JUAN M. JAYO (SB#71337)
P.O. Box 7442
San Francisco, CA. 94120
Phone: 1(415) 973 2193
Fax: 1(415 973 2193
Email: jmj8@pge.com

TRACY J. EGOSCUE (SB# 190842)
EGOSCUE LAW GROUP
3777 Long Beach Blvd. Ste 280
Long Beach, CA 90807
Phone: 1(562) 988-5978
Fax: 1 (562) 981-4866
Email: tracy@egoscuelaw.com

J. DREW PAGE (SB#146437)
LAW OFFICES OF J. DREW PAGE
11622 El Camino Real Ste 100
San Diego, CA 92130
Phone: 1(858) 433-0122
Fax: 1(858) 433-0124
Email: drew@jdp-law.com

Attorneys for Petitioner
PACIFIC GAS AND ELECTRIC COMPANY

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

IN THE MATTER OF LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD CLEANUP AND ABATEMENT ORDER NO. R6V-2008-0002-A4	No. REQUEST FOR IMMEDIATE AND EMERGENCY STAY; PETITION FOR REVIEW AND MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT THEREOF

This *Request for Immediate and Emergency Stay; Petition for Review and Memorandum of Points and Authorities in Support Thereof* is respectfully submitted to the California State Water Resources Control Board ("State Board") on behalf of Pacific Gas and Electric Company ("PG&E" or "Petitioner") pursuant to Water Code Sections 13320(a) and 13321, and California Code of Regulations ("CCR") Title 23, Section 2050 et seq., for review of Cleanup and Abatement Order No. R6V-2008-0002-A4 ("CAO") with respect to the Hinkley Compressor Station located at 35863 Fairview Road (APN 048S-112-52) in Hinkley, California (the "Facility"). A copy of the CAO is attached as Attachment 1.

The California Regional Water Quality Control Board, Lahonton Region ("Lahonton Board") issued two prior draft versions of the CAO and invited comments from interested parties. PG&E appreciates the opportunity to comment on those prior draft versions and the changes that were made by the Lahontan Board Executive Officer and staff as a result of comments from interested parties. Nevertheless, the final CAO, issued on January 8, 2013, still contains issues that require State Board review. The Lahontan Board issued the CAO which, without setting out any scientific or factual justification, specifies detailed requirements that PG&E must follow to comply with the CAO including directing PG&E to ignore all data more than three years old, to draw plume boundary lines that connect data points from monitoring wells that are 2,600 feet apart, and to use domestic well data to draw plume boundaries. In addition, the CAO (again, without setting out any scientific or factual justification requires PG&E to sample domestic wells in a broad, undefined area, to perform an undefined statistical analysis of water sample results from each domestic well to determine if the chromium concentrations are trending higher, and then to install monitoring wells at the locations of domestic wells showing increasing trends even in areas with chromium concentrations below background levels. These CAO requirements exceed the Lahontan Board's authority because:

- They are unsupported by factual or scientific findings in the CAO
- They improperly specify the means to comply
- They preclude the use of professional judgment resulting in faulty scientific

conclusions

- They improperly require investigation in areas where naturally occurring chromium concentrations occur that have not been linked to PG&E's discharge
- They improperly require investigation and monitoring in areas where chromium concentrations are below background levels legally established by Lahontan Board order (Lahontan Board Order No. R6V-2008-0002A)
- They improperly require investigation based upon a background value that has been questioned by the Lahontan Board and third parties and is in the process of being updated, and
- They will result in plume maps that are artificially expanded.

As a result, PG&E is seeking State Board review of the requirements of the CAO.

PG&E does not object to installing additional monitoring wells in Hinkley and, in fact, in February 2012 PG&E proposed a new background study that would include dozens of new monitoring wells throughout the Hinkley area. On July 9, 2012, PG&E also proposed the installation of 12 new groundwater assessment monitoring wells. However, as outlined briefly above and in more detail below, the CAO goes well beyond merely requiring the installation of monitoring wells. For example, the CAO requires the drawing of plume boundaries based only on well concentration data and not considering additional relevant technical data or professional judgment such as groundwater flow and geochemical data. The CAO also ignores the need to further define natural background chromium levels in Hinkley as well as PG&E's recent reports demonstrating that groundwater in the Hinkley area upgradient of the chromium plume contains chromium at levels up to at least 8 ppb that are not related to PG&E's discharge.

In 2007, PG&E performed a background study of the chromium concentrations naturally found in groundwater in the Hinkley area. The scope of the 2007 Background Chromium Study was limited to a portion of the southern Hinkley groundwater basin. Using long screened wells, the study calculated upper tolerance limit concentrations of hexavalent chromium and total chromium in the study area of 3.1 ppb and 3.2 ppb, respectively. These values were adopted by

the Lahontan Board in Order No. R6V-2008-0002A.[1]

However, based on new data and additional information, the Lahontan Board and others have questioned the original background values set by the Board. PG&E concurred with the peer review comments on the original study and in response PG&E submitted a new background study work plan in February 2012. PG&E's proposed new background study would include peer review and input from state and federal scientific agencies as well as the Hinkley community technical expert and others. According to the work plan, the new background study would be much broader than the original study and would require the installation of numerous new monitoring wells strategically placed throughout the Hinkley area, expanding beyond the original study area as well as reviewing multiple lines of evidence pertaining to chromium sources, such as groundwater flow direction and geochemistry. PG&E's new background study work plan has been reviewed by experts at the United States Geologic Survey (USGS), the community's technical expert, and Lahontan Board staff. The new background study will take approximately eighteen months to complete once the work plan is approved by the Lahontan Board.

PG&E also recently conducted investigations in the western portion of the Hinkley area in order to gather additional information regarding water quality and hydrogeology in this area, including the impact of the Lockhart fault. On January 14, 2013, PG&E submitted a report on the western area investigation of Hinkley (CH2M HILL and Stantec, 2013). A excerpt of the report is attached as Attachment 2. The report described an extensive effort to assess groundwater flow and chromium levels in western area groundwater and provided multiple lines of evidence demonstrating that chromium in the western area did not come from PG&E's activities. In fact, the western area investigation identified a well with a groundwater level nearly 50 feet higher than the plume area and more than 1 mile west of PG&E's plume – on the up-gradient side of the Lockhart Fault - containing 8 ppb hexavalent chromium that could not have come from PG&E's activities. This report calls into further question the original hexavalent chromium background

[1] As a result, at present, because of the Lahontan Board order setting background values, the Board should not require remediation or investigation of groundwater containing chromium at concentrations below these established background levels.

value of 3.1 ppb. However, the CAO rests squarely on the 3.1 ppb value and requires plume delineation within and beyond the original area studied to establish the 3.1 ppb level with no geographic limits to the investigation requirements. It is not appropriate to apply the 3.1 ppb level to areas outside the original 2007 study area, particularly where studies by others and new data collected by PG&E have proven that non-PG&E chromium exists at higher levels outside of this study area.[2]

The CAO would require unprecedented monitoring efforts based on the prior background study that the Lahontan Board has repeatedly questioned. A more sound scientific approach would be to move forward with the new background study prior to requiring this extensive new monitoring. In addition, PG&E believes that the newly ordered monitoring and delineation activities are unnecessary because PG&E has offered both interim replacement water (bottled water service) and whole house replacement water to every resident within one mile of the current chromium plume boundary.[3] PG&E believes that the scientific, technical and legal challenges associated with the CAO require its stay and revocation.

