We want

No Ground water drawdown.
Find source of mag and uranium, etc
before poisoning everyone.
Have not horned toads around the
last few years along with turtles.
No aquifer compaction!

Al & Janet Norman

Pacific Gas and Electric Company

Kevin M. Sullivan
Principal Remediation Specialist
Hinkley Remediation Project

November 5, 2012

Anne Holden
Engineering Geologist & EIR Project Manager
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, California 96150

Subject: Draft Environmental Impact Report, Comprehensive Groundwater Cleanup Strategy for Historical Chromium Discharges from Pacific Gas and Electric Company's Hinkley Compressor Station San Bernardino County

Dear Ms. Holden:

Pacific Gas and Electric (PG&E) submits the attached comments (Attachments 1 and 2) on the Draft Environmental Impact Report (EIR) released by the Lahontan Regional Water Quality Control Board (Water Board) in August 2012 for the Groundwater Cleanup Strategy for the PG&E Hinkley Compressor Station site located in Hinkley, California.

The EIR document provides sufficient flexibility required to implement the final groundwater remedy in the most efficient and least impactful manner. The six alternatives analyzed in the EIR (4B through 4C-5) provide a range of options that weigh the speed of groundwater cleanup against potential environmental impacts. PG&E believes that the most beneficial alternative is either Alternative 4B or 4C-2, as both of those alternatives provide the best balance between clean-up speed and minimization of potential environmental impacts. In addition, those alternatives are consistent with PG&E's on-going efforts to actively and effectively remediate the hexavalent chromium groundwater plume utilizing proven technologies previously approved by the Water Board, namely the operation of agricultural units in the northern portion of the plume and in-situ treatment in the southern higher-concentration areas.

Over the past several years, under the regulatory oversight of the Water Board, PG&E has collected extensive data on the effectiveness of and potential impacts from the operation of agricultural treatment units and in-situ treatment. We have also collected data for constituents other than chromium as part of our voluntary Whole House Replacement Water program. While the EIR appropriately utilizes all of this existing data to determine the effectiveness and potential impacts of the remedial alternatives, we believe that the EIR and related permits should also acknowledge that the implementation of the remedy can be optimized during the operational period to reduce impacts. This can be done using such features as crop rotation and advanced irrigation strategies in the agricultural treatment units, to reduce the amount of by-products that are generated. The EIR and related permits should be flexible enough to allow for such future optimization efforts to reduce by-products and address potential impacts as they develop and are

observed. Absent such flexibility, the potential impacts may be overestimated in this EIR and in turn the mitigation measures will be unnecessarily over-reaching.

With respect to the mitigation measures, PG&E believes that the environmental impacts of the mitigation measures should also be considered in the impacts analysis and should not be more disruptive and impactful that the original impact. In particular, the time frames proposed for the completion of the potential post chromium remediation mitigation measures are unrealistically short, technically impracticable and are not in proportion to the overall aquifer remediation program. For example, Total Dissolved Solids (TDS) mitigation could potentially require the construction and operation of a reverse osmosis treatment system to remove TDS from the aquifer. Impacts from such a system should be considered in the impacts analysis. Further, we suggest that the EIR allow for consideration of natural restoration processes and/or basin-wide solutions that achieve the same basin-wide restoration goals with reduced environmental impacts; these options are discussed more thoroughly in Attachment 2.

PG&E is committed to continuing the substantial progress we've made in cleaning up the hexavalent chromium groundwater plume. Since beginning operations in 2004, the Desert View Dairy Land Treatment Unit has treated over one billion gallons of extracted groundwater. In 2010, PG&E began to expand agricultural operations, increasing extraction capacity from 168 million gallons per year in September 2009 to 546 million gallons per year in September 2012. In addition, in-situ remediation efforts have reduced hexavalent chromium concentrations across 54 acres of the plume core from over 1,000 ppb (parts per billion) to less than 3.1 ppb. Continuing to implement these proven technologies is in the best interest of all the stakeholders and is consistent with the historical agricultural presence in Hinkley. Increased agricultural presence in the Hinkley Valley will support local dairies as well as local agriculture, dairy-related jobs and local economic activity. These alternatives also minimize the long-term negative effects, such as excessive aquifer drawdown, by-product generation, unsightly treatment plant construction and long-term truck traffic.

We look forward to continue to work together with the Water Board and the community of Hinkley, on selection of a final remedy that appropriately balances the speed of the cleanup with the least amount of environmental impacts.

PG&E appreciates this opportunity to comment on the EIR. If you have any questions, feel free to contact me .

Sincerely,

Kevin M. Sullivan

Enclosures:
Attachment 1 – Main Comment Table
Attachment 2 - Discussion of Alternate Mitigation Options for Effects due to Agricultural Treatment

Attachment 1 –Main Comment Table
Hinkley Comprehensive Groundwater Cleanup Strategy
Draft Environmental Impact Report

Comments of Pacific Gas and Electric Company
November 5, 2012

Page	Lines	Comment
CHAPTER 2 – PROJECT DESCRIPTION		
2.0-20 ES-9	25-27 6-7	The statement, "This expansion is proposed to achieve and maintain year-round extraction/hydraulic control of the plume movement to foster faster cleanup periods compared to Alternative 4B" is not accurate. Alternative 4B includes year-round extraction and achieves year-round hydraulic control, as indicated by the hydraulic analysis in Addendum 3 of the Feasibility Study (Figure 8). The difference between Alternative 4B and Alternative 4C-2 is the amount of winter pumping. The following revision is suggested to resolve this issue: "This expansion is proposed <u>to increase winter pumping rates and</u> to foster faster cleanup periods compared to Alternative 4B"
2.0-18	39	For Alternative 4B, there would still be pumping and treatment during winter months, although at a lower rate than the 4C series alternatives. The statement "land treatment will not occur during winter months," is inaccurate and should be deleted.
2.0-23	1-5	The size of the two aboveground treatment plants associated with Alternative 4C-3 would total approximately 81,060 square feet, which is approximately five times larger than the aboveground treatment plant at Topock. Given the comparison of the proposed plants with "similar operations that have been implemented by PG&E at its Topock site" in the preceding text, the following language should be included for context: There would be up to a total of two above-ground treatment facilities<u>, in structures of approximately 81,060 square feet (approximately five times the size of the existing above-ground treatment plant at Topock)</u>. One treatment facility would be located generally near the Compressor Station adjacent to the southern boundary of the Source Area IRZ in OU1, and one treatment facility would be located generally near the Desert View Dairy adjacent to the northwestern boundary of OU2.
2.0-33	6	The discussion in the section regarding the operating characteristics of wells applies to monitoring wells as well. Thus, revise "extraction and injection" to "extraction, injection, and monitoring"
2.0-33	32	The description of the well operation only refers to "freshwater supply wells." Add a description of well operation for monitoring wells by inserting the following new text: <u>Monitoring wells would also continue to be operated as under existing conditions. The wells will be used for groundwater samplings and water level readings, with samples being taken quarterly, semi-annually, annually or less frequently, depending on the well. PG&E may sometimes sample more frequently at a new well. Monitoring wells may be established throughout the project area. Access to the wells is</u>

		generally from existing secondary roads or from public streets where feasible.
Various	Tables and Figures	Proposed changes and additions to Section 2 tables and figures are attached to this table.
CHAPTER 3 - EXISTING CONDITIONS		
Chapter 3.1 – Water Quality		
3.1-5 3.1-66	Table 3.1-2 Table ES-1 Table 3.1-11	The No Project cleanup timeframes in the EIR may be overestimated. Based on groundwater modeling, we recommend revising the estimated No Project timeframes as follows: • Total chromium MCL (50 µg/L): 6 years • 80% Chromium Mass Removal: 10 to 13 years • Maximum background (3.1 µg/L): 75 to 150 years • Average background (1.2 µg/L): 130 to 220 years
3.1-5	Table 3.1-2	It appears that the maximum drawdown at scaled flows was estimated overly conservatively, perhaps assuming a linear relationship between flowrate and maximum drawdown. As the project is scaled, pumping would occur in areas outside of the FS pumping center, for example in areas to the north, and, as such, maximum drawdown at the FS pumping center is not expected to increase linearly with the scaling. It should be noted that the scaled maximum drawdown estimates are likely conservative. For additional comments on this issue refer to the comment on Table 3.1-8 (page 3.1-55). The number of potentially affected wells listed on Table 3.1-2 does not match with the quantities shown on Table 3.1-8. Please revise Table 3.1-2 to make the numbers match those listed in Table 3.1-8.
3.1-6	Table 3.1-2	The analysis indicates that the amount of plume bulging increases with increased in situ flow rates for Alternatives 4C-2, 4C-3, and 4C-5 over existing conditions, without considering the additional extraction for agricultural treatment in OU-1 in those alternatives. The additional extraction in those alternatives should decrease the potential for bulging in those alternatives in comparison with existing conditions. Accordingly, the text in the third row of the table under the columns corresponding to Alternatives 4C-2 and 4C-3 should be revised as shown: Injection for in-situ remediation, higher pumping rate (431 gpm) increases potential for plume "bulging," but the addition of the three AUs in OU1 reduces the potential for plume bulging in comparison with Alternative 4B and the No Project Alternative. The text in the third row of the table under the column corresponding to Alternatives 4C-5 should be revised as shown: Injection for in-situ remediation, higher pumping (244 gpm) than existing increases potential for plume "bulging," but ~~lower than other alternatives~~ the addition of the three AUs in OU1 reduces the potential for plume bulging in comparison with Alternative 4B and the No Project Alternative.
3.1-9	11-15	The EIR should clarify that the MCL for total chromium regulates Cr[VI]. In fact Cr[VI] represents that vast majority of health risk that drives the MCL for

		total chromium. (For further discussion, see our comment to page 1-9 of the EIR on this same topic). Accordingly, revise the text as follows: Maximum Contaminant Levels are federal enforceable limits for contaminants in drinking water. The federal rules for chromium include a Maximum Contaminant Level of 100 parts per billion (ppb) for total chromium. <u>There are two forms of chromium, Cr[VI] and Cr[III], that may be significant as drinking water contaminants. Chromium III has not been shown to be carcinogenic to animals or humans by the oral route. Thus the MCL for total chromium protects against the health risks associated with Cr[VI].</u> There is no established federal Maximum Contaminant Level for Cr[VI]. Federal Maximum Contaminant Levels are presented below in Table 3.1-3.
3.1-13	27	Change "pm" to "ppm."
After 3.1-22	Figure 3.1-2	The Harper Lake label is in the incorrect location on this figure. Please move the label to the correct location.
3.1-23	21	The settlement agreement should be referenced in the EIR in the same way that it is referenced in the Board's February 1, 2012 announcement of the agreement, and consistent with the terms of the Agreement itself, which notes in the recitals that the question of violations is disputed. Therefore, prior to the word "violations" in line 21, the word "alleged" should be inserted. This is the same terminology as used in the Water Board's announcement of the proposed settlement.
3.1-24	38-40	The delineation of the northern boundary of the plume has been a key concern from the public in the public meetings on the EIR. Therefore, to provide more information about what is being done to delineate the boundary, revise the text as follows: At present, the plume is thought to be at least 5.5 miles north of the Compressor Station, but the northern boundary is not fully delineated ~~yet~~ <u>; ongoing assessment is being conducted and a revised background study has been proposed and is currently under review by the Water Board</u>. The plume length, however, was greatly influenced by pumping and movement by others instead of under natural conditions.
3.1-29	19-23	The TDS concentrations near the Hinkley Compressor station are subject to many mechanisms that impact concentration and movement, including nearby farming/dairy activities, fluctuating groundwater levels, and natural groundwater movement. PG&E is not aware of any studies that concluded that the pumping of PG&E's station water supply wells pulled TDS south to the station property. A review of gradient data obtained since the mid-1990s (while the station supply wells were in operation) does not show evidence of any significant southward gradients. Given the farming and dairy activities adjacent to PG&E's Hinkley station, it would require significant study to sort out whether TDS present in groundwater near PG&E's Hinkley station came from farming and dairy activities south, east, west, or north of the station. A similar point can be made about chromium levels near the Hinkley station supply wells. It would require additional study in order to conclude that any chromium in a certain area of the Hinkley station was pulled to that location by Hinkley station supply well pumping as opposed to a number of additional mechanisms, including naturally occurring chromium levels in the groundwater and natural groundwater

		movement. Since this text is speculative and not critical to the EIR, it should be deleted.
3.1-31	1-2	The EIR states that half of the lysimeters are currently yielding nitrate concentrations of more than 10 ppm [as nitrogen]. However, only 3 of 14 wet lysimeters (approximately 20 percent) yielded concentrations of nitrate above 10 mg/L N in the fourth quarter 2011. Therefore revise the text as follows: Current data from the agricultural treatment unit reveals that 3 ~~about half~~ of the 14 ~~samples from~~ lysimeters in the alfalfa fields have yielded samples with nitrate concentrations ~~of less than 1 ppm, and half of the samples have nitrate concentrations~~ of more than 10 ppm. About half of the lysimeters have yielded samples with nitrate concentrations of less than 1 ppm.
3.1-39	21	Revise the text to reflect the fact that the revised manganese mitigation plan was submitted in May 2012, rather than March 2012.
3.1-40	23-26	The EIR's reference to occupational studies of Cr[VI] exposure should be clarified by noting that the occupational studies were based on exposure in industrial settings, so that the reader understands that these results are limited to such settings and not based on domestic or household exposures. We recommend the following changes: While Cr[VI] has long been recognized as a cancer-causing substance (also referred to as a "carcinogen") via inhalation in occupational and industrial settings, there is sufficient evidence that Cr[VI] is also carcinogenic by the oral route of exposure (meaning drinking or consuming) at high concentrations, based on studies in rats and mice conducted by the National Toxicology Program (OEHHA 2010).
3.1-40	36-41	The EIR's reference to occupational studies of Cr[VI] exposure should be clarified by noting that the occupational studies were based on exposure in industrial settings, so that the reader understands that these results are limited to such settings and not based on domestic or household exposures. We recommend the following addition: Mice that ingested drinking water containing high doses (14,000 ppb or greater) of Cr[VI] had statistically significant increases in stomach, oral cavity, and intestine tumors compared to control subjects (OEHHA 2010). Review of occupational studies in which humans were exposed to Cr[VI] in industrial settings primarily by the inhalation route identified reports of significantly increased risk of lung cancer. It is estimated that exposure to airborne Cr[VI] is 1000 times more potent than exposure from drinking water (OEHHA 2009).
3.1-42	4	Revise the text to reflect that the formula for sodium chloride is "NaCl", rather than "$NACl_2$".

3.1-46	16-24	The EIR states that there is no current MCL for Cr[VI]. Although that is true, the EIR should clarify that the MCL for total chromium governs the standard for Cr[VI] until the Department of Public Health sets an MCL for Cr[VI]. The MCL for total chromium is largely based on health risks associated with Cr[VI]. In addition, the EIR should state that if the Department of Public Health sets an MCL for Cr[VI], that MCL would constitute the applicable threshold of significance.
3.1-46 3.1-47	25-36 1-8	A significance criteria was added for any wells that have detectable Cr[VI] concentrations below maximum background levels within one mile of the plume, but whose Cr[VI] increases. This significance criteria is not appropriate, because concentrations of Cr(VI) may increase below the maximum background concentration and be unrelated to remedial actions. Accordingly, the Water Supply Well Impacts (Hexavalent Chromium) significance criteria should be revised as follows: • Impacts to water supply wells are considered significant when remedial actions cause concentrations of hexavalent chromium in a water supply well that was previously below background levels to exceed background levels. • If water supply wells already contain hexavalent chromium that exceed background levels, and remedial actions cause an increase in concentration by 10% or more and is statistically significant, this is also considered significant. • If and when California adopts a MCL for hexavalent chromium, if the MCL exceeds the Hinkley Valley background level, then the MCL would constitute the applicable threshold of significance ~~the background level shall continue to be used as the significance criteria due to the evidence of potential health effects from concentrations above the PHG.~~ If the MCL is less than the Hinkley Valley background level, then the background level shall also continue to be used as the significance criteria because PG&E is only responsible for levels that exceed background levels. • ~~Because the plume is defined by the maximum background hexavalent chromium level, it is possible that wells may be affected by hexavalent chromium contamination due to remedial action at detectable levels below the maximum background level. Thus, impacts are also considered significant when remedial actions cause an increase in concentrations of hexavalent chromium within a water supply well within 1 mile of the defined chromium plume. This criterion is also designed to address the potential for wells to become affected in a short period of time after detection of increased hexavalent chromium levels in groundwater nearby due to remedial actions.~~

3.1-47	9-26	The EIR states that the MCL for total chromium is "outdated" because it does not consider the health threat from Cr[VI]. The MCL for total chromium is largely based on health risks associated with Cr[VI] and is not outdated for this reason. In addition, the EIR should state that if the Department of Public Health sets an MCL for Cr[VI], that MCL would constitute the applicable threshold of significance. Accordingly, the EIR should be revised as follows: The existing California MCL for total chromium of 50 ppb is not used as a significance criterion for this EIR ~~because (1) the ratio of hexavalent to total chromium in the Hinkley Valley is high (PG&E's groundwater monitoring report data show that 85 to 100% of the chromium detected in monitoring wells is in the hexavalent form) and (2) the MCL is outdated as it does not consider the more recent health data and information for hexavalent chromium; therefore, the MCL for total chromium is not adequately sensitive to determine significant impacts.~~ Instead, the maximum background level for total chromium (currently 3.2 ppb Cr[T]) will be used as a significance criterion. <u>If the Department of Public Health sets an MCL for Cr[VI], that MCL would constitute the applicable threshold of significance.</u> • Impacts to water supply wells are considered significant when remedial actions cause concentrations of total chromium in a water supply well that was previously below background levels to exceed background levels. • ~~Because the plume is defined by the maximum background total chromium level, it is possible that wells may be affected by chromium contamination due to remedial action at detectable levels below the maximum background level. Thus, impacts are also considered significant when remedial actions cause an increase in concentrations of total chromium within a water supply well within 1 mile of the defined chromium plume.~~
3.1-47 3.1-48	27-44 1-7	A 10 percent threshold for wells that start out above an MCL may not be significant. For instance, if an initial concentration of arsenic is 10 ppb, a change of 10 percent to 11 ppb may be natural variation and not significant. To address this issue, it is recommended to include statistical significance in the evaluation. In addition, the analysis of whether remediation byproducts would violate water quality standards or Waste Discharge Requirements or otherwise substantially degrade water quality, the EIR should clarify that the project must cause the increase in concentrations of remediation byproducts before mitigation will be imposed. The EIR should use the phrase "due to remedial actions" as stated in MM-2a. Accordingly, please rewrite the text starting on line 33 as follows: • If a water supply well has concentrations of these remediation byproducts that currently exceed a California primary Maximum Contaminant Level (see Table 3.1-3), then a 10% increase above

		current levels in a water supply well due to remedial actions, which is also statistically significant, is considered significant ~~(unless it can be demonstrated that an increase is statistically significant at a different level). This criterion is set to address the significance threshold of substantial degradation to water quality, and the 10% increase level is set conservatively to recognize the known and recognized health risks associated with these constituents in drinking water.~~ • If a water supply well has concentrations of these remediation byproducts that currently exceed a California primary Maximum Contaminant Level (see Table 3.1-3), then a 10% increase above current levels in a water supply well due to remedial actions, which is also statistically significant, is considered significant ~~(unless it can be demonstrated that an increase is statistically significant at a different level). This criterion is set to address the significance threshold of substantial degradation to water quality, and the 10% increase level is set conservatively to recognize the known and recognized health risks associated with these constituents in drinking water.~~ • ~~If a water supply well has concentrations of these remediation byproducts that are currently less than a California primary Maximum Contaminant Level (see Table 3.1-3) then a 20% increase above current contaminant levels in a water supply well is considered significant (unless it can be demonstrated that an increase is statistically significant at a different level). This criterion is set to address the significance threshold of substantial degradation to water quality, and the 20% increase level is set to comply with the State Board Resolution 68-16 and the Nondegradation Objective (Lahontan Basin Plan at p. 3-14). The Nondegradation Objective is an integral part of the water quality objectives contained in the Lahontan Basin Plan, and provides that where the existing quality of water is better than that needed to protect all beneficial uses, that existing high quality is an appropriate goal to be maintained.~~
3.1-48	21-41	Similarly to the comment above, we suggest to rewrite text on page 3.1-48, lines 21-41 as follows: • If remediation byproduct levels in a water supply currently exceed a Federal or California secondary Maximum Contaminant Level (see Table 3.1-3) or water quality objective (see Table 3.1-4), then a 20% increase above current levels in a water supply well due to remedial actions, which increase is also statistically significant is considered significant ~~(unless it can be demonstrated that an increase is statistically significant at a different level). This criterion is set to address the significance threshold of substantial degradation to water quality. The criterion is set at 20% increase because there are no primary MCLs for these contaminants, only Secondary MCLs. Secondary MCLs are based on taste, odor, and visual thresholds rather than on adverse health effects, and so a higher significance threshold is appropriate.~~

