Comment Letter A: IRP Manager, Project Navigator		
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General		
A1	The CAC [Community Advisory Committee] and the IRP [Independent Review Panel] Manager appreciate the opportunity offered by the Water Board to receive comments. The IRP Manager is noting that the Tentative WDRs [waste discharge requirements] are well-scoped and codified in a document that addresses many of the concerns we have previously heard from the Hinkley Community regarding operations of the ATUs [agricultural treatment units].	No response needed.
Increase in Acreage of ATUs		
A2	The locations of the proposed ATUs are not provided in the WDRs. We would suggest that the proposed ATUs location be included in Attachment B.	The locations of Pacific Gas and Electric Company's (PG&E's) proposed ATUs are not provided because they are conceptual in nature at this time. Final locations of any new ATUs authorized under the proposed WDRs will be provided by PG&E in its Report of Waste Discharge for new ATUs, required to be submitted no later than 60 days prior to construction of new ATUs. Reports of Waste Discharge will be made available for public review.
A3	Further clarification should be presented describing if all new ATUs will be built on PG&E owned property or other rented/leased property.	The exact locations of new ATUs are not precisely known at this time. Conceptual ATU locations (which have been presented to the public at various meetings) are all on land owned by PG&E. As described in Finding 4 of the proposed WDRs, ATUs could be located anywhere within the Project Area (shown in Attachment A). Finding 4 also notes that most remediation will occur on parcels owned by PG&E; however, the Finding acknowledges that project activities could occur on lands not owned by PG&E. In that case, PG&E would only be able to conduct activities where it has been granted access to such parcels.
A4	Will all future ATUs be constructed on OU1 and OU2 acreage?	As described in Finding 4, the proposed WDRs authorize ATUs anywhere within the Project Area (shown in Attachment A), including OUs 1, 2, and 3.

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A5	Will the Farm Swap Proposal Concept presented by PG&E on January 8, 2014 during the Water Board Meeting in Barstow affect the Tentative WDRs?	The proposed WDRs already acknowledge EIR mitigation measure WTR-MM-4, which includes the opportunity to implement a farm swap proposal to mitigate any increases in remedial byproducts due to chromium remediation activities. The farm swap concept, if implemented, would require a detailed proposal from PG&E and approval by the Water Board. It is not anticipated that the proposed WDRs would be significantly changed by such a proposal.
Allocation of Water Rights		
A6	The CAC will be pleased to learn that the Tentative WDRs will ensure and require PG&E to document that it has obtained the adequate water rights to increase the acreage of the ATUs.	No response needed.
Water Quality		
A7	Provide further clarification on how the baseline conditions will be determined for "Actual Affected Domestic Wells", "Potentially Affected Domestic Wells", "Actually Affected Agricultural Wells" and "Potentially Affected Agricultural Wells".	<u>New ATUs</u> As described in mitigation measure WTR-MM-2b (Attachment F), PG&E is required to establish baseline (pre-remedial reference) conditions in domestic wells one year prior to, or concurrent with operations at new ATUs. Baseline monitoring will consist of ATU byproducts (TDS, nitrate, and uranium), chromium, and groundwater levels, conducted for one year on a quarterly basis. Also, information on the screened interval of wells will be collected. Irrigation return water takes 5 to 8 years to percolate to groundwater, so any groundwater impacts due to new ATUs will not occur immediately. Therefore, it is reasonable to allow PG&E to conduct the initial monitoring concurrent with the first year of new ATU operations. PG&E must submit its plan to conduct the baseline monitoring with its Report of Waste Discharge, according to proposed WDRs Orders Section I.

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		B.4.I. <u>Existing ATUs</u> WDR requirements also apply to existing ATUs (Desert View Dairy [DVD], Gorman pivots, Ranch, Yang and Cottrell) shown in Attachment B of the proposed WDRs. Requirements to establish baseline conditions will apply to all existing fields as well. The requirement to submit a monitoring plan to determine baseline conditions for supply wells within one mile of existing fields will be added to WDRs Orders section I.A.2 (Existing Agricultural Treatment Units). However, the baseline for those wells within one mile of existing ATUs will be as of 2014, and staff recognizes that some of those existing fields have been operating for many years. Prior WDRs did not contain requirements to establish baseline conditions in domestic wells prior to operation of those fields, so baseline conditions going back to pre-2004 are not typically available. For some domestic wells where data exist (for example, wells where water quality was characterized for the Whole-house Replacement Water Program), those data can be taken into account when establishing baseline conditions for those wells.
A8	When will residents identified as “Actual” or “Potential” be contacted to sample and collect data from their domestic or agricultural wells?	All residents within one mile of any proposed ATU will be contacted prior to sampling for their domestic wells. As described in response A7, PG&E will submit its plan to conduct the baseline monitoring with its Report of Waste Discharge, at least 60 days prior to construction of any new ATUs. For existing ATUs, the WDRs will be revised to require a monitoring plan to establish baseline conditions for wells within one mile

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		of such ATUs within 60 days of adoption of the WDRs.
A9	When will the baseline groundwater sampling event begin for domestic or agricultural wells inside the project area?	See responses to comments A7 and A8. The specific date when baseline sampling will commence is not known at this time, but is anticipated to begin in the first half of 2014.
A10	Since PG&E has been operating interim remedial measures (e.g. DVD LTU, Gorman Pivots, etc.) for over a decade, to what extent will operating data from these ATUs be taken into consideration when determining the baseline(s) for domestic or agricultural wells?	See response to comment A7.
A11	Can groundwater quality data from the Whole House Replacement Water Feasibility Study be used to establish the baseline conditions for residents with Whole House Replacement Treatment Units?	Yes. See response to comment A7.
A12	When the baseline conditions are established, will quarterly letters be sent to the "Actual" or "Potential" residents showing their baseline conditions compared to their most recent conditions?	To clarify, wells will be monitored and results reported quarterly for one year to establish baseline conditions; following establishment of baseline conditions, domestic wells within one-half mile of operating ATUs are to be monitored two times per year (i.e., twice yearly). The results from these monitoring requirements will be provided to residents quarterly (for baseline results) or two times per year (for operational results). A comparison of recent to baseline conditions would be useful to residents and such information will be required to be provided. This requirement will be specified in the WDRs Monitoring and Reporting Program.
Groundwater Drawdown		
A13	Will the baseline information [on drawdown] take into consideration PG&E's interim remedial measures (NWFI and Hydraulic controls at Thompson Rd.) that have been implemented in the past few years?	See response to comment A7.
A14	When the baseline conditions are determined, will quarterly letters be sent to the "Actual" or "Potential" residents	See response to comment A12.

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	showing their baseline conditions compared to their most recent conditions?	
Water Replacement for "Actually Affected Agricultural and Domestic Wells"		
A15	The CAC and the IRP Manager agree with the Water Board's requirement to provide alternative water supplies for well owners whose water quality (or quantity) will be adversely affected by PG&E's remedial actions. The CAC also agrees with the Water Board's Tentative WDRs that PG&E will bear all costs associated with the supply of alternative water.	No response is needed.
Chromium Plume Bulging		
A16	Page 9 states that the WDRs "*authorizes plume bulging, limited to the eastern boundary of OU1, and not more than 3,000 feet from the eastern boundary of OU1*." However, on pages 23 through 24, the WDRs state the following; "*Any discharges of irrigation water shall not be allowed to cause bulging of the chromium plume unless specifically authorized by the Water Board. This Order does not authorize chromium plume bulging exceeding the limits contained in the CAO R6V-2008-0002A2, dated April 7, 2009, unless and until an amendment to that CAO (as amended) is adopted by the Water Board, specifically authorizing additional temporary, localized plume bulging to accommodate remediation goals.* These two statements are not consistent and the CAC and IRP Manager are requesting clarification.	The tentative WDRs proposed authorizing chromium plume bulging in a limited area only if CAO R6V-2008-002A2 (as amended) is amended to allow such bulging. However, upon further review of the need to authorize plume bulging to accommodate remedial activities related to ATUs, Water Board staff are no longer recommending that the Board authorize plume bulging in the proposed WDRs. An explanation of the rationale for this decision is provided in response to comment B1, below.
Reporting		
A17	The CAC and the IRP Manager agree with the reporting requirements established by the Water Board that all EIR Mitigation Measures will be included in an annual report, and groundwater quality data for the ATUs will be provided in quarterly reports as outlined in Attachments D through F.	No response is needed.
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Comments on Permit		
B1	**Finding 16:** "This order authorizes plume bulging, limited to the eastern boundary of OU1, and not more than 3,000 feet from the eastern boundary of OU1." This allowance appears to be focused on potential bulging as previously considered for the South Central Re-Injection Area in-situ reduction zones (IRZ). However, although not envisioned for the currently planned agricultural treatment Unit (AU) designs, plume bulging due to recharge and mounding from AU operation would not necessarily be limited to the east, depending on where the new AU is located. We suggest broadening the allowance in this	The tentative WDRs proposed authorizing chromium plume bulging in a limited area if CAO R6V-2008-002A2 (as amended) was amended to allow such bulging. However, upon further review of the need to authorize plume bulging to accommodate remedial activities authorized under the proposed WDRs (i.e., ATUs),