PG&E is committed to the best science, engineering and remedial design for the Hinkley Groundwater Remediation Program. We have welcomed and incorporated Lahontan Board and third-party review and recommendations into our programs and practices. We understand that the Lahontan Board will be issuing a cleanup and abatement order sometime in late 2013 or early 2014 that will include the final cleanup standards for hexavalent chromium and remediation timeframes based on the alternatives analyzed in the EIR. PG&E does not believe the CAO will

---

[2] Naturally occurring hexavalent chromium concentrations in groundwater have been detected as high as 8 ppb in areas upgradient of the plume to the west. See "*Conceptual Site Model for Groundwater Flow and the Occurrence of Chromium in Groundwater of the Western Area*", dated January 14 (CH2M Hill and Stantec, 2013). Additionally, naturally occurring hexavalent chromium concentrations have been detected at varying levels in areas outside the original Hinkley background study area. See studies cited in Dennis Maslonkowski Declaration (Attachment 2).

[3] The independent technical expert hired by the Hinkley Community Advisory Committee (referred to as the "IRP Manager"), also questioned the need for the CAO when commenting on the draft CAO: "However, the IRP Manager is uncertain, at time of writing, and to the extent of his own internal data review, if this apparent desire for increased accuracy is warranted or needed, in light of plume delineation, plume management, and ongoing whole house water supply actions underway in parallel actions within the project. In short, the IRP Manager does not understand what is driving the present need for the draft CAO; given that the plume management, replacement water supply and remedy assessment tasks currently underway would appear to be well served, from an environmental engineering perspective, by the accuracy inherent in the present plume delineation practices."

result in any scientifically valid data that could either affect the final remedial design or be used to better understand the levels of naturally occurring hexavalent chromium in Hinkley. Given this setting and the fact that the CAO is not supported by California law, PG&E believes that the CAO should be vacated. Therefore, Petitioner requests an immediate and emergency stay so that a full review of the issues raised by the CAO may occur.

1. Name and Address of Petitioner

The contact information for Petitioners is as follows:

Juan Jayo
Pacific Gas & Electric Company
Director of Environmental Remediation and Litigation
One Market Spear Tower, Suite 2400
San Francisco, CA 94105
Phone: 1(415) 973-4377
Fax: 1(415) 973-5520
Email: jmj8@pge.com

With a copy to:

J. Drew Page
Law Offices of J. Drew Page
11622 El Camino Real Suite 100
San Diego, CA 92130
Phone: 1(858) 433-0122
Fax: 1(858) 433-0124
Email: drew@jdp-law.com

With a copy to:

Tracy J. Egoscue
Egoscue Law Group
3777 Long Beach Blvd. Suite 280
Long Beach, CA 90807
Phone: 1(562) 988-5978
Fax: 1 (562) 981-4866
Email: tracy@egoscuelaw.com

2. Specific Action or Inaction for Which This Petition for Review is Sought

Petitioner requests review of the actions of the Lahontan Regional Board in connection with the issuance of the CAO, entitled "Amended Cleanup and Abatement Order No. R6V-2008-0002-A4 (WDID No. 6B369107001) Requiring Pacific Gas and Electric Company to Clean Up and Abate Waste Discharges of Total and Hexavalent Chromium to the Groundwaters of the

Mojave Hydrologic Unit," dated January 8, 2012.

****

REQUEST FOR IMMEDIATE and EMERGENCY STAY

Pursuant to Water Code section 13321 and Title 23, CCR section 2053, Petitioner requests an immediate and emergency stay of the CAO.

Under section 2053 of the State Board's regulations (CCR, tit. 23, § 2053), a stay of the effect of an order shall be granted if petitioner shows: (i) There will be substantial harm to the Petitioner or to the public interest if a stay is not granted; (ii) There will be no substantial harm to other interested persons and to the public interest if a stay is granted; and (iii) There are substantial questions of fact or law regarding the disputed action.

Pursuant to 23 CCR 2053, "a petition for stay shall be supported by a declaration under penalty of perjury of a person or persons having knowledge of the facts alleged." As such, this Request for Immediate and Emergency Stay is accompanied by the following declarations that are attached as follows:

- DECLARATION OF DENNIS MASLONKOWSKI, a California Professional Geologist, Certified Hydrogeologist, and Certified Engineering Geologist employed as a Senior Technical Consultant at CH2MHill, Attachment 3

- DECLARATION OF LARRY HILSCHER a Statistician in the Environmental Services Group at CH2MHill, Attachment 4

THERE WILL BE SUBSTANTIAL HARM TO THE PETITIONER OR TO THE PUBLIC INTEREST IF A STAY IS NOT GRANTED

If the CAO is not stayed, Petitioner will suffer substantial harm because compliance with the CAO's mandates are inconsistent with state law, specify compliance in ways that exclude relevant data and professional judgment resulting in unsupported science and incorrect conclusions, and that require investigations where there is no link to PG&E's discharge. Specifically, (1) the CAO orders PG&E to ignore all data collected more than three years ago,

without providing any scientific or factual justification for such a limitation; (2) the CAO requires PG&E to draw plume maps that connect monitoring wells that are 2,600 feet apart again without scientific or factual justification; and (3) the CAO requires domestic well monitoring in an area far outside the Hinkley area for which there is no link to PG&E's discharge and the area is well beyond the area studied by the original background study.

a. The CAO Prohibition on Using Data More Than Three Years Old Is Scientifically Unsupported and Would Result in Incomplete and Improper Conclusions

Contrary to sound scientific principles and generally accepted practice, the CAO prohibits the use of all data that is more than three years old without providing any technical or other support or justification for that prohibition. The CAO states: "If PG&E believes that chromium data in groundwater is not related to its historic chromium discharges and should not be drawn in the plume boundary, it must use data collected within the past three years to make its argument." (CAO at 8.) No Finding or other language in the CAO explains why it is appropriate to exclude all data more than three years old. As a result, the CAO exceeds the Lahontan Board's legal authority and would be an abuse of discretion per Code of Civ. Proc., § 1094.5, subd. (b); Wat. Code, §§ 13320, subd. (a) & 13330. "Abuse of discretion is established if the respondent has not proceeded in the manner required by law, the order or decision is not supported by the findings, or the findings are not supported by the evidence." (Code of Civ. Proc., § 1094.5, subd. (b).) A regional board's actions must have strong support in the evidence and be further supported by findings which bridge the logical gap between the evidence and action. (Topanga Assn. for a Scenic Community v. County of Los Angeles (1974) 11 Cal.3d 506, 514.) Because the CAO prohibition on using data more than three years old is not supported by any evidence or findings in the CAO, it is beyond the Lahontan Board's authority.

Similarly, this CAO prohibition on using data more than three years old is an example of the CAO exceeding the Lahontan Board's authority by setting very specific means for compliance, in this instance specifying what data can or cannot be used in making an argument to the Lahontan Board. The Lahontan Board exceeds its statutory authority when it specifies the

means for PG&E to comply with CAO provisions, including plume delineation provisions and prohibitions on the use of valid data. (See Wat. Code, § 13360.)

> No waste discharge requirement or other order of a regional board . . . shall specify the design, location, type of construction, or particular manner in which compliance may be had with that requirement, order, or decree, and the person so ordered shall be permitted to comply with the order in any lawful manner.

(Wat. Code, § 13360, subd. (a).)

The limitation on the Lahonton Board's authority to direct the method of compliance under Section 13360 has been described, by analogy, as follows: "That is to say, the Water Board may identify the disease and command that it be cured but not dictate the cure." (Tahoe-Sierra Pres. Council v. State Water Res. Control Bd. (1989) 210 Cal.App.3d 1421, 1438.) In this case, the CAO does exactly what Water Code section 13360 forbids: specify the location and manner of monitoring and plume depiction through which PG&E "must achieve" plume definition, including prohibiting the use of valid data to interpret plume location. (CAO at 8; see also Wat. Code, § 13360, subd. (a).)