		• ~~If remediation byproduct levels are currently less than a Federal or California secondary Maximum Contaminant Level (see Table 3.1-3) or water quality objective (see Table 3.1-4), then a 20% increase above current levels in a water supply well is considered significant (unless it can be demonstrated that an increase is statistically significant at a different level). This criterion is set to address the significance threshold of substantial degradation to water quality, and the 20% increase level is set to comply with the State Board Resolution 68-16 and the Nondegradation Objective (Lahontan Basin Plat at p. 3-14).~~
3.1-55	Table 3.1-8	It appears that the maximum drawdown at scaled flows was estimated overly conservatively, perhaps assuming a linear relationship between flow rate and maximum drawdown. As the project is scaled, pumping would occur in areas outside of the FS pumping center, for example in areas to the north and as such maximum drawdown at the FS pumping center is not expected to increase linearly with the scaling. As such, it should be noted that the scaled maximum drawdown estimates are likely conservative. Comment b should be extended to all alternatives for the Maximum Drawdown at Scaled Flows column. As described in the text on page 3.1-55 lines 5-17, drawdown greater than 30 to 40 feet is not anticipated to be sustainable and pumping would have to be reduced as these levels are approached. This would be particularly the case for the FS extraction rates for Alternatives 4C-3 and 4C-4. For the scaled flows, this would be the case for Alternatives 4B, 4C-2, and 4C-5 as well where the predicted drawdown is listed as greater than 50 feet. Note "b" should reference Table 3.1-7 not 3.1-6. Please revise.
3.1-56	Table 3.1-9	To ensure that the level of certainty of the information is properly disclosed, add a footnote that states “Groundwater elevations in private wells were estimated based on available data from monitoring wells. The actual number of partially or fully affected private wells may differ.”
3.1-56	24	Based on the sum of the number of wells listed in Table 3.1-9, change “133 wells” to “147 wells.”
3.1-62	Table 3.1-10	For comments on this issue refer to the comment on Table 3.1-8 (page 3.1-55).
3.1-68	21	The EIR indicates that freshwater injection wells have the potential to cause plume spreading. The freshwater injections are designed to be placed sufficiently outside the Cr[VI] plume and would cause a decrease in plume area, rather than an increase. Accordingly, revise the text to explain that the freshwater injection wells are designed to decrease the plume area.
3.1-68	25-28	A 10 % increase may not be significant, therefore, we suggest revising the text as follows: This impact is considered significant if: • remedial actions cause concentrations of hexavalent or total chromium in a water supply well to increase from below background levels to above background levels or increase by 10% or more <u>and the increase is statistically significant</u> if current levels are exceed the background level; or

3.1-68	29-30	It appears that lines 29-30 are redundant to the information provided in lines 26-28. Therefore, we suggest deleting lines 29-30.
3.1-70	14-15	The analysis indicates that the amount of plume bulging increases with increased in situ flow rates for Alternatives 4C-2 over existing conditions, without considering the additional extraction for agricultural treatment in OU-1 in that alternative. The additional extraction should decrease the potential for bulging in those alternatives in comparison with existing conditions. Accordingly, the text should be revised as shown: ~~Thus, w~~ With increased injection and irrigation, there ~~is~~ could be a greater potential for localized plume bulging to occur during implementation, but the addition of the three AUs in OU1 results in net extraction in this area and reduces the potential for plume bulging as compared to Alternative 4B and the No Project Alternative.
3.1-70	29-30	The analysis indicates that the amount of plume bulging increases with increased in situ flow rates for Alternatives 4C-3 over existing conditions, without considering the additional extraction for agricultural treatment in OU-1 in that alternative. The additional extraction should decrease the potential for bulging in those alternatives in comparison with existing conditions. Accordingly, the text should be revised as shown: ~~Thus, w~~ With increased injection and irrigation, there ~~is~~ could be a greater potential for localized plume bulging to occur during implementation, but the addition of the three AUs in OU1 results in net extraction in this area and reduces the potential for plume bulging as compared to Alternative 4B and the No Project Alternative.
3.1-70	7, 22, 37	The EIR states, "Freshwater injection for plume control would similar to increased conditions." This sentence appears to be missing a word. Suggest revising the sentence to state "Freshwater injection for plume control would be similar to existing conditions."
3.1-70 3.1-71	7-40 1-7	Alternatives 4C-2, 4C-3, and 4C-4 include increased extraction in OU1 for additional southern agricultural units. The increased extraction would decrease the potential for spreading of the plume for these alternatives in comparison to Alternative 4B. The influence of southern extraction in these alternatives on the potential for plume spreading should be discussed in this section.
3.1-71	7, 25	The EIR states, "Freshwater injection for plume control would similar to increased conditions." This sentence appears to be missing a word. Suggest revising the sentence to state "Freshwater injection for plume control would be similar to existing conditions."
3.1-71 3.1-72	38-41 1-6	A 10 or 20% increase may not be significant, therefore, we suggest revising the text as follows: "Where existing levels of TDS in groundwater in the study area already exceed the secondary Maximum Contaminant Levels (both federal and state), an increase of more than 20% above existing levels and statistically significant is considered significant. Where existing levels of uranium and gross alpha already exceed the primary Maximum Contaminant Level (presently known to occur in wells near the Gorman agricultural treatment unit) a 10% increase in uranium and gross alpha concentrations above current levels and statistically significant is considered significant. In areas where TDS, uranium or other radionuclide levels do not exceed the Maximum Contaminant Levels, this impact is considered

		significant if levels increase by 20% and statistically significant.
3.1-72 3.1-73	12-43 1-32	The EIR acknowledges on page 3.1-72 that "mitigation of increased TDS concentrations in the aquifer as a whole is generally feasible but challenging. TDS can be removed from water by reverse osmosis or boiling but is expensive and energy-intensive." In addition, moving agricultural units to areas with relatively low TDS is found to be infeasible because it would reduce remedial options available to clean up the chromium plume. However, the EIR does not acknowledge the duration of addressing TDS using reverse osmosis (RO), which could take just as long as remediating the chromium in groundwater and would likely have additional impacts to the environment, such as biological and cultural impacts resulting from the construction and operation of an RO system and impacts from the off-site transportation and disposal of brine. To potentially meet this requirement, the reverse osmosis plant would have to be large (up to 25,000 square feet) and would require excessive energy use (approximately 5,260,000 kwh). This option also would also generate excessive greenhouse gasses and would be very unsustainable. These significant additional impacts and resulting mitigation measures that would likely have to be evaluated and are not considered in this EIR.
3.1-73	37-38	Change the reduced form of uranium to U[IV], rather than U[III].
3.1-74	2	Change the reduced form of uranium to U[IV], rather than U[III].
3.1-75 3.1-76	13, 35 18, 43	The area shown in figures 3.1-19 to 3.1-22 depict the area of “potential” impacts, rather than the area of “likely” impacts. The hashed areas include downgradient and cross-gradient buffer zones beyond areas that are anticipated to be impacted to be protective and conservative. The areas within these buffers should not be considered to be “likely” impacted because they are included as protective buffers. Therefore, change “likely” to “potential” in the text.
After 3.1-76	Figures 3.1-19 to 3.1-22	The area shown in figures 3.1-19 to 3.1-22 depict the area of “potential” impacts, rather than the area of “likely” impacts. The hashed areas include downgradient and cross-gradient buffer zones beyond areas that are anticipated to be impacted to be protective and conservative. The areas within these buffers should not be considered to be “likely” impacted because they are included as protective buffers. Therefore, change “likely” to “potential” in the figure titles.
3.1-77 3.1-84 3.1-85	25 16, 29 1, 14, 29	The area shown in figures 3.1-19 to 3.1-22 depict the area of “potential” impacts, rather than the area of “likely” impacts. The hashed areas include downgradient and cross-gradient buffer zones beyond areas that are anticipated to be impacted to be protective and conservative. The areas within these buffers should not be considered to be “likely” impacted because they are included as protective buffers. Therefore, change “likely” to “potential” in the text.
3.1-78	14-18	A 10 or 20% increase may not be significant, therefore, we suggest revising the text as follows: “This impact is considered significant if remedial activities would increase nitrate concentrations in groundwater or water supply wells to levels above Maximum Contaminant Levels (if current concentrations are less than the standard) or would increase nitrate concentration by more than 10% and is statistically significant (if current concentrations exceed the standard) or would increase nitrate concentration by more than 20% and is statistically significant (if current concentrations do not exceed the standard).”

3.1-82	1-6	A 10 or 20% increase may not be significant, therefore, we suggest revising the text as follows: This impact is considered significant if in-situ remediation results in an increase of concentrations above primary or secondary Maximum Contaminant Levels, an increase of 10% or more of arsenic and is statistically significant if current levels are more than the primary Maximum Contaminant levels, an increase of 20% of more of iron or manganese and is statistically significant if current levels are more than secondary Maximum Contaminant Level, or an increase of 20% or more and is statistically significant if current levels are less than the primary or secondary Maximum Contaminant Levels.
3.1-90	5-7	The EIR currently requires that, if PG&E fails to acquire adequate water rights, PG&E must implement above-ground treatment. In the unlikely event that PG&E is not able to obtain sufficient water rights, PG&E may be able to modify the remedy in a manner that is sufficient to compensate for any loss in in planned agricultural treatment. Suggest revising the final bullet point as follows: If PG&E fails to acquire adequate water rights and FPA to support agricultural treatment, PG&E will be required to modify the operation of the remedy in a manner sufficient to compensate for any loss in planned agricultural treatment, or implement above-ground treatment adequate to compensate for any loss in planned agricultural treatment.
3.1-92	33-34	Similar to the comment provided in the significance criteria for remedial by-products, the definition of actually affected wells in WTR-MM-2a should be revised to include a statistical basis, rather than a straight percentage that may not have statistical significance. Accordingly, rewrite the text on page 3.1-92, lines 33-34 as follows: • "Concentrations increase by 10% or more and is statistically significant (if the well previously had concentrations that exceed background levels)."
3.1-93	21-35	Similar to the comment provided in the significance criteria for remedial by-products, the definition of actually affected wells in WTR-MM-2b should be revised to include a statistical basis, rather than a straight percentage that may not have statistical significance. Accordingly, rewrite the text on page 3.1-93, lines 21-35 as follows: "Actually affected domestic wells" will be defined as any domestic water supply well with remediation byproduct concentrations that exceed any of the following criteria due to remedial actions: • concentrations above a California primary or secondary Maximum Contaminant Levels if the well currently contains concentrations that are less than California primary or secondary Maximum Contaminant Level or water quality objective; or • a 10% and statistically significant increase above current levels if the well has concentrations that currently exceed a California primary Maximum Contaminant Level ~~(unless it can be demonstrated that an increase is statistically significant at a different level);~~ or

		• a 20% and statistically significant increase above current levels if the well has concentrations that currently exceed a California secondary Maximum Contaminant Level or water quality objective (~~unless it can be demonstrated that an increase is statistically significant at a different level); or~~ • ~~a 20% increase above current levels if the well has concentrations that currently are less a California primary or secondary Maximum Contaminant Level or water quality objective (unless it can be demonstrated that an increase is statistically significant at a different level).~~
3.1-94	1-3	The EIR currently states, "All wells located within one-half mile downgradient or one-quarter mile cross gradient of an "actually affected domestic well" or an affected monitoring well (when no domestic well exists within these intervals)." The text does not state what the definition of an affected monitoring well is. Additional text should be added to define an affected monitoring well similarly to the requirements of the current WDRs and Notice of Applicability of the IRZs: **Defining Actually Affected Monitoring Wells** "Actually affected monitoring wells" will be defined as any monitoring well within the remedial action monitoring program which, due to remedial actions, contains remediation byproduct concentrations that increase more than 25 percent above the maximum baseline monitoring well concentration and which are statistically significant.
3.1-94	6	The phrase "water quality modeling" is unclear. Suggest changing to 'groundwater flow and transport modeling'
3.1-94	40	The text should be revised to describe a Water Board approval of PG&E-provided alternate water supply. Suggest revising text as follows: "If any domestic or agricultural wells are found to be impacted by remedial byproducts (as described below), PG&E will increase monitoring of the impacted well to once-a-month until alternate water supply is provided to the satisfaction of the Water Board ~~well owner~~, after which monitoring can be reduced to twice-yearly (semi-annual) basis."
3.1-95	10-15	Mitigation measure WTR-MM-2b, *Water-Supply Program for Water Supply Wells Affected by Remedial Activity Byproducts*, is overly broad and should not include the requirement to monitor any chemicals applied to fields as fertilizers, pesticides, etc., in the byproducts of agricultural treatment units. The farming community is not currently required to monitor groundwater for applied herbicides, fertilizers, and pesticides. The use of pesticides and fertilizers in accordance with those product's labels and other applicable local, state, and federal environmental laws adequately protects the health of workers, nearby residents, and the environment. For example, pesticide and fertilizer use is regulated by the California Department of Pesticide Regulation and PG&E must follow that department's regulations, as well as the applicable rules in the California Pesticide Contamination Prevention Act. Pesticide sale and use also is regulated by the United States EPA under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Such state and federal regulations make additional monitoring unnecessary, especially because it exceeds the requirements placed on similarly situated agricultural operators.

		Rewrite the following paragraph of mitigation measure WTR-MM-2b as follows: Agricultural treatment unit byproduct monitoring will consist of TDS~~,~~ and nitrate~~, and any chemicals applied to fields as fertilizers, pesticides, etc~~. If the investigation required by Mitigation Measure WTR-MM-5 identifies that agricultural treatment would significantly affect uranium or gross-alpha levels in groundwater, then agricultural treatment unit byproduct monitoring will also include uranium, gross-alpha, and any other applicable radionuclide, such as radium.
3.1-95	38-40	Similar to the comment provided in the significance criteria, the definition of actually affected wells in WTR-MM-2c should be revised to include a statistical basis, rather than a straight percentage that may not have statistical significance. Accordingly, please rewrite the text on page 3.1-95, lines 38-40 as follows: • All wells where groundwater drawdown of at least 10 feet occurs and water quality sampling shows at least a 10% increase over baseline conditions and is statistically significant of arsenic, uranium, or gross alpha.
3.1-97	5-27	As written, mitigation measure WTR-MM-3 contains very detailed specifications for requirements that will be included in the new CAO and associated WDRs for site-wide remediation. The provision of such detailed requirements in the EIR may limit the flexibility for drafting and amending the CAO and WDRs as conditions evolve over time. For instance, the current capture metric specified in R6V-2008-0002A3 may be initially expanded, making some of the current metric components irrelevant, and then be retracted over time as the plume is remediated and shrinks. A provision for a flexible metric that can evolve overtime with the plume would avoid conflicts between the EIR requirements and future changes to the capture metric and boundary monitoring program is suggested, as follows: **Mitigation Measure WTR-MM-3: Boundary ~~Control~~ Monitoring, Enhancement and Maintenance of Hydraulic Control and Plume Water Balance to Prevent or Reduce Potential Temporary Localized Chromium Plume Bulging** The Water Board will include requirements in the new CAO and associated WDRs issued for the remediation for boundary monitoring and requirements for plume containment to be evaluated through establishment of a hydraulic capture metric. The monitoring plan and hydraulic capture metric will be flexible to allow for expansion and contraction of the plume overtime as the entirety of the plume is addressed and remediated. The monitoring plan and hydraulic capture measure is expected to contain the following options~~ as follows~~: • ~~PG&E will develop a Boundary Monitoring Plan to identify the entirety of the chromium plume over time.~~

		• During remedial pumping and injection activities, PG&E ~~will~~ can limit plume bulges by maintaining hydraulic control with adjustments to pumping rates where necessary, and inward gradients will be maintained as long as necessary to prevent Cr[VI] migration. Hydraulic control can be obtained by capturing the plume at extraction wells. Although the plume can be allowed to move toward these extraction wells, the extraction wells will be designed to stop the spread of the plume beyond the wells. PG&E also may limit plume bulges by adding or modifying the operational design of injection wells. • ~~PG&E will operate and maintain the existing groundwater extraction system to achieve and maintain hydraulic capture within targeted areas on a year-round basis consistent with CAO R6V-2008-0002A3, (Lahontan Regional Water Quality Control Board 2012). PG&E will expand plume containment and monitoring to include the entirety of the chromium plume over time and develop a contingency plan in case containment is not met.~~ • Agricultural treatment units and/or above-ground treatment can be used for water treatment as appropriate to assist with inward hydraulic gradients, plume water balance, and water quality restoration of the aquifer. • PG&E will implement the Contingency Plan for AU Operations as described in the Feasibility Study Addendum No. 3 (Pacific Gas and Electric Company 2011c).
3.1-97 3.1-98	28-40 1-11	WTR-MM-4: PG&E suggests that Water Quality Mitigation Measure 4 be restructured to allow for larger-scale, more effective aquifer management strategies that would achieve the goal of aquifer protection and restoration while maintaining or even improving the productive use of the resource. The logic behind this restructuring is in Attachment 2.
3.1-97	35-37	Any new impacts that are found to exist in excess of the assimilative capacity of the aquifer due to remedial activities, but not exceeding a water quality objective, will be assessed for their ability to be naturally attenuated. We suggest edits to lines 35-37 as follows: "If the assessment finds that the aquifer contains constituents, exceeding drinking water standards or water quality objectives and are in excess of baseline conditions and of the assimilative capacity of the aquifer, and that these constituents are likely to be present upon the conclusion of remedial actions, PG&E will"…
3.1-97 3.1-98	28-40 1-11	The comments below are offered for Water Board consideration on WTR-MM-4 as written. PG&E suggests a more substantial revision to this which is discussed in Attachment 2 (described two rows above). The comments below are also included in the proposed new text in Attachment 2. First, the measure should recognize that PG&E may be able to operate the

remedy in a manner that avoids changes in the aquifer baseline conditions.

Second, the requirement to return the aquifer to baseline is overbroad – the aquifer is not static, and there are other farming operations in the Hinkley Valley, as there historically have been for some time. The mitigation measure should be limited to adverse changes that are attributable to the remedy. This is stated to some extent in the measure as currently worded, but needs to be made explicit.

Third, the ten-year time frame for restoration of the aquifer to baseline conditions may be unrealistic. Since there are increases in TDS in groundwater due to agricultural operations at the site and in the Hinkley Valley, we believe that restoring the TDS in the aquifer to background as described in water quality mitigation measure WTR-MM-4 may not be practicable or feasible in the 10 year timeframe indicated in the EIR. As currently drafted, the measure imposes an arbitrary timeline that does not appear to account for its practicability or for the potential secondary impacts of such an aggressive schedule, and the time required for the restoration work should be determined at the time that the comparison to baseline is assessed. Mitigation Measure WTR-MM-4 should accordingly be revised to read as follows:

> **Mitigation Measure WTR-MM-4: Mitigation Program for Restoring the Hinkley Aquifer Affected by Remedial Activities for Beneficial Uses**
>
> This requirement holds PG&E responsible for restoring the Hinkley aquifer back to baseline conditions to the extent changes from baseline conditions are attributable to the implementation of the remedy. PG&E may operate the remedy in a manner that avoids changes to baseline conditions, or PG&E will comply with the following procedures to determine and implement the necessary level of restoration activity.
>
> No later than 5 years prior to the conclusion of the proposed project, PG&E will conduct an assessment to evaluate adverse impacts or potential adverse impacts to the Hinkley aquifer attributable to its remedial actions.
>
> - If the assessment finds (a) that the aquifer contains constituents, exceeding drinking water standards or water quality objectives and are in excess baseline conditions, (b) that these constituents are likely to be present upon the conclusion of remedial actions. and (c) that these changes from baseline conditions are attributable to the implementation of the remedy, PG&E will propose cleanup actions to restore the aquifer for beneficial uses as soon as possible, as approved by the Water Board. The assessment shall specify the time required for restoration activities, and a~~A~~quifer water quality restoration to baseline conditions will occur within that time frame, subject to adjustment as needed, with approval of the Water Board, based on the implementation of the restoration activities~~ no longer than 10 years after completion of chromium remediation~~.