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	permit such that it allows for plume bulging that is permitted as CAO R6V-2008-0002/A2 is revised, not necessarily limited to the area east of OU1. Similar edits should be made to Requirement I.C.7.	Water Board staff are no longer recommending that the Board authorize plume bulging in the proposed WDRs for reasons outlined below. The proposed WDRs require agronomic application of water to fields for the majority of the year, to minimize the amount of water percolating to the water; therefore, it appears unlikely that ATUs will cause mounding of the water table such that plume bulging due to irrigation will occur. Also, high evapotranspiration rates in the Hinkley Valley, particularly in summer, further limit the amount of water percolation that may cause bulging. Groundwater extraction will increase as ATUs are brought on-line, creating areas of lower water table elevations that draw groundwater gradients in, rather than mounding groundwater creating a bulge. Therefore, the scenario of plume bulging due primarily to ATUs seems very unlikely. Previous authorization for plume bulging was given related to in-situ remediation areas, where water is directly injected into the aquifer making bulging much more likely. Plume bulging for in-situ operations was authorized in a Cleanup and Abatement Order, and also could be authorized in the future under WDRs issued for in-situ remediation expansion. Because it does not appear likely that actions authorized under these WDRs would result in plume bulging, it would not be appropriate to include such authorization in the ATU WDRs. Therefore, the WDRs will be revised to remove the authorization for bulging. A more appropriate method for authorizing bulging would be based on a specific proposal from PG&E, and

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		authorized through a CAO and/or updated in-situ remediation WDRs.
B2	**Finding 17b:** Clarify that 100 mg/kg plant tissue criterion was for total chromium, "The compliance criterion for plant tissue was 100 mg/kg total chromium."	The comment is correct that the plant tissue criterion was for total chromium. The suggested change will be made to the proposed WDRs.
B3	**Finding 17d:** Third sentence missing "monitoring". "Therefore, this Order requires continued soil and plant tissue monitoring..."	The suggested change will be made to the proposed WDRs.
B4	**Finding 17d and MRP Table E5:** It is not clear why it is necessary to verify that plants are taking up nitrate in irrigation water via plant tissue sampling; nitrate is a plant nutrient. Presumably, this verification is to ensure that excess nitrate does not percolate to groundwater and cause an increase in groundwater concentrations. This could only occur in limited cases where applied nitrate concentrations are higher than groundwater concentrations under the field. There are provisions in the WDRs (Section 25.c), MRP (Section 2 and 3), and MMRP (WTR-MM-2b) requiring monitoring to ensure that nitrate concentrations do not increase due to agricultural activities authorized by the Order and requiring mitigation if domestic wells are impacted by nitrate due to remediation. Given these safeguards, plant tissue sampling for nitrate is not considered necessary and is recommended to be removed.	Staff agrees that plant tissue sampling for nitrate is not necessary due to extensive monitoring requirements in the proposed WDRs, including irrigation water, groundwater monitoring wells to detect excess nitrate percolating to the aquifer from remedial irrigation, monitoring of domestic wells to assess byproduct impacts, and modeling of byproduct plumes for early detection of impacts to domestic wells. Therefore, the requirement for nitrate monitoring in plant tissue will be removed from MRP Table E-5.
B5	**Order I.B.5:** For clarification, the Water Board orders cited for the plume mapping requirements should be cited by number and acknowledgement given that, should those orders change, the requirements in this order would as well. Suggested edit: "All site maps and figures must comply with mapping requirements according to Water Board Orders No. R6V-2008-0002A4 for connecting monitoring wells having concentrations of chromium at or above background levels of total or hexavalent chromium and must show the chromium plume boundaries indicating 3.1, 10, 50, and 1,000 µg/L concentration contours. If Order No. R6V-2008-0002A4 is modified or rescinded, this requirement would be similarly modified."	The proposed WDRs refer only to "applicable Water Board Orders" for plume mapping requirements rather than a specific Order as suggested. This is because if a specific Order is rescinded, then changing the mapping requirement contained in the Orders section of the WDRs would require action by the Water Board. Note that the Water Board's Executive Officer can revise requirements contained in the Monitoring and Reporting Program, but cannot revise the WDR itself. Therefore, it is a more straightforward approach to refer to applicable Orders, rather than cite a specific Order which may be rescinded. No change will be made to the

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		proposed WDRs.
B6	**Discharge Limitations**: Should the section heading "Discharge Limitations" be heading "C" and subsequent headings re-lettered?	Yes. The suggested change will be made to the proposed WDRs.
B7	**Discharge Limitations**: The need for a strict restriction within this permit to 'agronomic rates' should be reconsidered in light of overall project remedial goals. It is possible that, at times, remediation may require or suggest over-application of water on a field (for example, to increase containment pumping) and that such over-application can be safely done within an overall capture area (i.e., no excessive byproducts would leave the area of an AU). Other monitoring safeguards listed in this permit (for gradients and byproducts) will monitor and prevent or mitigate negative side effects. Any changes made should be carried over to other references to 'agronomic' on page 16 and Attachment E, Section III.	The requirement for agronomic rate application is needed for several reasons: 1) as a best practicable technology to minimize TDS and nitrate increases due to ATU irrigation and 2) other mitigation measures that limit ponding or pooled water which can result from applying water at greater than agronomic rates. For example, BIO-MM1i and BIO-MM-1f specify that pooled water will be minimized to limit the potential to attract common ravens and other predatory species. Staff notes that the Desert View Dairy WDR (R6V-2004-0034A1), required agronomic application of irrigation water for the majority of the year rather than year-round (see Attachment A of that WDR, mitigation measure #14, which required operation of irrigation systems at agronomic rates "during summer and most of the fall."). Staff recognizes that water may need to be applied to fields at greater than agronomic rates in certain situations, including to accommodate remediation goals or to establish plant growth. However, over-application of water should only be used as an interim measure, and not as a long-term approach for remediation. For example, for up to 4 months to allow for construction or piping to a new field, or to allow for plant germination, provided that significant ponding which would attract predators does not occur. The proposed WDRs will be revised to acknowledge that water

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		may be applied to fields at a greater than agronomic rate on a short-term basis (up to 4 months per year), provided that significant ponding which would attract potential predators (such as common ravens) does not occur.
B8	**Receiving Water Limitations:** Suggest extending footnote 2 to include nitrate and uranium, which are also known to currently exceed water quality standards.	The commenter is correct that nitrate and uranium currently exceed water quality standards in certain parts of the Project Area, mostly due to past non-remedial activities such as dairies and associated waste disposal practices. The WDRs have been revised to allow limited exceedances of nitrate and uranium as follows: Nitrate (Receiving Water Limit 4): <u>If the discharge of irrigation water containing greater than 10 mg/L nitrate as N (evaluated on a quarterly basis) causes nitrate as N levels in individual monitoring wells to exceed 10 mg/L, or to increase by more than 10 percent (if below 10 mg/L) or by more than 20 percent compared to baseline or pre-remedial reference levels, the Discharger shall propose a contingency plan to manage nitrate levels as outlined in mitigation measure WTR-MM-6. The action plan shall be submitted within 120 days of identifying such exceedances. The Discharger may provide information to demonstrate that the source is other than from implementing agricultural treatment authorized under this Order. Individual monitoring wells for evaluating WTR-MM-6 criteria should be proposed by the Discharger in its Report of Waste Discharge.</u> Uranium (Receiving Water Limit 5): <u>If the discharge of waste causes uranium levels in monitoring wells to exceed 20 picoCuries per liter (pCi/L), or to increase by more</u>

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		than 10 percent (if below 20 pCi/L) or by more than 20 percent compared to baseline levels pre-remedial reference levels, the Discharger shall propose actions to manage increases in uranium levels in receiving waters. The action plan shall be submitted within 120 days of identifying such exceedances. The Discharger may provide information demonstrate that the source is other than from implementing agricultural treatment authorized under this Order. Footnote 2 is revised to reference the above receiving water limits. .
B9	**Receiving Limitations and II.1:** Request extending the time allotted for preparation of a TDS action plan to 120 days. There are many technical considerations and options that will take time to fully evaluate. Given the protectiveness of the mitigation measures for domestic wells and the long timescales over which changes in TDS are expected to develop, additional time is not anticipated to have adverse impacts.	Staff agrees that an extension to the time allotted to submit a TDS action plan will not adversely impact domestic wells or result in long term impacts to the aquifer water quality. The proposed WDRs will be revised to extend the time to submit a TDS action plan from 60 to 120 days.
B10	**Receiving Water Limitations:** The first statement is not clear as written. Suggested edit, "The discharge of waste shall not cause concentrations of chromium to exceed 10 µg/L in areas where chromium concentrations are less than 10 µg/L, ~~and only in~~ with the exception of the area in OU1 along the eastern boundary as authorized by R6V-2008-0002A2 or areas authorized by subsequent amendments.	See response to comment B1. Plume bulging is no longer proposed to be authorized under the WDRs.
B11	**Orders Sections I.D.1.a and I.D.1.a.ii (Conditions triggering EIR Mitigation):** The EIR recognized that increases in concentration of 10 or 20 percent may not be statistically significant in defining actually affected domestic wells. We suggest adding the following statement from the significance criteria of the EIR (Section 3.1.7) in this section in the definitions of actually affected wells where percent changes are cited as criteria: "The discharger can present evidence to the Water Board if it believes in a specific instance that the increase is not statistically "significant." In addition, a procedure should be added for sampling verification prior to taking action to prevent taking action on anomalous results.	The commenter is correct in that EIR significance criteria contains a statement allowing the discharger to present evidence regarding the statistical significance of a measured increase of byproducts or chromium in domestic wells. The statement from the EIR, "The discharger can present evidence to the Water Board if it believes the increase in a specific instance is not statistically significant" will be added to the appropriate sections of the proposed WDRs.

