

into groundwater. Pending the outcome of its investigation, Olin provided replacement water to owners of wells testing at or above 4 ppb. Later, OEHHA issued a *final* perchlorate PHG of 6 ppb; however, DPH had not issued an MCL for perchlorate and no other safe drinking water standard had been issued. Natural background levels for perchlorate were far below the final PHG (unlike in Hinkley, where the natural background chromium levels are far above the draft chromium six PHG).

Olin asked that the Central Coast Regional Board's Order limit required replacement water to owners of wells with perchlorate concentrations of at least 6 ppb, the PHG level. The Central Coast Board refused, and Olin and Fusee appealed to the State Board, contending that the Central Coast Board's order to provide replacement water for owners of wells testing below the "final PHG of 6 µg/L adopted by OEHHA" was an abuse of discretion. (*Id.* at 4.) In ruling on the petition, the State Board directed the Central Coast Board to defer to DPH and to OEHHA in determining safe levels of contaminants in drinking water:

Any other approach would require regional water boards to make individual, possibly inconsistent public health and toxicological determinations or, in the alternative, to require replacement drinking water whenever there is any detection of a contaminant. This approach ignores the expertise of OEHHA and, in the case of contaminants for which MCLs have been developed, [DPH].

(*Id.*, at 5.) The State Board also noted that a PHG, even one that is final, "is not a legally enforceable standard." (*Id.*)

Here, instead of deferring to DPH, the state agency charged with determining and establishing primary and secondary drinking water standards (Health & Safety Code §§ 116275(c)-(d), 116365), the Draft CAO would set an enforceable chrome six standard based on the Lahontan Board's independent review of the scientific literature.<sup>6</sup> (Draft CAO, Findings, § 25, p. 7 ("The Water Board finds it is appropriate to rely on this [draft] standard based on the vast amount of sound scientific evidence and agency peer review supporting the draft 2010 PHG".))

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<sup>6</sup> The Draft CAO is unclear as to whether this review was conducted by a toxicologist, an enforcement officer or a person(s) in another staff position. But regardless of the qualifications of the reviewers, "regional water boards should defer to OEHHA and DHS in determining safe drinking water levels." (*In re Olin* at 7.)



The Draft CAO also appears to critique the risk assessment on which the draft chrome six PHG is based, implying that it may not sufficiently protect human health:

The 2010 draft PHG does not include peer-reviewed scientific studies of the risks associated with the use of hexavalent chromium –contaminated water in other domestic appliances, including swamp coolers . . . Normal household use of these appliances may present additional inhalation risks not accounted for in the 2010 draft PHG.

(Draft CAO, Recent Changes in the Regulation of Chromium 6, § 17, p. 5.) The Draft CAO's independent review of the draft chrome six PHG and determination that it represents "an appropriate drinking water standard" results in the very danger identified by the State Board – the Lahontan Board would be making "individual, possibly inconsistent public health and toxicological determinations" instead of allowing the agencies with expertise in such matters to promulgate regulations addressing the safety of chrome six in drinking water.

DPH is clear and the Draft CAO acknowledges that chromium six is currently regulated under the total chromium MCL. As such, the Lahontan Board's effort to enforce a draft PHG is not the equivalent of the Central Coast's effort to enforce a final perchlorate PHG in the absence of an MCL. *In re Olin* (i) explicitly directs regional boards to defer to DPH and OEHHA in setting safe drinking water standards (*id.*, at 5); (ii) does not even mention, let alone endorse, the use of a draft PHG; (iii) by its own terms is not to be cited as authority for setting replacement water quality standards (*id.*, at 7); and (iv) dealt with perchlorate levels well *above* natural background levels and therefore not inconsistent with Porter-Cologne Water Quality Control Act and the State Board's enforcement policies that a discharger cannot be required to remediate below background concentrations. (*Id.*, at 3). In short, *In re Olin* merely stands for the proposition that where there is no applicable MCL and background levels of a contaminant are below a final PHG, a regional board may refer to that PHG in determining which wells require replacement water.

Until such time as OEHHA finalizes the draft PHG for chromium six and, through the proper processes and with the proper considerations, DPH establishes or revises the MCL for chromium six, the Lahontan Board should calibrate any chromium six concentrations in any proposed replacement water order based on the existing and enforceable MCL for total chromium (which includes chromium six).

**C. State Law Does Not Authorize An Order Requiring Cleanup Of, Or Replacement Water For, Wells That Contain Chromium Six Levels Below Natural Background Levels**

Any requirement that replacement water be provided to well owners with chromium six levels below background would run afoul of State Board Resolution 92-49, which is explicit that, consistent with the State's non-degradation policy, regional boards may not require cleanup or abatement below background conditions. (Resolution 92-49 § III.F ("under no circumstances shall these provisions be interpreted to require cleanup and abatement which achieves water quality conditions that are better than background conditions").) Replacement water is a component of abatement and mitigation for

discharges and, therefore, governed by this rule. There is no legal basis to require a discharger to respond to natural, pre-existing conditions and the Draft CAO would, therefore, create a dangerous precedent and statewide public policy question.

While the Draft CAO acknowledges the background study that was performed by PG&E in Hinkley, it ignores the results of the study when it requires interim water for all wells above 0.02 ppb and permanent water for all wells with increases in chromium six levels (including wells below natural background levels). In fact, without any basis or analysis, the Draft CAO concludes, “[t]here is no indication that the rising chromium levels are a result of fluctuation in the naturally occurring constituents” and “[t]he rise in chromium levels indicates that the anthropogenic hexavalent chromium plume resulting from the discharge of chromium at the Discharger’s compressor station is migrating to new areas in the upper aquifer.” (Draft CAO, ¶ 8, p. 3.) The prosecution team ignored the specific instruction to present “any evidence . . . they are relying on to support the draft order.” The conclusions asserted in the Draft CAO are not supported by any evidence, and are contrary to the established science and demonstrated record.