		• If the assessment finds that the aquifer includes groundwater drawdown such that domestic or agricultural wells were still experiencing water supply shortages and require alternative water supplies, and these excess levels are likely to exist upon the conclusion of remedial actions, and these changes are attributable to the implementation of the remedy, PG&E will propose actions to restore the aquifer for beneficial uses as soon as possible, as approved by the Water Board or Mojave Water Agency. The assessment shall specify the time required for restoration activities, and g~~G~~roundwater levels will be restored to baseline conditions within that time frame, subject to adjustment as needed, with approval of the Water Board or the Mojave Water Agency, based on the implementation of the restoration activities ~~no longer than 20 years after the completion of chromium remediation~~. • Every year ~~afterwards~~ following preparation of the assessment, PG&E must submit a status report of actions to restore the aquifer for beneficial uses. The status report will describe all actions taken over the course of the year and list proposed actions for implementation during the following year. An updated schedule will be provided predicting fulfillment of aquifer restoration.
3.1-98	26-35	Mitigation measure WTR-MM-5 is overly broad. The EIR should clarify that the mitigation measure will be imposed if the impacts it mitigates are "due to remedial actions." The mitigation measure should be revised as follows: The Water Board will include requirements in the new CAO and/or associated WDRs issued for the remediation as follows: . . . • If TDS, uranium, and other radionuclides levels are determined to increase measurably by a statistically significant amount due to agricultural treatment associated with remedial actions, then PG&E will monitor these levels in and adjacent to all agricultural treatment units for the duration of operation and propose remedial methods to restore the aquifer to baseline conditions. • If the study of agricultural units indicates that TDS, uranium, and other radionuclide concentrations increase due to ~~in association with~~ agricultural operations associated with remedial actions and boundary monitoring confirms an increase in these levels, then corrective actions and or alternative water supplies will be provided per **Mitigation Measure WTR-MM-2** and **Mitigation Measure WTR-MM-4** will be implemented toward the end of chromium plume remediation to restore aquifer beneficial uses.
3.1-99	3-13	Similar to the comment provided in the significance criteria, the definition of

		actually affected wells in WTR-MM-6 should be revised to include a statistical basis, rather than a straight percentage that may not have statistical significance. Accordingly, please rewrite the text on page 3.1-99, lines 3-13 as follows: • Given that prior agricultural treatment at the Desert View Dairy has been shown to reduce nitrate levels substantially, it is possible that use of irrigation water with higher nitrate levels may not result in increased nitrate levels in groundwater beneath new agricultural treatment locations. In order to confirm if this is occurring, PG&E will monitor nitrate levels for one year before creating new agricultural treatment units (as feasible without delaying remediation), monitor at the start of new agricultural treatment, and continue monitoring nitrate levels during implementation of all new agricultural treatment units. If nitrate levels do not increase above 10 ppm (as N) or by more than 10% <u>and is statistically significant</u> compared to existing levels (if current levels are already above 10 ppm as N), or by more than 20% <u>and is statistically significant</u> compared to existing levels (if current levels are less than 10 ppm as N) then no further action, other than monitoring, will be required.
3.1-99	25-34	WTR-MM-6: Similar to mitigation measure WTR-MM-4, PG&E requests that nitrate levels in the aquifer also be treated on a basin-wide approach. As noted above on page 3.1-99, line 3 of the EIR, prior agricultural treatment associated with the remedy has substantially reduced nitrates, and any increases associated with the remedy should be netted out or balanced against reductions in nitrates associated with the remedy. Suggest revising lines 33-34 as follows: • "PG&E will be held accountable for implementing remedial methods to restore the aquifer to baseline conditions <u>such that, determined over the basin as a whole, and taking into account any reductions in nitrates associated with the remedy, there is overall no net increase in nitrates associated with the remedy</u>." We believe that well planned agricultural management in the Hinkley Valley could result in more predictable plume hydraulic control, overall lower TDS levels, lower nitrate levels, and greater forage crop production per gallon of water used.
3.1-99	37	In the text of mitigation measure WTR-MM-6, it appears that the EIR is mixing the use of or interchanging the terms "background" and "baseline" concentrations. These phrases are not interchangeable and the EIR should be revised so that the terms are used consistently throughout the document. For example, the text on line 37 should be revised to use the word "baseline": PG&E will estimate the duration of nitrate impairment of water quality due to remedial activities and will identify how affected groundwater nitrate levels will return to ~~background~~ <u>baseline</u> conditions prior to the timeframe for remediation of the chromium plume to the established cleanup levels. The duration of nitrate impairment due to remedial activities may possibly extend beyond the time necessary to remediate

		the chromium plume; the goal of remedial operation in the later stages of the cleanup should be to minimize the duration of all impacts.
3.1-100	14-19	The EIR text currently requires implementation of additional mitigation for in-situ remediation by-products, if concentrations above Maximum Contaminant Levels or Secondary Maximum Contaminant Levels are detected. Based on baseline sampling of existing in-situ remediation system monitoring wells, some concentrations of these constituents naturally occur above the water quality standards at baseline. The criteria in these lines should be replaced to allow for increases to 25 percent above maximum baseline and is statistically significant which is consistent with the thresholds in the current WDRs and Notice of Applicability for the IRZs as follows: PG&E will construct and operate additional extraction wells or implement an equally effective mitigation measure along or upgradient of the designated IRZ treatment boundary to prevent effects to domestic water supply wells, if concentrations of dissolved arsenic, iron, or manganese increase to more than 25 percent above the maximum baseline monitoring well concentration and is statistically significant.
Section 3.2: Land Use, Agriculture, Population and Housing		
3.2-7	14-17	Local land use requirements generally apply when some local discretionary permit required for the activity, and in many cases the remediation activities will not require any local permits. To clarify this, revise lines 14-17 as follows: "As a state agency, the Water Board itself is not subject to local land use authority; however provided exercise of local land use regulations does not impede or hinder state exercise of authority over the remediation, remedial actions can be subject to ~~local~~ applicable local land use requirements."
3.2-23	12-34	Discussion of the potential secondary impacts of home acquisition is beyond the scope of CEQA since they result from contracts between private parties and do not involve a discretionary government approval. Accordingly, this discussion should be deleted.
3.2-24	4-7	PG&E will obtain approvals from BLM for proposed remedial activities on federal land. The consistency of the remedial activities on federal land with BLM policies will be considered by BLM in determining whether to approve the activities, and the BLM approval of any such activities will be evidence of such consistency. To avoid the potential of inconsistent determinations of policy consistency by two agencies, the Water Board should rely on the BLM approval as evidence of such consistency, rather than requiring PG&E to separately demonstrate such consistency to the Water Board. In order to keep the Water Board informed of BLM policies and approvals, PG&E will provide copies of these approvals to the Water Board. The following revisions are suggested to the text: PG&E will obtain approvals any required approvals from BLM for proposed remedial activities on federal land ~~prior to implementing such actions~~. PG&E will ~~demonstrate consistency with all relevant~~ provide copies of BLM ~~policies for use of the subject land and provide evidence of such consistency~~ submittals and approvals to the Water Board to keep them informed of any proposed remedial activities on federal land ~~prior any construction on federal land~~.
3.2-24	8-17	PG&E's operation of the remedy will increase agricultural uses, and may

		increase the use of existing important farmland as defined in the EIR. The mitigation to require PG&E to obtain easements should be modified to require such easements if there has been a net loss of such existing important farmland. On line 12, suggest adding "<u>if there has been a net loss of such important farmland considering any additions to such farmland that have occurred as a result of implementation of the remedy</u>."
Section 3.3: Hazards and Hazardous Materials		
3.3-2	Table 3.3-1	Impact Haz-1b is listed both as potentially and less than significant in the significance before mitigation column. The text of the EIR on page 3.3-17 indicates this impact is potentially significant for all alternatives, so the entry in this table referring to the impact as less than significant should be deleted.
3.3-20	27-37	Soil excavation and grading activities will be conducted under the oversight of an experienced, qualified and licensed professional engineer or professional geologist. Professional engineers and geologists are licensed by the state and are required under licensure terms to practice only in areas where they are competent and qualified. A separate review and approval of those individual(s) by the Water Board is therefore unnecessary. Therefore, please revise lines 29-32 of this section as follows: PG&E will ~~provide the resume of~~ <u>work with</u> an experienced and qualified Professional Engineer or Professional Geologist, who will be available for consultation during soil excavation and grading activities~~, to the Water Board for review and approval. The resume will demonstrate experience in remedial investigation and feasibility studies~~.
3.3-21	4-5	The items listed to be covered by the spill plan seem to pertain to operations and maintenance activities rather than construction. Therefore, revise this heading as follows: "Mitigation Measure HAZ-MM-2: Implement Spill Containment, Control, and Countermeasures Plan During ~~Construction~~ <u>Operations and Maintenance</u>."
3.3-21	4-25	PG&E will work with the San Bernardino County Fire Department to prepare the necessary Spill Prevention, Control, and Countermeasure Plans (SPCC) or equivalent, if required by the County. An SPCC Plan is typically required for aboveground petroleum storage of greater than 1,320 gallons. To avoid any conflict between the requirements of the County and the EIR, the following edits are suggested for lines 6-14: To prevent accidental spills and contain spills of hazardous substances that might occur, PG&E will prepare a Spill Prevention, Control, and Countermeasure Plan (SPCC Plan~~), prior to commencement of construction activities for approval~~ <u>if required</u> by the San Bernardino County Fire Department <u>prior to commencement of construction activities</u>. The SPCC plan will be in accordance with all federal and state laws that addresses procedures to (1) properly handle, use, store, and/or transport potentially flammable and/or other chemical hazardous wastes, (2) emergency response protocols to contain these substances in the event of an accidental spill or release, (3) specific worker safety training and (4) reporting requirements in the event of an accidental spill or release. <u>If the SPCC Plan is required, it is anticipated that it</u> ~~The SPCC Plan~~ will

		include the following features:
3.3-21	26-33	Hazardous materials storage and usage will be in accordance with the requirements of the San Bernardino County Fire Code. To avoid any conflict between the requirements of this agency and the EIR, revise the EIR as follows: Hazardous materials storage and usage will be in accordance with the requirements of the San Bernardino County Fire Code, Articles 79 and 80. A Business Contingency/Emergency Plan will be prepared in accordance with San Bernardino County Fire Department requirements for chemicals stored on-site for more than 30 days in excess of the regulatory thresholds (55 gallons, 500 pounds, or 200 standard cubic feet of gas). <u>It is anticipated that t</u>~~T~~he plan will list hazardous materials handled and include procedures for emergency response, training, and inspections. Hazardous wastes will be managed in accordance with the requirements of Title 22, California Code of Regulations, Division 4.5.
Section 3.4: Geology and Soils		
3.4-11	25, 29	It appears that the references to the land subsidence sections be to Section 3.4.3.3, rather than 3.4.3.2.
3.4-13	36-39	The statement that the northern part of the project area has a greater fraction of fine-grained silts and clays is inaccurate and should be deleted. Our rationale is as follows: Stantec has described the stratigraphy of investigation areas in several reports, including the Technical Memorandum - Update to Upper Aquifer Groundwater Investigation Activities (Stantec, February 2012). One of the key stratigraphic layers identified is a clay layer that is present at some locations between the upper (A1) and lower (A2) portions of the upper aquifer (i.e., the "Brown Clay" or Upper Aquifer Confining Clay Layer - UACCL). The majority of investigations conducted to date that have assessed stratigraphy at and below the depth of the Brown Clay have been south of Sonoma Road, with the majority of borings to this depth south of Thompson Road. Monitoring wells have been installed north of Sonoma Road, extending to Red Hill near Burnt Tree Road. The majority of the borings for these wells have focused on the uppermost portion of the upper aquifer (i.e., the A1) with limited assessment of deeper geologic conditions. The geologic conditions north of Sonoma Road, as they are currently understood, are depicted on Cross Sections A, B, C, P, Q, R, and S in the above-referenced report. As shown on the referenced cross-sections, there is no current data suggesting the Brown Clay increases in thickness to the north. There is no indication of continuous section of clay materials from 80 to 150 feet below ground surface near Red Hill as suggested. Further, as shown on sections A, B, C, R, and S there is data suggesting substantial thickness of A1 sandy deposits in the northern part of the valley including the vicinity of wells MW-139 and MW-142.
3.4-18 3.4-19	13-43 1-33	Impact Geo-1c: Same comments as in section 3.1 related to drawdown/aquifer compaction
3.4-20	19-20	Generally, as noted in the discussion at pages 3.4-19, there is no history of land subsidence problems or damage in the Hinkley area, despite a long history of substantial groundwater usage and drawdown for historical agricultural and dairy

		operations. This point should be added to the discussion of Impact Geo-1c on page 3.4-20, lines 16-22 as follows: In the northern part of the project area (generally north of Thompson Road), there are more limited number of residential or non-residential structures and far fewer roads than in the southern and central parts of the project area. However, individual structures or roads might be affected, if land subsidence were to occur. <u>But as noted previously, the overall potential for substantial land subsidence is low.</u> It cannot be concluded <u>for certain</u> that land subsidence will occur due to the project given the nature of this impact and the available data and thus, this is considered a potentially significant impact of all the action alternatives, with the greatest potential for effect due to Alternative 4C-4.
3.4-22	32-39	An accidental exposure to chromium-laden water or remediation byproducts is not a "substantial" risk to human health and safety. As stated on page 3.1-41, lines 7-13, the California PHG for hexavalent chromium is based on the consummation of 2 liters of waters a day for 70 years, not from spray of a few minutes. The risk that a person would be harmed from a short-term, accidental exposure is speculative and should be removed from EIR.
3.4-24 3.4-25	18-44 1-2	According to the General Industry Safety Orders from CalOSHA regulations, Title 8, Chapter 4, Subchapter 7, Group 1, Article 2, Section 3220 (e) (3), it is typically not required to prepare an Emergency Response Plan or Emergency Action Plan for fewer than 10 full-time staff on-site. Rather than prepare a separate detailed emergency response plan to be implemented in the event of a major earthquake, PG&E recommends including a section in the system operation and maintenance (O&M) manual and/or the site Health and Safety Plan (HASP) that describes the specific procedures to be followed. PG&E also recommends specifying the spill and release notifications procedures in the WDRs rather in each section in the EIR, such that there will be one unified set of requirements for notification, regardless of whether a spill or release is caused by seismic activity or equipment malfunction. Recommended edits to the text include the following: PG&E will prepare a ~~detailed emergency response plan~~ <u>section in the treatment system operation and maintenance (O&M) manual and/or Health and Safety Plan (HASP)</u> that describes the specific procedures to be followed in the event of ~~earthquake-induced damage to project pipelines or above-ground storage tanks in order to avoid all human exposures to contaminated groundwater or stored chemicals. The plan will include, at a minimum, the following~~ <u>a major seismic event</u>: • Shut-down of remedial pumping of contaminated water ~~in the event of a major seismic event~~. • Visual inspection of project pipelines and aboveground tanks to determine if any leakage has occurred. • Spill containment <u>and recovery</u> procedures ~~to contain~~ <u>for</u> any

		recoverable contaminated groundwater ~~or chemical~~ that ~~has reached the surface or spilled onto the ground and to prevent human exposure. Procedures to reinfiltrate or siphon contaminated groundwater or chemicals into appropriate storage containers to prevent long-term exposure to workers or nearby residents~~ may have leaked from project pipelines or aboveground tanks. • Spill containment and recovery procedures for any chemicals that may have spilled from project pipelines or aboveground tanks. • Pressure testing of project pipelines and above-ground storage tanks ~~following a major seismic event~~ to determine ~~pipeline and/or tank~~ integrity prior to ~~putting these features back in service~~ resuming system operation. ~~• Repair of any damaged pipelines or above-ground storage tanks prior to putting these features back in service.~~ ~~• Details of failed pipelines, tanks, or other structures resulting in rupture and exposure of contaminated groundwater or chemicals to workers will be reported to the Water Board either verbally or through electronic messaging within 3 working days and with a report within 30 days. The report will cite appropriate information such as the cause of the release, volume of the release, number of workers affected, whether surface waters were affected, and the types of repairs or remedial actions planned.~~ ~~All workers will be required to review the emergency plan annually, and a copy of the plan will be kept at appropriate workstations used by the employees.~~ Communication requirements for notifying the Water Board of spills and releases will be specified in the WDRs for the project.
3.4-24	10-17	Mitigation Measure GEO-MM-1 needs to be revised to set forth a Water Board process for determining if subsidence is caused by remedial activities, so that a claim that subsidence has occurred and is caused by the remedy can be independently evaluated and confirmed. We suggest the following revisions to the text: Where changes in ground surface elevations greater than 1 foot are identified by PG&E or the Water Board or where structural damage is identified by PG&E or reported by a landowner, PG&E will investigate site structures for subsidence-related damage. If damage is identified by PG&E and/or landowners, PG&E will retain an expert to evaluate whether the damage is due to remedial-induced groundwater drawdown. If the expert determines that the damage is ~~and is determined to be~~ due to remedial-induced groundwater drawdown, then PG&E will identify proposed remedial actions to the Water Board and, once approved by the Water Board, will repair, replace, and/or reimburse for any damaged structures (e.g., buildings, garages, barns) or infrastructure (e.g., pipelines, septic systems, supply wells) to its baseline condition. ~~PG&E will report all identified areas of structural damage whether identified by~~

		~~PG&E and/or reported by landowners and identify proposed remedial actions to the Water Board.~~
Section 3.5: Air Quality and Climate Change		
3.5-1	26	The sentence appears to be missing the word "that."
3.5-6	19-24	Greenhouse Gas (GHG) emissions were calculated using URBEMIS, a model to calculate air emissions for land use projects. There are EPA methodologies that may be more appropriate (EPA, 2012). The EPA guidelines were published this year (as opposed to 2007 for URBEMIS) and provides guidance and emissions factors relevant to remediation activities.
3.5-20	Table 3.5-9	Proposed revisions to Table 3.5-9 are attached.
3.5-21	Table 3.5-10	The existing and no project alternatives do not have emissions listed for harvesting and plowing of existing agricultural operations, such as the Desert View Dairy. This oversight should be remedied. The numbers for Alternative 4C-3 in this table are incorrect. For example, some of the numbers in the daily VMTs column are actually monthly VMTs and thus inconsistent with the yearly VMTs shown. The worker commute number is substantially overestimated. In addition, the VMT numbers do not line up with the activity that they are associated with. Proposed revisions to Table 3.5-10 are attached.
3.5-23	7	The generator set default number from URBEMIS is 549 HP is larger than the size that the proposed project will use. The EIR should use a generator set size of 400 HP because that size may be more appropriate for this project.
3.5-38 3.5-38 3.5-39	4-5 38-39 8-9	It is not necessary for PG&E to hire a third-party monitor to periodically inspect construction equipment and practices to ensure compliance of AIR-MM-3, 4 and 5. PG&E is required to comply with all mitigation measures in the EIR. Accordingly, this requirement should be deleted.
3.5-39	12-15	Rather than submit a separate plan for review and obtain approval from San Bernardino County Planning Department, PG&E would like to amend the text to specifically state their activities to reduce greenhouse gas (GHG) emissions during construction. Specific recommended edits to text are as follows: PG&E or its contractor will ~~submit for review and obtain approval from County Planning or a signed letter agreeing to~~ include as a condition of all construction contracts/subcontracts requirements to reduce GHG emissions and submit~~ting~~ documentation of ~~compliance~~ results. PG&E or its contractor will do the following . . . .
3.5-39	16	PG&E recommends removing the requirement to submit a separate Coating Restriction Plan (CRP) to the County for approval. This is not a greenhouse gas reduction measure as it is primarily used to reduce Volatile Organic Compounds (VOC) emissions. VOC emissions do not exceed thresholds and do not need to be addressed under this mitigation measure. Therefore the requirement to "implement a County approved Coating Restriction Plan" should be deleted.
3.5-42	30-33	To avoid potential conflicts between County Planning requirements and this EIR, the following text edits are suggested: PG&E will ~~submit for review and obtain approval from~~ work with County Planning ~~of~~ and submit any required reports for evidence that all applicable GHG performance standards have been installed and implemented properly, and that specified performance objectives are being met to the satisfaction of County Planning and County Building and