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	Also, the detailed list of water quality requirements listed on page 25 (I.D.1.a) should be repeated (or referenced) on page 27 (I.D.1.a.ii).	Regarding procedures for sampling verification, in its monitoring plan required by the proposed WDRs Orders section I.B.4.l, PG&E may propose procedures for sampling verification that allow for rapid re-sampling (e.g., within one week) of a water supply well to verify preliminary data indicating a domestic well has reached a condition triggering EIR mitigation measure. The detailed list of water quality requirements listed on page 25 does not apply to page 27, section I.D.1.a.ii. Section I.D.1.a.ii contains requirements for determining if wells are impacted by chromium plume movement, while the water quality requirements on page 25 are for remediation byproducts other than chromium. However, staff notes that the sections are mis-numbered in section I.D.a. This will be corrected in the proposed WDRs.
B12	**Orders Section II.2:** Suggest clarifying wells for evaluation of TDS criteria as follows, "Exceedances of the above limits will be determined by calculating the annual average TDS concentrations for the shallow zone and deep zone of the upper aquifer, separately, for each ATU in OU1 and OU3, using appropriate monitoring wells associated with each ATU specified in the RWD (Requirement I.B.4).	The suggested clarification is consistent with the intent of the requirement; therefore, the proposed WDRs will be revised as suggested.
Comments on Attachment E (WDRs Monitoring and Reporting Program)		
B13	**Table E.1 Item B, last row:** To be consistent with the EIR WTR-MM-2c and the draft WDRs section I.D.i, arsenic and manganese should be added to the list of constituents to be monitored for wells affected by excessive drawdown.	The commenter is correct and the proposed WDRs will be revised as suggested.
B14	**Table E-1 Item B, Groundwater Elevation row:** It should be noted that data collected from nearby monitoring wells may also be needed to sort through data noise at supply wells caused by cycling of the supply wells as they are used.	Staff agrees that data from nearby monitoring wells may be needed to better understand supply well water levels. PG&E may propose such monitoring wells in its monitoring plan required by WDRs Orders section I.B.4.l for Water Board staff review and

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		acceptance. A note will be added to Table E1 row B as suggested.
B15	**Table E-1 Item B, Groundwater Elevation row:** Text should be edited to be consistent with the EIR WTR-MM-2c and to reflect that the area for water level monitoring expands if wells are actually affected. Suggested edit "water supply wells within one-quarter mile from any AU extraction point or actually affected supply well".	Water level measurements and byproduct monitoring (including for arsenic, manganese, uranium and gross alpha) are required within one-quarter mile of a well that is potentially or actually affected by groundwater drawdown. This requirement will be added to Table E1, item B, last row.
B16	**Table E-2:** Based on particle track modeling, a new well north of MW-85 is not recommended given direction of groundwater flow and lack of proximal domestic or supply wells. (See attached memo on proposed monitoring program revisions for complete comments on the groundwater monitoring well sampling program for particle tracking).	The commenter provided two tables in their memo attachment referred to in this comment, both proposing numerous specific comments on the groundwater monitoring program. Response to Table 1: Commenter's Table 1 contains comments on monitoring for existing ATUs. These comments focus on requirements contained in proposed WDRs Monitoring and Reporting Program Table E-2. Staff's comments on Table 1 regarding specific wells and sampling frequencies are shown in the far right column of Table 1, which is included as Attachment 1 to this response document. Associated changes to Table E-2 of the proposed WDRs Monitoring and Reporting Program have been made. Response to Table 2: Commenter's Table 2 contains proposed revisions to the overall site-wide groundwater monitoring program, including proposed changes to ATU monitoring outlined in the tentative WDRs, which have been addressed in Staff's comments on Table 1. There are some additional monitoring proposals for ATUs

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		regarding specific irrigation water monitoring locations and frequencies in Table 2. Water Board staff agrees with the **locations** of the proposed irrigation water sampling points; however, the monitoring **frequency** for total and hexavalent chromium for irrigation water shall be as described in Table E-3 of the proposed WDRs: For total and hexavalent chromium: Monthly for the first year of irrigation at new ATUs, followed by quarterly frequency. Following a significant change in discharge source at existing and new ATUs, the monitoring frequency shall be monthly for one year, followed by quarterly frequency. A significant change in discharge source is defined as when such change causes combined extracted groundwater samples to show a 20% increase in any constituent concentration compared to average extracted groundwater quality prior to the change in operation. The monitoring frequency for other constituents required by Table E-3 of the proposed WDRs is quarterly, as indicated in Table E-3. Staff notes that Table 2 also contains numerous proposed revisions to monitoring not related to ATUs; for example, monitoring for in-situ remediation and performance monitoring. These proposed revisions are outside the scope of the Water Board's proposed ATUs WDRs, and will not be considered at this time.
B17	**Table E-2:** Locations MW-22A and MW-22B, proposed as downgradient wells for Ranch AU, do not exist as described. We suggest replacing MW-22A with MW-22A1 and MW-24A	See response to comment B16 and Water Board staff comments in Table 1 on proposed revisions to

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	with MW-24A1. See the attached memo on proposed monitoring program revisions for complete comments on the groundwater monitoring well sampling program.	groundwater monitoring of existing ATUs. Staff's comments on Table 1 are included as Attachment 1 to this response document.
B18	**Table E3, first row:** We suggest reducing the monitoring frequency of irrigation water to monthly during the first 3 months of operation followed by quarterly sampling. Current data sets collected from the DVD and AUs indicate that concentrations change over long timescales after initial startup; these changes are adequately characterized by quarterly sampling.	Staff agrees that the monitoring frequency of irrigation water could be reduced based on data from existing ATUs. However, in order to adequately assess changes or trends in constituents of concern during startup and due to changes in operations, monthly sampling will be required for one year, followed by quarterly sampling. The proposed MRP will be revised as follows: Monitoring shall be <u>Monthly for the first year of irrigation at new ATUs, followed by quarterly frequency.</u> <u>Following a significant change in discharge source at existing and new ATUs, the monitoring frequency shall be monthly for one year, followed by quarterly frequency.</u> <u>A significant change in discharge source is defined as when such change causes combined extracted groundwater samples to show a 20% increase in any constituent concentration compared to average extracted groundwater quality prior to the change in operation.</u>
B19	**Table E-5, first row:** There is a history of plant tissue sampling data results within compliance standards for the East LTU, where chromium was applied at concentrations that are anticipated to be comparable to OU2 AUs (i.e., annual average application concentration was 340 ppb from October 1997 to September 1998 at the East LTU and plant tissue results were <0.05 mg/kg hexavalent chromium and 0.17-0.51 mg/kg total chromium, well below compliance standard of 250 mg/kg for the East LTU). We suggest changing the monitoring area to "AUs where irrigated water concentration of hexavalent chromium exceeds 340 ppb."	Staff reviewed data from the East LTU from October 1997 (when hexavalent chromium in effluent water was first reported) to September 1998, and found it is correct that the average value of hexavalent chromium in combined extracted irrigation water applied to the East LTU was 340 ppb. The compliance standard as noted by the commenter is not correct; 250 mg/kg was the soil compliance limit in the East LTU WDR 6-97-81. There was no plant tissue