In addition, excluding all data more than three years old would prevent the review of long term groundwater water level data and water quality trends not only for chromium, but also for other water quality parameters. (Declaration of Dennis Maslonkowski ("Maslonkowski Dec." at 2). This data is critical to provide context for more recent data observations. (Maslonkowsi Dec. at 2.) For example, if a well previously contained chromium above 3.1 ppb more than three years ago, that fact would be critical in understanding the significance of data collected within the last three years from the same well.

In addition, the geological logs from many of the wells on the site (which form the basis for the geologic understanding of the area) as well as the aquifer tests and other sources of hyrogeological information collected by PG&E, USGS, Mojave Water Agency, and other agencies were often collected more than three years ago. (Maslonkowski Dec. at 2.) If this data is excluded, a significant source of knowledge pertaining to the hydrogeologic setting of the site

would be lost. And, without an understanding of the hydrogeologic setting of the site, any discussion of, or conclusions regarding, groundwater would be incomplete and very likely incorrect. (Maslonkowski Dec. at 2.)

The CAO prohibition on using any data more than three years old has already been invoked by the Lahontan Board. In a January 31, 2013, letter denying PG&E's request for an extension of time to allow for additional technical review and input from the community and interested technical experts as to the Fourth Quarter chromium testing results, the Lahontan Board indicated that PG&E could provide an argument with its submittal of the data, provided that PG&E complied with the CAO prohibition on using any data more than three years old. (Jan. 31, 2013 Letter at 2.)[4] As a result, PG&E is not allowed to refer to chromium concentrations found in wells more than three years ago in the very area under discussion. This unsupported limitation will result in incomplete and very likely incorrect conclusions regarding chromium concentrations in the area under discussion. (Maslonkowski Dec. at 2.) Absent relief from the State Board through a stay of the CAO, PG&E will be subject to these unnecessary limitations. The resulting incomplete or incorrect conclusions will cause undue concern to the public that can't be easily remedied later, even if the prohibition is removed.

b. The CAO Requirement to Draw Plume Boundaries Connecting Data Points from Monitoring Wells that are 2,600 feet apart Is Not Supported By Science or Facts in the CAO and Would Artificially Expand the Size of the Plume Depiction

In 2011, the Lahontan Board issued an order requiring PG&E to draw the chromium plume boundary linking monitoring wells within 2,000 feet of each other with concentrations over 3.1 ppb hexavalent chromium or 3.2 ppb total chromium. The CAO arbitrarily expands this definition by increasing the distance between connected wells from 2,000 to 2,600 feet: "[p]lume

[4] The Lahontan Board's January 31, 2013 letter states PG&E may submit its alternative interpretation regarding the western plume boundary "pursuant to Order C.2.h. of CAO R6V-2009-0002-A4", [sic] which in turn states, "[i]f PG&E believes that chromium data in groundwater is not related to its historic chromium discharges and should not be drawn in the plume boundary, it must use data collected within the past three years to make its argument." (Jan. 31, 2013 Letter at p. 2 and CAO at 8.)

boundary lines must be drawn to connect any monitoring well located within *one-half mile (2,600 ft)* of any other monitoring well having chromium concentrations of 3.1 ppb Cr(VI) or 3.2 ppb Cr(T) or greater." (CAO at 8, emphasis added.) The CAO does not include any technical basis or other support for this arbitrary expansion.

As outlined above, California law requires that a CAO requirement be supported by evidence and by findings in the CAO. Here, the CAO requirement to connect data points from monitoring wells 2,600 feet apart is not supported by any direct empirical evidence nor is it supported by any findings in the CAO.[5] As a result, the requirement is an abuse of discretion.

The requirement to connect wells 2,600 feet apart is also another example of the CAO exceeding the Lahontan Board's authority by setting very specific means to achieve and depict plume definition, in this instance prescribing the exact distance between wells that must be connected to form plume boundaries. The CAO does exactly what Water Code section 13360 forbids: specify the location and manner of monitoring and plume depiction through which PG&E "must achieve" plume definition. (CAO at 8; see also Wat. Code, § 13360, subd. (a).)

The arbitrary and inflexible requirement to draw plume boundaries connecting data points from all wells that are within 2,600 feet also precludes the use of other relevant data or professional judgment based on site specific circumstances. (Maslonkowski Dec. at 1.) For example, a documented fault exists in the Hinkley area that limits the movement of groundwater (and hence, the chromium plume) across the fault. (Maslonkowski Dec. at 1-2.) Yet, the CAO would not allow the use of this fact or any technical judgment regarding whether wells on opposite sides of the fault should be connected by a plume boundary line. As a result, the CAO

[5] The only findings that discuss potential plume movement, Findings 8 & 12, do not contain any discussion or evidence pertaining to a requirement to connect data points from monitoring wells that are 2,600 feet apart. Moreover, Finding 8 which states that the plume is undefined to the east, north, and west relies on the unsupported assumption that any chromium in these areas is plume related. That assumption is contrary to data collected not just by PG&E, but also by regulatory agencies and others documenting naturally occurring chromium in Hinkley area groundwater and nearby locations. (Maslonkowski Dec. at 4-5.) In addition, PG&E recently submitted a report on its investigation of the western Hinkley area that demonstrated that chromium in wells in the western area at levels as high as 8 ppb did not come from PG&E. (Maslonkowski Dec. at 5.) Similarly, Finding 12 states that the chromium plume could have traveled 7.32 miles based on a simple groundwater velocity calculation. However, the finding ignores the fact that Hinkley valley groundwater was heavily pumped for agricultural purposes for many years. (Maslonkowski Dec. at 5-6.) The velocity calculations do not consider any agricultural pumping and, therefore, do not provide a reasonable or accurate assessment. (Maslonkowski Dec. at 6.)

would result in incomplete, incorrect, or artificially expanded plume boundary depictions. An artificially expanded plume boundary depiction would cause increased public concern without a factual basis. Such concern would not be easily changed or remedied, even if the underlying requirement was later removed and a smaller plume depiction was created to replace the artificially expanded version.

c. The CAO Contains No Geographic Limit on the Required New Monitoring and Plume Delineation Requirements Thereby Requiring Unlimited Investigation based upon a Background Value that has been Repeatedly Questioned for the South Hinkley Valley and was Never Intended for Use Outside this Valley; and, the CAO Contains Undefined and Vague Terms That Make Compliance Impossible

Ordering provision I.A.1. of the CAO requires PG&E to sample "domestic wells in target areas of the northern-most plume area at the Hinkley Gap, the eastern boundary area near Dixie Road, and any other areas outside of the currently identified primary contiguous plume boundary that may show anomalous or otherwise unexplained concentrations of chromium in domestic wells." (CAO at 6.) The requirement to sample wells in "any other areas outside of the currently identified primary contiguous plume boundary that may show anomalous or otherwise unexplained concentrations of chromium in domestic wells" contains no geographic limitations. On its face, this language could require PG&E to sample wells (and install new monitoring wells based on the sampling results) all the way to Barstow (several miles to the east of Hinkley). As a result, the CAO is overbroad on its face and requires modification. In addition, the CAO inappropriately applies the 3.1 ppb background level developed in 2007 based on a limited study area in the southern Hinkley groundwater basin to locations well-outside of the original study area. It is not scientifically appropriate to apply a background study value from one area to another location. (Maslonkowski Dec. at 2-3.)

This provision also demonstrates the undefined and ambiguous terms used in the CAO

that make compliance impossible. For example, the CAO does not define the term "anomalous or otherwise unexplained concentrations of chromium in domestic wells." Chromium is found naturally in groundwater throughout the state, including in the Hinkley area. (Maslonkowski Dec. at 4-5.) Therefore, the presence of chromium in domestic wells is neither anomalous nor otherwise unexplained. Even if that were not the case, the CAO does not provide enough guidance to determine what is meant by "anomalous or unexplained concentrations of chromium." Similarly, the CAO uses undefined terms such as "Hinkley Gap" and "target areas." It is impossible to meaningfully comply with the CAO without more clarity.