		Safety.
3.5-42	36-38	To avoid potential conflicts between County Planning requirements and this EIR, the following text edits are suggested: In this case, PG&E will work with County Planning and submit ~~for review and obtain approval from County Planning of~~ any required evidence that emissions will be reduced by ~~a minimum of 31 percent by a project-specific reduction plan~~ required amounts.
Section 3.6: Noise		
3.6-7	3-6	Local land use requirements generally apply if there is some local discretionary permit required for the activity, and in many cases the remediation activities will not require any local permits. To clarify this, add the following sentences: The purpose of the San Bernardino County General Plan (2007a) Noise Element is to limit the exposure of the community to excessive noise levels. The Noise Element is used to guide decisions concerning land use and the location of new roads and transit facilities, which are common sources of excessive noise. The San Bernardino County General Plan would apply to the project only if the project will require local permits. It is not anticipated that such permits will be required for project activities, but the following discussion is included here for informational purposes.
3.6-8	34-35	Throughout this section, tables list the number of wells, while the text states that the numbers of pumps are quantified in the tables. Not every remedial well will have a pump. Only extraction wells will be equipped with pumps, while many of the remedial wells listed are injection wells which will not be equipped with pumps. Accordingly, revise the text as follows: Table 3.6-10 shows the number of ~~pumps~~ wells and linear feet (LF) of pipeline associated with the existing remediation program.
3.6-24	20-38	Rather than submit a separate noise/vibration control plan, PG&E recommends including noise/vibration control measures as part of the construction specifications. The following text edits are recommended: **Mitigation Measure NOI-MM-1: Employ Noise/Vibration-Reducing Construction Practices to Comply with County Noise Standards** PG&E or its contractor will ensure that noise/vibration-reducing construction practices are implemented so that construction noise does not exceed applicable County standards. As part of the construction specifications, t~~T~~he project contractor ~~will prepare a noise/vibration control plan that~~ will identify feasible measures that can be employed to reduce construction noise/vibration. These may include the measures listed below. • Scheduling substantial noise-generating/vibration activity during

		exempt daytime hours • Requiring construction equipment to be equipped with factory-installed muffling devices and all equipment to be operated and maintained in good working order to minimize noise generation • Locating noise/vibration-generating equipment as far as practical from noise-sensitive uses including avoiding vibration-generation within 25 feet of any residence, wherever feasible • Using temporary noise/vibration-reducing enclosures around noise-generating equipment • Placing temporary barriers between noise/vibration sources and noise-sensitive land uses or taking advantage of existing barrier features (e.g., terrain, structures, edge of trench) to block sound transmission ~~The noise/vibration control plan will demonstrate that~~ Per the construction specifications, control measures will be implemented to reduce noise and vibration to a level that is in compliance with County noise standards.
Section 3.7: Biological Resources		
3.7-3	Impact Bio-4	Change impact to "Less than Significant" for desert tortoise and see comment below regarding Impact BIO-4.
3.7-15	26	Existing agricultural units currently support Bermuda grass and sudan grass in addition to alfalfa.
3.7-21	25	The word 'biologists' is redundant and should be deleted.
3.7-31	21-31	See comment below on Impact BIO-4.
3.7-32	35-36	Impacts from Alternative 4B should be considered less than significant for desert tortoise movement. See comment below regarding Impact BIO-4.
3.7-33	7-8	Impacts from Alternative 4C-2 should be considered less than significant for desert tortoise movement. See comment below regarding Impact BIO-4.
3.7-33	22-23	Impacts from Alternative 4C-3 should be considered less than significant for desert tortoise movement. See comment below regarding Impact BIO-4.
3.7-33	35-36	Impacts from Alternative 4C-4 should be considered less than significant for desert tortoise movement. See comment below regarding Impact BIO-4.
3.7-34	1-4	Impacts from Alternative 4C-5should be considered less than significant for desert tortoise movement. See comment below regarding Impact BIO-4.
3.7-36	36-39	Harm to burrowing owls from exposure to waterborne hexavalent chromium is exceedingly speculative and unsupported by any data; accordingly, it should be deleted.
3.7-38	41-43	The EIR text here states that BIO-MM-1n will limit construction to occur outside the breeding season for the loggerhead shrike and northern harrier; however, the mitigation measure itself (page 3.7-51, lines 8-23) requires pre-construction surveys and imposes buffer requirements, rather than preventing construction altogether. The EIR text on lines 41 through 43 should be revised to read as follows: "**Mitigation Measure BIO-MM-1n** would further avoid or reduce these impacts to a less-than-significant level by requiring pre-construction surveys and

		imposing buffer requirements when needed ~~limiting construction to occur outside breeding season and establish exclusionary areas for project related disturbance~~." In the discussion of Impact BIO-4, the EIR suggests (page 3.7-43, lines 42 & 43) that there is an east-west movement corridor north of Thompson Road and south of the existing agricultural unit, south of State Route 58, by stating that there is suitable habitat for desert tortoise there. However, no studies were completed to document any movement of tortoises in this area. The EIR biological Resources report does not reference such a movement corridor in its discussion of the desert tortoise, and the pattern of tortoise sightings reported in the EIR does not support this conclusion. (EIR Appendix C). Therefore, the statement that there is an east-west movement corridor for the desert tortoise north of Thompson Road and south of the existing agricultural treatment units is incorrect and unsubstantiated. Further, there are two existing barriers to movement in the area assumed to be an east-west corridor: (1) State Route 58, which runs east west and (2) the railroad which runs diagonally through the area. To state that this is an existing open, expansive area for tortoise movement is incorrect. Development of agricultural units in this area, which is already disturbed and contains a patch work rural residential development, may impact habitat were tortoises currently exist but will not isolate a tortoise or a population of tortoises from movement and the potential to continue breeding. Accordingly, we suggest that the text be revised as follows: **Impact BIO-4: Conflicts with Wildlife Movement (Less than Significant~~, No Project Alternative; Potentially Significant~~, All ~~Action~~ Alternatives)** . . . ~~Although d~~Desert tortoise would be physically able to move through the agricultural treatment units and there would not be any physical barriers (like fences) to their movement~~,~~. Even though they would likely avoid the agricultural treatment areas because they would be largely unsuitable irrigated parcels that would not favor tortoise locomotion, desert tortoise movement would not be significantly impacted. There are no known east-west corridors in the area, which is disturbed by State Route58 and a railroad, as well as a patchwork of other development. This impact is ~~potentially~~ less than significant ~~impact~~ for all ~~action~~ alternatives ~~because it could result in a substantial constraint of a general east-west movement pattern for desert tortoise individuals~~. Because the impact is less than significant for all alternatives, no mitigation is required Further, w~~W~~hile feasible mitigation was reviewed for this impact, none of the following measures are recommended for the following reasons: • Wildlife movement corridors. A mitigation measure was considered to require PG&E to segregate new agricultural treatment areas (by perhaps 500 to 1,000 feet). This mitigation is not proposed because
3.7-43 3.7-44 3.7-45	2-3 23-44 1-22	

		it is highly uncertain whether desert tortoise would actually use such corridors and because spreading out (as opposed to concentrating) agricultural areas would actually increase fragmentation of habitat even further and would push more agricultural areas further north, which is considered counterproductive in terms of maintain habitat for the desert tortoise. • Limit the number of agricultural treatment areas. A mitigation was considered to limit the areas new agricultural treatment such that substantial desert tortoise east-west movement areas could be maintained throughout the Hinkley Valley. For example, if agricultural treatment units were limited to the 40 acres for Alternative 4B included in the Feasibility Study/Addenda (and shown in Figure 3.7-5), then east-west movement areas would be maintained. This measure is not recommended because it would substantially slow down remediation and may impede hydraulic containment of the plume. • Adopt one of the alternatives with less agricultural treatment. One mitigation option would be to adopt the No Project Alternative, but this would not meet the project objectives and was thus rejected. Another option would be to adopt Alternative 4B which would have the least amount of new agricultural treatment, but since this alternative may need to be scaled up to provide up to 264 acres of new agricultural treatment, this alternative would lower but would not avoid a potentially significant impact. • Eliminate new agricultural treatment. One mitigation option would be to use a different remediation technology than new agricultural treatment. One option could include wide-scale above-ground treatment ("plume-wide pump and treat"). While this option would provide for hydraulic containment if extraction flows were sufficiently high, as discussed in Chapter 2, *Project Alternatives*, Section 2.8, this alternative would take approximately 50 years to reduce Cr[VI] concentrations throughout the plume to 50 ppb, approximately 140 years to reduce Cr[VI] concentrations to 3.1 ppb, and 210 years to reduce Cr[VI] concentrations to 1.2 ppb. This alternative was rejected because it does not meet the fundamental project objectives because it does not clean up chromium in groundwater within a meaningful period of time. Chapter 2, *Project Alternatives,* Section 2.8, also discusses why other alternatives were not carried forward fur further analysis. Mitigation was examined even though impacts are less than significant and no mitigation is required. However, ~~Since~~ no feasible mitigation was identified that would meet most of the project goal objectives~~ and would reduce this impact to a less than significant level, the action alternatives are considered to result in a potentially significant and unavoidable impact related to desert tortoise movement (depending ultimately on the amount and configuration of new agricultural treatment areas)~~. Because mitigation is not required for an impact found to be less than significant and there are no feasible mitigation measures, no mitigation measures will be imposed.

3.7-46 3.7-47	20-42 1-7	PG&E will obtain appropriate incidental take authorizations following consultation with CDFG and USFWS for potential impacts to desert tortoise. Minimization measures within either of these two permits would supersede these minimization measures, to the extent of any conflict. To avoid the possibility of conflicting requirements, we suggest inserting the following text at line 20 on page 3.7-46, before the six bulleted paragraphs: "<u>The following measures shall be implemented to reduce construction impacts to the desert tortoise. These measures shall be implemented in a manner consistent with any incidental take authorizations issued by CDFG and USFWS, and to the extent that the below measures may be inconsistent with the requirements imposed by CDFG and USFWS, the requirements imposed by those agencies shall govern.</u>"
3.7-48	18-30	Rather than specifying that a separate raven management plan be developed, the specific requirements for raven management should be included in any incidental take authorizations issued by CDFG and USFWS to meet the requirements of Section 10(a) of the Endangered Species Act. In addition, construction may or may not occur on BLM lands therefore there is a strong likelihood that BLM would have no nexus to approve any plans for the project. To avoid any conflict between the requirements of this agency and the EIR, PG&E suggests revising this section as follows: <u>PG&E will implement measures to minimize and prevent attraction of predators during construction and operation in compliance with the incidental take authorizations issued by CDFG and USFWS, as necessary. It is anticipated that the mitigation measures will include:</u> • Litter control measures will be implemented. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness or the area to opportunistic predators such as common ravens (*Corvus corax*), coyotes (*Canis latrans*), and feral dogs. • If water trucks are to be used, pooling of water will be avoided so to minimize the potential to attracting common ravens or other potential predators. • Potential perches and nest substrates for the common raven will be reduced to the greatest extent practicable within permanent project facilities. • ~~A raven management plan will be developed by the project proponent and approved by BLM that will include at a minimum establishing a common raven population baseline, with ongoing and post-construction monitoring of common raven populations, and triggers for adaptive management actions if ravens are occurring above baseline conditions and observed to be utilizing facilities and structures built as part of this project.~~

3.7-49	3, 8-9	As noted in this discussion compensatory mitigation ratios for loss of habitat would be determined through consultation with CDFG and USFWS. Field surveys of the project area have yet to be completed. Once surveys are completed to quantify the quality of habitat occurring on the project site, effective compensation ratios can be determined. While this survey effort supports that habitat exist within the study area and that compensation would likely be required, the actual compensation ratios should and will be determined by the resource agencies with jurisdiction over this issue. Therefore, the text on these lines should be modified to say that these proposed ratios "could be" or "may be" applicable as minimum compensation, but ratios would be determined after surveys are completed and in consultation with appropriate resource agencies.
3.7-49	19-32	Rather than developing a separate AU integrated pest management (IPM) plan and adaptive management plan, the specific requirements should be included in any incidental take authorizations issued by CDFG and USFWS, as necessary. To avoid any potential conflict between the requirements of this agency and the EIR, revise the text as follows: **Mitigation Measure BIO-MM-1i: Integrated Pest Management and Adaptive Management Plan for Agricultural Treatment Units** ~~An agricultural unit integrated pest management (IPM) plan will be developed and implemented for all new (and existing) agricultural units, and will be compliant with the California Statewide IPM year-round program for alfalfa and any other crops that may be proposed for use. The plan will explicitly detail an integrated pest management plan to ensure that risks of any proposed use of herbicides, pesticides, or rodenticides will pose a negligible risk to wildlife species. Herbicides, pesticides, or rodenticides will only be used at new agricultural units if specifically authorized by USFWS and CDFG in the take permits for the desert tortoise and the Mohave ground squirrel. The adaptive management plan will detail the predicted harvest of the agricultural crops and how harvest will be conducted in such a manner to reduce potential impacts to nesting birds. The adaptive management plan will provide other population monitoring guidelines for predatory species such as brown-headed cowbird, with management actions that will be required if fields are found to be supporting these species. The adaptive management plan will also outline irrigation control to avoid pooled water, as well as dust control methods.~~ PG&E will implement measures to manage pests at all new (and existing) agricultural units in ways that pose a negligible risk to wildlife species and are aligned with the current land use for agricultural crops in compliance with any incidental take authorizations issued by CDFG and USFWS, as necessary. Mitigation measures in the incidental take authorizations may include: • Pest management actions will be compliant with the California Statewide IPM year-round program for alfalfa and any other crops grown on the agricultural units.

		• Herbicides, pesticides, or rodenticides will only be used at new agricultural units if they pose a negligible risk to wildlife species and are consistent with USFWS and CDFG requirements for the desert tortoise and the Mohave ground squirrel. • The incidental take authorizations are anticipated to include an adaptive management plan for agricultural treatment units. This section of the incidental take authorizations is anticipated to detail the predicted harvest of agricultural crops and how harvest will be conducted in such a manner to reduce potential impacts to nesting birds. • The incidental take authorizations adaptive management plan is anticipated to provide other population monitoring guidelines for predatory species such as the brown-headed cowbird, with management actions that would be required if fields are found to be supporting these species. • The incidental take authorizations adaptive management plan is anticipated to also outline irrigation control measures to avoid pooled water on the fields.
3.7-50	10-17	The first bullet of Mitigation Measure BIO-MM-1l states that the focused survey for burrowing owl will utilize the most recent CDFG protocol. CDFG at times approves modifications to the protocol for specific surveys. To avoid any inconsistencies between the survey requirements of CDFG and the EIR mitigation measures, suggest revising the first bullet as follows: • To confirm the current existing condition for burrowing owls in the study area, a focused nesting season survey for burrowing owl will be completed for all potential disturbance limits and a minimum 400 feet buffer area, where accessible, prior to construction. This focused survey will utilize the most recent CDFG protocol (including any variations in that protocol that may be approved by CDFG for the survey).
3.7-50	24-29	Rather than submit an avian protection plan, the specific requirements for protecting burrowing owls can be specified in any incidental take authorizations issued by CDFG and USFWS, as necessary. To avoid any conflict between the requirements of that agency and the EIR, PG&E suggests revising Mitigation Measure BIO-MM-1l as follows. • Avoid impacting burrows occupied during the non-breeding season (September 1–January 31) by migratory or non-migratory resident burrowing owls. • ~~An avian protection plan will be developed in consultation with CDFG~~ If necessary, procedures to address burrowing owls or signs of burrowing owls should they be found on site during the focused nesting or preconstruction surveys will be specified in any incidental take authorizations issued by CDFG and USFWS, as necessary . ~~Unless otherwise approved by CDFG, the minimum no construction buffers will be 160 feet for occupied burrows during the~~

		~~non-breeding season of September 1 through January 31 and 250 feet during the breeding season of February 1 through August 31.~~ • If burrowing owls and their habitat can be protected in place on or adjacent to a project area, the use of buffer zones, visual screens (such as hay bales) or other feasible measures while project activities are occurring will be used to minimize disturbance impacts. These will be outlined in the avian protection plan.
3.7-52	5-10	Remove the text related to the preparation of a brief analysis to determine if removal of non-listed special status plant species would be significant under CEQA. Such a requirement is unnecessary. We already commit to avoiding such plants to the maximum extent feasible. Moreover, because the species are not listed, impacts to those species are not significant under CEQA. Further impacts to such species will not be significant for a project such as the one here, which proposes to install discrete facilities rather than develop the entire property.
3.7-52	14-24	Rather than develop a separate compensatory mitigation program or plan, the specific requirements for compensatory mitigation should be specified by the appropriate agencies. PG&E proposes the following text revisions to mitigation measure BIO-MM-2: **Mitigation Measure BIO-MM-2: Habitat Compensation for Loss of Sensitive Natural Communities** If new remediation activities result in the permanent removal and loss of sensitive natural communities such as the California joint fir scrub, ~~a~~PG&E will implement compensatory mitigation. ~~program or plan will be developed and implemented through consultation~~ PG&E will consult with the USFWS, CDFG, and the Lahontan Water Board~~. Compensatory mitigation may include a fee-based program and/or direct habitat replacement on a~~ to replace habitat on an anticipated minimum 1:1 basis ~~and in accordance with those agencies' recommendations~~. Lands provided as mitigation for desert tortoise, Mohave ground squirrel, and burrowing owls may also be used to provide mitigation for any loss of sensitive nature community habitat, if the land in question includes sensitive natural communities. If 1:1 direct habitat replacement is not practicable, PG&E will consult with USFWS, CDFG, and the Lahontan Water Board to supplement the compensatory mitigation with fees.

