

State of California

Department of Health Services

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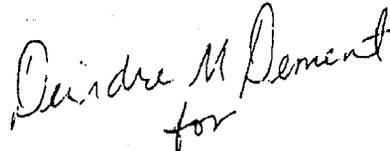
Date: December 22, 2000

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Subject: Review of Draft Work Plan Phase II Evaluation of Radionuclides in Groundwater at Former Landfill Sites and the EOD Range, Marine Corps Air Station (MCAS), El Toro, California, December 2000.

Attached are The Department of Health Services' (DHS) comments on the subject report. This review was performed by Ms. Deirdre Dement and Mr. Kurt Jackson, Associate Health Physicists, in support of the Interagency Agreement between DTSC and DHS. If you have any questions concerning this review, or if you need additional information, please contact Ms. Dement at (916) 324-1378.



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Department of Health Services
(DHS)

*Review of Draft Work Plan Phase II Evaluation of Radionuclides in Groundwater
at Former Landfill Sites and the EOD Range, dated December 2000*

December 22, 2000

The following comments and questions re in response to the request from Ms. Triss Chesney of the Department of Toxic Substances Control to review the *Draft Work Plan Phase II Evaluation of Radionuclides in Groundwater at Former Landfill Sites and the EOD Range*, dated December 2000.

General Comments:

1. Page 2-1, Section 2: The title of the Orange County Water District (OCWD) document cited at the top of the page does not agree with the title of the only OCWD document cited in the references on Page 5-2. If the document title on Page 2-1 is correct, DHS wishes to obtain a copy of that document.
2. Page 2-3, Section 2.1.5: The assumptions and basis for each decision rule should be briefly explained and references cited, where applicable references supporting the decision rule exist. To some extent, the assumptions and basis for decision rules are covered on Page 4-1, Section 4, but applicable references are not provided.
3. Pages 2-3, 3-10, 3-11 and 4-1: The nine decision rules listed on Page 4-1 and the analytes listed on Pages 3-10 and 3-11 do not include metals or anions such as nitrate, which might be indicators of anthropogenic sources or contributions to the groundwater. The possible need for additional decision rules and analytes should be reviewed by other stakeholders, who are more familiar with previous groundwater studies at this site and the groundwater conceptual model for the site.

Specific Comments:

1. Page v, Acronyms and Abbreviations and Page 3-3 Table 3-2: Please verify that the abbreviation for micro ohms is " μmho " instead of " μohm ."
2. Page 1-2, Section 1.2.1 should specify what chemical analytes have been sought or found in previous groundwater samplings. Do any previous groundwater monitoring results indicate that the landfills may have been a source of chemical analytes found in the groundwater? Since the landfills are considered as a potential source of uranium to groundwater, knowledge regarding possible migration of other analytes from landfills would be helpful background information.

DHS review of the *Draft Work Plan Phase II Evaluation of Radionuclides in Groundwater at Former Landfill Sites and the EOD Range*, dated December 2000.
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Specific Comments: (Continued.)

3. Pages 2-3 and 4-1: Decision Rule #8 may be over simplified because other potential water sources such as individual storm events, irrigation water, or leakage from drinking water or waste water conduits. Any of the sources may diverge from the local meteoric water line. While Decision Rule #8 leaves room for these other possibilities, they may need to be specifically considered when samples are collected. It may be appropriate to collect samples from any other potential sources of recharge along with the groundwater samples to aid in the data evaluation. The possible need for additional stable isotope samples should be reviewed by other stakeholders, who are more familiar with previous groundwater studies at this site and the groundwater conceptual model for the site.
3. Pages 3-3 and 3-4, Section 3.2 and Table 3-3: Page 3-3 seems to imply that one sample will be collected at each well site and Step 8 indicates that the sample will be acidified once it reaches the laboratory. Acidification is not appropriate for some of the listed analytes such as stable isotopes and tritium. The procedure on Page 3-3 needs revision to clarify how many bottles will be collected at each well or how field personnel will determine the number of bottles. It also needs to clarify which samples or aliquots from each well will be acidified. Table 3-3 on Page 3-4 indicates multiple bottles per well and different preservation requirements for various measurements, but it does not list tritium as a measurement being performed. Section 3.2 text and Table 3-3 need review and revision for consistency and clarification.
4. Pages 3-7 and 3-10: Under Section 3.7.1, field duplicates, it is noted that the analysis of field duplicates will be compared to laboratory criteria in Section 3.10. This statement needs clarification, especially with regard to how it applies to analytes that have "not applicable" or "not established" indicators in Table 3-7.
5. Pages 3-10 and 3-11, Table 3-7: Will field duplicates or laboratory splits of groundwater samples be used for determining whether precision criteria in Table 3-7 are met, when duplicate spiked samples are not available?
6. Pages 3-10 and 3-11, Table 3-7: Why is there no matrix spike or laboratory control sample criteria for uranium isotopic measurements listed in Table 3-7? What matrix spike and laboratory control samples will be used for isotopic uranium analysis? It may be useful to submit groundwater samples spiked with uranium along with the routine samples.

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Specific Comments: (Continued.)

7. Pages 3-10 and 3-11, Table 3-7: What is the reporting limit required for tritium in this study? Decision Rule #7 seems to indicate that a reporting limit of one Tritium Unit (T.U.) or less is required. DHS suggests verification that the selected laboratory can meet the required reporting limit. The required tritium reporting limit should be specified in Table 3-7.
8. Page 4-1: Decision Rule #7 states that "the analysis of stable hydrogen isotopes would also account for the contribution of tritium..." It is not clear how the stable isotope analysis would account for the contribution of tritium.
9. Pages 3-10 and 3-14: The lack of project quality control criteria for radionuclide and stable isotope analytes in Table 3-7 will likely make it difficult to perform an adequate data quality assessment as specified in Section 3.14. The "not applicable" and "not established" indicators in Table 3-7 need to be replaced with project specific quality control criteria or an explanation needs to be provided for the lacking quality control criteria.