As stated by Dr. Brian Schroth, an expert on chromium in groundwater, chromium six is naturally present in Hinkley and throughout the world. “Naturally-occurring hexavalent chromium is ubiquitous in groundwater systems throughout the Mojave Desert and globally, with naturally-occurring concentrations sometimes exceeding 50 µg/L in alluvial aquifers in the western Mojave Desert and elsewhere in central and southern Arizona, and western New Mexico.” (Declaration of Brian Schroth, which accompanies this letter, ¶ 3(a).) In the Hinkley area, the Lahontan Board’s 2008 cleanup and abatement order established maximum groundwater chromium six background levels at 3.1 ppb. This background level has been used by both the Lahontan Board and PG&E for many purposes since 2008, including plume boundary depictions and final remedy cleanup analysis. Unless and until something changes, this is the background level established by formal research and a regulatory order.<sup>7</sup>

However, the Draft CAO requires interim replacement water for any well within one mile of the plume that is above 0.02 ppb chromium six. This requirement ignores natural background levels, including the established background level of 3.1 ppb. There is no analysis or science to (i) justify ignoring the 3.1 ppb standard that the Lahontan Board has historically accepted and (ii) support using 0.02 ppb as the trigger level for interim water, particularly in areas outside the plume boundary.

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<sup>7</sup> The Draft CAO states, “[a] final determination of background water quality has not been made.” (Draft CAO, Authority – Legal Requirements, § 23, p. 6.). However, PG&E’s background study and the 2008 Cleanup and Abatement Order established a maximum chromium six background level of 3.1 ppb. Until and unless it is changed, this remains the operative legal background level.

With regard to wells with increased chromium six levels (even those below natural background), the Draft CAO states without any support that the increase is caused by PG&E. However, Dr. Schroth has collected and reviewed the chromium six data from groundwater supply wells statewide. (*Id.*, ¶ 4.) The vast majority, if not all, of these wells are considered to contain naturally occurring chromium six. (*Id.*, ¶¶ 5-6, 8.) Dr. Schroth's research demonstrates that it is extremely common for wells containing naturally occurring chromium six to increase in concentration (or to decrease in concentration) over time due to natural forces:

Groundwater quality records collected by the CDPH show that concentrations of Cr(VI) detected in water supply wells vary considerably over time at any given well. As a result, increases or decreases in the concentration of Cr(VI) at a given well do not always signify the arrival or departure of a particular source or plume of Cr(VI). Rather, these changes may be expected as a result of other factors, including sample collection procedures, seasonal changes, changes in well operation, laboratory analysis, variations in annual precipitation, and other factors.

(*Id.*, ¶ 9.) Dr. Schroth's Declaration includes charts showing groundwater data collected by DPH for the Mojave area. (*Id.*, ¶ 10.) The charts demonstrate that it is very common for the concentration of chromium six to vary in a random pattern around a background value. (*Id.*) For example, concentrations of Cr(VI) detected in Hesperia Water District well 15-A have ranged from 2.6 to 7.93 ppb. (*Id.*, ¶ 11.) Similar concentration ranges are reported for Victor Valley Water District well 208 (Cr(VI) ranging from 4.2 and 9.5), Loma Linda University Anderson Well 2 (Cr(VI) ranging from 1.3 to 5.4 ppb), and Anderson Well 3 (Cr(VI) ranging from 2.0 and 4.5). (*Id.*)

If the 0.02 ppb chromium six draft PHG value were adopted as a state drinking water standard, over 50% of the drinking water supply wells in California would likely exceed this concentration. In a SWRCB study of active and standby drinking water supply wells, 3,156 out of 5,943 wells tested between 1997 and 2008 had concentrations exceeding 1 ppb. (*Id.*, ¶ 8(a).) Given that this study used sampling methods with detection limits dramatically higher than 0.02 ppb, it is very likely that significantly more wells would show chromium six detections above 0.02 ppb if the sampling were done using new sampling methods with lower detection limits. (*Id.*, ¶ 7.)

**D. State Law Does Not Authorize An Order Requiring PG&E To Provide Replacement Water For Wells That PG&E's Operations Did Not Impact**

The Lahontan Board has previously identified the boundaries of the plume impacted by historic releases from PG&E. The existing order defines the plume as those areas where groundwater exceeds 3.1 ppb chromium six and 3.2 ppb total chromium in the upper aquifer. (Draft CAO, Plume Migration, § 7, p. 2.) The Draft CAO, however, would (i) redefine the "affected area" to include all domestic wells located within one mile of the plume (*id.*, Findings, § 29, p 8) and (ii) define "impacted wells" as wells in the "affected area" with chromium concentrations above background concentrations *or* that have statistically significant (by a yet-to-be-determined standard) greater concentrations than past chromium six concentrations in the same well. (*Id.*)

On an interim basis, the Draft CAO would require PG&E to provide replacement water to all residences and businesses with wells in the “affected area” containing chromium six above 0.02 ppb. (*Id.*, Interim Replacement Water Supply, § 1(a), p. 9.) On a permanent basis, the Draft CAO would require PG&E to provide replacement water to “impacted wells” (that is, wells above background or with increased chromium six levels) within the “affected area” (one mile outside the plume boundary). (*Id.*, Permanent Replacement Water Supply, § 2(a), p. 9.) These requirements violate the Porter-Cologne Water Quality Control Act and would create a dangerous precedent and public policy question for cleanup activities statewide.

First, Water Code section 13304(a) permits the State and regional boards to require persons who discharge waste into State waters to provide replacement water to each “affected” public water supplier or private well owner. The Draft CAO exceeds the limits of the law to the extent that it orders PG&E to provide replacement water to well users whose wells are *outside* the identified plume, and to well users whose wells are below natural background levels for chromium six.

