SFUND RECORDS CTR
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Department of Energy
Washington, DC 20585

July 15, 2008

Ms. Nicole Moutoux
Project Manager
Federal Facilities Branch
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Re: Preliminary Draft Gap Analysis Comments by U.S. EPA

Dear Nicole:

The purpose of this letter is to transmit DOE's responses to the EPA comments on the Preliminary Draft Gap Analysis for Area IV of the Santa Susana Field Laboratory. DOE received these comments on May 20, 2008. As described in Attachment 1, DOE incorporated EPA's comments into the Draft Gap Analysis that was published on June 5, 2008.

The Preliminary Draft Gap Analysis that was shared with EPA on April 8, 2008 was just that, a preliminary draft. Many changes were made between that document and the draft that was shared with the public, DTSC, and EPA (note that our Fedex receipt shows EPA mailroom receipt on June 9, 2008, not June 17 as described in your June 26 letter). The Draft Gap Analysis is the result of extensive consideration of EPA's comments, a thorough review by CDM's scientists, and a better understanding of the existing information. In several discussions, DOE noted that this was only a preliminary draft and that EPA would have the opportunity to comment thoroughly and completely on the Draft Gap Analysis that would be released in late May 2008.

DOE has held two public meetings on the Draft Gap Analysis Report and received comments from many stakeholders. In addition, it is expected that the Department of Toxic Substances Control (DTSC) will also have extensive comments. A response to all comments will be prepared and shared with all interested parties and posted on the website. The Draft Gap Analysis will be revised to incorporate comments. As stated in my letter to you dated July 11, 2008, DOE will revise the Draft Gap Analysis to reflect screening using the agricultural preliminary remediation goals as posted on your website. In addition, DOE would welcome any other suggestions, comments, or concerns that EPA may have related to the Draft Gap Analysis.

Since it now appears that EPA will be conducting the radiation characterization study which includes a background study, gamma walkover survey, and associated soil sampling, much of the information in the Draft Gap Analysis related to sampling density

for this work will be revised to reflect EPA's approach and findings. Of course, this revision cannot be completed until EPA has identified and completed their work.

DOE would welcome the opportunity to discuss with you any additional concerns or comments that you have related to your comments, the gap analysis process, or the path forward.

I am hopeful that this fully answers all your questions; however, feel free to call (818-466-8162) or email Stephanie.jennings@emcbc.doe.gov if you have any further questions.

Sincerely,

Stephanie G. Jennings
US Department of Energy
NEPA Document Manager

CC: R. Schassburger, DOE
T. Johnson, DOE
M. Aycock, EPA
C. Trombadore, EPA
N. Riley, DTSC
P. Berry, OPO
Admin. Record

Attachment: Responses to US EPA Comments on Preliminary Draft Gap Analysis Report for Area IV of Santa Susana Field Laboratory

Responses to USEPA Comments on Preliminary Draft Gap Analysis Report for Area IV of Santa Susana Field Laboratory
Letter Dated May 20, 2008
From: Nicole Moutoux, U.S. EPA Region IX
To: Stephanie Jennings, U.S. DOE

Overarching Comments:

1. **CERCLA/EIS Equivalency:** It is DOE's goal that the site investigation and alternative remedy evaluation process used in the EIS be as consistent as possible with CERCLA so that additional CERCLA compliant actions related to remedy identification may not be necessary following completion of the EIS. DOE will continue to seek EPA's guidance on this matter and trusts that EPA will inform DOE should the EIS process deviate from basic CERCLA requirements.

2. **Buffer Zone Sampling:** DOE is committed to sampling locations adjacent to Area IV where contaminants may have migrated from Area IV. This includes investigation of all drainages leaving Area IV.

3. **MARSSIM Final Survey:** DOE acknowledges in the Data Gap Report that the radionuclide investigation is being performed to address CERCLA risk assessment needs related to alternative remedy evaluations. DOE recognizes in the Data Gap Report that this is not a final site survey and that a final site survey, compliant with MARSSIM guidance, will be necessary following remedy completion. In order to be most responsive to EPA, DOE seeks guidance from EPA on why it believes that the MARSSIM-based survey for the EIS risk assessment "may not meet CERCLA requirements".