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		compliance limit in the East LTU WDR. The later DVD WDR compliance limit for plant tissue was 100 mg/kg total chromium. Staff's review indicates that data from the East LTU do not indicate total chromium accumulation in plant tissue over compliance limit of 100 mg/kg, and the average annual concentration of hexavalent chromium in effluent water was 340 ppb. Therefore, the proposed WDRs will be revised to require plant tissue sampling for total and hexavalent chromium in ATUs where the irrigated water concentration of hexavalent chromium exceeds 340 ppb.
B20	**Section IV:** This item [section IV, notifications] requires Board notification when more than 50 percent of the extraction and injection locations are shut down, or when the total system flow rate is decreased by greater than 50 percent. It does not state the duration of the change for which the Board requires notification. We propose that the Board be notified by telephone or e-mail correspondence if the flow rate in a given OU is reduced by 50 percent for longer than 5 consecutive days. Any change lasting longer than 24 hours will be reported in the quarterly monitoring reports regardless. Evaluation across an OU will prevent unnecessary notifications as fields are turned on and off for crop harvests, and other reasons. Notification based on 'counts' of individual wells operating will be misleading and should be removed, as in many instances there are multiple wells which only yield a very small percentage of the flow; these wells can be safely idled while a few larger producing wells can remain operational to meet remediation needs. In addition, the requirement to notify why "an AU is not being maintained by at least 50 percent in area." is not clear. Does this mean when the field area is reduced by turning fallow for an extended period of time? Please clarify or eliminate.	Staff agrees that the tentative WDRs are not clear in this regard. Section IV of the proposed WDRs will be revised as follows: "The Discharger shall notify the Water Board of any significant change in <u>normal</u> remedial operations within 14 <u>calendar</u> days of such change. Significant change means when more than 50 percent of the extraction and discharge locations are shut down, or when the total system flow rate is decreased by greater than 50 percent, or when data shows that an ATU is not being maintained by at least 50 percent in area. <u>Normal remedial operations include variations expected with the seasons, such as maximum pumping during summer and minimum pumping during winter. PG&E shall provide notification by telephone or e-mail correspondence if the normal or average flow rate for that time of year is significantly changed for longer than 5 consecutive days or more than half the amount of days in a calendar month. The notification shall include the reason for the operational change. Any</u>

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		change lasting longer than 24 hours will be reported in the quarterly monitoring reports." To clarify the intent of the requirement, if an ATU is operated outside the seasonal operational "normal" range for the time periods as stated above (including unexpected fallowing) then that is an occurrence that is subject to notification.
B21	**Section V.1.a:** It is unclear what the difference between "requirement violations" in the second sentence and "violations of the WDRs" in the third sentence is. Please clarify.	For clarity, the second sentence in Section V.1.a. of the proposed WDRs will be revised to read "The letter shall include a discussion of any ~~requirement~~ WDR violations found . . .". The third sentence will be revised to read, "The transmittal letter shall also include a discussion of any ongoing violations of the WDRs noted in past reports, and a description and status of action(s) taken to correct those violations".
B22	**V.2 Monthly, Quarterly, Twice-yearly Reports 1.a:** Is the requirement to report ponding specific to startup under requirement 1a? If not, suggest pulling it into a separate requirement, as the rest of the requirements in this item pertain to construction and initiation of operations at new AUs.	Yes, the requirement to report ponding is specific to startup under requirement 1.a. A requirement to report ponding under regular operating conditions is added to requirement 1.b.
B23	**V.2 Monthly, Quarterly, Twice-yearly Reports 1.a:** The heading of this section is confusing because it contains multiple reporting frequencies but does not detail what is in these reports. It appears that quarterly reports are required to contain monthly, quarterly, and twice-yearly sampling results. Suggest changing the heading to "Quarterly Reports".	The suggested change will be made.
B24	**V.2 Monthly, Quarterly, Twice-yearly Reports 1.d**: We suggest the following edit to clarify the definition of normal operation within the context of a system that varies in operation seasonally and to tie operational evaluations to capture performance: "Cite changes or variations in volumes or extraction flowrates from the same season in the previous ~~monitoring event~~ year. If the volume extracted or flowrate from an AU is ~~fields are operated~~ at less than 50 percent of the same season in the previous year ~~normal~~,	Staff agrees that summarizing changes to compare seasonable variations is valuable information; however, understanding variability from monitoring period to monitoring period is also needed. Therefore, requirement 1.d. will be revised to state: "Cite changes or

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	provide reasoning and corrective measures, if needed to maintain capture." Correct typo in last line by deleting 'effective of'.	variations in volumes or extraction flowrates from the same season in the previous year, as well as the previous monitoring event. If the volume extracted or flowrate from an ATU is less than 50 percent of the same season in the previous year, provide reasoning and corrective measures, if needed to maintain capture."
B25	**V.2 Monthly, Quarterly, Twice-yearly Reports 1.h:** Given that several requirements in the WDRs are different among OUs, we suggest providing the range and average by OU.	Staff agrees that the range and average by OU and ATU will add clarity to the monitoring data. Requirement 1.h will be revised to state data should be presented by OU and by ATU field.
	V.2 Monthly, Quarterly, Twice-yearly Reports 1.i: Note: potentiometric surface maps may be prepared for the lower zone of the upper aquifer and the upper zone of the upper aquifer.	Water Board staff will accept potentiometric maps of both zones of the upper aquifer in monitoring reports. No revisions to the WDRs are needed.
B26	**V.2 Monthly, Quarterly, Twice-yearly Reports 1.i**: Contouring of these constituents could prove difficult given that there is a baseline distribution that is not necessarily related to operations of AUs under this permit, creating a distribution that is not a rational "plume" emanating from a single source. It is recommended that dot maps to indicate magnitude of concentration or percent change in concentration from the previous reporting period may be prepared instead. Suggest changing wording to 'Draw isoconcentration lines for or otherwise graphically display data for nitrate (as N)….'.	Dot maps are acceptable to depict uranium concentrations in groundwater; however, for TDS and nitrate, isoconcentration contours are required to determine the areal extent of the byproduct plumes in groundwater. The MRP will be revised as follows: Groundwater sampling results from monitoring and other wells. Draw isoconcentration lines for nitrate (as N)~~,~~ and TDS. Uranium results may be presented as dot maps or other graphic display to indicate the magnitude of concentration.
Comments on Attachment F (EIR Mitigation Monitoring Program)		
B27	**WTR-MM-2b and WTR-MM-2b:** Please clarify that the timing of WTR-MM-2b and 2c permits initial monitoring concurrent with remediation efforts if such monitoring would otherwise delay remediation efforts.	The Implementation Timing has been revised to clarify.

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B28	**WTR-MM-5 WTR-MM-6 and WTR-MM-8:** Please clarify that timing WTR-MM-5, 6, and 8 is not tied to issuance of building permits. There is currently no requirement that these mitigation measures be completed prior to additional facilities being constructed. "Per monitoring requirements" would be a more accurate description.	The Implementation Timing has been revised to clarify.
B29	**HAZ-MM-2:** Anticipated construction activities may not trigger the requirements for a spill prevention and control (SPCC) plan or equivalent. Suggest revision of Implementation Timing text to read "Prior to and during construction activities triggering the requirement of a SPCC or equivalent."	Implementation Timing has been revised as suggested.
B30	**Air-MM-1:** Tier 4 Final engine requirements begin to go into effect in 2014 for certain size engines and do not go into full effect until 2015. Equipment providers are in the process of bringing their equipment into compliance with the Tier 4 Final requirements. However, getting equipment with Tier 4f engines will be logistically difficult until equipment providers have had an opportunity to change their fleet to higher-tier equipment. A requirement to use Tier 4 Final equipment may have the undesirable consequence of having to haul equipment longer distances from more distant sources. Also note that emissions criteria for Tier 4i and Tier 4f equipment are identical with the exception of NO_x. Unmitigated construction emissions of NO_x are below the MDAQMD Threshold, with the exception of Alternatives 4C-3 and 4C-5 (Table 3.5-11 of the EIR). Request revision of the measure to read "PG&E or their contractor will ensure that all off-road diesel-powered equipment used during construction will be equipped with an EPA Tier 4 Interim engine, and a EPA Tier 4 Final or cleaner engine when available, except for specialized construction equipment in which an EPA Tier 4 engine is not available."	Mitigation Measure AIR-MM-1 has been revised as suggested.
B31	**Air-MM-6:** Table 3-5 of Appendix B to Attachment F shows that mitigation measure Air-MM-6 is not required to reduce impacts from the No Project Alternative to less than significant. Request revision of the first sentence of the mitigation measure to read "PG&E or its contractor will submit a signed letter to San Bernardino County and the Water Board agreeing to include as a condition of all construction contracts/subcontracts for all action alternatives requirements to reduce GHG emissions and submit documentation of results." Additionally, the Coating Restriction Plan will likely not apply to all anticipated construction. Request modifying the first bullet under paragraph 1 to read "Implement a County-approved Coating Restriction Plan, if applicable."	Mitigation Measure AIR-MM-6 has been revised as suggested.
B32	**Air-MM-7:** Table 3-5 of Appendix B to Attachment F shows	Mitigation Measure AIR-MM-7 has