Second, section 13304(a) only permits the Lahontan Board to order replacement water to a Hinkley resident if there is “substantial evidence” that PG&E’s historic releases are the source of elevated levels of chromium six in a specific well. (*See In the Matter of the Petition of Exxon Company, USA*, 1985 WL 1120860, 6 (“while we can independently review the Regional Board record, in order to uphold a Regional Board action, we must be able to find that finding of ownership [i.e. responsibility] was founded upon substantial evidence.”); *In the Matter of the Petitions of Aluminum Company Of America; Alcoa Construction Systems, Inc.; And Challenge Developments, Inc.*, 1993 WL 303166, 3 (“There must be substantial evidence to support a finding of responsibility for each party named”)) Substantial evidence to support a finding of responsibility for each party named means credible and reasonable evidence which indicates the named party has responsibility. (*In the Matter of the Petition of Exxon Company, USA* 1985 WL 1120860, 6.) An arbitrary determination of responsibility is an abuse of discretion. (*Id.*; *In the Matter of the Petitions of Aluminum Company Of America; Alcoa Construction Systems, Inc.; and Challenge Developments, Inc.*, *supra*, 1993 WL 303166, 3.)

The Draft CAO defines “affected area” as all domestic wells located within one mile of the plume. (*Id.*, Findings, § 29, p 8). That definition includes wells located *up-gradient* and *cross-gradient* from the source of the historic release which clearly are not related to or impacted by the release. The Draft CAO has no basis to cast so wide a net.

The Draft CAO contains no evidence, science, regulatory guidance or past agency action to support its expansive and revised definition of the “affected area.” And the Lahontan Board has provided no other “supporting information” to PG&E. The law does not permit a regional board to define an affected area, or issue related orders, on that basis.

**E. The Lahontan Board Would Abuse Its Discretion If It Were To Require Replacement Water That Contained Lower Concentrations Than Natural Background**

State law does not authorize orders requiring replacement water to meet standards below natural background. Existing primary and secondary drinking water standards do not prohibit chromium six concentrations above 0.02 ppb. However, according to the Draft CAO, PG&E must provide replacement water meeting “state primary and secondary drinking water standards *and* hexavalent chromium levels of 0.02 µg/L.” (Draft CAO, Interim Replacement Water Supply, §§ 1(a), 1(b), p. 9; Permanent Replacement Water Supply, 2(a) and 2(b), pp. 9-10.) The Draft Order highlights that the drinking water standards do not specifically address chromium six separate and apart from total chromium. If the maximum chromium six concentration of 0.02 ppb were subsumed in the drinking water standards, the Draft CAO would not have had to separately define the maximum chromium six concentration. Requiring replacement water with a higher quality than natural background concentrations would create challenges and public policy questions statewide.

Water Code section 13304(f) requires that replacement water “meet all applicable federal, state, and local drinking water standards, and *shall have comparable quality to that pumped by the public water system or private well owner prior to the discharge of waste.*” (Emphasis added.) The State Board’s own enforcement policy only requires a discharger to abate contamination to background levels. (See, SWRCB Water Quality Enforcement Policy (2010), at p. 35.) Thus, according to Porter-Cologne and the State Board’s own pronouncements, replacement water need only be as clean as the water before the discharge occurred; background levels need not be improved upon.

If the Draft CAO’s replacement water standards are a harbinger of future cleanup standards, the Lahontan Board would be creating an expectation within the Hinkley community that cannot be met. As described below, there is no viable means of achieving a cleanup level consistent with the 0.02 ppb chromium six standard. When the time arrives to set goals for the eventual remediation, almost assuredly the Lahontan Board will be forced to backtrack and, in essence, announce that what it considered unsafe in 2011 is, in fact, not a threat to public health.

**F. The Draft CAO Is Void For Vagueness**

The State Board has long recognized that its orders implicate the “constitutional issues of void-for-vagueness and overbreadth under the due process clause of the Fourteenth Amendment.” (*In The Matter Of The Petition Of United States Steel Corporation*, 1976 WL 376714, 6-7.) The State Board further acknowledged the need for its orders to satisfy due process requirements when it explained, “[a]n administrative order such as the present one, which may be enforced by a penal sanction under Water Code Sections 13265 and 13387 may be equally effective as a deterrent to the exercise of constitutional rights as a penal statute.” (*Id.*)

The Draft CAO would require PG&E to provide replacement water for an *indeterminate* number of wells insofar as it defines “impacted wells” as those with concentrations “that are statistically significantly greater (at a confidence level to be determined) than past hexavalent chromium

concentrations in that same well.” (Draft CAO, Findings, § 29, p. 8.) The Draft CAO does not define the statistical test and specifically states that the confidence level will be determined later. It also orders PG&E to, “*at a minimum,*” provide sufficient water for drinking, cooking and swamp cooler needs. (Draft CAO, Interim Replacement Water Supply, § 1(a), p. 9.) But, while the Draft CAO sets a *floor* on the necessary quantum of interim replacement water, it is silent on the *ceiling*. The Draft CAO also fails to adequately identify the universe of Hinkley residents that would receive replacement water.

The Draft CAO is vague on many essential points. How many wells does the Draft CAO encompass, and exactly where are those wells? How much more water than the minimum is required to satisfy the Lahontan Board? The Draft CAO does not provide answers. At best, it says the Lahontan Board will make those decisions at some unspecified time in the future. As a result, PG&E might never know whether it has complied with the Draft CAO. A court reviewing the draft order would surely find it void for vagueness in that it would not provide PG&E with (i) sufficient information to comply, and (ii) notice of when it might be deemed in violation and, therefore, subject to administrative, civil, or criminal penalties. The Draft CAO’s ambiguity would set a troubling standard and raise far-reaching public policy questions.