Section 3.8: Cultural Resources		
3.8-17	11-14	These are the preliminary findings of FWARG's survey, and have since been updated. Please use the following data: FWARG recorded 74 resources, including 42 historic period sites with 55 features, mostly refuse scatters or elements of water/irrigation systems; 26 historic-period isolates consisting of 32 irrigation system elements and two miscellaneous features; two small prehistoric flaked stone scatters, three single flake isolates, and one other prehistoric isolate consisting of a ground stone fragment and one piece of flaked stone.
3.8-28	17-32	Propose deleting this mitigation measure CUL-MM-4 (Evaluate Archaeological Resources to Determine if Historical Resources under CEQA or Unique Archaeological Resources under PFC 21083.2). Any necessary evaluation of archaeological resources is already covered under mitigation measure CUL-MM-6, following an opportunity to redesign and avoid impacting archaeological resources (CUL-MM-5).
3.8-28 3.8-29	17-32 6-40	Both CUL-MM-4 and CUL-MM-6 require evaluation of archaeological sites, which is confusing. It would seem more appropriate for MM-4 to be limited to identification of sites. If those sites that are identified can be avoided, MM-5 (avoidance) comes into play. If the site cannot be avoided MM-6 (evaluation/data recovery) would be implemented. If these items are changed, the Table on 3.8-1 would need to be updated as well. It also identified both MM-4 and MM-6 as evaluating archaeological resources.
Section 3.11: Aesthetics		
3.11-10	18	Delete the "3" at the end of the sentence.
3.11-3.12	33-40 1-20	The screening mitigation measures should only apply to "major above-ground treatment facilities."
Section 3.12: Socioeconomics		
3.12-1	16-17	Generally, chapter 3.12 of the EIR overstates the potential for blight resulting from implementation of the remedy, and our comments are directed at this in several specific respects. The text suggests that any departure of people from the community causes blight, which is incorrect. The text should be revised to read as follows: These secondary effects could result in people leaving the community; <u>if such departures result in a substantial number of</u> vacant lots and homes <u>this could contribute to</u> physical deterioration or blight.
3.12-5	15-19	The EIR states the project could “disrupt, hinder or otherwise discourage existing residential and other land use due to effects of groundwater drawdown and water quality changes from remedial actions that might result in blighted conditions.” There is no causal link between groundwater drawdown and water quality changes due to the project and blight, and suggesting otherwise is speculation. Moreover, the project will improve water quality in the long term. Further, as stated on page 3.12-6, the temporary groundwater drawdown that the project may cause would “take decades at a minimum” to impact water supply wells in the area. Finally, mitigation measures WTR-MM-2 through WTR-MM-8 ensure that any affected homes, businesses, and agricultural facilities would receive alternative water supplies and that PG&E restore the aquifer for all beneficial uses. (DEIR at 3.12-6:40–3.12-7:5.) Accordingly, the EIR should be revised as

		follows: The project could create blighted conditions that could result in secondary physical impacts due to land and water rights acquisition to facilitate remedial actions. The project could also disrupt, hinder or otherwise discourage existing residential and other land use due to effects of groundwater drawdown and water quality changes from remedial actions, but those actions likely would not ~~that might~~ result in blighted conditions and associated secondary physical impacts.
3.12-5	21-38	Several revisions should be made in the discussion of the effects of property purchases associated with the remediation. • In line 24, the word "local" appears to be out of place • In lines 28-29, there is no basis for asserting that properties could be subject to arson, or that if there were fires due to arson, that fires would affect other neighbors given the fact that homes and structures in the area where the remedy will be implemented are generally widely dispersed. This sentence is speculative and should be deleted. • The statement that PG&E acquisitions under the land acquisition program should not be stated as part of the paragraph analyzing the No Project Alternative. It is correct that the private purchases are outside the scope of the project and the CEQA analysis, but this conclusion is not limited to the No Project Alternative. This should be made into a separate paragraph, prefaced with "Under any of the alternatives, including the No Project Alternative and the action alternatives"
3.12-5	24-39	Revise the text in this section to clarify that all private purchase and sale agreements, not just those in the no project alternative, are outside of the project mandated by the Water Board and outside the scope of the CEQA analysis in this EIR.
CHAPTER 4 - OTHER CEQA ANALYSIS		
4-27; 4-30	18-26; 8-29	The EIR suggests that agricultural units could substantially impede east-west desert tortoise movement through the center of Hinkley Valley. However, the EIR biological resources report does not reference such a movement corridor in its discussion of the desert tortoise, and the pattern of tortoise sightings reported in the EIR does not support this conclusion. Further, present infrastructure in the area that the EIR suggests is a movement corridor, including State Route 58 and the railroad, are a barrier for movement of desert tortoise. Therefore, as noted above in the comment regarding impact BIO-4, it is speculative and highly unlikely that such a movement corridor for tortoises exists. The effect of all alternatives on the movement of desert tortoises is not cumulatively considerable. Therefore, the development of agricultural units in this area does not contribute to a potentially significant cumulative impact.
4-47	Table 4-4	Alternatives 4C-2, 4C-3, and 4C-4 include increased extraction in OU1 for additional southern agricultural units. The increased extraction would decrease the potential for spreading of the plume for these alternatives in comparison to Alternative 4B. Therefore, Alternatives 4C-2, 4C-3, and 4C-3 should be ranked with less severity for this impact than 4B.
4-47	Table 4-4	The amount of in situ remediation is similar among alternatives 4B, 4C-2, 4C-3, and 4C-4 and by-product impacts are expected to be similar, as indicated in the

		text on page 4-52, lines 26-28. These alternatives should therefore have similar rankings for in-situ by-product impacts in Table 4-4, rather than alternative 4C-3 being ranked less severe than the others.
4-51	17-20	Alternatives 4C-2, 4C-3, and 4C-4 include increased extraction in OU1 for additional southern agricultural units. The increased extraction would decrease the potential for spreading of the plume for these alternatives in comparison to Alternative 4B. Therefore, Alternatives 4C-2, 4C-3, and 4C-3 should be ranked with less severity for this impact than 4B.
4-60	32-34	In the overall comparison of alternatives, the EIR states that Alternative 4B would have the least groundwater drawdown, the lowest level of remedial byproducts, and the least new disturbance of special-status species habitat, but it would take "much longer" to treat the plume under Alternative 4B than Alternatives 4C-2, 4C-3, or 4C-4. The statement that it will take "much longer" overstates the magnitude of the time difference. Although it would take longer to treat the plume under Alternative 4B than Alternatives 4C-2, 4C-3, or 4C-4, the statement that it will take "much longer" does not reflect the fact that the time differentials are not substantial, and does not take into account the uncertainties of the modeling assumptions that produced this number. The model, like all mathematical models of natural systems, has accuracy limitations due to the underlying simplifications and assumptions incorporated into the model. Accordingly, the simulated times to cleanup are qualitative estimates based upon the mathematical representation of the hydrogeologic system and has inherent uncertainties. Examining the time to clean up the Cr[VI] to 3.1 ppb shows that under Alternative 4B the time to clean up is estimated to be 40 years. Under Alternative 4C-2, the time to clean up is estimated to be 39 years; under Alternative 4C-3, the time to clean up is estimated to be 36 years, and under Alternative 4C-4, the time to clean up is estimated to be 29 years. Taking into account both the length of time and the model accuracy, the time to treat the plume under Alternatives 4B, 4C-2, and 4C-3 is comparable. A relative comparison of the remedial time frames of Alternatives 4B, 4C-2, and 4C-3 relative to a 40 year baseline remedy indicates that there is less than a 10% range in timeframe differential, whereas Alternative 4C-4 has greater than a 25% range in timeframe differential.

Table ES-1. PG&E Hinkley Groundwater Remediation Alternatives Analyzed in the EIR

Alternatives	No Project[a]	4B	4C-2	4C-3	4C-4	4C-5
Source of Information	FS Addendum 3	FS Addendum 2	FS Addendum 3	FS Addendum 3	FS Addendum 3	~~FS Addendum 4~~Technical Memorandum
Plume FS analysis based on	Q1/2011	Q1/2010	Q1/2011	Q1/2011	Q1/2011	Q1/2011
OU1–Remedial Method for High Concentration Plume	In-Situ	In-Situ	In-Situ	In-Situ	In-Situ	Above-ground Treatment/ In-situ
Time to 50 ppb	6[b]	6	6	4	3	20
Time to 80% Cr[VI] Mass Conversion to Cr[III] or Removal	13[b]	10	7	6	6	15
OU 1/2/3–Remedial method for low concentration plume	IRZ/ AUs[c]	IRZ for 20 years[x] AUs for 95 years	IRZ for 20 years[x] AUs for 90 years	IRZ for 20 years[x] AUs for 85 years Aboveground Treatment	IRZ for 20 years[x] AUs for 75 years	IRZ for ~~32~~ 20 years[xx] AUs for 95 years
Time to 3.1 ppb cleanup	NA[c]	40	39	36	29	50
Time to 1.2 ppb cleanup	NA[c]	95	90	85	75	95
Fate of Cr3+ in the soil	Leaves	Leaves	Leaves	Leaves	Leaves	Removes from high concentration area
AU Pumping Rates[c]	1,100 gpm (FS)	1,270 gpm (FS) 2,395 gpm (total)	2,042 gpm (FS) 3,167 gpm (total)	2,829 gpm (FS) 4,388 gpm (total)	2,829 gpm (FS) 4,388 gpm (total)	2,042 gpm (FS) 3,167 gpm (total)
AUs[d, e]	182 acres	222 acres (FS)/ 446 acres (total)	351 acres (FS)/ 575 acres (total)	351 acres (FS)/ 575 acres (total)	895 acres (FS)/ 1,394 acres (total)	351 acres (FS)/ 575 acres (total)
FS Estimated Costs (NPV)[f]	N/A	$84.9M	$118M	$276M	$173M	$171M
Key Feature	Required by CEQA	Less groundwater pumping, AU acreage and lower cost.	Year round pumping for plume control (winter Crop).	Year round pumping for plume control (winter above-ground treatment).	Year round pumping for plume control. Fastest cleanup of all alternative.	Removal of chromium from the high concentration plume area.

Alternatives	No Project[a]	4B	4C-2	4C-3	4C-4	4C-5

Notes:

[a] No Project Alternative defined based on the No Project details provided for Alternative 4C-2 in FS Addendum No. 3.

[b] Based on FS Alternative No. 4 cleanup times because FS Addendum No. 3 did not identify cleanup times for No Project conditions.

[c] No Project Alternative limited to addressing the 2008–2010 plume. Thus, no duration for cleanup of entire plume is identified.

[x] Intermittent, low concentration carbon amendment continues beyond 20 years in SCRIA injection area and Source Area

[xx] Intermittent, low concentration carbon amendment continues beyond 20 years in SCRIA injection area and begins at year 32 in the Source Area

[d] Two pumping rates shown for action alternatives. First is highest pumping rate in the FS/Addenda marked with a (FS). Second is scaled up to account for expanded plume beyond that at the time of the FS/Addenda.

[e] Two acreages shown for agricultural units for action alternatives. First is from the FS/Addenda marked with a (FS). Second is scaled up to account for expanded plume beyond that at the time of the FS/Addenda.

[f] Costs are based on FS/Addenda costs to remediate to 1.2 ppb Cr[VI] level and only include the infrastructure described in the FS/Addenda and do not account for the additional cost for the infrastructure and activities to address the expanded plume.

AU = Agricultural Units
FS = Feasibility Study
gpm = gallons per minute
IRZ = In-Situ Remediation
NPV = Net present value
ppb = parts per billion

Table 2-3. Summary of Components under No Project Alternative[a]

Optimization Period	Initial Buildout (0–5 years)	Year 5 (5–10 years)	Year 10 (10–20 years)	Year 20 (20+ years)
Agricultural Land Application				
Agricultural Units (AUs)	182 acres[b]			
AU Extraction Wells	29			
Pipelines	24,499 lf			
AU Extraction Flow[c]	1,100 gpm			
In-Situ Remediation Zone (IRZ)				
Extraction Wells	17	17	20	20
Injection Wells	86	86	89	89
Pipelines	31,392 lf	31,992 lf	33,892 lf	33,892 lf
Carbon amended IRZ flow (SCRIA, SAIRZ)[c, d]	190 gpm (110 gpm – SCRIA; 80 gpm – SAIRZ)			
IRZ Recirculation flow (CAIRZ)[c, d]	83 gpm			
Northwest Area Freshwater Injection				
Extraction Wells	~~5~~3			
Injection Wells	~~3~~5			
Pipelines	31,886 lf			
Northwest Freshwater Reinjection Flow[c]	80 gpm			
Monitoring Wells				
Monitoring Wells	446			
Wells and Supporting infrastructure acreage[e]	39	39	39	39
Access roads	1	1	1	1

Notes:
[a] All totals include existing infrastructure (see Table 2-1)
[b] Agricultural Units = DVD, Gorman, Cottrell, and Ranch (all existing).
[c] All flows are based on average annual rates.
[d] SCRIA refers to the South Central Reinjection Area.
SAIRZ refers to the Source Area In-Situ Remediation Zone.
CAIRZ refers to the Central Area In-Situ Remediation Zone.
[e] Includes acreage for all wells, including Agricultural Units, In-Situ Remediation, Northwest Freshwater Reinjection, and monitoring wells.
lf = linear feet
gpm = gallons per minute

Comment [d1]: 24,499 is the linear feet of trenching, we suggest adding a note to clarify. Also applies to IRZ pipeline totals below

Table 2-4. Summary of Components under Alternative 4B[a]

Optimization Period	Initial Buildout (0–5 years)	Year 5 (5–10 years)	Year 10 (10–20 years)	Year 20 (20+ years)
Agricultural Land Application				
Agricultural Units (AUs)[b]	446 acres			
AU Extraction Wells	65	65	90	90
AU Pipeline	59,049 lf	59,049 lf	78,419 lf	78,419 lf
AU Extraction Flow[c]	2,395 gpm			
In-Situ Remediation Zone (IRZ)				
Extraction Wells	21	21	~~21~~25	25
Injection Wells	108	108	111	111
Pipelines	39,240 lf	39,990 lf	42,365 lf	42,365 lf
Carbon-amended IRZ flow (SCRIA/SAIRZ)[c,d]	431 gpm	244 gpm	319 gpm	213 gpm
IRZ Recirculation flow (CAIRZ)[c,d]	~~279~~ 175 gpm	175 gpm	175 gpm	0 gpm
Northwest Area Freshwater Injection				
Extraction Wells	~~5~~3			
Injection Wells	~~4~~6			
Pipelines	36,669 lf			
Northwest Freshwater Reinjection Flow[c]	92 gpm			
Monitoring Wells/Supporting Infrastructure				
Monitoring Wells	558			
Wells and Supporting Infrastructure (acres)[e]	51	51	53	53
Access roads (acres)	3	3	5	5

Notes:

[a] All totals include existing infrastructure. All estimates have been scaled up from the data from the Feasibility Study and Addenda to account for a larger plume than used in the feasibility study. See discussion in text.

[b] Desert View Dairy, Gorman, Cottrell, Ranch, plus additional Agricultural Units.

[c] All flows are based on average annual rates.

[d] SCRIA refers to the South Central Reinjection Area; SAIRZ refers to the Source Area In-Situ Remediation Zone; CAIRZ refers to the Central Area In-Situ Remediation Zone.

[e] Includes acreage for all wells, including Agricultural Units, In-Situ Remediation, Northwest Freshwater Reinjection, and monitoring wells.

lf = linear feet

gpm = gallons per minute

Comment [d1]: Totals are linear feet of trenching, we suggest adding a note to clarify

Comment [d2]: 140 gpm + 25% contingency

Comment [d3]: 5 + 15% contingency

Comment [d4]: Suggest clarifying that well estimates include the number of wells to be constructed; not all wells may be operating at one time

Table 2-5. Summary of Components under Alternative 4C-2[a]

Optimization Period	Initial Buildout (0–5 years)	Year 5 (5–10 years)	Year 10 (10–20 years)	Year 20 (20+ years)
Agricultural Land Application				
Agricultural Units (AUs)[b]	575 acres			
AU Extraction Wells	80	80	102	102
AU Pipeline	68,489 lf	68,489 lf	83,374 lf	83,374 lf
AU Extraction Flow[c]	3,167 gpm			
In-Situ Remediation Zone (IRZ)				
Extraction Wells	21	21	25	25
Injection Wells	108	108	111	111
Pipelines	39,240 lf	39,990 lf	42,365 lf	42,365 lf
Carbon-amended IRZ flow (SCRIA/SAIRZ)[c,d]	431 gpm	244 gpm	319 gpm	213 gpm
IRZ Recirculation flow (CAIRZ)[c,d]	~~279~~ 175 gpm	175 gpm	175 gpm	0 gpm
Northwest Area Freshwater Injection				
Extraction Wells	~~53~~			
Injection Wells	~~46~~			
Pipelines	36,669 lf			
Northwest Freshwater Reinjection Flow[c]	92 gpm			
Monitoring Wells/Supporting Infrastructure				
Monitoring Wells	558			
Wells and Supporting Infrastructure Acreage[e]	52	52	54	54
Access roads (acres)	4	4	5	5

Notes:

[a] All totals include existing infrastructure. All estimates have been scaled up from the data from the Feasibility Study and Addenda to account for a larger plume than used in the feasibility study. See discussion in text.

[b] Desert View Dairy, Gorman, Cottrell, Ranch, plus additional Agricultural Units.

[c] All flows are based on average annual rates.

[d] SCRIA refers to the South Central Reinjection Area.
SAIRZ refers to the Source Area In-Situ Remediation Zone.
CAIRZ refers to the Central Area In-Situ Remediation Zone.

[e] Includes acreage for all wells, including Agricultural Units, In-Situ Remediation, Northwest Freshwater Reinjection, and monitoring wells.

lf = linear feet
gpm = gallons per minute

Comment [d1]: Totals are linear feet of trenching, we suggest adding a note to clarify

Comment [d2]: 140 gpm + 25% contingency

Comment [d3]: 5 + 15% contingency

Comment [d4]: Suggest clarifying that well estimates include the number of wells to be constructed; not all wells may be operating at one time

Table 2-6. Summary of Components under Alternative 4C-3

Optimization Period	Initial Buildout (0–5 years)	Year 5 (5–10 years)	Year 10 (10–20 years)	Year 20 (20+ years)
Agricultural Land Application				
Agricultural Units (AUs)[a]	575 acres			
AU Extraction Wells	80	80	102	~~103~~102
AU Pipeline	72,751 lf	72,751 lf	83,374 lf	83,374 lf
AU Extraction Flow	4,388 gpm	4,388 gpm	4,388 gpm	3,606 gpm
In-Situ Remediation Zone (IRZ)				
Extraction Wells	~~22~~21	~~22~~21	25	25
Injection Wells	108	108	111	111
Pipelines	39,240 lf	39,990 lf	42,365 lf	42,365 lf
Carbon-amended IRZ flow (SCRIA/SAIRZ)[b,c]	431 gpm	244 gpm	319 gpm	213 gpm
IRZ Recirculation flow (CAIRZ)[b, c]	~~279~~ 175 gpm	175 gpm	175 gpm	0 gpm
Ex-Situ Treatment				
~~Extraction~~ Injection Wells	31			
Pipelines	41,816 lf			
~~Extraction~~ System Flow (annualized average)	1,222 gpm			
Northwest Area Freshwater Injection				
Extraction/Injection Wells	~~5/4~~3/6			
Pipelines	36,669 lf			
Northwest Freshwater Reinjection Flow[b]	92 gpm			
Monitoring Wells/Supporting Infrastructure				
Monitoring Wells	558			
Wells and Supporting Infrastructure acreage[d]	54	54	56	56
Access roads (acres)	7	9	12	15

Notes:

All totals include existing infrastructure. All estimates have been scaled up from the data from the Feasibility Study and Addenda to account for a larger plume than used in the feasibility study. See discussion in text.

[a] Desert View Dairy, Gorman, Cottrell, Ranch, plus additional Agricultural Units.

[b] All flows are based on average annual rates.

[c] SCRIA refers to the South Central Reinjection Area.
SAIRZ refers to the Source Area In-Situ Remediation Zone.
CAIRZ refers to the Central Area In-Situ Remediation Zone.

[d] Includes acreage for all wells, including Agricultural Units, In-Situ Remediation, Northwest Freshwater Reinjection, and monitoring wells.

lf=linear feet

gpm = gallons per minute

Comment [d1]: Totals are linear feet of trenching, we suggest adding a note to clarify

Comment [d2]: 140 gpm + 25% contingency

Comment [d3]: 5 + 15% contingency

Comment [d4]: Suggest clarifying that well estimates include the number of wells to be constructed; not all wells may be operating at one time

Table 2-7. Summary of Components under Alternative 4C-4

Optimization Period	Initial Buildout (0–5 years)	Year 5 (5–10 years)	Year 10 (10–20 years)	Year 20 (20+ years)
Agricultural Land Application				
Agricultural Units (AUs)[a]	1,394 acres			
AU Extraction Wells	149	149	190	190
AU Pipeline	132,875 lf	132,875 lf	147,374 lf	147,374 lf
AU Extraction Flow	4,388 gpm			
In-Situ Remediation Zone (IRZ)				
Extraction Wells	~~22~~21	~~22~~21	25	25
Injection Wells	108	108	111	111
Pipelines	39,240 lf	39,990 lf	42,365 lf	42,365 lf
Carbon-amended IRZ flow (SCRIA/SAIRZ)[b,c]	431 gpm	244 gpm	319 gpm	213 gpm
IRZ Recirculation flow (CAIRZ)[b,c]	~~279~~175 gpm	175 gpm	175 gpm	0 gpm
Northwest Area Freshwater Injection				
Extraction Wells	~~5~~3			
Injection Wells	~~4~~6			
Pipelines	36,669 lf			
Northwest Freshwater Reinjection Flow[b]	92 gpm			
Monitoring Wells/Supporting Infrastructure				
Monitoring Wells	558			
Wells and Supporting Infrastructure acreage[d]	56	56	59	59
Access roads (acres)	8	8	9	9

Notes:
All totals include existing infrastructure. All estimates have been scaled up from the data from the Feasibility Study and Addenda to account for a larger plume than used in the feasibility study. See discussion in text.