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	that mitigation measure Air-MM-7 is not required to reduce impacts from the No Project Alternative to less than significant. Request revision of the first sentence under Mitigation Measure to read "PG&E or its contractor will implement the following as GHG mitigation during the operation of the approved <u>action alternative</u> ~~project~~.	been revised as suggested.
B33	**BIO-MM-1h:** Please clarify that BIO-MM-1h only requires consultation with the wildlife agencies and does not require PG&E to obtain any permits from those agencies. The consultation process will determine whether a permit will be obtained.	The text in Implementation Timing and Standard for Completion or Compliance was revised to clarify. The text within the mitigation measure was not revised because mitigation does not state that a permit is required, just that final mitigation ratios will be determined by those agencies if a permit is required. The minimum ratios specified would apply, even if a permit is not needed. No changes to the mitigation measure are necessary.
B34	**Table 3-1 of Appendix B to Attachment F** is missing impacts WTR-2g, WTR-2h, WTR-2i, WTR-3, WTR-4, and WTR-5. Suggest adding these to the table for completeness.	These measures have been added.
Comments on Attachment G: State Water Board Resolution 68-16 Analysis		
B35	**General Comment:** The proposed Permit and the entire remediation area in Hinkley include the use of an extensive network of monitoring wells to detect and prevent additional degradation of the groundwater resource. We recommend including additional information on the extent of monitoring as a finding in the WDRs and in the Antidegradation Analysis (Attachment G). Some suggested details to include are: • The Hinkley Remediation Project is well monitored via sampling and analysis of more than 700 monitoring wells across the site, providing an extensive chromium dataset. • Extensive domestic and supply well sampling associated with AU operation authorized in this permit is specified, including: o Sampling of more than 100 domestic and supply wells for pre-remedial reference sampling for agricultural byproducts o Ongoing monitoring for water levels in domestic wells or nearby monitoring wells within 0.25 mile of AU extraction points. o Ongoing monitoring for agricultural by-products within 0.5 mile downgradient and 0.25 mile cross-gradient of AUs • Monitoring of more than 40 monitoring wells located	The comment provides accurate information regarding the monitoring program that is proposed in the WDRs. It is not necessary to be set forth in the proposed WDRs, but will be summarized in Attachment G.

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	in and around the existing AUs for agricultural byproducts. Additionally, provisions are included for development of monitoring programs for agricultural byproducts for any new AUs proposed and constructed.	
B36	**General Comment:** The State Water Resources Control Board's Antidegradation Policy (Resolution 68-16) establishes the statewide policy wherein waters of the state that are of high quality "shall be maintained to the maximum extent possible". In accordance with the law and State Board policy, the Permit and Antidegradation Analysis meets the requirements of Resolution 68-16 through a combination of discharge and receiving water limitations, extensive monitoring, and other requirements, including mitigation measures identified in the EIR prepared pursuant to the California Environmental Quality Act. These requirements ensure that any degradation of existing high quality waters in the Project area is limited in spatial extent, magnitude, and duration as feasible for the remediation Project. The Third District Court of Appeal in Asociación de Gente Unida por el Agua v. Central Valley Regional Water Quality Control Board (2012) 210 Cal.App.4th 1255 ("Agua") has recently interpreted the application of Resolution 68-16 to Regional Board permits. The Agua Court found that Resolution 68-16 may allow water quality degradation if the following conditions are met: (1) any change in water quality must be consistent with maximum benefit to the people of the state; (2) the degradation will not unreasonably affect present and anticipated beneficial uses; and (3) the degradation will not result in water quality less than that prescribed in the Basin Plan and other applicable policies. (Asociación de Gente Unida por el Agua v. Central Valley Regional Water Quality Control Board (2012) 210 Cal.App.4th 1255, 1278.) By adopting the Permit in this matter, the Regional Board will act consistent with case law and State Board policy. As reflected in the Permit and accompanied findings, the limited term of degradation allowed under the Permit is consistent with maximum benefit to the people of the state because the Project will result in removal of hexavalent chromium from the groundwater and restore the groundwater to its intended beneficial uses.	Comment noted; no response is needed.
B37	**Introduction:** Suggest revising the fourth sentence of second paragraph to "The EIR concluded that temporary localized decreases in groundwater quality ~~will~~ may result from the Project..."	The suggested revision is consistent with the EIR language; therefore, the edit will be made to the proposed WDRs Attachment G as suggested.
B38	**Introduction:** Suggest adding a reference to the basin-wide	Reference to the basin-wide

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	approach in the second to last sentence of the second paragraph as follows, "… and requires that the Discharger restore water quality to pre-remedial reference conditions or implement a basin-wide approach to TDS and nitrate, as described below."	approach will be added to the introduction as follows: " . . .and requires that the Discharger restore water quality to pre-remedial reference conditions, which may include ~~or~~ implementing a basin-wide approach to TDS and nitrate, as described below."
B39	**Page 3, Paragraph 3; Table G-1:** The section on chromium supposes in advance of completion of the background study that background concentrations for hexavalent chromium are less than 10 ppb. This may not be the case. For instance, new monitoring well MW-203D contains hexavalent chromium concentrations greater than 10 ppb that may be background associated with weathered volcanic bedrock (see report titled "Compliance with Provision 1.C. of Cleanup and Abatement Order R6V-2008-0002-A4 and Requirements of Investigation Order R6V-2013-0029" submitted by Stantec on October 29, 2013). As such, this definitive discussion of high quality groundwater prior to discharge should be removed or caveated to recognize that the background study may determine otherwise.	It is correct that there is an upcoming revised background study, to be conducted by the USGS, and that this study could result in background values greater than 10 parts per billion (the proposed MCL for hexavalent chromium). A clarification will be added as suggested. However, as noted in Attachment G, because the proposed hexavalent chromium MCL is not finalized as a regulatory standard, the analysis compares water quality in the Project Area to the total chromium MCL of 50 μg/L to identify existing high quality waters.
B40	**Page 4, Nitrate:** Water quality in OU1 is not generally high quality for nitrate as stated. Baseline data collected in 2007 from the Central Area IRZ and Source Area IRZ monitoring well networks installed across OU1 showed shallow concentrations of nitrate routinely greater than 10 mg/L-N, with 69 of 120 monitoring wells yielding concentrations greater than 10 mg/L. "Yes" should be changed to "No" in Table G-1 to reflect this condition in OU1.	The description of nitrate concentrations in the Project Area on page 4 of Attachment G acknowledges detection of nitrates in OU1 of up to 20 mg/L, consistent with the commenter's point. Resolution 68-16 considers water to be of high quality if it was of high quality as of 1968 (when Resolution 68-16 was adopted by the State Water Board). Staff is not aware of data regarding the quality of the water in the Project Area dating back to 1968, but instead considered available data, which may reflect the influences of historical or current waste discharges. Where waters are affected by waste discharges, but were likely high quality prior to the

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		waste discharge, Table G-1 indicates such. Table G-1 is intended to show in summary fashion where available data indicate high quality waters currently "predominate"; that is, where high quality waters have greater importance or quantity in the OU. It is not intended to imply that all sampling results in a given OU are less than water quality standards. A clarification to that effect will be added to the in-text description of table G-1.
B41	**Page 3 TDS; Table G-1:** Concentrations of TDS in OU3 are not necessarily high quality with concentrations less than 500 mg/L. Recent analysis of monitoring wells in OU3 showed detections greater than 500 mg/L. See Figures G7 and G8 in the report titled "Compliance with Provision 1.C. of Cleanup and Abatement Order R6V-2008-0002-A4 and Requirements of Investigation Order R6V-2013-0029" submitted by Stantec on October 29, 2013. In addition, concentrations may increase towards the north in OU3 as the evaporative conditions of the playa are encountered. Revisions to reflect the existing data and acknowledge the unknown and potentially higher concentrations condition near the playa are suggested.	A statement acknowledging that sampling data are limited in the northern extent of OU3 for TDS will be added to Attachment G.
B42	**Occurrence of High Quality Waters for Constituents Regulated under this Order, Table G-1:** We suggest analyzing uranium in the "Occurrence of High Quality Waters for Constituent Regulated under this Order" and Table G-1, given that an investigation for uranium is required by the EIR mitigation measure WTR-MM-5 and the monitoring and reporting required in the draft MRP for uranium.	A discussion of high quality waters regarding uranium will be added to Attachment G.
B43	**Pages 4-5, Arsenic; Table G-1:** The areas with higher background arsenic concentrations are not necessarily limited to the areas upgradient of the compressor station in southern OU1 and in the southwestern portion of OU3. For instance, a homeowner with a domestic well located on Dixie Road north of Alcudia previously provided the Water Board with results of sampling by PG&E, which indicated concentrations of arsenic of 130 ppb in the far eastern portion of OU3. In addition, the community collected samples from a domestic well in the far north of OU3 on Orchid Road which yielded 110 ppb of arsenic. These results were shown on Figure 13 of the *Assessment of In-Situ Reactive Zone Treatment Byproducts* submitted by ARCADIS on December 17, 2012, and a table of results	The suggested revisions will be summarized in the appropriate section of Attachment G.