### III. Science Does Not Support The Draft CAO

#### A. The Draft CAO Demonstrates A Misunderstanding Of The Draft PHG And The PHG Process, And Ultimately Misuses The Draft PHG

The Draft CAO wrongly asserts that “hexavalent chromium in domestic wells above 0.02 µg/L *poses an immediate health risk to Hinkley residents* through continued household use of *contaminated water*, including drinking, preparing foods and beverages, bathing or showering, flushing toilets, and other household uses resulting in potential dermal and inhalation exposures.”<sup>8</sup> However, the scientific knowledge regarding chromium six impacts comes from studies of workers and laboratory animals exposed to massive concentrations of chromium six thousands and even millions of times higher than the concentrations in Hinkley groundwater. There is no basis for concluding that chromium six levels above 0.02 ppb pose an immediate health risk.

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<sup>8</sup> The Draft CAO also wrongly asserts that the OEHHA Chronic Inhalation Reference Exposure Level (“REL”) demonstrates “*established science* that inhaled hexavalent chromium has *adverse impacts on human health at extremely low levels.*” (Draft CAO, Recent Changes In the Regulation of Chromium 6, § 15, p. 4 (emphasis added).) The correct REL is actually 0.2 µg/m<sup>3</sup> and is based on an animal exposure study of rats exposed to chromium six for 18 hours per day at concentrations ≥ 50 µg/m<sup>3</sup>. Regardless, these air exposure levels have no relation to the groundwater chrome six concentrations in Hinkley.

Dr. Joshua Hamilton, an expert in chromium six toxicology, summarized the chromium six toxicology studies of the last eighty years:

Despite over eighty years of intense study reported in tens of thousands of scientific papers, the only demonstrated adverse health effects of chromium occurred at levels of exposure that are more than a thousand times higher than those that would be encountered in environmental and household settings, including those in Hinkley. Conversely, there are no studies showing any adverse effects of Cr(VI) at levels anywhere near the current MCLs, let alone the background concentrations at Hinkley or the level proposed for the draft PHG.

(Declaration of Joshua W. Hamilton Decl. (“Hamilton Dec.”), which accompanies this letter, ¶ 7.)

For regulatory purposes, risk assessors take the high-dose study results and then employ mathematical modeling with extremely conservative assumptions to develop estimates of levels without health impacts from a lifetime of exposure. (*Id.*, ¶ 8.) These estimates produce numbers that are tens of thousands to millions of times lower than the studies upon which they are based. (*Id.*) For example, the lowest concentration of chromium six that caused tumors in animals in the National Toxicology Program (“NTP”) study that was used as the basis for the draft PHG was 20,000 ppb. (*Id.*) The proposed PHG level of 0.02 ppb is *one million times lower* than the concentration that caused cancer from a lifetime of drinking water exposure in mice. (*Id.*) There is no way to confirm any of the assumptions that are made in these models or to determine whether there are any measurable health effects at such low levels. (*Id.*) The estimates certainly do not represent “established science” demonstrating “immediate health risks” at the PHG level. (*Id.* ¶¶ 8-10.)

#### **B. The Draft PHG Does Not Incorporate The Latest Science**

The draft PHG’s reliance only on studies that utilized massive doses on lab animals eliminates any chance to determine whether there is an exposure level below which there are no adverse health impacts. (*Id.*, ¶¶ 7-8.) Many of the comments on the draft PHG recognized this problem. Fortunately, science is moving forward to answer this specific question.

Emerging science is leading to the conclusion that there is a threshold level below which there are no adverse health effects. (*Id.*, ¶ 10(b), (c).) Ninety-day toxicity studies, currently in the final stages of completion, have begun to be published in the peer-reviewed literature. (*Id.*, ¶ 10(c).) As Dr. Hamilton notes:

Based on the results presented to date, these studies will unequivocally support a threshold mechanism as the Mode of Action (“MOA”) for Cr(VI) in vivo via ingestion and inhalation exposure. In fact, these studies were specifically designed to investigate the MOA and to complement the 2008 NTP studies in all respects, including study design. The pending studies are even being conducted by the same scientists that conducted the 2008 NTP studies.

(*Id.*)

In short, the latest science suggests that there is a level below which exposure to chromium six does not cause adverse health effects. Dr. Hamilton recently served on a USEPA expert panel charged with reviewing USEPA's chromium six toxicology. (*Id.*, ¶ 10(b).) The panel strongly urged USEPA to incorporate the new studies in USEPA's toxicology assessments. (*Id.*, ¶ 10(c).) USEPA recognizes that this new science should be considered before any further regulatory changes. (*Id.*, ¶ 11.) Thus, the Draft CAO should not rely on the draft PHG, which does not incorporate the latest science and any such reliance would create a troubling precedent for cleanup orders statewide.

### **C. Evaporative Swamp Coolers And Similar Devices Do Not Introduce Chromium Six Into The Air**

Curiously, the Draft CAO criticizes the draft PHG, despite using it as a benchmark, for not including peer-reviewed scientific studies of the risks associated with the use of chromium six in evaporative swamp coolers and similar household appliances. (Draft CAO, Recent Changes In The Regulation Of Chromium 6, § 17, p. 5.) Not only does this analysis violate that State Board's policy prohibiting regional boards from crafting their own health standards (as discussed above), but it also contradicts the existing science.