[a] Desert View Dairy, Gorman, Cottrell, Ranch, plus additional Agricultural Units.
[b] All flows are based average annual rates.
[c] SCRIA refers to the South Central Reinjection Area.
SAIRZ refers to the Source Area In-Situ Remediation Zone.
CAIRZ refers to the Central Area In-Situ Remediation Zone.
[d] Includes acreage for all wells, including Agricultural Units, In-Situ Remediation, Northwest Freshwater Reinjection, and monitoring wells.
lf = linear feet
gpm = gallons per minute

Comment [d1]: Totals are linear feet of trenching, we suggest adding a note to clarify

Comment [d2]: 140 gpm + 25% contingency

Comment [d3]: 5 + 15% contingency

Comment [d4]: Suggest clarifying that well estimates include the number of wells to be constructed; not all wells may be operating at one time

Table 2-8. Summary of Components under Alternative 4C-5

Optimization Period	Initial Buildout (0–5 years)	Year 5 (5–10 years)	Year 10 (10–20 years)	Year 20 (20+ years)
Agricultural Land Application				
Agricultural Units (AUs)[a]	575 acres			
AU Extraction Wells	80	80	102	102
AU Pipeline	68,489 lf	68,489 lf	83,374 lf	83,374 lf
AU Extraction Flow[b]	3,167 gpm	3,167 gpm	3,167 gpm	2,618 gpm
In-Situ Remediation Zone (IRZ)				
Extraction Wells	19	19	23	23
Injection Wells	90	90	91	91
Pipelines	33,940 lf	34,690 lf	36,340 lf	36,340 lf
Carbon-amended IRZ flow (SCRIA~~/SAIRZ~~)[b,c]	244 gpm	244 gpm	319 gpm	213 gpm
IRZ Recirculation flow (CAIRZ)[b,c]	~~279~~ 175 gpm	175 gpm	175 gpm	0 gpm
Ex-Situ Treatment				
Extraction Wells	~~20~~6	~~20~~6	~~24~~6	~~24~~6
Injection Wells	10	10	13 (year 15)	13
Pipelines	7,719 lf	7,719 lf	8,594 lf	8,589 lf
~~Extraction~~ System Flow (annual)	250 gpm	250 gpm	250 gpm	~~0~~ 250 gpm
Northwest Area Freshwater Injection				
Extraction/Injection Wells	~~5/4~~3/6			
Pipelines	36,669 lf			
Northwest Freshwater Reinjection Flow[b]	92 gpm			
Monitoring Wells/Supporting Infrastructure				
Monitoring Wells	558			
Wells and Supporting Infrastructure(acres)[d]	52	52	54	54
Access roads (acres)	4	4	5	5

Notes:

All totals include existing infrastructure. All estimates have been scaled up from the data from the Feasibility Study and Addenda to account for a larger plume than used in the feasibility study. See discussion in text.

[a] Desert View Dairy, Gorman, Cottrell, Ranch, plus additional Agricultural Units.

[b] All flows are based on average annual rates.

[c] SCRIA refers to the South Central Reinjection Area.

~~SAIRZ refers to the Source Area In-Situ Remediation Zone.~~

CAIRZ refers to the Central Area In-Situ Remediation Zone.

[d] Includes acreage for all wells, including Agricultural Units, In-Situ Remediation, Northwest Freshwater Reinjection, and monitoring wells.

lf = linear feet

gpm = gallons per minute

Comment [d1]: Totals are linear feet of trenching, we suggest adding a note to clarify

Comment [d2]: 140 gpm + 25% contingency

Comment [d3]: 5 + 15% contingency

Comment [d4]: Suggest clarifying that well estimates include the number of wells to be constructed; not all wells may be operating at one time

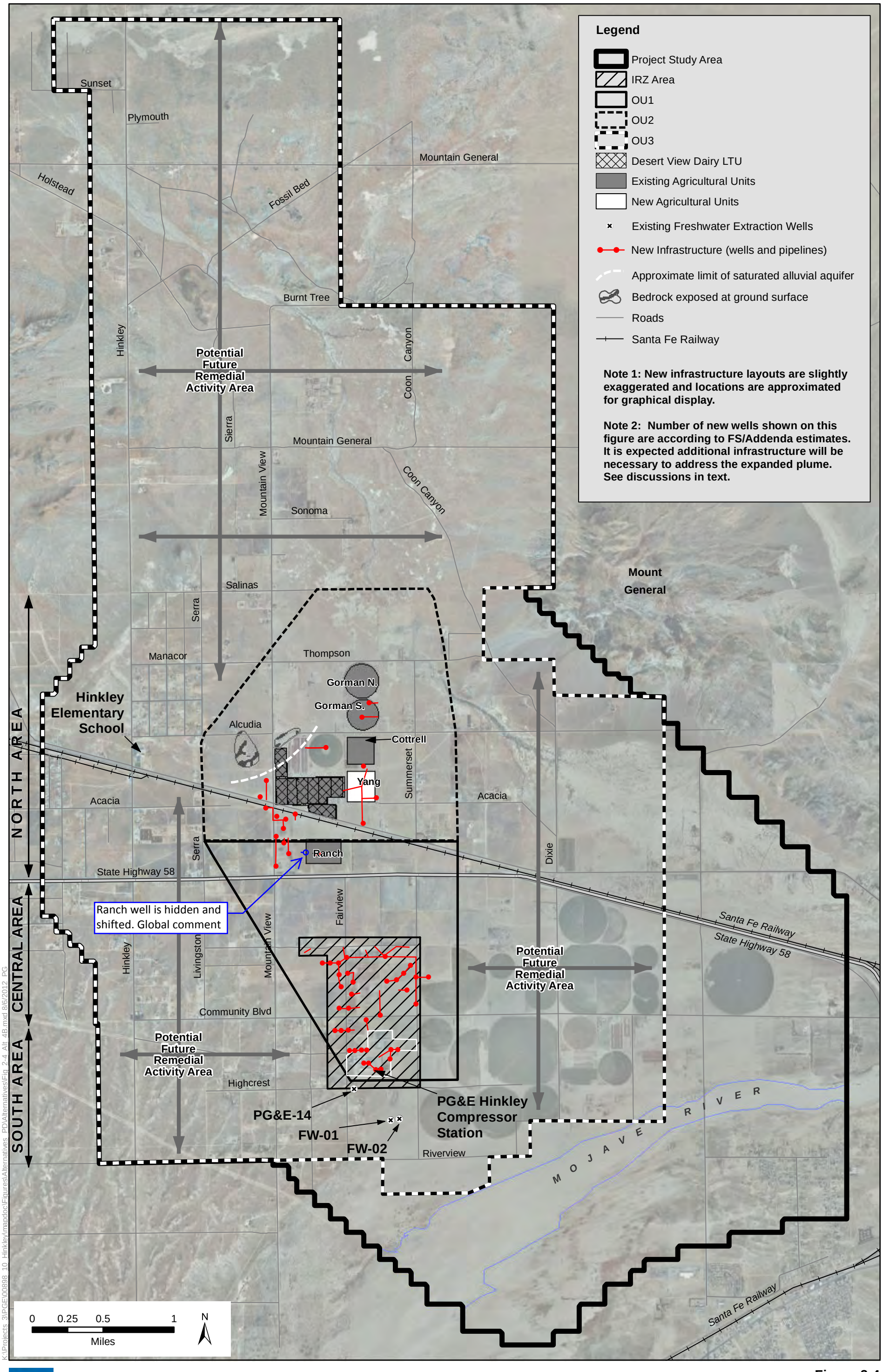


Figure 2-4
Alternative 4B Conceptual Layout (Initial Buildout to Year 20)

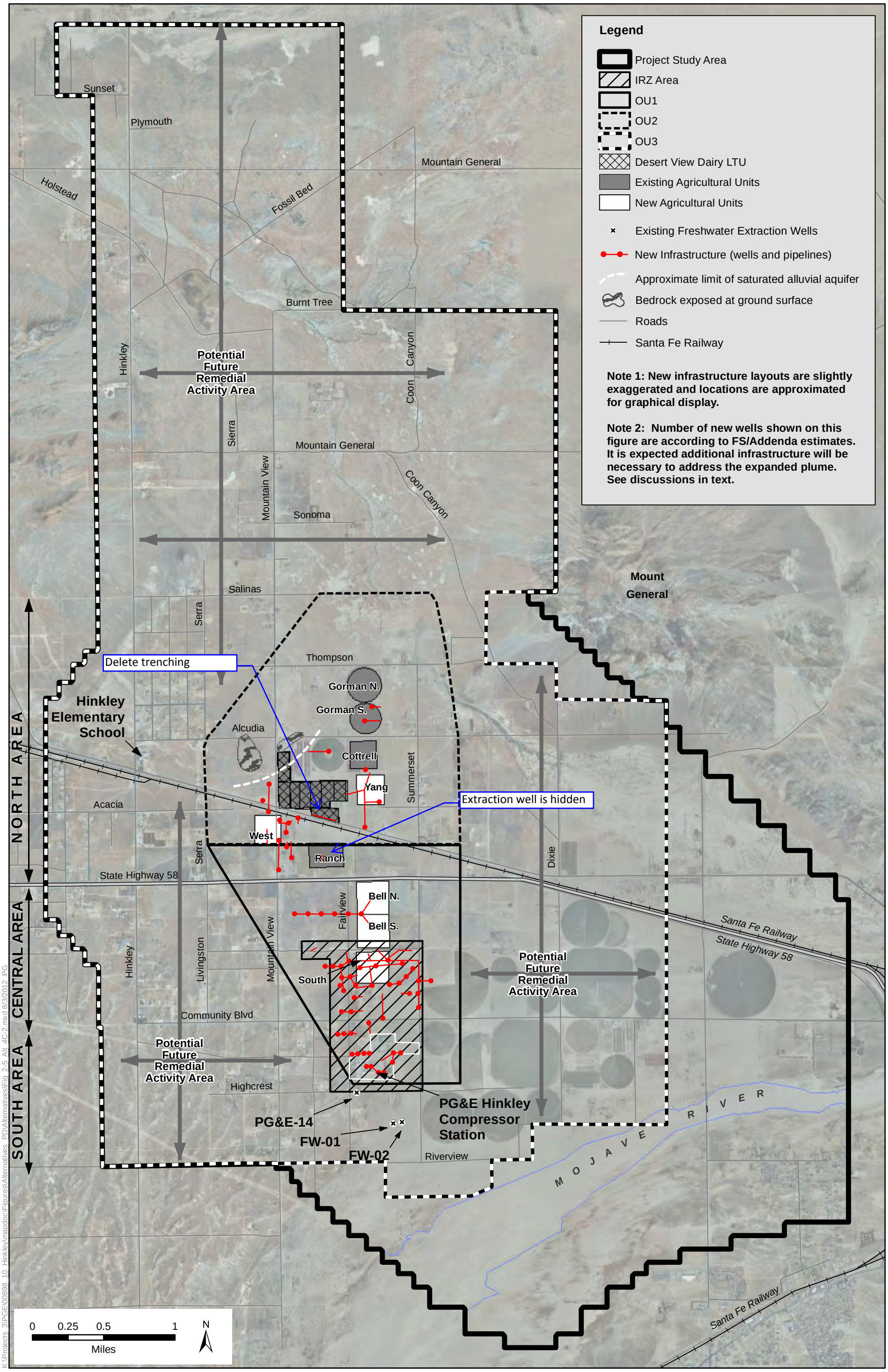


Figure 2-5
Alternative 4C-2 Conceptual Layout
(Initial Buildout to Year 20)

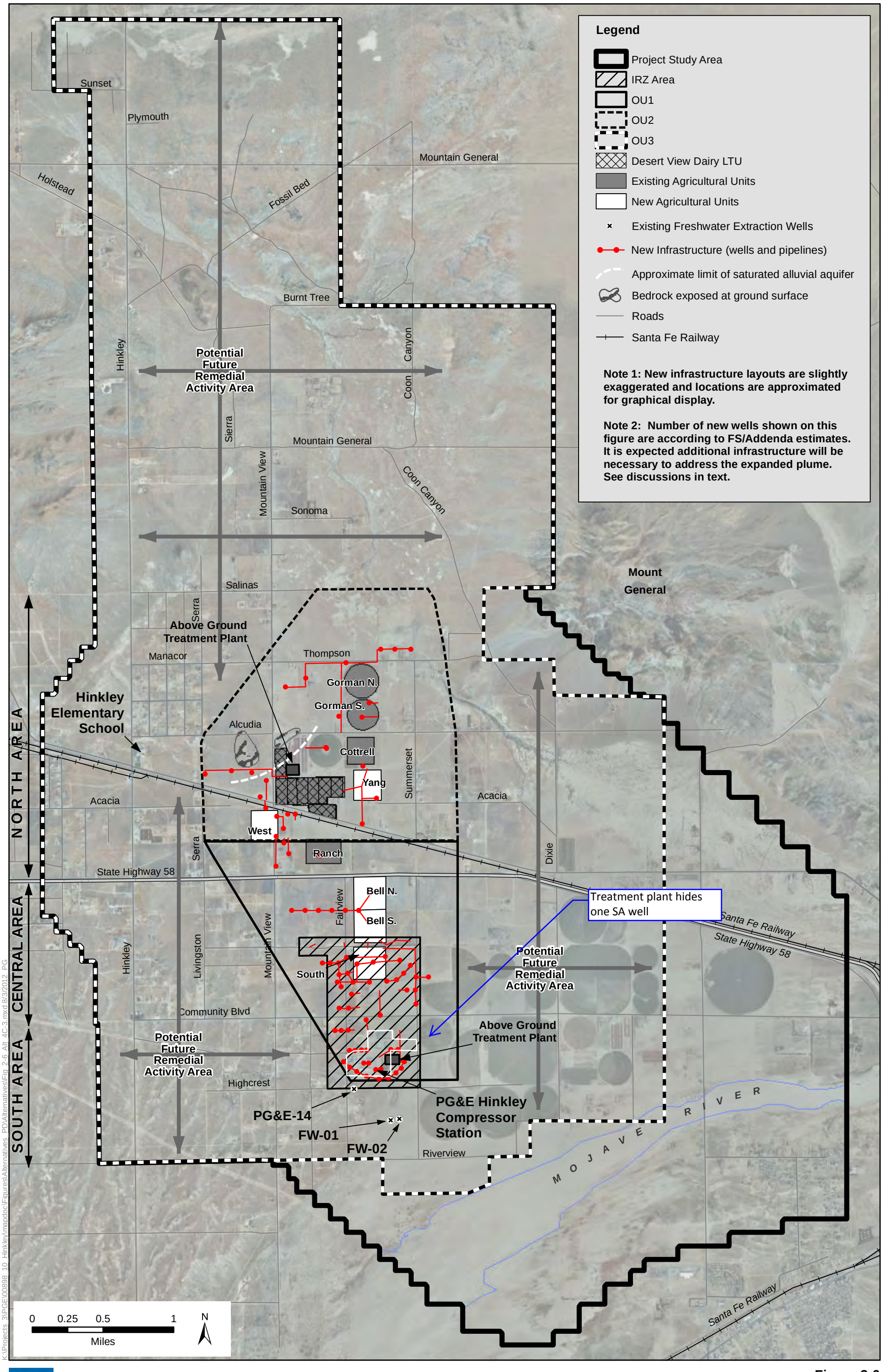


Figure 2-6
Alternative 4C-3 Conceptual Layout (Initial Buildout to Year 20)

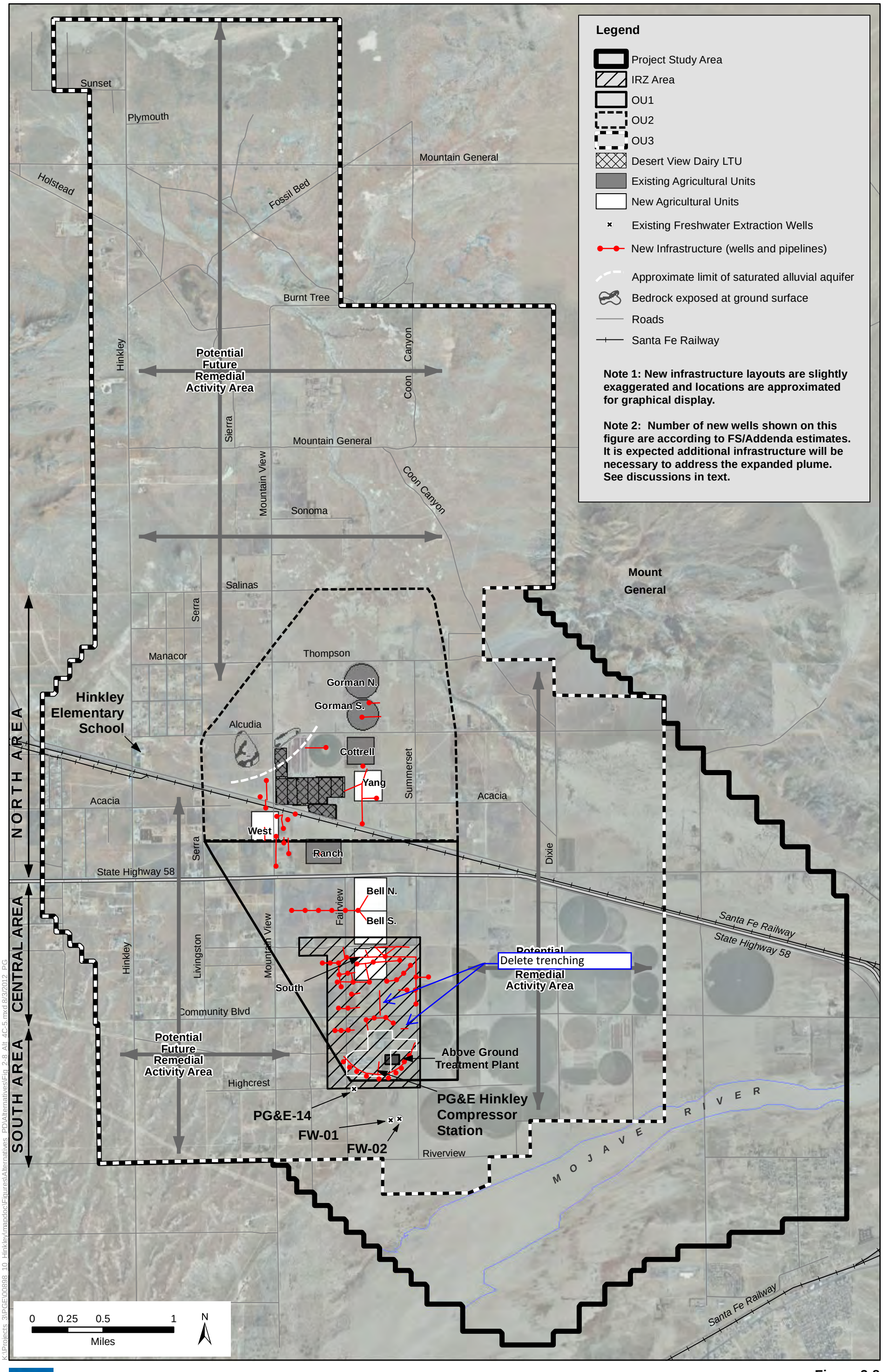


Figure 2-8
Alternative 4C-5 Conceptual Layout
(Initial Buildout to Year 20)

Table 3.5-9. Estimated New Construction Quantities by Alternative

	Before Scaling				After Scaling			
Alternative	Agricultural Treatment Unit (Acres)	Pipeline (linear feet)	Wells	Above-Ground Treatment Facility (square feet)	Agricultural Treatment Unit (Acres)	Pipeline (linear feet)	Wells	Above-Ground Treatment Facility (square feet)
No Project	0	16,407	45	0	0	16,407	45	0
4B	40	19,557	48	0	264	58,805	219	0
4C-2	~~168~~169	26,142	60	0	~~392~~393	68,245	233	0
4C-3	~~168~~169	50,322	~~82~~79	81,060	~~392~~393	~~72,507~~114,323	265	125,705
4C-4	713	40,572	~~63~~60	0	1,212	132,631	303	0
4C-5	~~168~~169	~~32,317~~28,077	60	37,500	~~392~~393	70,664	~~233~~234	37,500

Notes:
All numbers represent new infrastructure in addition to that which already existed as of late 2011.
"Before Scaling" refers to the data on remedial infrastructure provided by PG&E based on the conceptual alternatives design in the Feasibility Study/Addenda. As discussed in Chapter 2, the Feasibility Study/Addenda evaluated the remedial infrastructure needed to address chromium plume as it is existed in 2010 and early 2011.
"After Scaling" refers to estimates of the potential amount of remedial infrastructure that may be needed to address the chromium plume as it existing in the Fourth Quarter 2011, when it was somewhat larger than in 2010 and early 2011, plus an assumed 15% potential expansion in the future. As discussed in Chapter 2, ICF worked with PG&E to scale up the potential infrastructure using various scaling factors and considerations for different remedial actions. The "after scaling" numbers are used for environmental analysis as they represent a conservative estimate.