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	compiled by the Water Board (including these results) was included in Appendix C1 of the recent *Response to Investigative Order No. R6V-2012-0060 and R6V-2013-0026: Manganese Investigation Technical Report* submitted by ARCADIS on November 19, 2013. Suggest the following revision to the text, "... but certain areas show higher background arsenic concentrations.~~:~~ ~~upgradient of the compressor in southern OU1, and in the southwestern portion of OU3."~~ Also suggest revising Table G-1 to reflect these observations.	
B44	**Page 5, Manganese:** We offer a few additions/corrections to the information in this section: 1. Elevated manganese concentrations have also historically been detected in OU-2 (up to 1,650 µg/L in DW-02, north of Highway 58, in 2003). 2. The maximum concentration of manganese detected in OU1 was in the South Central Re-injection Area, where the new AUs are proposed, rather than the Central Area. 3. The maximum concentration of manganese detected in the 2007 background study was 197 µg/L, rather than 48 µg/L. 4. In a study conducted by the USGS reported in 2008, manganese concentrations were detected in the Mojave Groundwater Basin at concentrations up to 111 µg/L.	1. The majority of manganese data from OU2 indicates concentrations less than 10 mg/L, indicating high quality water. No revisions will be made. 2. Manganese was detected at 210 µg/L in the Central Area IRZ prior to IRZ testing, and that was the maximum value detected representing **pre-testing** conditions, as stated in the text. Therefore, the suggested revision is not needed. Further, the commenter's suggested information does not change the analysis in Attachment G. 3. The commenter is correct that the 2007 background study found manganese up to 197 µg/L, however that detection was in well BGS-18, located outside the proposed WDRs Project Area. The text of Attachment G will be revised to note that the 48 µg/L manganese detection was maximum measured within the Project area. 4. It is not known if the USGS manganese value of 111 µg/L was from within the proposed WDRs Project Area, so the information cannot be added. Further, it does not change the analysis in Attachment G.
B45	**Table G-1:** This table is limited to the upper aquifer. Suggest mentioning knowledge of the lower aquifer water quality, for instance the presence of arsenic concentrations	The in-text description of Table G-1 notes that water quality in the lower aquifer is generally high

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	above the MCL in the lower aquifer as discussed in the *Assessment of Alternative 5 -Whole House Replacement Water Program* submitted by Stantec on February 27, 2013.	quality. There are limited data on water quality for the lower aquifer and that will be acknowledged in Attachment G. Arsenic concentrations in the lower aquifer will be acknowledged.
B46	**Page 7, Compliance with Resolution 68-16:** "These increases are expected to be short-term and occur only at the eastern boundary of OU1 for up to 3,000 feet in distance..." This allowance appears to be focused on potential bulging as previously considered for the South Central Re-Injection Area IRZ. However, although not envisioned for the currently planned AU designs, plume bulging due to recharge and mounding from AU operation would not necessarily be limited to the east, depending on where the new AU is located. We suggest broadening the allowance in this permit such that it allows for plume bulging that is permitted as CAO R6V-2008-0002/A2 is revised, not necessarily limited to the east.	See response to comment B1.
B47	**Page 8, Nitrate, Uranium, Total Dissolved Solids:** WTR-MM-6, which specifies actions should triggers be exceeded for nitrate, is discussed here in the anti-degradation analysis and was specified in the EIR. However, specifics as to how the criteria will be evaluated (e.g., which wells will be used, whether individual well concentrations or averages will be used) are not identified in the WDRs/MRP. We suggest that the criteria should be evaluated at individual wells and that the criteria should apply only for wells impacted by irrigation water with higher concentrations of nitrate than the receiving water and not due to movement of variable distribution of nitrate within the capture zone of the extraction system.	WTR-MM-6 requires PG&E to investigate if applying irrigation water with higher nitrate levels would degrade receiving water quality beneath and downgradient of those ATUs. The WDRs have been revised to include requirements of WTR-MM-6 as follows: In the WDRs Orders section I.D. Receiving Water Limits: <u>If the discharge of irrigation water containing greater than 10 mg/L nitrate as N (evaluated on a quarterly basis) causes nitrate (as N) levels in individual monitoring wells to exceed 10 mg/L, or to increase by more than 10 percent (if below 10 mg/L) or by more than 20 percent compared to baseline or pre-remedial reference levels, the Discharger shall propose a contingency plan to manage nitrate levels as outlined in WTR-MM-6 within 120 days of identifying such exceedances. The Discharger may provide information to demonstrate that the source is</u>

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		other than from implementing agricultural treatment authorized under this Order. Individual monitoring wells for evaluating WTR-MM-6 criteria should be proposed by the Discharger in its Report of Waste Discharge. In the MRP section 2.b.iii: For compliance with EIR Mitigation Measure WTR-MM-6, the Discharger shall propose monitoring wells to evaluate if concentrations of nitrate (as N) in irrigation water results in receiving waters exceeding the criteria outlined in WTR-MM-6. The criteria outlined in WTR-MM-6 should be evaluated at individual monitoring wells beneath and downgradient any field that is irrigated with water containing greater than 10 mg/L nitrate as N on a quarterly basis. If the criteria are exceeded in an individual monitoring well, the Discharger may provide information demonstrate that the source is other than from implementing agricultural treatment authorized under this Order. However, if monitoring indicates that the criteria are exceeded due to agricultural treatment authorized under this Order, the Discharger shall propose a contingency plan to manage nitrate levels as outlined in WTR-MM-6 within 120 days of identifying such exceedances.
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C1	On page 8 (of tentative WDRs), the second paragraph under "c" – 4th line, refers to unforeseen events that would preclude agricultural unit operations for "any substantial duration of time." Please provide an indication of how long is a substantial duration of time.	The contingency plan for agricultural unit operations (submitted by PG&E on September 15, 2011 in addendum #3 to the Feasibility Study) describes actions that will be taken if agricultural unit operations are suspended for a period of greater than 90 days. Substantial duration

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		will be defined as 90 days in the proposed WDRs.
C2	On page 22 - reference to 4.i in section 4.k should be changed to 4.j.	The change will be made to correct the reference.
C3	Page 26 please clarify how the tiered secondary MCL for TDS will be used in defining actually affected domestic wells, and explain which secondary MCL (500, 1000, or 1500 mg/L) for TDS will be used for making the determination.	The criteria defining actually affected wells in the proposed WDRs describe three cases where wells would be deemed as actually affected. In summary, if remedial actions cause **any** of the three secondary MCLs for TDS to be exceeded in a well which was previously below any of the TDS MCLs, that well would be considered actually affected. However, there is also a limit on TDS increases of 20% due to remediation. So if a well was far below any TDS MCL, this 20% limit is in place to protect that high water quality from degrading to the next tier MCL. See below for more details and examples. Case 1) If any of the three secondary Maximum Contaminant Levels (sMCLs) are exceeded due to remedial activities, then that well would be actually affected for TDS. Example: A well has a pre-remedial reference level of 490 mg/L TDS, less than the lowest sMCL of 500 mg/L. Remedial actions cause the well's TDS to increase to 505 mg/L, above the lowest sMCL of 500 mg/L. This well is now actually affected. Case 2) If a well already exceeds any of the three sMCLs for TDS, then a 20% increase due to remediation would be significant. Example: A domestic well has a pre-remedial reference level of 525 mg/L TDS, already exceeding the lowest sMCL of 500 mg/L. Remedial actions results in a 20% increase to 630 mg/L TDS. This well is now actually affected. Water quality in the well need not degrade to 1,000 mg/L (the next

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		highest tier MCL) in order to be consider actually affected. Case 3) If a well has TDS concentrations less than any of the three sMCLs, then a 20% increase due to remediation is also significant. Example: A well has pre-remedial reference level of 1,200 mg/L, less than the upper limit sMCL of 1,500 mg/L TDS. Remedial actions cause the well to increase 20% to 1,440 mg/L. While still less than the upper sMCL of 1,500, the well is now actually affected due to the 20% increase.
C4	Page 27, under "Affected by Groundwater Drawdown" – the definition of "Actually affected domestic well" includes a provision that requires that the well owner to "concur that the flow rate is adequate for their use." Please give examples of the types of information that may be acceptable to conclude that the domestic well flow rate is adequate for their use.	If remedial actions caused a 25% loss of the wetted screen interval of a supply well, that well would be considered actually affected. However, staff recognizes that some wells could lose 25% of the wetted screen and still be capable of producing adequate water supply for the resident's use. If data collected from a well indicated a 25% loss of wetted screen interval compared to pre-remedial reference levels due to remediation, PG&E would notify the homeowner, and then work with the homeowner to determine if the well is still producing adequate flow for their needs. This determination could be made by conducting well yield tests and comparing the [decreased] well yield to any of several benchmarks, such as per capita water use values derived for the Replacement Water Supply Feasibility Study (submitted by PG&E April 9, 2012, see p. 10 of that report); well yield requirements by the County of San Bernardino's Environmental Health Services for residential wells; or baseline well yields if determined by the Discharger during its pre-