4. **Screening Levels (Background):** The conclusions of the Data Gap Report have been revised to identify a need for additional background investigations. See Table 5-1, page 5-2, and Section 5.11, page 5-7 of the Draft Gap Report.

5. **Gamma Walkover Survey (GWS):** The conclusions of the Data Gap Report have been revised to provide recommendations for a 100% survey of <u>all</u> accessible areas of Area IV, drainages originating at Area IV, and at groundwater seeps in the vicinity of Area IV. The purpose of the surveys is to aid in characterization of Area IV, not necessarily the final status survey which cannot be performed until after removal of buildings and wastes are performed.

6. **PRGs and DCGLs:** DCGL's are introduced in Section 3.2.3, page 3-6, of the DQO Information Inputs and are defined in Section 3.2.6 of the DQO Acceptance Criteria discussion.

General Comments

1. **Sample Number Determination:** The use of the nominal 20-acre exposure unit size was for the purpose of developing a maximum size over which statistical determination of sample numbers could be made as part of the Data Gap analysis. The actual size of the unit areas for the CERCLA risk assessment will be determined following review of all of the data collected for Area IV, including data to be collected as part of the Data Gap effort and will be based on the individual survey units (radionuclides) or chemical use areas rather than the exposure units. This will allow for the identification of areas of elevated contamination (hot spots) and areas of lower contamination. The Data Gap Report also describes the reports reviewed (see Table 2-1, Appendix A, Appendix B) to determine process history and chemical use to assist in identification of COIs and the additional data needs. The design of the field sampling program is intended to identify hot spots as well as to characterize all of Area IV. Hot spots will be identified and segregated for remediation (removal) and not incorporated into overall risk assessment results to avoid skewing of the data.

2. **Screening Criteria:** For radionuclides, DOE used the PRGs published on the EPA Region 4/ORNL website without modification. For chemicals, DOE updated the EPA Region 9 2004 PRGs to address recent slope factors, CAL-EPA factors, and to include consumption of fruits and vegetables. The update of the chemical PRGs was also done so that the risk assessment scenario (basis for PRG development) was the same for both radionuclides and chemicals. DOE agrees with EPA's comment on the use of PRGs and the need for the uncertainty analysis and will perform an uncertainty analysis for the quantitative risk assessment. DOE will use the agricultural PRGs identified on EPA's website as a screening tool in the revised version of the gap analysis report.

3. **Background Soil:** DOE agrees that the existing radionuclide background dataset only reflects the 0 to 1 ft interval and seeks to work with EPA in the development of a study that will address this data gap. The Data Gap Analysis Report has been revised to recommend collection of additional background samples for radionuclides including those for the subsurface soils and bedrock. See page 5-2, Table 5-1, of the Draft Data Gap Report.

4. **Non-Detects:** Since the samples with elevated detection limits are not considered in the count of available valid data, they are, therefore, reflected as a data gap. The Field Sampling Plan will identify the need to resample locations with data rejected due to high detection limits when the location is part of the data need for defining contamination extent and for calculating risk.

5. **Current Exposures:** The text regarding OSHA compliance was intended to reflect current exposure only. The text has been amended to indicate that the numeric risk assessment will address future exposure to maintenance workers.

6. **Model Selection:** The models proposed to assess bio-uptake as well as to assess risk will be introduced in the Work Plan governing the field sampling program.

7. **Site Area:** The 90 acres stated in the Administrative Draft Report was for ETEC only. Text has been revised to state that the Data Gap study addresses all of Area IV. The 20-acre maximum size for the EUs is a maximum with the average EU being closer to 17 acres.

8. **Sediment:** The text indicating that both the human health and ecological risk assessments will use sediment data is correct. The text stated that sediment data will be solely used for the ecological risk assessment has been corrected. (See page 3-28, Section 3.5.6). However, due to the arid conditions and to assess the Human Health risk, sediment concentrations will be modeled as soil concentrations and a distinction between soil and sediment will not be made.