In fact, OEHHA *did* consider inhalation risks in the PHG, and determined that they represent an extremely small portion of the calculated risk. (Hamilton Dec., ¶ 12.) OEHHA determined that the principal exposure pathway of concern for household exposure to chromium in drinking water supplies is *ingestion*. (*Id.*) OEHHA also specifically examined the question of inhalation exposure to chromium via showering – which is generally assumed to be the principal inhalation pathway of concern for households with contaminants in drinking water supplies – and included shower inhalation exposure in the draft PHG. (*Id.*) Exposure by inhalation during showering did not contribute significantly to the overall exposure or risk. (*Id.*) And even with conservative assumptions regarding exposure during showering, the contribution to risk from inhalation was 180 times lower than that from drinking water exposure. (*Id.*)

Dr. Hamilton also reviewed the relevant scientific literature and found two peer-reviewed scientific studies that concluded that – because chromium six is not volatile and does not evaporate into the air – evaporative swamp coolers do not introduce chromium six into the air. (*Id.*, ¶ 13(b).) Thus, Dr. Hamilton concludes that exposure to airborne chromium six from swamp coolers is not a pathway of concern for affected households in Hinkley or elsewhere:

The scientific and regulatory literature confirms that inorganic constituents, including chromium, that may be present in the water used in swamp coolers are not volatile and do not evaporate with the water. Instead, the inorganic constituents remain behind on the filter or, for those units with recirculation versus a drip line and drain, in the sump. Moreover, a 1996 scientific publication by Finley et al. [] examined Cr(VI)-contaminated water in an evaporative cooler, in a trial experiment in a Hinkley-area house with a typical evaporative cooler. They demonstrated that even using a concentration of Cr(VI) of 20,000 ppb in a unit running for twenty-four hours, there was no increase in the airborne Cr(VI) concentration above the natural outside and indoor backgrounds.



Thus, there is no basis for any concerns regarding inhalation exposure risk from evaporative coolers, particularly at the concentrations in any impacted Hinkley households, which are more than 4,000 times lower than the levels examined in these experiments.

(*Id.*, ¶ 13(a).)

Dr. Hamilton also concluded that household appliances similar to evaporative swamp coolers would not introduce chromium six into the air:

Like swamp coolers, other similar appliances (such as humidifiers and hot water vaporizers) that act by volatilizing heated water or by evaporating water from a filter will not be a potential source of Cr(VI) into indoor air because Cr(VI) will not be volatilized with the water.

(*Id.*, ¶ 14.)

In short, there is no scientific support for attempting to justify the Draft CAO based on alleged risks from swamp coolers and similar devices.

**D. Focusing On The Inhalation Risk Alone, Even If The Draft PHG Were Utilized, The Most Reasonable Solution Would Be Replacement Of Drinking Water Only**

It is unnecessary to require replacement water for anything other than drinking and cooking because if inhalation were the sole means of exposure at the levels found in Hinkley, there would be no risk to human health. (*Id.*, ¶ 12, fn 5.) That is true even using the conservative assumptions regarding inhalation in the draft PHG. (*Id.*, ¶ 12.) The PHG associated with chromium six inhalation exposure alone can be calculated from the information in the draft PHG by removing the contribution from oral exposures. (*Id.*, ¶ 12 fn 5.) That value – the PHG associated with inhalation exposure alone – is 3.6 ppb (PHG calculation on page 94 of draft PHG). (*Id.*) Thus, using the extremely conservative assumptions of the draft PHG, the PHG level associated with inhalation risk alone (3.6 ppb) would be higher than the natural background chromium six levels in Hinkley (3.1 ppb). Therefore, even if the draft PHG were somehow a valid regulatory tool, the most reasonable approach would be to require replacement water for drinking and cooking for users of wells testing above natural background levels. Once the ingestion risk calculated by the PHG is removed by using bottled water for drinking and cooking, even the draft PHG would not require replacement water for the remaining risks of chromium six levels below natural background.

#### **IV. There Are Tremendous Technological And Practical Hurdles To Complying With The Draft CAO That Make It Infeasible**

##### **A. It Is Not Feasible To Supply Whole-House Replacement Water That Must Be Below 0.02 ppb Chromium Six And Certainly Not In The Limited Time Allowed By The Draft CAO**

PG&E convened a team of experts to assess the available options to meet the Draft CAO's interim and permanent replacement water requirements. James DeWolfe of Arcadis U.S., Inc., headed the team. (Declaration of James DeWolfe ("DeWolfe Dec."), which accompanies this letter, ¶ 1.) The team concluded that there are no feasible means to comply with the replacement water requirements of the Draft CAO. (*Id.*, at ¶ 2.)

The interim replacement water requirements in the Draft CAO would require PG&E to deliver water to between 250 and 300 locations for drinking, cooking and swamp cooler needs.<sup>9</sup> Assuming three occupants per location, drinking and cooking would require 33 gallons per day. (*Id.*, ¶ 3(c).) In addition, swamp cooler needs during warm months would require an additional 40 gallons per day, resulting in a total of 73 gallons per day per location, and between 547,500 and 657,000 gallons per month for the 250 to 300 locations. (*Id.*) Because the Draft CAO would give PG&E only two weeks to provide interim replacement water for drinking, cooking and swamp cooler needs for wells within the "affected area" with chromium six levels above 0.02 ppb, the only conceivable option for interim replacement water is bottled water. (Draft CAO, Interim Replacement Water Supply, § 1(a), p. 9; DeWolfe Dec., ¶ 15(a).) There is no other alternative that could be implemented within two weeks. (*Id.*, ¶¶ 9-16.)

Even if PG&E could surmount the logistical constraints associated with providing such a large volume of bottled water to as many as 300 locations, it would not be feasible to provide bottled water that meets the Draft CAO's quality requirements. (*Id.*, ¶ 8.) Bottled water chromium concentrations are typically significantly greater than 0.02 ppb. (*Id.*, ¶ 8(a).) One study demonstrated that total chromium concentrations in bottled water are significantly higher than what would be permitted under the Draft CAO.<sup>10</sup> PG&E would not be able to monitor at the source whether the bottled water met the 0.02 ppb standard because (i) the bottled water industry does not report chromium six, or even total chromium, concentrations, and (ii) bottled water under one label often comes from different sources and may not be uniformly treated using the same technology. (*Id.*, ¶ 8(b).) Furthermore, the

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<sup>9</sup> DeWolfe Dec., ¶ 3(a). Because the Draft CAO requires replacement water to be provided to users with wells below chromium six background levels, Mr. DeWolfe's team assumed that all wells within the "affected area," as defined in the Draft CAO, will require interim replacement water. (*Id.*) The Draft CAO does not provide PG&E with sufficient time for testing and analysis to determine the *exact* number of "impacted wells," as defined in the Draft CAO. (*Id.*)

<sup>10</sup> A peer reviewer of OEHHA's draft PHG for chromium six, Professor William Shotyk of Heidelberg University's Institute of Earth Sciences, cited a study that analyzed one hundred and thirty-two brands of bottled water. The study found as much as 1.72 ppb of total chromium, with a median of .082 ppb. Virtually all total chromium dissolved in water is chromium six.

logistical problems associated with testing the bottles after they leave the plant are insurmountable given that the water would come from different sources and would not have been uniformly processed. (*Id.*, ¶ 8(c).)

