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From:
The ARCADIS Risk Assessment Team

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ARCADIS Project No.:
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Subject:
Final RAWP Addendum 2 - Scope

The purpose of this memorandum is to briefly list the additional information required to complete the work plan for the forthcoming soil risk assessment at the Topock Compressor Station, Needles, California. The work plan currently consists of the following documents:

- Technical Memorandum: Topock Compressor Station – Ecological Conceptual Site Models, Assessment Endpoints, and Receptors of Concern (ARCADIS BBL, 2007a)
- Technical Memorandum: Topock Compressor Station – Ecological Exposure Parameters, Bioaccumulation Factors, and Toxicity Reference Values (ARCADIS BBL, 2007b)
- Risk Assessment Work Plan (RAWP; ARCADIS, 2008)
- RAWP Addendum (ARCADIS, 2009a).

The additional information required to complete the risk assessment will be provided in RAWP Addendum 2 and will consist of both human health risk assessment (HHRA) and ecological risk assessment (ERA) topics as listed below.

Human Health Risk Assessment

New Topics

- In accordance with the Soil RCRA Facility Investigation/Remedial Investigation (RFI/RI) Work Plan Response to Comment (RTC) 74(e), Pacific Gas & Electric (PG&E), U.S. Department of the Interior (DOI), Department of Toxic Substances Control (DTSC), and stakeholders will work through a process of data presentation and interpretation. RAWP Addendum 2 will include a description of this process. The process will include at least one example of computing exposure point concentrations from a data set, and may include working groups, demonstrations, and technical memoranda.
- In response to specific agency direction resulting from stakeholder comments, present the results of a literature search, currently being conducted in order to understand the potential for hexavalent and/or trivalent chromium to be taken up into plant tissue. The literature search will focus on arrowweed, but will summarize our findings from other plant species as well. The literature search will include a discussion of California Environmental Protection Agency's (CalEPA's) most recent relevant guidance. The results of the literature search will assist in the development of an appropriate method for evaluating (e.g., quantitative or qualitative) the potential for uptake of hexavalent chromium and/or trivalent chromium into plant tissue and resulting human or environmental impacts.
- In response to agency direction resulting from stakeholder comments, revise CSMs:
 - Include contact with plants (e.g., arrowweed) for tribal user for quantitative or qualitative evaluation. Specific pathways will be identified based on the literature search and in coordination with the tribes.
 - Include sediment and porewater contact as complete if appropriate based on data from Soil RFI/RI (Volume 3).
- In response to agency direction resulting from stakeholder comments and based on the results of the literature search, add recommendations for addressing potential exposure to arrowweed (and/or other relevant plants) in the quantitative HHRA tribal user scenario. Recommendations for intake assumptions will be developed working with the tribes (assuming, that is, that all agree that this exposure pathway should be quantified).
- In response to agency direction resulting from stakeholder comments, incorporate recommended tribal use exposure assumptions from March 14, 2012, memo from Mike Sullivan and Eric Rosenblum on behalf of the Tribes to DTSC/DOI.

- In response to agency direction resulting from stakeholder comments, formalize that commercial/industrial soil screening levels (California Human Health Screening Levels [CHHSLs] or U.S. Environmental Protection Agency [USEPA] Regional Screening Levels [RSLs]) will initially be used to screen sediment data for human contact. If the concentrations of chemicals in sediment exceed the commercial/industrial CHHSL for soil, then further evaluation can be considered such as developing a site-specific sediment screening level protective of recreators and tribal users. Surface water criteria will be used to screen porewater data for human contact. The addendum will include development of sediment screening concentrations for hexavalent chromium protective of relevant ecological populations.
- In accordance with standard risk assessment practice, revise descriptions of existing exposure areas, as applicable, to specifically include East Ravine soil in appropriate category (Bat Cave Wash [BCW] or 'all other outside the fence areas' or a unique area).
- In accordance with standard risk assessment practice, revise approach to risk assessment for the commercial/industrial worker inside the fence line (formerly Part B) to reflect the anticipated limitations for the planned available soil data.

Further Development of Existing Information in the RAWP

In response to agency direction, additional information is needed for specific soil exposure assumptions for three potential human receptors:

- Adult and Youth Recreational User – Develop soil exposure assumptions for both sporadic and short-term uses in coordination with the agencies.
- Maintenance Worker – Develop specific soil exposure assumptions with input from PG&E on typical use patterns.
- Future Hypothetical Residential User – Work with DOI to gain concurrence on the approach for addressing DOI scenario for contact with vegetables, fruits, and poultry and their uptake from soil.

Ecological Risk Assessment

- Add desert bighorn sheep to the list of representative receptors in anticipation of request from DTSC to be consistent with the Final Groundwater Human Health and Ecological Risk Assessment (GWRA; ARCADIS 2009b) scope and observations by PG&E employees at Topock Compressor Station.
 - Include receptor selection criteria.