Finally, this is an example of the CAO exceeding the Lahontan Board's authority by ordering PG&E to investigate areas that are not linked to PG&E's discharge. State Water Resources Control Board Resolution No. 92-49 authorizes regional boards to require investigation and cleanup and abatement for any location "affected by the discharge or threatened discharge." (Resolution No. 92-49, section II.A.3.) This presupposes that the investigation and cleanup and abatement are linked to that discharger's activities. Yet, the CAO does not link the required monitoring activities to PG&E's discharge. This lack of nexus between the hexavalent chromium levels and any activity by PG&E undermines the CAO. An administrative agency's findings must be sufficient to allow parties to determine the basis for the agency's action. (Topanga Assn. for a Scenic Community v. County of Los Angeles (1974) 11 Cal.3d 506, 514.) The findings must form an analytic bridge between the evidence and the agency's conclusion. (Id. at p. 515.) Yet, at this time, the Lahontan Board's CAO lacks findings linking PG&E's discharge to the required monitoring that could extend well outside the Hinkley area.

INTERESTED PERSONS AND THE PUBLIC INTEREST WILL NOT BE SUBSTANTIALLY HARMED IF A STAY IS GRANTED

Interested persons and the public interest will not be placed at risk if a stay is granted

because all properties within one mile of the current chromium plume are already eligible to receive bottled water from PG&E and all properties within one mile of the current chromium plume that have any detectable level of chromium in their well water are eligible to receive whole house replacement water from PG&E.

SUBSTANTIAL QUESTIONS OF LAW AND FACT EXIST REGARDING THE DISPUTED ACTION

As explained in the Memorandum of Points and Authorities in Section 7 below and hereby incorporated by reference, there are substantial questions of both law and fact regarding the Lahontan Regional Board's adoption of the CAO.

FOR ALL THE FOREGOING REASONS, Petitioner respectfully requests that the State Board grant an immediate and emergency stay of the effect of Order No. R6V-2008-0002A4 until such time as final action is taken on this Petition.

****

3. Date the Regional Board Acted or Failed to Act

The date of the Lahontan Regional Board's action is January 8, 2013, the date the CAO was signed by the Executive Office of the Lahontan Regional Board.

4. Statement of Reasons the Action is Inappropriate or Improper

The issuance of the CAO was beyond the authority of the Lahontan Regional Board, inappropriate, improper, or not supported by the record, for the following reasons:

(a) The CAO Prohibition on Using Data More Than Three Years Old Is Scientifically Unsupported in the CAO and Would Result in Incomplete and Improper Conclusions;

(b) The CAO Requirement to Draw Plume Boundaries Connecting Data Points from Monitoring Wells that are 2,600 feet apart Is Not Supported By Science or Facts and Would Artificially Expand the Size of the Plume Depiction;

(c) The CAO Contains No Geographic Limit on the Required New Monitoring and Plume Delineation Requirements Thereby Requiring Unlimited

Investigation based upon a Background Value that has been Repeatedly Questioned for the South Hinkley Valley and was Never Intended for Use Outside this Valley and the CAO Contains Undefined and Vague Terms That Make Compliance Impossible;

(d) The CAO Improperly Requires New Monitoring Wells Based on Chromium Concentration Trends Even When Chromium Concentrations are Below Background Levels; and,

(e) The CAO's Directive to Delineate the Plume using Domestic Well Data Would Result in An Artificially Expanded Plume without a Scientific or Factual Basis.

5. The Manner in Which Petitioner is Aggrieved

Petitioner is aggrieved by the Lahontan Regional Board's issuance of a CAO that is inconsistent with State law and that would require scientifically and factually unsupported sampling and statistical analysis of domestic wells followed by the installation of monitoring wells in areas not linked to PG&E's chromium discharges and that would specify the means for compliance such that years of data must be ignored and professional judgment is excluded.

6. Petitioner's Requested Action by the State Board

Petitioner respectfully requests that the State Board: (1) immediately stay the effect and enforcement of the CAO; and (2) vacate the CAO.

Additionally, Petitioner requests that the State Board determine the lawfulness of the Lahontan Regional Board's order prohibiting PG&E from using all data collected more than three years ago in ongoing work at the site.

Additionally, Petitioner requests that the State Board determine the lawfulness of the Lahontan Board's order specifying that PG&E must connect data points from monitoring wells that are 2,600 feet apart.

7. Memorandum of Points and Authorities

a. The CAO Prohibition on Using Data More Than Three Years Old Is Scientifically Unsupported in the CAO and Would Result in Incomplete and Improper Conclusions

As outlined above in Petitioner's request for an immediate and emergency stay and fully

incorporated herein by reference, the CAO prohibition on using data more than three years old is scientifically unsupported in the CAO and would result in incomplete and improper conclusions. Because this provision is not supported by any evidence or findings in the CAO, it is beyond the Lahontan Board's authority. Similarly, this requirement is another example of the CAO exceeding the Lahontan Board's authority by setting very specific means for compliance, in this instance specifying what data can or cannot be used in making an argument to the Lahontan Board. This prohibition on using valid data would exclude data that is critical to understanding the site setting and the significance of current data.

b. The CAO Requirement to Draw Plume Boundaries Connecting Data Points from Monitoring Wells that are 2,600 feet apart Is Not Supported in the CAO By Science or Facts and Would Artificially Expand the Size of the Plume Depiction

As outlined above in Petitioner's request for an immediate and emergency stay and fully incorporated herein by reference, the CAO requirement to draw plume boundaries connecting data points from monitoring wells that are 2, 600 feet apart is not supported by science or facts and would artificially expand the size of the plume depiction while precluding the use of relevant data and professional judgment based on site specific circumstances. As a result, this CAO requirement would be an abuse of discretion by the Lahontan Board and is an example of the CAO exceeding the Lahontan Board's authority by setting very specific means to achieve and depict plume definition, in this instance prescribing the exact distance between wells that must be connected to form plume boundaries.

c. The CAO Contains No Geographic Limit on the Required New Monitoring and Plume Delineation Requirements Thereby Requiring Unlimited Investigation based upon a Background Value that has been Repeatedly Questioned for the South Hinkley Valley and was Never Intended for Use Outside this Valley and the CAO Contains Undefined and Vague Terms That Make Compliance Impossible

As outlined above in Petitioner's request for an immediate and emergency stay and fully incorporated herein by reference, the CAO contains no geographic limit on the required new

monitoring and plume delineation requirements that, therefore, could extend for many miles into numerous locations that are not linked to PG&E's discharge. The CAO investigation and plume delineation requirements are based on the background values for the south Hinkley valley from the original background study. As a result, the CAO requires investigation and plume delineation using background values for the south Hinkley valley in areas well outside the south Hinkley valley. This is scientifically and technically unjustified and inappropriate. Moreover, the CAO contains numerous undefined and ambiguous terms that make compliance impossible.

d. The CAO Improperly Requires New Monitoring Wells Based on Chromium Concentration Trends Even When Chromium Concentrations are Below Background Levels

Ordering provision 1.A.1. of the CAO requires PG&E to perform a statistical analysis of domestic wells to determine "positive or negative changes in groundwater chromium concentrations over the six month period beginning March 2013." (CAO at 6.) This requirement goes on to state: "The general vicinity of domestic wells exhibiting an increasing trend in chromium concentrations will be targeted for follow-up installation of a shallow groundwater monitoring well." (CAO at 6.) Ordering provision 1.C. states that an October 30, 2013 report must report on the statistical test results "and recommended locations for the installation of additional monitoring wells within a quarter mile of any domestic well(s)." (CAO at 7.) These ordering provisions are vague and leave many key terms undefined. Specifically, "increasing trend" is undefined. Would an increase from 0.2 ppb Cr6 to 0.3 ppb Cr6 represent a "positive or negative change in groundwater chromium concentrations" such that installation of a new monitoring well is required? The CAO does not provide definitions or specificity to allow this question to be considered with all pertinent information.