Comment [d1]: 351-182

Comment [d2]: 575-182

Comment [d3]: +41,816 ex-situ trenching

Comment [d5]: 51 AU wells + 39 IRZ +20 ex-situ + 124 monitoring = 234

Comment [d4]: 16,407-4,240(Source Area)+9,735+6,175 = 28,077

3.5.5.2 Operations Emissions

Operational activities associated with each alternative would result in a continuous source of criteria pollutant and GHG emissions associated with worker vehicle commute trips, materials delivery truck trips, waste hauling truck trips, and the operation of wells and above-ground treatment facility equipment.

Emissions associated with worker vehicle commute trips, materials delivery truck trips, and waste hauling truck trips from each alternative were quantified using emission factors from the EMFAC2011 web tool and trip data from the project applicant. Exhaust emission factors from EMFAC2011 for light duty vehicles, light duty trucks, and medium duty vehicles were utilized in conjunction with the worker commute trip data received from the project applicant in estimating emissions associated with worker trips. Similarly, an emission factor for heavy-duty tractor trucks was used with the materials delivery and waste hauling trip data to account for delivery and waste hauling trips. Re-entrained road dust was quantified using EPA re-entrained road dust methodologies for paved and unpaved roads. The variables used to estimate motor vehicle emissions are summarized in Table 3.5-10. Note that while materials delivery and waste hauling trips would occur sporadically throughout the year, the daily emission calculations assume one trip on the maximum day.

Table 3.5-10. Maintenance and Operations Sources of Emissions by Alternative

		Totals Before Scaling		Totals After Scaling (1)	
Alternative	Activities	Max. Daily	Annual	Max. Daily	Annual
Existing	*Worker Commute (VMT)*	*25*	*6,000*	*25*	*6,000*
	Ethanol Deliveries (VMT)	*240*	*~~2,880~~1,485*	*240*	*~~2,880~~1,485*
	Electricity Consumption (kwh)	*8,510*	*2,042,501*	*8,510*	*2,042,501*
No Project	Worker Commute(VMT)	25	6,000	25	6,000
	Ethanol Deliveries (VMT)	240	~~2,880~~1,485	240	~~2,880~~1,485
	Electricity Consumption (kwh)	27,422	6,581,323	27,422	6,581,323
Alternative 4B	Worker Commute (VMT)	50	12,000	73	17,549
	Ethanol Deliveries(VMT)	240	~~2,880~~1,485	300	~~4,212~~1,856
	Electricity Consumption (kwh)	29,055	6,973,263	42,491	10,197,856
	Harvesting and Plowing (acres)	--	40	--	264
Alternative 4C-2	Worker Commute (VMT)	50	12,000	72	17,164
	Ethanol Deliveries (VMT)	240	~~2,472~~1,485	300	~~3,536~~1,856
	Electricity Consumption (kwh)	30,362	7,286,815	42,491	10,422,673
	Harvesting and Plowing (acres)	--	168	--	392
Alternative 4C-3	Worker Commute (Ex-Situ) (VMT)	120	28,800	186	44,662
	Material Deliveries (Ex-Situ) (VMT)	240	2,880	372	4,466
	Worker Commute (VMT)	288	69,120	418	100,242
	Ethanol Deliveries (VMT)	240	1,485	300	~~2,154~~1,856
	Treatment Residue Disposal (VMT)	424	5,088	658	7,890
	Ex-Situ Diesel Fuel (gallons)	5	1,200	8	1,861
	Electricity Consumption (kwh)	40,424	9,701,702	58,625	14,069,994
	Harvesting and Plowing (acres)	--	168	--	392
Alternative 4C-4	Worker Commute(VMT)	50	12,000	97	23,268
	Ethanol Deliveries(VMT)	240	~~2,472~~1,485	300	~~4,793~~1,856
	Electricity Consumption (kwh)	30,484	7,316,211	59,109	14,186,259
	Harvesting and Plowing (acres)	--	713	--	1,212

Comment [d6]: There are only a few ethanol deliveries per year

Comment [d7]: 288 miles per day which assumes 4 people for 3 shifts (12 miles each way). This number is excessive by a factor of 2 or more

Comment [d8]: 240 VMT/month, not daily

Comment [d9]: 424 VMT/month, not daily

Alternative	Activities	Totals Before Scaling Max. Daily	Totals Before Scaling Annual	Totals After Scaling (1) Max. Daily	Totals After Scaling (1) Annual
Alternative 4C-5	Worker Commute (Ex-Situ) (VMT)	120	28,800	120	28,800
	Material Deliveries (Ex-Situ) (VMT)	240	2,880	240	2,880
	Worker Commute (VMT)	400	96,000	572	137,214
	Ethanol Deliveries (VMT)	240	1,485	300	~~2,123~~1,856
	Treatment Residue Disposal (VMT)	424	5,088	424	5,088
	Ex-Situ Diesel Fuel (gallons)	5	1,200	5	1,200
	Electricity Consumption (kwh)	30,261	7,262,532	43,252	10,380,413
	Harvesting and Plowing (acres)	--	168	--	392

Source: PG&E 2011, 2012 data responses.

(1) Data shown herein is the total for each emission source by alternative, and not net new over existing.

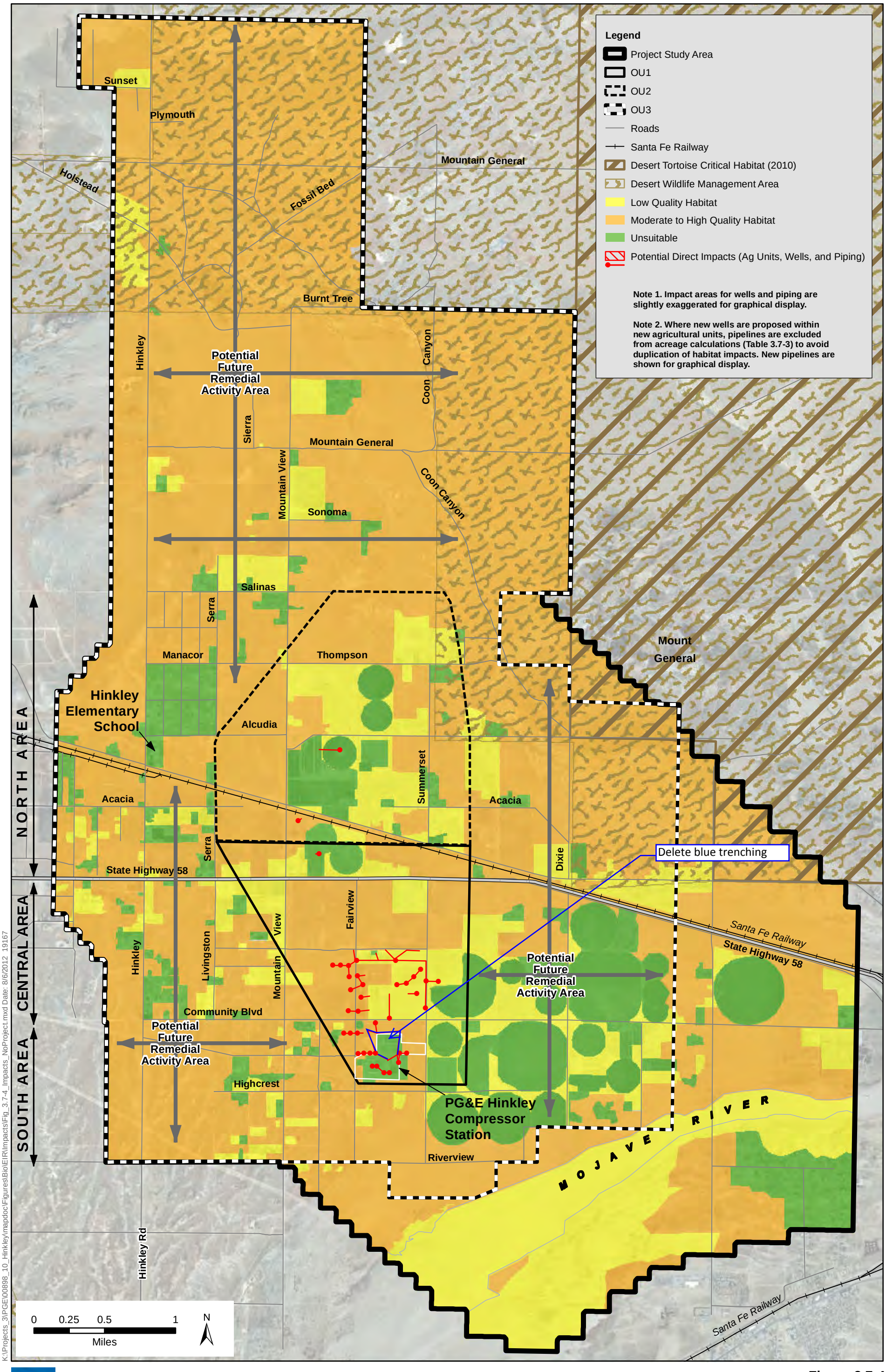
(2) PG&E data based on Feasibility Study/addenda based on February 2011 plume. ICF scaled up based on estimated plume size 15% larger than December 2011 plume (see discussion in Chapter 2, *Project Description*).
Scaling factors used: Worker Commute(Ex-Situ) = ex situ gpm; Material Deliveries(Ex-Situ) = ex situ gpm; Worker Commute(VMT/day) = # of wells (not including monitoring wells); Ethanol Deliveries(VMT/day)= carbon injection gpm; Treatment Residue Disposal(VMT/day) = ex situ gpm; Ex-Situ Diesel Fuel (gals/yr)= ex situ gpm; Electricity Consumption(kwh/yr) = # of wells (not including mon. wells).

VMT = vehicle miles traveled; kwh = kilowatt hours; yr = year; ex-situ = above-ground treatment facility

Comment [d10]: 288 miles per day which assumes 4 people for 3 shifts (12 miles each way). This number is excessive by a factor of 2 or more

Comment [d11]: 240 VMT/month not daily

Comment [d12]: 424 VMT/month, not daily



K:\Projects_3\PGE\00898_10_Hinkley\mapdoc\Figures\BioEIR\Impacts\Fig_3.7-4_Impacts_NoProject.mxd Date: 8/6/2012 19167

Figure 3.7-4
No Project Alternative
Potential Areas of Direct Impacts

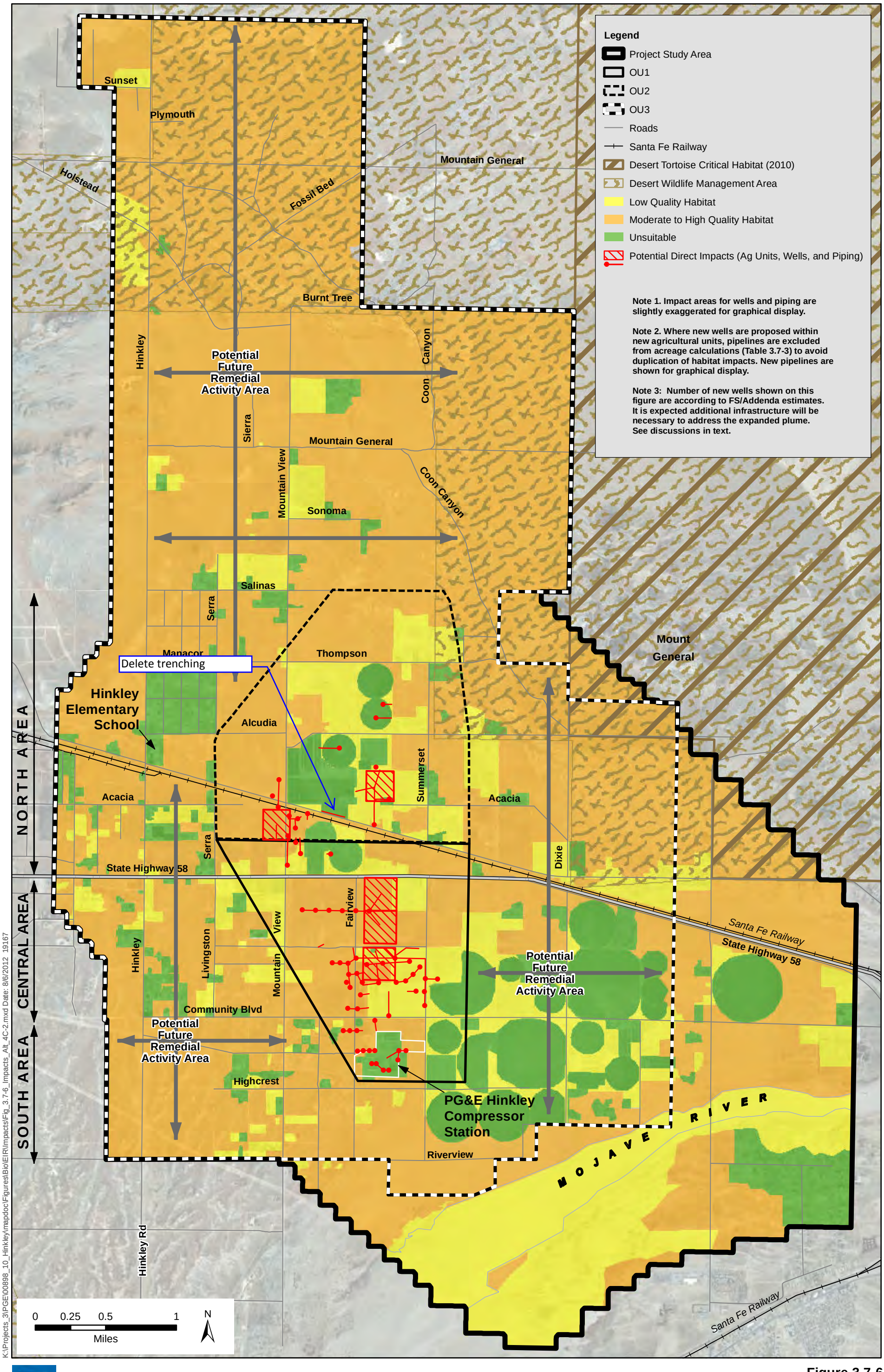


Figure 3.7-6
Alternative 4C-2
Potential Areas of Direct Impacts

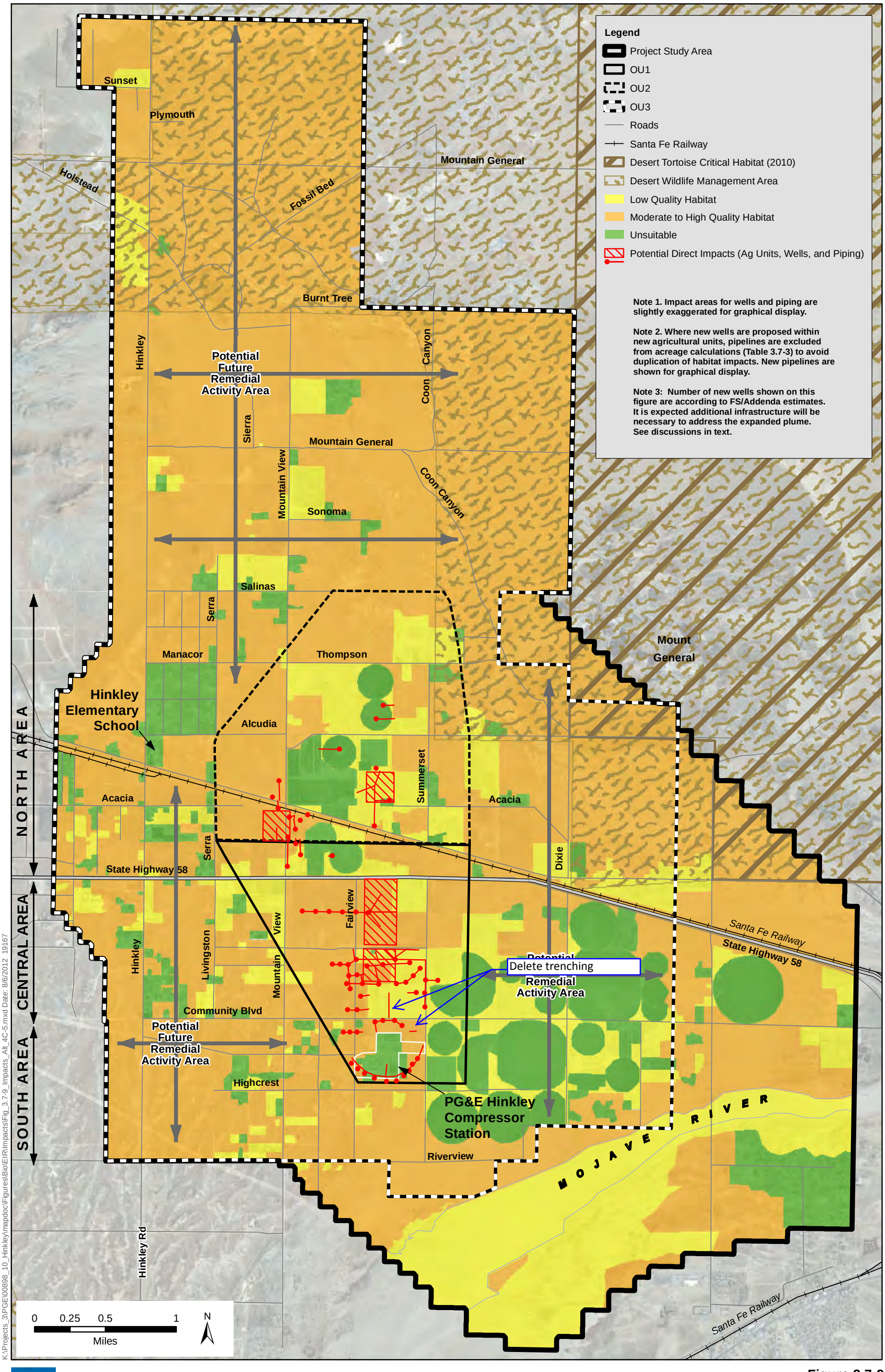


Figure 3.7-9
Alternative 4C-5
Potential Areas of Direct Impacts

Attachment 2 – Discussion of Alternate Mitigation Options for Effects due to Agricultural Treatment

Background: A key aspect of the proposed remedy is the use of agricultural treatment for treatment of hexavalent chromium. In addition to being a well-proven method for groundwater treatment, this treatment approach has several large-scale benefits for the community and the environment, including:

1) Beneficial utilization of the groundwater resource during the life of the cleanup
2) Production of a useful, locally-used product (crops/animal feed)
3) Creating a land use that is consistent with and builds upon the agricultural heritage of the Hinkley area
4) Providing employment for local agricultural-related workers and contractors
5) Potential avoidance of greenhouse gas and other transport-related emissions due to the reduction in trucking of animal feeds from areas outside the Hinkley Valley
6) Providing a basis for a stable, sustainable economic activity in the Hinkley area

As noted in the EIR, agricultural treatment may have impacts on groundwater quality (such as potential increases in total dissolved solids [TDS] and nitrate). At some level, these impacts may require mitigation, as set out in Mitigation Measures WTR-MM-4, WTR-MM-5 and WTR-MM-6 of the draft EIR. This addendum is intended to offer an alternative and potentially superior approach to these draft mitigation measures for the RWQCB's consideration.

Groundwater quality issues related to agricultural impacts are a challenge facing much of California. State Water Board Policies acknowledge the need for area-wide and basin-wide approaches to salt and nutrient management. This is shown in the state's Recycled Water Policy, adopted in Resolution No. 2009-0011.[1] A Regional Water Quality Control Board, Lahontan Region (LRWQCB) staff briefing to the Board in January 2012 stated in part "The Recycled Water Policy…. establishes goals to manage a sustainable water supply through increased use of recycled water, enhanced stormwater management, and improved water conservation efforts. The Water Boards have determined that regulating individual waste discharges in a groundwater basin may not be effective or efficient at ensuring long-term protection of groundwater resources and its beneficial uses without some overall evaluation of potential salt and nutrient loading."