Bulk water delivery – that is, water trucked to water tanks at each location – is not a feasible option for interim replacement water because it would require at least six months to implement. (*Id.*, ¶15(b).) Bulk water also raises challenges related to locating a supply with sufficiently low chromium six concentrations and concerns with the chemical treatment necessary to maintain microbiological quality. (*Id.*, ¶ 9(a)-(b).)

The permanent water replacement requirements would require whole-house replacement water to one to three homes where the wells tested above background for chromium six<sup>11</sup> and to locations where wells show statistically significant increases in chromium six concentrations, even though the concentrations are still below background. (Draft CAO, Findings, § 29, p. 7-8.) It is impossible to determine how many wells would qualify for permanent replacement water because the Draft CAO does not define what is a “statistically significant” increase. (*Id.*) But assuming that roughly one-third of the wells within one mile of the plume would meet the threshold, PG&E would be required to supply whole-house replacement water to approximately 100 locations.<sup>12</sup> Whole-house replacement would require approximately 660,000 gallons per month. (DeWolfe Dec., ¶ 3(d).) The Draft CAO would require this permanent water supply within 75 days of the Draft CAO being issued. (Draft CAO, Permanent Water Supply, § 2(a), p. 9.) This is not feasible for the following reasons:

First, no permanent replacement water supply source could be implemented within 75 days. (DeWolfe Dec., ¶ 14-16.) Second, due to the advanced technologies that would be required to reduce chromium six below natural background levels in either the local groundwater supply or in Golden State Water Company’s sources, PG&E probably would not be able to obtain the necessary permits from DPH. (*Id.*, ¶ 11(e).) Third, each technology analyzed by the Arcadis team raises significant technological and environmental issues.<sup>13</sup>

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<sup>11</sup> Twelve domestic wells have tested above background for chromium six. However, PG&E has agreements to purchase nine of the affected properties, and two of the wells may be more than one mile from the plume boundary.

<sup>12</sup> DeWolfe Dec., ¶ 3(b). Chromium six concentrations in the Hinkley area wells are known to fluctuate over time in a nearly random pattern. (*Id.*) Thus, Mr. DeWolfe’s team assumed that at any given time, well readings are increasing, decreasing, or stable with equal probability. (*Id.*)

<sup>13</sup> *Id.*, ¶¶ 11-13. In a letter addressed to Harold Singer dated June 24, 2011, David Loveday and Pauli Undesser of the Water Quality Association (the “WQA”) commented on the Draft CAO. The WQA promotes sales of water treatment devices. According to the letter, the technologies “readily available” to address chromium six reduction include “reverse osmosis (using TFC or CTA membranes), distillation, strong base anion resin, and weak base anion resin.” But the assertion that these technologies are “readily available” is entirely undermined by the next sentence of the WQA letter, which states: “However, California requires testing of such technologies to validate performance according to national standards and at this time, none of the best available technologies in a whole house format are [*sic.*] is tested and certified.” Thus, none of the technologies is even close to being “readily available.” Furthermore, none of the technologies referenced in the WQA letter has been proven to reduce chromium six concentrations to 0.02 ppb. (DeWolfe Dec., ¶ 16(a).) In a similar vein, on July 9,

An ion exchange system would require additional engineering advances because those currently on the market cannot achieve chromium six levels of 0.02 ppb. (*Id.*, ¶ 11(d).) Furthermore, the waste stream created by an ion exchange system, including brines, would likely be considered hazardous waste under federal law, requiring an appropriate disposal plan. (*Id.*, ¶ 11(b).)

A multi-pass reverse osmosis system faces similar constraints. Up to 75% of the water introduced into such a system will end up as toxic brine, while as little as 25 % will be usable as potable water. (*Id.*, ¶ 12(b).) Like an ion exchange system, reverse osmosis systems on the market are not designed to achieve the chromium six draft PHG and would, therefore, require additional engineering advances. (*Id.*, ¶ 12(e).) Nor is a reduction, clarification and filtration system a viable option; the technology is simply too new and untested. (*Id.*, ¶ 13.)

The construction of a central treatment and distribution system would also be infeasible. (*Id.*, ¶ 14.) The design, environmental review, permitting and construction of such a facility would, obviously, take longer than 75 days to complete. (*Id.*) Furthermore, a central treatment system would not itself achieve the 0.02 ppb standard. (*Id.*) The system would have to employ ion exchange and/or reverse osmosis to meet the chromium six levels required by the Draft CAO, thereby raising all the issues described above that plague those technologies. (*Id.*)

For the same reasons bottled water or bulk water would not be feasible for an interim replacement water supply, they would also not be feasible as a permanent replacement water supply. (*Id.*, ¶ 15.)

The Draft CAO's failure to follow the state process through which technical and economic feasibility is considered prior to enacting cleanup requirements raises serious public policy questions with statewide impact.