- Specify the exposure parameters and exposure areas. The existing exposure areas for large home range receptors were established without consideration of direct observations of the sheep by Curt Russell or others at Topock Compressor Station, and without regard to elevation which may affect the distribution of the sheep. PG&E will work with the agencies to develop appropriate exposure scenarios for the bighorn sheep. The exposure area for the bighorn sheep will then be established in the RAWP Addendum 2 with consideration of the large home range of the sheep, direct incidental observations of the sheep near the Topock Compressor Station, and available habitat.
- Revise Figures 3-1, 1, and 2 from the RAWP Addendum (showing sampling and exposure depth intervals) to include large herbivorous mammals represented by the desert bighorn sheep. Specify plant rooting depth and corresponding exposure interval assumption for plant tissue concentrations for the sheep model.
- Remove allometric conversion from toxicity reference values (TRVs; proposed and Biological Technical Assistance Group [BTAG]) consistent with DTSC Ecological Risk Assessment Section (ERAS) comments dated June 22, 2012.
- Describe approach to amending the Final GWRA (including Appendix I; ARCADIS 2009b) to include groundwater data collected from the East Ravine after the GWRA was completed. Describe approach to updating groundwater-to-surface water pathway analysis to reflect new groundwater and porewater data, as appropriate. RAWP Addendum 2 will include specific water quality comparison values that will be used to interpret porewater data.
- Describe approach to amending the Final GWRA (including Appendix I; ARCADIS 2009b) to include new information on phreatophytic vegetation at AOC-10 and AOC-11.
- Select hexavalent chromium ecological comparison value (ECV) for sediment. PG&E and the agencies agreed to a scientific/management decision point (SMDP) meeting to review the results of the soil and sediment sampling in BCW when they become available. The sediment ECV would be used to interpret the sediment data. The soil background value for hexavalent chromium was used for comparison during data gaps evaluation.

Tentative Milestone Schedule

- Draft Memo to DOI and DTSC from Michael Sullivan (FMIT consultant) and Eric Rosenblum (TRC): Development of Tribal-Specific Land Use Risk Assessment– 03/14/12 (actual date)

- DOI and DTSC direct PG&E and its contractors to conduct a literature search to better understand the potential for hexavalent and total chromium to be taken up into plant tissue, including arrowweed – 05/02/12 (actual date)
- Results of Plant Uptake Literature Search and Mapping – 07/15/12
- Draft Technical Memorandum: The Potential for Chromium Uptake by Arrowweed and Potential Exposure Pathways (Arrowweed Memo) – Mid-November 2012
- Final Arrowweed Memo to Stakeholders – End February 2013
- Scoping Meeting(s) – February through April 2013
 - Specific Assumptions for Recreational User (preference for direction from DOI, the landowner) and Future Hypothetical Residential User
 - With PG&E to identify Maintenance Worker exposure assumptions
 - With the tribes regarding methods/assumptions for assessing uptake and potential tribal user exposure to hexavalent chromium and total chromium in plants, including arrowweed
 - Working group for soil data presentation, interpretation, and exposure point calculation
- Draft RAWP Addendum 2 to Stakeholders and Agencies – Early September 2013
- Stakeholder and Agency Input on RAWP Addendum 2 – Mid October 2013 Submit RTCs on RAWP Addendum 2 – Mid November 2013
- Meeting to discuss RTCs on RAWP Addendum 2 – Early December 2013
- Stakeholder and Agency Input on RTCs to RAWP Addendum 2 – Early January 2014
- Finalize RAWP Addendum 2 or provide Responses to Stakeholder Comments – Early February 2014
- Agency approval on RAWP Addendum 2 – Mid March 2014
- Begin Soil Risk Assessment – Beginning of August 2015 (could start the soil risk assessment after the data analysis is completed in Mid- September 2014)

- Final Soil RFI/RI Volume 3 Submitted – Early July 2015
- Agencies approve Final Soil RFI/RI Volume 3 – Beginning of August 2015
- Soil Risk Assessment Draft to Agencies – End of November 2015
- Soil Risk Assessment Final to Agencies – Beginning of April 2016

References

ARCADIS BBL. 2007a. Technical Memorandum: Topock Compressor Station – Ecological Conceptual Site Models, Assessment Endpoints, and Receptors of Concern, Topock Compressor Station, Needles, California. April.

ARCADIS BBL. 2007b. Technical Memorandum: Topock Compressor Station – Ecological Exposure Parameters, Bioaccumulation Factors, and Toxicity Reference Values, Topock Compressor Station, Needles, California. June.

ARCADIS. 2008. Human Health and Ecological Risk Assessment Work Plan (RAWP), Topock Compressor Station, Needles, California. August.

ARCADIS. 2009a. Revised Addendum to the Revised Human Health and Ecological Risk Assessment Work Plan (August 2008), Topock Compressor Station, Needles, California. February.

ARCADIS. 2009b. Final Groundwater Human Health and Ecological Risk Assessment, Topock Compressor Station, Needles, California. December.