More troubling is the language found in Finding 14 relating to the statistical trend requirement. Finding 14 states that domestic well monitoring "must be conducted to determine if

there is an increasing trend of chromium concentrations before concentrations have the potential to rise above background levels. ... The Statistical trend will be used to establish potential risk to human health of the residents of the area and determine where additional monitoring wells are needed to further define the plume." (CAO at 4.). Finding 14 further requires that "data from the domestic well sampling must then be evaluated using a statistical test such as the Mann-Kendall to determine if there is an increasing trend in any of these domestic wells over this period." (CAO at 4.) This language requires new monitoring wells based on any "increasing trend" no matter how small and no matter whether or how far the chromium levels are below background. There is no rational basis for these requirements in the CAO.

Statistician Larry Hilscher reviewed the CAO statistical analysis and monitoring well requirements and concluded that the statistical trending analysis does not provide a reasonable basis for requiring new monitoring wells. First, the typical significance level (0.05) of the available statistical tests means that there will be a 5% false positive rate. In other words, even if the data were randomly chosen, approximately one in twenty wells would be expected to show a statistical increasing trend in the sample data when no such trend was actually taking place in the well. (Declaration of Larry Hilscher ("Hilscher Dec.") at 1-2.) However, the CAO would require a new monitoring well based on the faulty trending conclusion.

Perhaps more importantly, a statistical trend test by itself (without considering all of the relevant data and exercising professional judgment) is a very poor trigger for requiring monitoring wells. This is particularly true when no lower limit chromium concentration is specified for the required magnitude of the increasing trend and the chromium levels are below levels identified as natural background by Lahontan Board order. (Hilscher Dec. at 2.) The statistical trend test by itself does not provide any indication whether the chromium concentrations or any increasing chromium trend in a well are related to PG&E. For example, a

small increase in chromium concentrations, particularly at levels identified as below natural background by Lahontan Board order (such as from 0.1 ppb to 0.2 ppb over six months), does not demonstrate the arrival from any particular source of chromium. (Hilscher Dec. at 2.) There is simply no rational justification to solely use conclusions from a trend test as the basis for requiring new monitoring wells.[6] (Maslonkowski Dec. at 7-8.)

Finally, the CAO exceeds the Lahontan Board's authority by ordering PG&E to investigate areas where chromium levels are below levels identified as natural background by Lahontan Board order. Water Code section 13304 requires cleanup of all waste discharged and restoration of affected water to background conditions. (Resolution No. 92-49, finding 4.) "[U]nder no circumstances shall these provisions be interpreted to require cleanup and abatement which achieves water quality conditions that are better than background conditions[.]" (Resolution No. 92-49, section III.F.1.) Regional boards shall "ensure that dischargers are required to clean up and abate the effects of discharges in a manner that promotes attainment of either background water quality, or the best water quality which is reasonable if background levels of water quality cannot be restored[.]" (Resolution No. 92-49, section III.G.) Yet, the CAO would require that PG&E investigate areas that contain chromium levels below levels identified as natural background by Lahontan Board order. As outlined above, there are no findings in the CAO linking PG&E's discharge to chromium in wells at concentrations below those identified as background by Lahontan Board order.

e. The CAO's Directive to Delineate the Plume using Domestic Well Data Would Result in An Artificially Expanded Plume without a Scientific or Factual Basis

The CAO would require PG&E to draw the chromium plume boundary around domestic

[6] Finding 14 also attempts to link the statistical trending analysis to potential risk to human health. However, there is no connection between statistical trend analysis and human health risk. There is no scientific support for the concept that an increasing chromium trend in a well at levels below background represents a risk to human health. The two issues are simply not related and the CAO should not attempt to link these unrelated issues.

wells that are above 3.1 ppb of hexavalent chromium or 3.2 ppb of total chromium, if PG&E is unable to access nearby property to install monitoring wells within six months. (CAO at 8.) This requirement is not supported scientifically or factually in the CAO and it would artificially expand the depiction of the plume.

The Lahontan Board has correctly required PG&E to utilize monitoring wells to provide appropriate and representative groundwater data as the basis for establishing plume boundaries based on their careful design and installation. The proposed requirement to use data from domestic wells ignores the significant differences that may exist between data from domestic wells and monitoring wells and the less reliable domestic well testing results. For example, monitoring wells typically have short (10-15 feet) well screens, pvc casings with factory milled slots and carefully selected filter pack, non-stainless steel pumps and other materials, and known installation details and history. However, domestic wells often have long well screens (100 feet or more), steel casings with handmade slots created in the field and sometimes no filter pack, stainless steel pumps and materials that can contribute hexavalent chromium to water samples, and unknown installation history and details. (Maslonkowski Dec. at 6-7.) These significant differences in purpose and construction make comparison of the testing results between monitoring and domestic wells inappropriate and not technically sound. (Maslonkowski Dec. at 6-7.) In some cases, such depictions could be contrary to the groundwater flow direction, resulting in serious errors in the understanding of site conditions. (Maslonkowski Dec. at 6-7.)

In addition, the CAO's directive to depict the plume in areas where property is inaccessible would result in an artificial expansion of the plume boundary. For example, while PG&E is diligently seeking federal and state permits to install monitoring wells within endangered species habitat, PG&E is legally prohibited, until the permits are received, from destroying habitat such as may occur during well installation. Similarly, there is no basis for ordering PG&E to assume that the plume has expanded to areas where residents have refused to grant access to install a monitoring well.

Basing the plume boundary on these arbitrary and artificial requirements also ignores

important factors such as technical judgment, site-specific conditions, and groundwater flow. Plume delineation using such a method would be technically unsound. (Maslonkowski Dec. at 6-7.)

Finally, the requirement to draw the plume around domestic wells with chromium concentrations above 3.1 ppb would drastically expand the apparent size of the plume by including multiple areas where monitoring and domestic wells are either non-detect for chromium or contain chromium levels below background levels. (Maslonkowski Dec. at 6-7.) There is no scientific or legal basis for this requirement.

8. A COPY OF THIS PETITION HAS BEEN SENT TO THE LAHONTAN REGIONAL BOARD

In accordance with title 23, section 2050(a)(8) of the CCR, the Petitioner mailed a true and correct copy of this petition by First Class mail on February 7, 2013, to the Lahontan Regional Board at the following address:

Patty Kouyoumdjian, Executive Officer
Regional Water Quality Control Board Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150-7704

9. ISSUES RAISED IN THE PETITION WERE PRESENTED TO THE LAHONTAN REGIONAL BOARD BEFORE IT ACTED

Petitioner raised many of the issues discussed within this Petition with the Lahontan Regional Board in comment letters on prior drafts of the CAO, including a comment letter addressed to Lauri Kemper on August 9, 2012 in response to the Draft Amended CAO No. R6V-2008-0002A4. It was not possible for Petitioner to previously comment on several new issues raised for the first time in new provisions in the final CAO.