**B. It Is Not Even Possible To Reliably Test For Chromium Six In Hinkley At Levels Below 0.1 ppb As Required By The Draft CAO**

PG&E retained Shawn Duffy, an expert in chromium laboratory testing, to determine whether laboratories can reliably detect and quantify for chromium six at the ultra-trace levels required by the Draft CAO. Mr. Duffy conducted a study and concluded that it is not possible to reliably detect and quantify for chromium six at the levels required by the Draft CAO. (Declaration of Shawn Duffy

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2011, Robert Conaway sent an e-mail to Mr. Singer containing fourteen website links to various commercial water treatment device providers. Coincidentally, prior to receiving Mr. Conaway's e-mail a PG&E representative had already contacted six of the fourteen vendors identified by Mr. Conaway. Based on conversations with six of the vendors and a review of all the websites, PG&E has determined that all of these providers use the same technologies that are critiqued in Mr. DeWolfe's Declaration and this letter. Most significantly, none of the product websites claim they can remove chromium six down to 0.02 ppb. In fact, two of the vendors are not certified to provide treatment systems in California. Thus, these technologies do not provide a feasible means to comply with the Draft CAO.

("Duffy Dec."), which accompanies this letter, ¶ 3.) Requiring a compliance level that is below the level at which laboratories can reliably detect or quantify would set a troubling precedent for cleanups statewide.

Mr. Duffy directed the collection of ten water samples from wells in Hinkley that had previously been reported as non-detect for chromium six at or near the existing project detection limit of 0.2 ppb. Mr. Duffy also directed the manufacture of performance evaluation samples containing known concentrations of total chromium and chromium six of 0.01 ppb, 0.02 ppb, 0.04 ppb, 0.06 ppb, 0.08 ppb and 0.1 ppb, as well as the generation of two double-blind field blanks. (*Id.*, ¶ 4.)

The study design samples were split into three identical sample containers and submitted to three California accredited laboratories: Truesdail Laboratory Inc. ("TLI"), Advanced Technology Laboratory ("ATL") and BCLab Inc. ("BCL"). (*Id.*) The laboratories were requested to report the chromium six results to a level of 0.02 ppb using a modified EPA method 218.6 (as required by the Draft CAO) and as low as possible for total chromium by EPA Method 200.8. (*Id.*, ¶ 4(g).)

The test results from the three California accredited laboratories demonstrated that at the reporting levels required by the Draft CAO, the laboratories frequently failed to accurately detect and/or quantitate chromium six using EPA method 218.6. (*Id.*, ¶ 6.) Specifically, the laboratories routinely failed to meet the standard laboratory fortified blank criteria (90-110% recovery) for the performance evaluation samples. (*Id.*, ¶ 6(a).) The laboratories repeatedly produced sampling results that were less than 90% or more than 110% of the known sampling result. (*Id.*) For example, the sample containing 0.06 ppb (stated to be the Limit of Quantitation ("LOQ")) was reported as 0.068 ppb, 0.071 ppb, and ND < 0.026 ppb by the three laboratories. (*Id.*, ¶ 5.) These results are 113%, 118%, and 0% of the known concentration. (*Id.*, ¶ 6(b).) In other words, not one laboratory met the standard laboratory fortified blank criteria (90%-110% recovery) for the very LOQ concentration that the Draft CAO would require PG&E to use on Hinkley samples.

In addition, the laboratories frequently failed to report the same (or even similar) results for the same Hinkley test samples. For example, for sample H-13-Q2 (a monitoring well) the laboratories reported: 0.091 ppb (BCL), 0.05 ppb (TLI), and ND < 0.02 ppb (ATL). (*Id.*, ¶ 5.) Using these varying results for the exact same sample, BCL would require PG&E to supply whole-house replacement water, while TLI and ATL would not in light of the 0.06 ppb testing threshold set forth in Draft CAO. (Draft CAO, Interim Replacement Water Supply, § 1(a), p. 9, fn. 2.) These findings are critically significant since they clearly demonstrate that the three California-accredited laboratories often failed to produce results that were even close to one another. The failure to produce the same (or at least similar) sample results further demonstrates that the laboratories were not able to reliably quantitate for chromium six at the low levels required by the Draft CAO. (Duffy Dec., ¶ 6.)

Finally, Mr. Duffy requested the laboratories to analyze the same samples for total chromium. Chemists often use total chromium sample results as a double-check for chromium six sample results. Unfortunately, the total chromium results frequently failed to correlate, and often failed to approximate the chromium six results for the same samples. For example, the total chromium levels ranged from non-detect to as high as 0.354 ppb for the same sample, and rarely correlated or came close

to the chromium six results for the same sample. (*Id.*, ¶ 8(d).) In addition, none of the laboratories met the standard laboratory fortified blank criteria for total chromium. (*Id.*, ¶¶ 7(d), 8.) Thus, the total chromium testing provides further support for Mr. Duffy's conclusion that laboratories cannot reliably detect or quantify for chromium six at the ultra-trace levels required by the Draft CAO. (*Id.*)

**C. The Draft CAO Requires Overly Broad Interim Water Replacement Requirements Followed By Inconsistent Permanent Water Replacement Requirements**

The Draft CAO would require interim replacement water for drinking cooking and swamp cooler needs for any well above 0.02 ppb within one mile of the plume. The requirement to supply swamp cooler needs for hundreds of properties would require an enormous water source that could not be practically supplied by bottled water. (DeWolfe Dec., ¶ 8.) As discussed above, this requirement has no basis in science or the data. Nonetheless, interim water would be required from 14 days to 74 days after the Draft CAO is signed.

After 75 days, the Draft CAO would require permanent replacement water for all indoor domestic uses for any well above background or that shows a statistically significant increase (as yet undefined) in chromium six concentrations. It is impossible to tell how many wells would fall within this permanent replacement water requirement because it is undefined. However, it is clear that the number of wells above background or with increased chromium six concentrations is a smaller set of wells than all wells with chromium six concentrations above 0.02 ppb.

The interim and permanent replacement water requirements are not consistent. The interim requirement would require the installation of enormous infrastructure for only 60 days, followed by new and different infrastructure for a different set of wells after 75 days. These requirements are inefficient and unfair, and would not result in any added safety.