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		remedial reference or operational sampling. If the actually affected well was still producing at or near an applicable baseline value, this documentation could be used along with written concurrence from the homeowner acknowledging that while the groundwater level in their well has been lowered by 25% compared to pre-remedial reference levels, the well is still producing enough water for their needs. A requirement for PG&E to obtain and submit (in writing) the well owner's concurrence will be added to the WDRs MRP, section 2, Reports.
C5	Page 28 - the term “non-remedial agricultural supply wells” does not specify the ownership and overall purpose of the well. Would it be better to say Non-PG&E Agricultural Supply Wells or Agricultural Wells not used for remediation by PG&E?	The term was intended to indicate agricultural supply wells used for "typical" agricultural (non-remediation) purposes. A footnote will be added to make it clear that the agricultural wells to which the mitigation measures apply are those wells not owned or operated by PG&E or used for remediation purposes as follows: <u>Non remedial agricultural supply wells are those wells which are not owned by the Discharger or are not operated for the purposes of plume containment or remedial actions.</u>
C6	Page 28: a) How is it demonstrated that “agricultural products are predicted to have substantial or likely reduction in quality or quantity. b) Who has the burden to make the demonstration? Does the burden of that demonstration fall on the well owner? c) What is acceptable information for the well owner to make that determination? d) Can PG&E provide information to rebut that assertion?	a) Agricultural products which are predicted to have substantial or likely reduction in quality or quantity will be demonstrated as described in mitigation measure WTR-MM-2b (Attachment F). Per WTR-MM-2b, PG&E is required to model the movement of byproduct plumes (TDS will be the main constituent of concern for this issue) which may affect crop quantity and/or quality. The results

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		of the modeling will include predictions (3-years out) for water supply wells which may be impacted within the following year. Such predictions will be used to plan for either changing remediation activities and/or the provision of alternate water supplies per mitigation measure WTR-MM-2b. The intent of the mitigation measure and associated monitoring/modeling is to detect and react to the movement of byproduct plumes before they reduce the quality or quantity of a crop. Also, PG&E is required to establish pre-remedial reference levels of TDS in agricultural supply wells and monitor those wells two times per year for the duration of ATU operation. This way, baseline conditions and any changes to those conditions can be assessed and compared to the modelled results. In the event that monitoring or modeling shows that TDS increases are occurring or predicted, PG&E would identify and work with willing-participant farmers whose wells are predicted to be impacted by TDS increases. Predicted or actual TDS increases could be compared to several available agricultural water quality standards in published literature (e.g., Water Quality Criteria for Agriculture, State Water Board (1974); United Nations Food and Agricultural Organization (1985) Water Quality for Agricultural; Texas A&M Irrigation Water Quality Standards; or local resources such as University of California Cooperative Extension). If the increases could result in decreased water quality such that crops could be affected then the well would be considered affected

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		and mitigation measures would apply. In general, the determination would be made on a case-by-case basis with the farmer and PG&E working together to monitor crop yields and quality. b) The burden to predict impacts is on PG&E, as described in WTR-MM-2b, and other mitigation measures. Further, the burden is on PG&E to establish pre-remedial reference levels of byproducts in agricultural wells, and continue to monitor (as well as model, or predict) byproduct concentrations in agricultural wells twice yearly during ATU operations. These stringent requirements are intended to provide advance detection of impacts so that PG&E and the well owner will have adequate time to assess and react to any increases in byproducts that may affect crop yields or quality. c and d) The burden to demonstrate (predict) the impact is on PG&E, as described above, and it is anticipated that the farmer and PG&E will work together to document crop yields and quality.
C7	On page 29, for the Agricultural Supply wells affected by drawdown, why do you not also provide the ability to demonstrate that supply is sufficient, as is done for the domestic wells on page 27?	The same ability will be added to agricultural supply wells as for domestic wells. The section on page 29 regarding actually affected agricultural wells will be revised to add the statement " . . . unless it can be demonstrated that the well remains capable of providing an adequate flow rate for agricultural supply and the well owner concurs that the flow rate is adequate for their use."
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D1	Mr. Jardine supported the tentative WDRs as presented.	Comment noted.
D2	Ms. Cox recommended taking the Basin-wide approach as a	Comment noted.

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#	**Comment**	**Response**
	cleanup method for agricultural treatment unit byproducts.	
D3	Dr. Horne requested to see some language in the WDRs that addresses the consequences for PG&E if the plume "bulge" exceeds the 3,000 foot line allowed in the WDRs and also addresses consequences of increased uranium in soil.	See response to comment B1. The WDRs no longer propose to authorize chromium plume bulging. Uranium concentrations in soil will be measured prior to application of water at all ATUs. Soil concentrations will be assessed twice yearly and compared to pre-remedial levels to determine if statistically significant increases are occurring. If such increases are noted, Discharger will be required to submit an Action Plan proposing methods to reduce the increasing trends. This requirement will be added to the proposed WDRs. Additionally, the following receiving water limitation has been added to address increases (if any) in uranium concentrations: If the discharge of waste causes uranium levels in monitoring wells to exceed 20 picoCuries per liter (pCi/L), or to increase by more than 10 percent (if below 20 pCi/L) or by more than 20 percent compared to baseline or pre-remedial reference levels, the Discharger shall propose actions to manage increases in uranium levels in receiving waters. The action plan shall be submitted within 120 days of identifying such exceedances. The Discharger may provide information demonstrate that the source is other than from implementing agricultural treatment authorized under this Order. The action plan should propose methods to limit increases of uranium in receiving waters, such as changes in source of irrigation water, blending of irrigation water to reduce uranium concentrations applied to fields, or fallowing of fields. The action plan must include a schedule for implementing any proposed

Water Board Member Comments from January 8, 2014 Meeting		
#	**Comment**	**Response**
		actions.
D4	Mr. Dyas agreed with Ms. Cox on the Basin-wide approach especially if it could include no net water consumption.	Comment noted. Specific details of a basin-wide approach would be contained in a proposal by the Discharger, and subject to Water Board acceptance.
D5	Mr. Sandel and Chair Pumphrey concurred with previous statements made by the Board.	Comments noted.

Attachment 1. Water Board staff comments on PG&E's Table 1, Proposed Revisions to Groundwater Monitoring Program.

ATTACHMENT A

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Attachment 1 - Water Board Comments on PG&E's Table 1.
PG&E Proposed Revisions to Groundwater Monitoring for Existing ATUs