DATED: February 7, 2013

J. DREW PAGE
LAW OFFICES OF J. DREW PAGE

By: _____
DREW PAGE
Attorneys for Petitioner
PACIFIC GAS AND ELECTRIC COMPANY

DATED: February 7, 2013

TRACY J. EGOSCUE
EGOSCUE LAW GROUP

BY: _____
TRACY J. EGOSCUE
Attorneys for Petitioner
PACIFIC GAS AND ELECTRIC COMPANY

ATTACHMENT 1:

COPY OF CAO No. R6V-2008-0002-A4

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Lahontan Regional Water Quality Control Board

January 8, 2013

Kirk Howard, Vice President
Gas Transmissions and Distribution
Pacific Gas and Electric Company
77 Beale Street, Mailcode B275
San Francisco, CA 94105

CLEANUP AND ABATEMENT ORDER NO. R6V-2008-0002-A4

I am issuing this Cleanup and Abatement Order (CAO) to require Pacific Gas and Electric Company (PG&E) to fully define the chromium plume in the Hinkley area, especially the targeted northern-most area at the Hinkley Gap and the Eastern area at Dixie Road. It is important that we have a clear and up-to-date understanding of the chromium plume boundaries. This critical information will guide us as we clean up groundwater pollution from the PG&E compressor station and will ensure protection of public health in the community.

Some key milestones in the CAO include:

- February 22, 2013 – Sampling and Analysis Workplan
- March 15, 2013 - Domestic well sampling begins
- October 30, 2013 - Report on domestic well sampling and plume definition efforts

This CAO requires PG&E to monitor and statistically evaluate hexavalent chromium concentrations in domestic water supply wells in areas outside the southern contiguous plume boundary. This CAO orders monthly domestic well sampling to determine if there is an increasing trend of chromium in groundwater before the concentrations have risen above background levels. Where an increasing trend is identified, additional monitoring wells are required to be installed. Further, this CAO requires PG&E to install additional monitoring wells in order to delineate the full lateral and vertical extent of chromium in groundwater, including locations where chromium has been detected in domestic wells above the maximum background levels. This CAO is based on sound scientific principles and is protective of public health.

Upon completion of the February 22, 2013 workplan, I would like to hold a public meeting in March to discuss the actions proposed in the draft workplan and to answer questions from the Hinkley community.

In this CAO I have not allowed for eastward plume expansion as was originally proposed in the draft CAO released for public comment. I believe it is not necessary at this time because cleanup activities can continue without it. Until we have had an opportunity to review additional information compiled on the fate and transport of remediation by-products, allowing for plume expansion would be premature.

Also, the draft CAO required PG&E to provide bottled water and include the owner of domestic well 34-65 in the Whole House Replacement Water Program. This provision is no longer needed since the property owner has reportedly opted into the property purchase program. Therefore, this requirement was removed.

This CAO does not rescind requirements in prior CAOs.

As always, I am available to answer any questions regarding this CAO and can be reached at (530) 542-5412; or you can also contact Lauri Kemper, Assistant Executive Officer, at (530) 542-5436.

Patty Z. Kouyoumdjian

Patty Z. Kouyoumdjian
Executive Officer

Enclosure: CAO R6V-2008-0002-A4

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

AMENDED CLEANUP AND ABATEMENT ORDER
NO. R6V-2008-0002-A4

WDID NO. 6B369107001

REQUIRING PACIFIC GAS AND ELECTRIC COMPANY
TO CLEAN UP AND ABATE WASTE DISCHARGES
OF TOTAL AND HEXAVALENT CHROMIUM TO THE
GROUNDWATERS OF THE MOJAVE HYDROLOGIC UNIT

San Bernardino County

The California Regional Water Quality Control Board, Lahontan Region (Water Board), finds:

Discharger

1. The Pacific Gas and Electric Company owns and operates the Hinkley Compressor Station (hereafter the "Facility"), located at 35863 Fairview Road, Hinkley in San Bernardino County. For the purposes of this Order, the Pacific Gas and Electric Company is referred to as the "Discharger."

Regulatory History

2. On August 6, 2008, the Water Board issued Cleanup and Abatement Order (CAO) No. R6V-2008-0002 to the Discharger to clean up and abate the effects of waste discharges and threatened discharges containing total chromium (Cr[T]) and hexavalent chromium (Cr[VI]) to waters of the state. The CAO required the Discharger to take additional corrective actions to contain chromium migrating with groundwater, to continue to implement groundwater remediation in the source area and central plume area, and to develop and implement a final cleanup strategy. The CAO also modified the monitoring and reporting program for permitted projects.

3. Paragraph 3 of the Order provisions of the CAO required the Discharger to contain the total and hexavalent chromium plumes to locations where hexavalent chromium was below the interim background level of 4 parts per billion (ppb) and the total chromium was below 50 ppb.

    a. The Discharger was required to achieve containment of the hexavalent chromium plume in the groundwater by December 31, 2008, using the Discharger's *Boundary Control Monitoring Program and Updated Site-Wide Groundwater Monitoring Program (*submitted July 2, 2008 and prepared by Secor International) as described in Finding 16 in the CAO.

b. The Discharger was required to achieve containment of the total chromium plume in the groundwater by December 31, 2008, also based on the *Boundary Control Monitoring Program and Updated Site-Wide Groundwater Monitoring Program* as described in Finding 16 in the CAO.

4. Paragraph 4 of the Order provisions of the CAO required the Discharger to continue implementing full-scale in-situ corrective actions in the source area and central area of the chromium plume, or an alternate but equally effective method, to remediate the elevated chromium concentrations in groundwater.

5. The CAO required the Discharger to clean up and abate the chromium plume to background levels and set an interim amount of 4 ppb. Amended Order No. R6V-2008-0002A1 (Amended Order No. 1), effective November 12, 2008, adopted average and maximum background levels for hexavalent chromium of 1.2 ppb and 3.1 ppb, respectively. The adopted average and maximum background levels in Amendment Order No. 1 for total chromium are 1.5 ppb and 3.2 ppb, respectively. These background levels were adopted for the purposes of establishing background water quality conditions to be used later to consider cleanup strategies and to support future decisions regarding cleanup levels. For plume containment, the level remained at 4 ppb for both total and hexavalent chromium.

6. Amended Order No. R6V-2008-0002A3 (Amended Order No. 3), effective March 14, 2012, revised Paragraph 3 described above in Finding No. 3 by requiring the Discharger to contain the total and hexavalent chromium plumes of 3.1 ppb and 3.2 ppb, respectively, to locations south of Thompson Road. In addition, it required that the Discharger take all practicable actions to extract the total and hexavalent chromium plumes north of Thompson Road where concentrations exceeded 10 ppb.

7. On April 9, 2008, the Water Board adopted General Waste Discharge Requirements (Board Order No. R6V-2008-0014) for the Hinkley chromium contamination to facilitate groundwater remediation. Board Order No. R6V-2008-0014 allows the discharge of various products to facilitate cleanup of groundwater contamination in the area from the Compressor Station in the south to almost Thompson Road in the north. To be authorized to initiate discharge, the Discharger must submit a Notice of Intent describing the proposed remedial project and discharges to land and/or groundwater. Following a public comment period, the Executive Officer was authorized to issue a Notice of Applicability (NOA) to allow the discharge or discharges and prescribed an appropriate monitoring and reporting program.

Undefined Chromium Plume in Upper Aquifer

8. Pursuant to Orders from the Water Board, the Discharger has undertaken multiple investigations for defining the chromium plume in the upper aquifer to background levels. The document *Third Quarter 2012 Groundwater Monitoring Report and Domestic Well Sampling Results* describes the results of groundwater and domestic

well sampling during July to September 2012. Figure 3-1 in the report shows the extent of chromium in groundwater at concentrations exceeding background levels as being greater than 5 miles in length and about 2 miles in width. The quarterly report also shows that the chromium plume continues to be undefined to the east and north of the core plume area. The report also shows an area to the west of the core plume area, near the intersection of Hinkley Road and Community Boulevard, with concentrations above background that is separate from the core plume area. Further investigations are needed to fully define the lateral and vertical extent of all portions of the chromium plume and assess groundwater flow in the upper aquifer to evaluate threats to beneficial uses and to plan future corrective actions.