**V. The Draft CAO Would Create Impossible Statewide Policy And Precedent**

**A. The Draft CAO Would Create An Impossible Statewide Standard Based On The Unfounded Statement That Chromium Six Above 0.02 ppb Poses An Immediate Health Risk**

The Draft CAO would find that "hexavalent chromium in domestic wells above 0.02 ppb poses an immediate health risk to Hinkley residents through continued use of contaminated water including drinking, preparing foods and beverages, bathing or showering, flushing toilets, and other household uses resulting in potential dermal and inhalation exposures." (Draft CAO, Findings, § 26, p. 7.) There is no substantial evidence to support this finding. If adopted, the Lahontan Board would unnecessarily create alarm by proclaiming a danger without justification.

The Lahontan Board should use caution in passing judgment on the Hinkley groundwater given the statewide implications. Does the Lahontan Board intend to order all entities within its jurisdiction to cease providing drinking water with chromium six concentrations above 0.02 ppb? Does the Lahontan Board intend to suggest that the residents of Riverside (drinking water chromium six concentrations, 1.69 ppb), Davis (19 ppb), Victorville (9.5 ppb) and Apple Valley (9.2 ppb) are

encountering an “immediate health risk” every time they use municipal water supplies to drink, shower, and flush toilets? The potential for far-reaching, unintended consequences statewide is precisely why the State Board has ordered regional boards to defer to the agencies with expertise regarding drinking water safety, rather than formulating their own standards. (SWRCB Order 20005-007, at 6.)

**B. Reliance On Draft Regulations Is Improper And Would Create Significant Statewide Uncertainty**

In our system of governance, *draft* laws, regulations and standards are not enforceable. For example, in *Chaparral Greens v. City of Chula Vista*, 50 Cal.App.4th 1134, 1145 (1996), the petitioner argued that an agency was required to review all “applicable” regional plans, including plans in draft form. The Court of Appeal disagreed, holding that “[a] plan that is in draft form cannot be said to be nonetheless legally applicable, or enforceable, as to a particular project.” (*Id.* at 1145 n. 7.) Similarly, in *Laurel Heights Improvement Assn. v. Regents of University of California*, 6 Cal.4th 1112, 1127 (1993), our Supreme Court refused to consider draft amendments to the California Environmental Quality Act Guidelines because the “amendments remain in draft form and have not been adopted.” The State Board itself has refused to permit petitioners to rely on draft orders. (SWRCB Order 2010-0016, 2010 WL 2674817, p. 3 n. 2 (“Petitioners also rely on an unpublished/draft Board order concerning the American River. Because a draft order has not been adopted by the Board, it does not constitute ‘longstanding FAS precedent,’ and Petitioners’ reliance on it is misplaced”).<sup>14</sup> The Government Code itself forbids any agency from enforcing any regulation until such time as the rulemaking process is complete. (Gov. Code § 11340.5; an agency shall not “issue, utilize, enforce, or attempt to enforce any guideline, criterion, bulletin, manual, instruction, order, standard of general application, or other rule which is a regulation as defined in subdivision (g) of Section 11342,<sup>15</sup> unless [it] has been adopted as a regulation and filed with the Secretary of State pursuant to this chapter.”)

The propriety of the Draft CAO, if adopted, may ultimately be tested in a court of law, which would not likely ratify a standard for replacement water based on a *draft* PHG. Consistent with *Chaparral*, *Laurel Heights* and SWRCB Order 2010-0016, a court is unlikely to permit the State and Lahontan Boards to treat a draft PHG as a substitute for “applicable federal, state, and local drinking water standards.” (*Id.*; Water Code § 13304.)

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<sup>14</sup> Federal courts have also rejected evidentiary offers based on drafts. *See, e.g., Idaho Rivers United v. F.E.R.C.*, 189 Fed.Appx. 629, 637 (9th Cir. 2006) (“The petitioners’ argument is not built on solid ground because it merely relies on the draft [Biological Opinions]” and recognizing the agency can change positions between the draft and final documents); *Idaho Farm Bureau Federation v. Babbitt*, 58 F.3d 1392, 1403-1404 (9th Cir. 1995) (Reliance by agency on draft report improper because it foreclosed consideration of public comment on that draft).

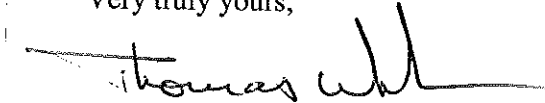
<sup>15</sup> A regulation is defined as a “rule, regulation, order, or standard of general application . . . adopted by any state agency to implement, interpret, or make specific the law enforced or administered by it, or to govern its procedure, except one which relates only to the internal management of the state agency.” (Gov. Code, § 11342(b).)

Harold Singer  
July 12, 2011  
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**VI. Conclusion**

PG&E respectfully requests that you exercise your discretion and not issue the Draft CAO in its current form. If there are any remaining legal, technical or toxicology questions, we would be happy to provide additional information at your request. In addition, we are also informed that DTSC, which has a full staff of toxicologists and is responsible for a number of other sites with potentially contaminated drinking water, and DPH, which also has toxicologists with expertise in drinking water safety, have both expressed views on the proper use of the proposed chromium six PHG in determining drinking water safety. We urge you to confer with the experts in both of these sister agencies and with the San Bernardino County Health Department if you have any further questions regarding toxicology or the potential statewide impacts of the Draft CAO. If after consulting with the experts at the other state agencies you determine that it is appropriate to proceed with the Draft CAO, we urge you to recognize the significant policy questions implicated by the Draft CAO and refer its issuance to the Lahontan Board, where a full public hearing may be had and comments received.

Very truly yours,

A handwritten signature in black ink, appearing to read "Thomas C. Wilson", written over a horizontal line.

Thomas C. Wilson