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October 14, 2010

Mr. Chuck Curtis
Supervising Engineer
California Regional Water Quality Control Board, Lahontan Region
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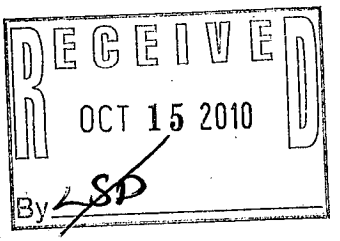

Subject: Hinkley Feasibility Study Supplemental Data Submittal
Estimated Timeframes and Costs to Achieve Drinking Water Standards, Maximum Background Concentration, and Average Background Concentration for Chromium

Dear Mr. Curtis:

Pacific Gas & Electric Company (PG&E) has prepared this letter in response to preliminary comments on the Hinkley Feasibility Study (FS) received from Lahontan Regional Water Quality Control Board (Water Board) staff during a Hinkley project update meeting on 15 September 2010. During this meeting, you suggested that additional information regarding the timeframe and cost for each of the remedial alternatives to achieve average background chromium concentrations (1.5 micrograms per liter (µg/L) for total chromium, and 1.2 µg/L for hexavalent chromium) would be helpful for evaluation of the FS.

In response, PG&E prepared the attached table D-1, which summarizes the estimated timeframe and cost for each of the five alternatives that were evaluated in the FS for the following three chromium cleanup levels:

- California drinking water standard of 50 µg/L for total chromium;
- Maximum background concentration of 3.1 µg/L for Cr(VI); and
- Average background concentration 1.2 µg/L for Cr(VI).

The costs presented in Table D-1 include net present value (NPV) costs (consistent with the FS costing approach), as well as non-discounted costs. NPV costs were calculated using a discount rate of approximately three percent, which accounts for the time value of money assuming that PG&E sets aside the full NPV amount in a trust or similar account that either earns interest on the funds or could be invested elsewhere with a comparable financial rate of return. Since remediation projects have long durations, are required by law, and are not a discretionary component of a business portfolio, the use of NPV project costing are not considered to be the most appropriate cost accounting method. This is primarily because some remediation projects have significant costs that occur beyond 30 years, which may result in a misrepresentation of the actual long-term cash outlays and financial requirements to complete the work. The United States Environmental Protection Agency (USEPA) *Guide to Developing and Documenting Cost Estimates During the Feasibility Study (USEPA,2000)* states that "...for long-term projects (e.g. project duration exceeding 30 years), it is recommended that the present value analysis also include a "no discounting" scenario" for the purposes of comparing the costs and benefits of various remedial options.

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Because the durations of the active treatment alternatives (Alternatives 3 and 4) to achieve the drinking water standard were less than this 30 year project duration recommendation, only NPV costing information was provided in the FS. Since the LRWQCB has requested information regarding remediation durations and costs to achieve both the maximum and average background chromium values, it is appropriate to provide both NPV and "non-discounted" costs, in accordance with USEPA guidance.

The attached Table D-1 presents the estimated NPV and non-discounted costs for each of the five groundwater remediation alternatives presented in the FS, to achieve the three chromium cleanup levels listed above. A comparison of the non-discounted costs highlights the significant long-term costs associated with achieving the lower chromium levels, which is not evident by an examination of NPV costs alone.

It is important to note that regardless of which costing method is used, Alternative 4 (Core In-Situ Treatment and Beneficial Use) is the lowest cost treatment approach.

The evaluation also points out the extremely long durations associated with attempting groundwater remediation to achieve the lower average background chromium levels. Additionally, the evaluation assumed that remediation to average background is achievable and demonstrable across the entire plume, both unsubstantiated assumptions.

Nevertheless, based on this supplemental cost evaluation and the evaluation criteria and goals established in the FS, the recommendations of the FS remain the same. They include:

- Implement Alternative 4 (Core In-Situ Treatment and Beneficial Use);
- Focus on core treatment to achieve the drinking water standard of 50 μg/L for total chromium;
- Continue remedy operation in an effort to achieve the maximum background concentration of 3.1 μg/L for Cr(VI); and
- Conduct 5-year performance reviews to evaluate progress.

Please call me at (530) 520-2959 if you have any questions regarding this matter.

Sincerely,

Eric Johnson
Hinkley Remediation Project Manager

Enclosure

cc: Lisa Dernbach/RWQCB Lahontan Region, South Lake Tahoe
Mike Plaziak/RWQCB Lahontan Region, Victorville

Reference:

USEPA, 2000, *Guide to Developing and Documenting Cost Estimates for During the Feasibility Study*, EPA 540-R-00-02, OSWER 9355.0-75

OPINION OF PROBABLE COST	*Hinkley Feasibility Study*	Project Number: 36385
Cost and Duration Summary		Date: 12-Oct-10

	MCL Cr(T) 50 ug/L			Maximum Background Cr(VI) 3.1 ug/L			Average Background Cr(VI) 1.2 ug/L		
Alternative	Years *	Non-Discounted Cost*	NPV Cost*	Years *	Non-Discounted Cost*	NPV Cost*	Years *	Non-Discounted Cost*	NPV Cost*
1: No Action	750-1000	$0M	$0M	>1000	$0M	$0M	>1000	$0M	$0M
2: Containment Only	120	$123M	$35.3M	260	$258M	$36.0M	320	$316M	$36.0M
3: Plume-Wide In-Situ Treatment	8	$58.1M	$50.7M	110	$399M	$130M	180	$634M	$133M
4: Core In-Situ Treatment and Beneficial Use	6	$28.9M	$27.2M	150	$154M	$50.2M	220	$215M	$50.4M
5: Plume-Wide Pump and Treat	50	$334M	$180M	140	$882M	$218M	210	$1.31B	$221M

* Durations based on fate & transport model; time when the starting plume area has been reduced by 99 percent

Unless otherwise noted, Non-Discounted and NPV costs in millions and refer to the capital and O&M cost for the duration to reach the endpoint duration.

For alternatives that utilize Agricultural Units, costs include operation primarily by farmers, and not by consultants.