9. On July 9, 2012, the Discharger submitted a workplan to install additional wells for chromium plume definition. The workplan, prepared by Stantec, proposed installing wells at eight locations in the northern plume area by the Hinkley Gap. Monitoring well pairs and triplets are being proposed to monitor for the evidence of chromium. The proposed well locations, however, are not adequate to fully define the chromium plume boundaries. While the workplan does not state reasoning for large gaps in sampling locations, the Discharger has stated in the past its inability to gain access to certain private property. A revised workplan is being requested by this Order.

10. An August 20, 2012 Technical Memorandum by the Discharger cites groundwater investigation activities during the first six months of 2012. The Memorandum contains a map showing that the Discharger was unable to gain access to private property for installing additional monitoring wells at five of the eight locations proposed in the July 9, 2012 workplan. Furthermore, the map shows that the Discharger was also not able to gain access to an additional six private properties, as proposed in the September 1, 2011 Groundwater Investigation Report. These latter well locations are needed to define the northern chromium plume along the western and eastern boundaries, while the former well locations were proposed to define the northern plume extent.

11. Subsequent data submitted by the Discharger on September 18, 2012 shows that chromium in domestic wells exceeds the maximum background levels along Hinkley Road, 1.6 miles north of monitoring well MW-130S1 in the Harper Dry Lake Valley (also called Water Valley). Groundwater samples contained 4.0 ppb Cr(VI) and 3.8 ppb Cr(T) in the domestic well at 41717 American Way. Additionally, water samples from the domestic well at 42584 Hinkley Road contained 4.6 ppb Cr(VI) and 4.3 ppb Cr(T). These detections confirmed chromium results taken by private owners and submitted to the Water Board. Monitoring wells are necessary along the distance from well MW-130S1 to the latter residence to define the chromium plume in the Harper Dry Lake Valley, which is hydraulically downgradient of groundwater in the Hinkley Valley.

12. The flow of groundwater through the Hinkley Valley and to Harper Dry Lake Valley is well documented in U.S. Geological Survey (USGS) and Mojave Water Agency reports. For instance, according to a 2001 USGS report by Stamos et al titled "Simulation of Ground-Water Flow in the Mojave River Basin, California," the Hinkley Valley consists of highly transmissive aquifer conditions for groundwater movement. A significant drop in groundwater elevation from 2,200 feet above mean sea level (MSL) at the Mojave River to approximately 2,050 feet above MSL at the Harper Dry Lake influences the groundwater movement through the Hinkley Valley. The direction of groundwater movement is from the Mojave River through the Hinkley Valley and to the Harper Dry Lake Valley. The Discharger's September 2012 Feasibility Study lists a groundwater flow velocity of 1-4 feet per day (ft/day). Using a conservative average of 2 ft/day, the length of the chromium plume can be calculated since the time of the initial 1952 discharge as (assuming time between current time and discharge is 60 years, minus 7 years for the waste to percolate to groundwater):

    (2 ft/day x 365 days/year x 53 years) / 5280 ft/mile = 7.32 miles of potential plume migration of the leading edge of the plume.

    When one considers the distance from the point of release (the Hinkley Compressor Station) to the Hinkley Gap is approximately 6 miles and the groundwater flow velocity, it is reasonable to assume that chromium concentrations detected near the Hinkley Gap may be related to the release from the Hinkley Compressor Station. Such plume migration threatens approximately 12 domestic wells along the flow path in the Harper Dry Lake Valley.

13. This Order amends CAO No. R6V-2008-0002 to require the Discharger to fully define the lateral and vertical extent of the chromium plume in the upper aquifer where it is still unknown. The Order includes requirements for chromium plume mapping and potentiometric maps showing groundwater flow direction, velocity, and gradient in monitoring reports.

14. To fully define the plume, especially in the targeted northern-most area at the Hinkley Gap and the eastern area at Dixie Road, this Order requires the Discharger to prepare a workplan to sample domestic wells in these areas once a month for a period of at least 6 months beginning in **March 2013** to determine the levels of total and hexavalent chromium. This monitoring must be conducted to determine if there is an increasing trend of chromium concentrations before concentrations have the potential to rise above background levels. The data from the domestic well sampling must then be evaluated using a statistical test, such as the Mann-Kendall test, to determine if there is an increasing trend in any of these domestic wells over this period. The statistical trends will be used to establish potential risk to public health of residents in the area, and determine where additional monitoring wells are needed to further define the plume. If a domestic well displays an increasing trend, then a monitoring well must be installed within a quarter mile from that domestic well. The

Discharger must submit a report summarizing these data and a workplan for subsequent monitoring well installation by **October 30, 2013.**

CEQA

15. This enforcement action is being taken by this regulatory agency to enforce the provisions of the Water Code and, as such, is exempt from the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 et seq.) in accordance with California Code of Regulations, title 14, section 15321. The implementation of this CAO Amendment is an action to assure the restoration of the environment and meets the criteria set forth in section 15321. In addition, this action is exempt from the provisions of the CEQA, in accordance with the California Code of Regulations, title 14, section 15301 because there is negligible or no expansion of the existing monitor well pairs and triplets and infrastructure that will be used to implement this Order. In addition, the additional monitoring wells required to be installed by this Order are exempt from CEQA in accordance with the California Code of Regulations, title 14, section 15303, which allows the construction or conversion of small structures, such as monitoring wells. No exception to these exemptions apply, as this Order does not allow take of any endangered species without a permit from the applicable federal or state agency.

Effect of Prior Orders

16. This Order amends CAO No. R6V-2008-0002. All findings in prior Orders of the Water Board not directly superseded by findings in this Order remain in effect. This Order shall not be construed to preclude enforcement against the Discharger for failure to comply with any requirement in any other Order issued by the Water Board.

IT IS HEREBY ORDERED that, pursuant to the Water Code sections 13267 and 13304, the Discharger shall clean up and abate the effects of the discharge and threatened discharge of chromium to waters of the state, and shall comply with the provisions of this Order:

I. Chromium Plume Definition in the Upper Aquifer

The Discharger must define the extent of total and hexavalent chromium in the upper aquifer within the targeted areas of the Hinkley Valley shown on the chromium plume maps in the *Third Quarter 2012 Groundwater Monitoring Report and Domestic Well Sampling Results*, the figure showing proposed well locations in the July 9, 2012 Monitoring Well Installation Workplan, and to locations in the Harper Dry Lake Valley where chromium has been detected in domestic wells above the maximum background levels.

A. By February 22, 2013, the Discharger must submit a workplan proposing:

1. A sampling and analysis plan to immediately sample domestic wells in target areas of the northern-most plume area at the Hinkley Gap, the eastern boundary area near Dixie Road, and any other areas outside of the currently identified primary contiguous plume boundary that may show anomalous or otherwise unexplained concentrations of chromium in domestic wells. The workplan must include a statistically based trend analysis methodology to determine positive or negative changes in groundwater chromium concentrations over the six month period, beginning March 2013. The general vicinity of domestic wells exhibiting an increasing trend in chromium concentrations will be targeted for follow-up installation of a shallow groundwater monitoring well.

2. Groundwater monitoring well sampling locations in the upper aquifer in the following areas that will allow for the definition of the vertical and lateral extent of the chromium plume to at least maximum background concentrations of 3.1 ppb Cr(VI) and 3.2 ppb Cr(T) and to verify groundwater flow.

    a. Proposed monitoring well locations shall not exceed one-quarter mile distance from other monitoring wells in accessible areas.
    b. Eastern boundary: east of wells MW-115 and MW-145 on Dixie Road.
    c. Northern boundary: north of wells MW-154 and MW-130 to at least domestic well 21N-04 on Hinkley Road in the Harper Dry Lake Valley; west of Mountain View Road (north of Salinas Road); and east of Fairview Road extension (north of Sonoma Road).