Monitoring Well ID	Aquifer	Draft MRP Table E-2	Proposed Revision			PG&E Rationale	Water Board Response
			Domestic Well Protection	Charact-erization	Sampling Frequency		
DW-01	UUA	--	---	~~X~~ ---	~~BA~~ ---	Proposed for UUA monitoring.	Low chromium concentrations (<3.1 ppb) do not warrant monitoring; replaced with MW-42 B1/B2 having higher chromium concentrations
DW-02	UUA	Q	X	X	Q	Concur with location and sampling frequency.	
DW-03	UUA	Q	---	---	---	Propose to remove. This well has root intrustion issues; MW-170S was constructed as a replacement and is proposed for monitoring.	Agree
MW-09	LUA	Q	---	---	---	Propose to remove - use data from MW-14 and MW-27 for upgradient characterization which provide better depth coverage.	Agree
MW-127S1	UUA	Q	X	X	Q	Propose to remove - particle tracks suggest groundwater not moving in this direction.	Location and monitoring frequency needed to characterize byproducts extent in the northwestern area downgradient of ATUs
MW-127S2	UUA	Q	X	X	Q	Propose to remove - particle tracks suggest groundwater not moving in this direction.	Location and monitoring frequency needed to characterize byproducts extent in the northwestern area downgradient of ATUs
MW-14A	UUA	Q	---	---	---	Propose to remove - use data from MW-14S for UUA characterization.	Agree
MW-14B	LUA	Q	---	X	~~BA~~ S	Concur with location but propose biannual sampling for characterization within capture zone.	Upgradient monitoring frequency needed to evaluate groundwater quality at depth prior to treatment
MW-14S	UUA	Q	---	X	~~BA~~ S	Concur with location but propose biannual sampling for characterization within capture zone.	Upgradient monitoring frequency needed to evaluate groundwater quality at depth prior to treatment
MW-170S	UUA	Q	X	X	Q	Concur with location and sampling frequency.	
MW-21A	UUA	Q	---	X	~~BA~~ Q	Concur with location but propose biannual sampling for characterization within capture zone.	Monitoring frequency needed to characterize effectivness of chromium remediation and byproducts generation from DVD
MW-21B1	LUA	Q	---	X	~~BA~~ Q	Concur with location but propose biannual sampling for characterization within capture zone.	Monitoring frequency needed to characterize effectivness of chromium remediation and byproducts generation from DVD
MW-22A1	UUA	Q	---	X	~~BA~~ S	Concur with location but propose biannual sampling for characterization within capture zone.	Upgradient location to DVD and monitoring frequency needed to evaluate groundwater quality at depth prior to treatment
MW-22B	LUA	Q	---	X	~~BA~~ S	Concur with location but propose biannual sampling for characterization within capture zone.	Upgradient location to DVD and monitoring needed to evaluate groundwater quality at depth prior to treatment
MW-24A1	UUA	Q	---	---	---	Propose to remove - location MW-22A is more suited for downgradient characterization of the UUA based on particle tracks.	Agree
MW-24B	LUA	Q	---	---	---	Propose to remove - location MW-22B is more suited for downgradient characterization of the LUA based on particle tracks.	Agree
MW-27A	UUA	--	---	X	~~BA~~ S	Proposed as alternative to location MW-09.	Upgradient location to ATUs and monitoring frequency needed to evaluate groundwater quality at depth prior to treatment
MW-27B	LUA	--	---	X	~~BA~~ S	Proposed as alternative to location MW-09.	Upgradient location to ATUs and monitoring frequency needed to evaluate groundwater quality at depth prior to treatment
MW-28A	UUA	--	---	X	~~BA~~ S	Proposed addition to monitor upgradient of ATUs on western side of system.	Upgradient location to DVD and monitoring frequency needed to evaluate groundwater quality at depth prior to treatment
MW-28B	LUA	--	---	X	~~BA~~ S	Proposed addition to monitor upgradient of ATUs on western side of system.	Upgradient location to DVD and monitoring frequency needed to evaluate groundwater quality at depth prior to treatment
MW-29	UUA	Q	---	X	~~BA~~ S	Concur with location but propose biannual sampling for characterization within capture zone.	Upgradient location to DVD and monitoring frequency needed to evaluate groundwater quality at depth prior to treatment
MW-31	LUA	Q	---	X	~~BA~~ Q	Concur with location but propose biannual sampling for characterization within capture zone.	Monitoring frequency needed to characterize effectivness of chromium remediation and byproducts from DVD
MW-32B1	LUA	Q	---	X	~~BA~~ Q	Concur with location but propose biannual sampling for characterization within capture zone.	Frequent monitoring needed to characterize effective of chromium remediation and byproducts generation from Yang ATU
MW-32B2	LUA	Q	---	---	---	Propose to replace - use MW-32S for characterization of UUA.	Agree
MW-32S	UUA	--	---	X	~~BA~~ Q	Proposed as alternative to MW-32B2 for characterization of UUA.	Frequent monitoring needed to characterize effective of chromium remediation and byproducts generation from Yang ATU
MW-38A	UUA	--	---	X	~~BA~~ S	Proposed addition to monitor upgradient of ATUs on western side of system.	Upgradient location to DVD needed to evaluate groundwater quality at depth prior to treatment in ATU
MW-38B	LUA	--	---	X	~~BA~~ S	Proposed addition to monitor upgradient of ATUs on western side of system.	Upgradient location to DVD needed to evaluate groundwater quality at depth prior to treatment in ATU
MW-42B1	LUA	Q	---	X	~~BA~~ S	Propose to remove. Adequate LUA characterization with location MW-42B2.	Upgradient location to DVD needed to evaluate groundwater quality at depth prior to treatment in ATU
MW-42B2	LUA	Q	---	X	~~BA~~ S	Concur with location but propose biannual sampling for characterization within capture zone.	Upgradient location to DVD needed to evaluate groundwater quality at depth prior to treatment in ATU
MW-43	LUA	Q	---	---	---	Propose to remove - adequate LUA characterization with locations MW-21B1 and MW-31.	Agree
MW-55A	LUA	Q	---	X	~~BA~~ Q	Concur with location but propose biannual sampling for characterization within capture zone.	Frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byprodcts downgradient of ATUs
MW-55B	LUA	Q	---	---	---	Propose to remove - sufficient characterization of LUA in this area with MW-55A.	Agree

Attachment 1 - Water Board Comments on PG&E's Table 1.
PG&E Proposed Revisions to Groundwater Monitoring for Existing ATUs

Monitoring Well ID	Aquifier	Draft MRP Table E-2	Proposed Revision			PG&E Rationale	Water Board Response
			Domestic Well Protection	Charact-erization	Sampling Frequency		
MW-55S	UUA	--	---	X	~~BA~~ Q	Proposed for UUA monitoring.	Frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byproducts downgradient of ATUs
MW-56	LUA	Q	---	X	S	Propose to remove - not optimal for monitoring downgradient of Ranch based on particle tracks. Use MW-22B for characterization.	Location and monitoring frequency needed to characterize effective of chromium remediation and byproducts generation when Ranch ATU pumping is reduced from maximum
MW-62A	LUA	Q	---	---	---	Propose to remove - adequate LUA characterization with location MW-68D.	Agree
MW-63	UUA	Q	X	X	Q	Concur with location and sampling frequency.	
MW-68D	LUA	Q	---	X	~~BA~~ Q	Concur with location but propose biannual sampling for characterization within capture zone.	Frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byproducts downgradient of ATUs
MW-68S	UUA	Q	---	X	~~BA~~ Q	Concur with location but propose biannual sampling for characterization within capture zone.	Frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byproducts downgradient of ATUs
MW-69D	LUA	Q	---	---	---	Propose to remove - particle tracks indicate upgradient of Gorman South field. Use data from MW-83D in this area instead	Agree
MW-69S	UUA	Q	---	---	---	Propose to remove - particle tracks indicate upgradient of Gorman South field. Use data from MW-83S in this area instead	Agree
MW-70D	LUA	--	---	X	~~BA~~ Q	Proposed for LUA monitoring.	Frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byproducts downgradient of ATUs
MW-70S	UUA	Q	---	X	~~BA~~ Q	Concur with location but propose biannual sampling for characterization within capture zone.	Frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byproducts downgradient of ATUs
MW-71D	LUA	--	---	X	~~BA~~ Q	Proposed for LUA monitoring.	Frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byproducts downgradient of ATUs
MW-71S	UUA	Q	---	X	~~BA~~ Q	Concur with location but propose biannual sampling for characterization within capture zone.	Frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byprodcts downgradient of ATUs
MW-83D	LUA	--	X	X	Q	Propose to add to supplement MW-83S with LUA location.	Agree
MW-83S	UUA	Q	X	X	Q	Concur with location and sampling frequency.	Agree
MW-84D	LUA	--	X	X	Q	Proposed to complement MW-84S with LUA location.	Agree
MW-84S	UUA	Q	X	X	Q	Concur with location and sampling frequency.	Agree
MW-85D	LUA	Q	X	X	Q	Concur with location and sampling frequency.	Agree
MW-85S	UUA	Q	X	X	Q	Proposed to complement MW-84S with LUA location.	Agree
MW-86D	LUA	--	---	X	~~BA~~ S	Proposed for upgradient LUA monitoring.	Upgradient location to ATUs and domestic well 23-27 needed to evaluate groundwater quality at depth prior to treatment
MW-86S	UUA	--	---	X	~~BA~~ S	Proposed for upgradient UUA monitoring.	Upgradient location to ATUs and domestic well 23-27 needed to evaluate groundwater quality at depth prior to treatment
MW-88D	LUA	--	---	X	~~BA~~ S	Proposed for upgradient LUA monitoring.	Upgradient location to ATUs needed to evaluate groundwater quality at depth prior to treatment
MW-88S	UUA	--	---	X	~~BA~~ S	Proposed for upgradient UUA monitoring.	Upgradient location to ATUs needed to evaluate groundwater quality at depth prior to treatment
MW-89D	LUA	Q	---	X	~~BA~~ Q	Particle tracks suggest location is upgradient. Propose biannual sampling.	Location is downgradient to DVD and frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byproducts
MW-89S	UUA	Q	---	X	~~BA~~ Q	Particle tracks suggest location is upgradient. Propose biannual sampling.	Location is downgradient to DVD and frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byproducts
MW-105S	UUA		X	X	Q		Location and frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byproducts downgradient of ATUs near domestic well 23-28
MW-105D	LUA		X	X	Q		Location and frequent monitoring needed to evaluate effectiveness of chromium remediation and characterize byproducts downgradient of ATUs near domestic well 23-28
New well 1 D	LUA	Q	X	---	---	Propose to remove - adequate coverage with MW-84, MW-85 and New Well 2 based on particle tracks and location of supply wells	Agree
New well 1 S	UUA	Q	X	---	---	Propose to remove - adequate coverage with MW-84, MW-85 and New Well 2 based on particle tracks and location of supply wells	Agree
New well 2 D	LUA	Q	X	X	Q	Concur with location and sampling frequency.	
New well 2 S	UUA	Q	X	X	Q	Concur with location and sampling frequency.	

LUA = Lower upper aquifier
UUA = Upper upper aquifier
Q = Quarterly sampling
~~BA = biannual sampling~~
S = Semiannual sampling
-- = No sampling
LTU = Land treatment unit
MRP- Monitoring and Reporting Program