The location and geometry of the Hinkley plume may afford a unique opportunity for positive basin-level salt and nutrient management approaches. Conceptually, if beneficial uses of groundwater in the basin (such as farming) can be relocated from an area where they may cause a significant impact (near other quality-sensitive water users) to an area where they do not (in an area away from other quality-sensitive

[1] Language from this policy states: These challenges also present an unparalleled opportunity for California to move aggressively towards a sustainable water future. The State Water Resources Control Board (State Water Board) declares that we will achieve our mission to "preserve, enhance and restore the quality of California's water resources to the benefit of present and future generations." To achieve that mission, we support and encourage every region in California to develop a salt/nutrient management plan by 2014 that is sustainable on a long-term basis and that provides California with clean, abundant water. These plans shall be consistent with the Department of Water Resources' Bulletin 160, as appropriate, and shall be locally developed, locally controlled and recognize the variability of California's water supplies and the diversity of its waterways. We strongly encourage local and regional water agencies to move toward clean, abundant, local water for California by emphasizing appropriate water recycling, water conservation, and maintenance of supply infrastructure and the use of stormwater (including dry-weather urban runoff) in these plans; these sources of supply are drought-proof, reliable, and minimize our carbon footprint and can be sustained over the long-term. We declare our independence from relying on the vagaries of annual precipitation and move towards sustainable management of surface waters and groundwater, together with enhanced water conservation, water reuse and the use of stormwater.

users), then the overall water quality and usefulness of the groundwater resources of the basin may actually be improved (when compared to baseline conditions).

PG&E is planning to explore this option in cooperation with existing farmers and dairy producers in the Hinkley area. Conceptually, the idea of a 'farm swap' during the life of a cleanup may offer significant environmental benefits. By having a local farmer remove a given field from production (idling), and transferring that pre-existing farming to a field planned for use as part of the remedy, the overall net effect will be that no extra salt or nutrient impacts will be created. In fact, if the idled field uses an older, less efficient form of irrigation (when compared to a new high-efficiency irrigation method such as drag drip, as discussed below) the overall environmental impact of this farming activity will be reduced. This reduction in net environmental impact may reduce or eliminate the need for some of the mitigation measures.

In a related but separate vein, the agricultural approaches being used at Hinkley may hold promise for a net reduction of the potential groundwater impacts of agriculture in the area. The advanced drag-drip irrigation systems currently being deployed at the site have several benefits for arid-land agriculture. By applying water directly to the base of the crop (rather than spraying it out into the air) a significant source of evaporation is eliminated. This reduction in evaporation results in less water use per unit of agricultural production, which is turn leads to the following environmental benefits:

1) Less use of limited groundwater resources
2) Reduction in agriculture-induced aquifer drawdown
3) Lower salt loading to the aquifer for a given unit of agricultural production
4) Reductions in electric use for pumping (thereby reducing secondary effects of power generation such as GHG emissions, transmission impacts, etc.,)

The higher capital costs of the drag-drip systems have been a deterrent to having local farmers employ this method. PG&E is prepared to explore the development of demonstration/incentive programs to encourage adaptation of these or similar conservation-focused agricultural techniques for the Mohave basin. PG&E believes that having the current agricultural units as demonstration units that local farmers can see and observe in everyday use may assist in dispelling concerns about operational issues, maintenance, etc. Such a conservation program, if successful, would reduce the net water usage and salt and nutrient load on the basin. This reduction would serve as mitigation for the potential impacts of the project.

PG&E believes that these approaches offer a significant opportunity for environmental benefits at the area and basin level of analysis. However, it is important that these approaches are not misconstrued to mean impacts to water users in the immediate vicinity of the project will not be mitigated. PG&E notes that Mitigation Measure WTR-MM-2: Water Supply Program for Wells that are Affected by Remedial Activities is specifically designed to address and mitigate this concern. PG&E is fully supportive of the adoption of WTR-MM-2, and regardless of approach, will work to minimize and, if necessary, mitigate the potential impacts of the remedy on local groundwater users.

As such, PG&E offers the draft text edits for the RWQCB's consideration. The intent of the text is to provide the necessary flexibility to allow PG&E to pursue the programs described above. It is structured to provide alternatives: either mitigation via the use of the alternative mitigation strategies enumerated here, OR to ensure mitigation via the approaches already contained within the EIR. The existing language from the EIR has been extensively copied below. At the RWQCB's discretion, PG&E is prepared to assist in the refinement of this language, in order to allow for these environmentally superior alternative mitigations to be employed.

Proposed Revised EIR text is provided below in italics.

Mitigation Measure WTR-MM-4: Mitigation Program for Restoring the Hinkley Aquifer Affected by Remedial Activities for Beneficial Uses

This requirement holds PG&E responsible for restoring the Hinkley aquifer back to baseline conditions to the extent changes from baseline conditions are attributable to the implementation of the remedy, or otherwise mitigating the effects on the aquifer of the remedial actions.

Due to the beneficial nature of the agricultural treatment proposed for the site, this may be accomplished in one of two ways, or some combination thereof:

1) *Aquifer restoration*
2) *Agricultural offsets and/or salt/nutrient mitigation*

Aquifer restoration

1) *No later than 5 years prior to the conclusion of the proposed project, PG&E will conduct an assessment to evaluate adverse impacts or potential adverse impacts to the Hinkley aquifer from its remedial actions.*

a) *If the assessment finds that (i)the aquifer contains constituents, exceeding drinking water standards or water quality objectives and are in excess of baseline conditions and of the assimilative capacity of the aquifer, (ii) that these constituents are likely to be present upon the conclusion of remedial actions in a manner that would restrict beneficial uses of the aquifer and (iii) that these changes from baseline conditions are attributable to the implementation of the remedy, PG&E will propose cleanup actions to restore the aquifer for beneficial uses as soon as possible, as approved by the Water Board. Aquifer water quality restoration to baseline conditions will occur no longer than 30 years after completion of chromium remediation.*

b) *If the assessment finds that the aquifer includes groundwater drawdown such that domestic or agricultural wells were still experiencing water supply shortages and require alternative water supplies, and these excess levels are likely to exist upon the conclusion of remedial actions, and these changes are attributable to the implementation of the remedy, PG&E will propose actions to restore the aquifer for beneficial uses as soon as possible, as approved by the Water Board or Mojave Water Agency. The assessment shall specify the time required for restoration activities, and groundwater levels will be restored to baseline conditions within that time frame, subject to adjustment as needed, with approval of the Water Board or the Mojave Water Agency, based on the implementation of the restoration activities.*

c) *Every year following preparation of the assessment, PG&E must submit a status report of actions to restore the aquifer for beneficial uses. The status report will describe all actions taken over the course of the year and list proposed actions for implementation during the following year. An updated schedule will be provided predicting fulfillment of aquifer restoration.*

Agricultural offsets and or salt/nutrient mitigation

2) *In the case of impacts due to agricultural treatment, it is recognized that some increases in TDS and other dissolved constituents may occur. These potential increases are an inherent result of the beneficial use of the aquifer for farming, and are similar to impacts that are caused by other agriculture in the Hinkley Valley and the greater Mojave Basin. Acknowledging that salt and*

nutrient issues are most effectively managed on a basin-wide plan, the Board may approve the use of agricultural offsets, or salt and nutrient management programs in lieu of aquifer restoration as set forth in item 1a above (or to reduce the scope of potential aquifer restoration). (However, this section is not intended to relieve PG&E of any responsibility for mitigating impacts to individual well owners as described in MM-WTR-2.) The measures used under this section must provide an equivalent level of mitigation , and may include the following:

a) *Temporary relocation of current farming activities (agricultural offsets) – extensive farming is currently taking place in close proximity to the planned remediation site. PG&E may work with farmers to relocate existing agricultural activities into the footprint of currently planned AUs; or may elect to pipe water from the current extraction wells to nearby currently irrigated fields. These agricultural offsets will have the net effect of not adding additional agriculture to the basin, and shall therefore serve as complete mitigation for the water quality impacts to the aquifer of those agriculture units which are offset (on an acre for acre basis). However, this section is not intended to any relieve PG&E of responsibility for mitigating impacts to individual well owners as described in MM-WTR-2.*

b) *Funding of salt/nutrient management planning and mitigation programs – PG&E may work with farmers, local agencies and other interested parties to develop salt/nutrient management, planning and mitigation programs. These programs may include measures such as incentives and outreach for reducing water use in local agriculture, funding for development of regional plans, studies and strategies, and/or funding for regional salt/nutrient removal or management programs.*

Mitigation Measure WTR-MM-5: Investigate and Monitor Total Dissolved Solids, Uranium, and Other Radionuclide Levels in relation to Agricultural Treatment and Take Contingency Actions

The Water Board will include requirements in the new CAO and/or associated WDRs issued for the remediation as follows:

- *PG&E will submit an investigation plan to the Water Board concerning TDS, uranium, and other radionuclides levels in relation to existing agricultural treatment by sampling water used for agricultural treatment and in groundwater upgradient, beneath and downgradient of agricultural treatment units*
- *After approval of the investigation plan by the Water Board, PG&E will conduct the investigation and provide the results to the Water Board along with an analysis of whether agricultural treatment is affecting naturally occurring uranium levels.*
- *PG&E will monitor all new agricultural treatment units by establishing a baseline of TDS, uranium, and other radionuclides levels at the outset agricultural treatment and during operation.*
- *If TDS, uranium, and other radionuclides levels are determined to increase measurably by a statistically significant amount due to agricultural treatment associated with remedial actions, then PG&E will monitor these levels in and adjacent to all agricultural treatment units for the duration of operation and propose remedial methods to restore the aquifer to baseline conditions.*
- *If the study of agricultural units indicates that TDS, uranium, and other radionuclide concentrations increase due to agricultural operations associated with remedial action and boundary monitoring confirms an increase in these levels, then corrective actions and or alternative water supplies will be provided per* ***Mitigation Measure WTR-MM-2*** *and* ***Mitigation***

Measure WTR-MM-4 *will be implemented toward the end of chromium plume remediation to restore aquifer beneficial uses.*

Alternatively, this mitigation measure may be implemented through the use of the Agricultural offsets and or salt/nutrient mitigation program as described in Mitigation Measure WTR-MM-4.

Mitigation Measure WTR-MM-6: Monitor Nitrate Levels and Manage Agricultural Treatment to Avoid Significant Increases in Nitrate Levels and Provide Alternative Water Supplies As Needed

Agricultural treatment will likely reduce nitrate levels in the groundwater aquifer overall. However, if groundwater is extracted from an area of higher nitrate concentrations and then treated in an area with much lower nitrate concentrations, it is possible that nitrate concentrations could increase in those areas.

The Water Board will include requirements in the new CAO and/or associated WDRs issued for the remediation as follows:

- *Given that prior agricultural treatment at the Desert View Dairy has been shown to reduce nitrate levels substantially, it is possible that use of irrigation water with higher nitrate levels may not result in increased nitrate levels in groundwater beneath new agricultural treatment locations. In order to confirm if this is occurring, PG&E will monitor nitrate levels for one year before creating new agricultural treatment units (as feasible without delaying remediation), monitor at the start of new agricultural treatment, and continue monitoring nitrate levels during implementation of all new agricultural treatment units. If nitrate levels do not increase above 10 ppm (as N) or by more than 10% compared to existing levels (if current levels are already above 10 ppm as N) and is statistically significant, or by more than 20% compared to existing levels (if current levels are less than 10 ppm as N) and is statistically significant then no further action, other than monitoring, will be required.*
- *If monitoring indicates that nitrate levels are approaching 10 ppm (as N) or increasing by more than the criteria noted above, then PG&E will implement a contingency plan for managing nitrate levels which may include some combination of the following:*
    - *Extraction source water will be shifted from application where it would raise concentrations substantially to locations with existing higher concentrations provided it would not cause an exceedance of nitrate levels at any domestic well.*
    - *Extraction source water will be blended before application to agricultural treatment units so as to avoid exceedance of 10 ppm as N and avoid increases in existing levels that exceed the criteria noted above.*
    - *Above-ground treatment may be used as necessary to meet the concentration levels described above.*
    - *If control of nitrate cannot meet these requirements, PG&E may request permission from the Water Board to allow temporary increases in nitrate conditions at certain agricultural treatment units, if and only if, the following can be demonstrated:*
        - *no domestic wells will contain nitrate concentrations above 10 ppm or an increase in nitrate levels exceeding the criteria above; or*
        - *PG&E will provide whole house water for any affected domestic well until such a time as nitrate concentrations return to existing concentrations at the affected well, and*
        - *PG&E will be held accountable for implementing remedial methods to restore the aquifer to baseline conditions.*

- *PG&E will estimate the duration of nitrate impairment of water quality due to remedial activities and will identify how affected groundwater nitrate levels will return to background conditions prior to the timeframe for remediation of the chromium plume to the established cleanup levels. The duration of nitrate impairment due to remedial activities may possibly extend beyond the time necessary to remediate the chromium plume; the goal of remedial operation in the later stages of the cleanup should be to minimize the duration of all impacts.*

- *The Water Board will retain the authority to approve or deny temporary impairment of the aquifer due to nitrate contamination and will make determinations on a case by case basis taking into account information on remedial progress, the affected wells and community, the certainty of returning affected groundwater to background water quality over time and any other relevant considerations.*

Alternatively, this mitigation measure may be met through the use of the Agricultural offsets and or salt/nutrient mitigation program as described in Mitigation Measure WTR-MM-4.

(1) Is water replacement available for livestock as well?

(2) Are beef and milk from dairy safe to consume?

(3) How safe is exposure to swamp coolers?

(4) How long will water replacement last? should be life time

Loren Pitts

November 4, 2012

Jonathan Quass

Anne Holden
Lahontan Water Board
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150.
aholden@waterboards.ca.gov

Dear Ms. Holden,

I have reviewed the Draft Environmental Impact Report (EIR) for chromium cleanup in groundwater at Hinkley (the "Project"). I submit these comments to you in regards to the Project's impacts on arsenic and manganese in Hinkley groundwater.

The State CEQA Guidelines require an EIR summary to identify areas of controversy known to the Lead Agency including issues raised by agencies and the public. (State CEQA Guidelines § 15123.) When the EIR was released for public review, the Lahontan Water Board ("LWB") was aware of the areas of controversy affecting this proposed project. However, the EIR did not include increases in secondary byproducts, such as dissolved arsenic and manganese, in the discussion of areas of known controversy. As a result of carbon injection remediation techniques, PG&E has already increased the amount of these byproducts in our groundwater. Further, these by products may potentially be another threat to human health in our community. Accordingly, LWB should revise this section of the EIR to reflect this issue of vital importance to the community.

Under CEQA, a lead agency must describe the physical conditions in the area of the project at the time the Notice of Preparation is released. (State CEQA Guidelines, § 15125.) This "environmental setting" is normally the baseline condition against which a project's impacts are measured. (Ibid.) The selection of the baseline cannot be arbitrary, and must set forth a good faith and complete explanation for why a baseline other than the environmental setting is justified; this explanation must be supported by substantial evidence to be upheld. (*E.g., County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931.) The EIR attempts to set the baseline for "Concentrations of Other Constituents" such as arsenic and manganese. However, the EIR's description of the Environmental Setting contains several significant problems under CEQA and cannot be certified until these issues are corrected.

The EIR claims that the background levels of arsenic in the Hinkley area may range from less than 1 ppb to 200 ppb. However, the data that LWB used to reach its estimate of background levels does not reflect the changed conditions in Hinkley. Specifically, the EIR relied upon studies conducted in 2001 and 2007, both of which do not account for the PG&E's use of carbon-amendment injections to groundwater, and thus reflects levels prior to in-situ

remediation. (EIR 3.1-32.) Accordingly, LWB should conduct an independent study to determine the current background levels of arsenic in the project area, which will include the arsenic currently in the groundwater as a result of PG&E's carbon-amendment injections. The LWA should also consider the Mojave Water Agency's 1997 study entailed "Concentrations for Total Dissolved Solids, Arsenic, Boron, Fluoride, and Nitrite-Nitrate for Wells Sampled in the Mojave Water Agency Management Area, California, 1991-1997." (available at http://www.mojavewater.org/document-library.html.)

The EIR also provides manganese is a naturally-occurring in Hinkley and ranges from less than 1 ppb to 48 ppb. (EIR 3.1-33.) Again, the data that LWB used to reach its estimate of background levels does not reflect the changed conditions in Hinkley. The EIR relied upon one single study conducted in 2007, which does not account for the PG&E's use of carbon-amendment injections to groundwater, and thus reflects levels prior to in-situ remediation. (EIR 3.1-33.) Accordingly, LWB should conduct an independent study to determine the current background levels of manganese in the project area, which will include the manganese currently in the groundwater as a result of PG&E's carbon-amendment injections.

The EIR plainly states that carbon-amendment injections to groundwater result in an increase in arsenic and manganese. Specifically, "[a]rsenic levels in groundwater increase from less than 1 ppb to 15 ppb in areas up to 500 feet downgradient of the carbon injection point." (EIR 3.1-32.) Further, "manganese levels in groundwater increased from less than 226 ppb up to over 4,000 ppb in areas downgradient of the carbon injection point and then declined back toward initial levels over time and distance as organic carbon levels dropped." (EIR 3.1-33.) Thus, the EIR's depiction of the environmental setting as it relates to arsenic and manganese does not reflect the increases that have occurred as a result of carbon-amendment injections.

Section 3.1 of the EIR claims that project impacts to water supply associated with dissolved manganese and arsenic can be reduced to a less than significant level through Mitigation Measures WTR-MM-2 (alternative water supply), WTR-MM-4 (remediation of byproduct plumes) and WTR-MM-7 (byproduct plume control). However, LWB cannot assume that these mitigation measures will be effective unless the current levels of arsenic and manganese is disclosed as required by CEQA. (State CEQA Guidelines, § 15125.) The EIR is insufficient for failure to determine the existing environmental setting as required by CEQA.

Sincerely,

Jonathan Quass

Holden, Anne@Waterboards

From: Kouyoumdjian, Patty@Waterboards
Sent: Monday, November 05, 2012 5:21 PM
To: lester white; Kemper, Lauri@Waterboards; Holden, Anne@Waterboards; Plaziak, Mike@Waterboards; Dernbach, Lisa@Waterboards; amy-horne
Subject: RE: EIR comment

Lester:

Thank you for your comments on the draft EIR. I appreciate your commitment to the community and all your efforts to improve the lives of Hinkley residents. Have a good evening.

Patty Zwarts Kouyoumdjian, Executive Officer
Lahontan Regional Water Quality Control Board

From: lester white
Sent: Monday, November 05, 2012 5:17 PM
To: Kemper, Lauri@Waterboards; Holden, Anne@Waterboards; Plaziak, Mike@Waterboards; Dernbach, Lisa@Waterboards; Kouyoumdjian, Patty@Waterboards; amy-horne
Subject: EIR comment

I Lester White CAC chairman do give my comment on the EIR for the town of Hinkley ca 92347. Their has been a big learning prose's for me in the last 17 months. As well for the community of Hinkley. We believe as a community that the treatment prose's that are in use at this time should have never been used in a residential area it was a big mistake and we need to come back to the table and come up with another way to clean up the chrome problem in hinkley because their is a significant risk to the remainder of our community's health. We would like the ethanol in all IRZ to "STOP" pumping or to be shut off. We would like the pumping to continue on but with fresh water so as to keep containment of the arsenic and manganese plumb. We would like to see the electrolysis to be put to use its a pump and treat system and its also is good for plum containment if done the right way. We as a community and a CAC board it is vary unsafe to use alfalfa fields it's good for crom but not a safe way. You will be bringing unsafe toxic water to the service of the ground most levels of toxins will be above federal standers and then we in hinkley will be the ones to suffer not any one at the other end of this e-mail and we would like to see more sample well's in place north of plumb and south and east of the compressor station so we and the community of Barstow and all towns east will not suffer the same fate as us and to the west. We want the plumb defined. Thank you Lester White

parts per billion
↑
It is my understanding that PPB is .000000002 so why is this being downplayed and anyone over .01 is way over the legal drinking limit for Hexavalent Chrom. 6

10/16/2012

PGBE is the PERPETRATOR in this situation so it is very difficult for the Community to trust their Data. It seems that the Water Board Relies on PGBE for Answers and that fuels the mistrust. I Believe we need to move forward with the EIR but feel there are no Concrete Answers. If the Water Boards hands are tied, we need A Solution to find Answers weather it be A Federal Authority or Seperate Entity not influenced by PGBE. I feel PGBE has to much Control and it needs to change. They are A business, that is how they are Approaching the Contamination.