    The proposed sampling locations must be previously scoped to assure a reasonable probability of success in gaining access and likelihood of well installation or temporary groundwater sampling, such as within previously disturbed areas, such as right of ways. The workplan shall identify all properties owned by the Discharger, and discuss and mark on the map areas where previous attempts to gain access to private properties and desert tortoise habitat have been unsuccessful. Nothing in this Order authorizes the take of a federal or state listed endangered species.

B. By March 15, 2013, the Discharger must begin sampling domestic wells in the northern-most plume area at the Hinkley Gap and the eastern boundary area near Dixie Road monthly for a period of not less than 6 months for total and hexavalent chromium concentrations. These data will be used to

establish potential risk to residents that rely on the domestic water supply. The Discharger must provide well owners with analytical data as soon as they are available following each sampling event.

C. **By October 30, 2013,** the Discharger must submit a report of domestic well monitoring conducted in accordance with the sampling and analysis plan required in section I.A.1 of this Order. The report must include all analytical data, appropriate maps, statistical test results, and recommended locations for the installation of additional monitoring wells within a quarter mile of any domestic well(s).

The report must also define the full lateral and vertical extent of chromium in groundwater, based on the monitoring information gathered pursuant to section I.A.2 of this Order, for total and hexavalent chromium to at least the maximum background levels of 3.1 ppb and 3.2 ppb, respectively, and determines the direction of groundwater flow. The report must contain the following additional information:

1. **Maps:**
   a. Extent of total and hexavalent chromium in groundwater in the upper aquifer:
      i. A map showing the maximum plume boundary throughout the uppermost saturated zone.
      ii. A separate map showing the plume boundary in the lowermost saturated zone.
   b. Extent of total and hexavalent chromium in groundwater in the lower aquifer using a map showing the maximum plume boundary.
   c. Potentiometric map showing the groundwater flow directions, estimated flow velocity, and calculated gradients, along the length of the mapped chromium plume and beyond where water table data exist.

2. **Map Content**:
   a. Text font size on maps shall be 9 points or greater.
   b. Street names must be shown in black color to be easily legible.
   c. Location of all active supply wells used for remedial actions and the compressor station operations.
   d. Approximate location of the Lockhart Fault.
   e. Chromium boundary lines on plume maps must reflect the reported data for the maximum concentration in monitoring wells and extraction wells at all locations. Monitoring wells showing 3.1 ppb Cr(VI) or 3.2 ppb Cr(T) must have plume lines drawn through the monitoring well.
   f. Plume boundary lines must show monitoring and extraction well concentration contours representing the maximum extent of the

following: 1,000 ppb Cr(VI) or Cr(T), 50 ppb Cr(T), 10 ppb Cr(VI) or Cr(T), 3.1 ppb Cr(VI) or 3.2 ppb Cr(T). Plume boundary lines must be drawn to connect any monitoring well located within one-half mile (2,600 ft) of any other monitoring well having chromium concentrations of 3.1 ppb Cr(VI) or 3.2 ppb Cr(T) or greater. The dashed line representing the inferred chromium boundary of 3.1 ppb Cr(VI) or 3.2 ppb Cr(T) shall be a dark color so as to stand out.

i. Where access to private property or endangered species habitat has not been granted for six months or more, the chromium plume boundary shall be drawn around any domestic well containing chromium concentrations exceeding 3.1 ppb Cr(VI) or 3.2 ppb Cr(T) for at least two consecutive quarters and within one-half mile distance of the prior quarter's plume boundary. The map shall denote concentration isocontour lines with a hash mark to indicate uncertainty in these areas.

g. Domestic wells having chromium concentrations exceeding maximum background levels and which recently become inactive can be removed from maps only if a monitoring well exists and is monitored within one-quarter mile distance of that domestic well.

h. If PG&E believes that chromium data in groundwater is not related to its historic chromium discharges and should not be drawn in the plume boundary, it must use data collected within the past three years to make its argument.

3. **Report Content:**
   a. Description of methods and actions for installing wells.
   b. Laboratory results:
      i. Sample results showing a difference of 25% or greater between Cr(VI) and Cr(T) concentrations shall be re-tested and the ensuing results described.
   c. Interpretation of chromium plume boundary.
   d. If the chromium plume boundary is undefined in certain areas (sampling locations are more than one-quarter mile distance), propose additional sampling locations and implementation schedule.
   e. Include boring logs and well designs.
   f. Geologic cross sections across the northern plume extent (from Salinas Road and north).
   g. Discussion of calculated groundwater flow direction and velocity.

4. **Plume Map Submittals:**
   a. Chromium plume maps must be submitted to the Water Board in digitized form (such as a pdf document) within **one** working day of the report due date. At least one of the submitted maps shall be printable on 81/2 in by 11 inch paper.

5. **Geotracker Submittals:**
   a. Report must be uploaded to the State Water Resources Control Board's Geotracker database, within **one** working day of the report due date.

II. Groundwater Monitoring Reports

Beginning with the third quarter 2013 quarterly groundwater monitoring report for site-wide and domestic well monitoring, due by **October 30, 2013,** and every quarter (three months) thereafter, the Discharger must include applicable information for maps and reports as described above in Paragraphs C.1., C.2., and C.3. Chromium plume maps and Geotracker submittals shall be implemented according to the due dates described in Paragraphs C.4. and C.5.

III. Laboratory Analysis

Testing for total chromium analyses must be done using US EPA Methods 6010B or 6020A to a reporting limit of 1 ppb. Testing for hexavalent chromium must be conducted in accordance with US EPA Method SW 218.6 with a reporting limit of 0.1 ppb. All future analyses of water samples must utilize the most recent testing methods with the lowest available reporting limits. The laboratory used must be certified by the California Environmental Laboratory Accreditation Program (ELAP).

IV. Liability for Oversight Costs Incurred by the Water Board

The Discharger shall be liable, pursuant to Water Code section 13304, to the Water Board for all reasonable costs incurred by the Water Board to investigate unauthorized discharges of waste, or to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, pursuant to this Order. The Discharger shall reimburse the Water Board for all reasonable costs associated with site investigation, oversight, and cleanup to include the cost of split sample collection and analyses. Failure to pay any invoice for the Water Board's investigation and oversight costs within the time stated in the invoice (or within thirty days after the date of invoice, if the invoice does not set forth a due date) shall be considered a violation of this Order. If the Property is enrolled in a State Water Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program.

V. Certifications for all Plans and Reports

All technical and monitoring plans and reports required in conjunction with this Order are required pursuant to Water Code section 13267 and shall include a statement by the Discharger, or an authorized representative of the Discharger, certifying (under penalty of perjury in conformance with the laws of the State of California) that the workplan and/or report is true, complete, and accurate. Hydrogeologic reports and plans shall be prepared or directly supervised by, and signed and stamped by a Professional Geologist or Civil Engineer registered in California. It is expected that all interpretations and conclusions of data in these documents be truthful, supported with evidence, with no attempts to mislead by false statements, exaggerations, deceptive presentation, or failure to include essential information.

VIII. No Limitation of Water Board Authority

This Order in no way limits the authority of this Water Board to institute additional enforcement actions or to require additional investigation and cleanup of the site consistent with the Water Code. This Order may be revised by the Executive Officer or Water Board representative as additional information becomes available.

IX. Enforcement Options

Failure to comply with the terms or conditions of this Order will result in additional enforcement action that may include the imposition of administrative civil liability pursuant to Water Code sections 13268 and 13350 or referral to the Attorney General of the State of California for such legal action as she may deem appropriate.

X. Right to Petition

Any person aggrieved by this action of the Lahontan Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

Patty Z. Kouyoumdjian — January 8, 2013

Patty Z. Kouyoumdjian
Executive Officer

Date