9. **Radiological Contaminants of Interest:**
   DOE notes that as part of the SSFL radionuclide background study, EPA is also evaluating the list of COIs to determine whether any additional radionuclide should be added. DOE will revise the list of COIs based on EPA's findings.

   Regarding the current listing of COIs (described in Section 3.6.5.3):
   - Process relationships for radionuclide COIs have been added to Table 3-11.
   - Cm-243 is included in the list of COIs as a co-analyte of Cm-244. Neither analyte is distinguishable by alpha spectroscopy due to overlapping energies. Cm-242 has a half-life of less than 1 year.
   - Be-7 and Po-210 are radionuclides present in natural background and both have half lives of less than 1 year. The text in Section 4.8.1, bottom of page 4-41, indicates that only K-40 was detected in air samples above natural background. Additional text was added for clarification. Po-210 is the daughter of Pb-210 which is included as a COI, but only because it had been previously listed in the EA and not because it is related to process history. The same is true for Ra-226.
   - All identified gamma emitters will be reported.

10. **Sample Density for Sample Collection:** The MARSSIM sample density was adjusted to reflect what the investigators considered to be a reasonable number of samples necessary to conduct a risk assessment.

This adjustment was performed as a planning tool for the field sampling effort. Once all data are collected, the sample density will be re-evaluated to determine whether the planning decision was correct, or whether additional sampling will be necessary in some areas to address the risk assessment sampling density needs. It is assumed that additional sampling will be required for final status survey following any required remedial activities once clean-up levels are established.

11. **Data Gap Analysis Results:** The tables in Appendix G for radionuclides and Appendix I for chemicals provide the supporting information on the location (Survey Unit) and numbers of additional samples. Figure 3-5 for chemicals and Figure 3-6 for radionuclides illustrate where samples have been collected, including the locations where results exceed background or PRGs.

12. **Statistical Evaluation of Radionuclide Background Distribution:**

The existing background dataset was used for the purposes of the Data Gap study. The proposed background study, gamma walkover survey, and associated soil sampling which EPA will now perform should be designed to address the concerns provided under this comment.

Outliers

The statistical test for outliers could be made. However, the background data set that we developed was only for the purpose of our initial screening of data for the purposes of calculating the data gap. It is recommended in the report that further samples be collected for establishment of a background that would be applied for screening for the risk assessment. Further statistical evaluation and statistical testing can be performed at that time by EPA but DOE recommends that it be performed only after completion of the proposed background study.

Uncertainties

Relative to data sets for U-238 and Th-228, it is known that these two naturally occurring decay chains do not exist in nature at the same concentrations. Therefore, it is not surprising that the range of values found in nature is different. Comparison to other background set was provided in Appendix C.

The discussion of uncertainties in Appendix D makes it clear that only samples results that were detections for Sr-90 that were below the PRG were used. This was done in order to avoid biasing the data set by the detection limit. It is unclear why EPA believes only non-detected results were used.

Reliability of the data sets was provided by the inclusion of the distribution plots for each. Only data sets with reliability issues were discussed in the text. Section 3.4.1.2 of the Draft Gap Analysis provides a discussion of the background dataset analysis process. As referenced in EPA's comments, Appendix D provides the basis for the development of the dataset.

Chatsworth Geologic Formation (Kcs) versus Santa Susana Formation (Tsu)

A recommendation has been added that different backgrounds be established for each geological formation when the new background study is performed. For many radionuclides, there may not be a statistical difference, but that can be evaluated.

Specific Comments

1. **Section 1.7.4 Screening of Data Base and Identification of Contaminants of Interest:** The removal of an analyte due to screening would decrease the number of existing useable sample results and, therefore, potentially make the data gap larger. However, it would not make the analyte a "data gap" unless data for its location would be needed to define the extent of contamination. For example, the removal of an analyte from a sample at a location that is surrounded by valid data probably would not dictate the need for an additional sample. However, the removal of a sample from the edge of a contaminated area at a location where there are no other samples to define extent probably would become a "data gap" requiring an additional sample.

2. **Section 1.7.6 MARSSIM-Based Approach and Limitations:** The size limit of 20 acres is by default for Class 3 areas since that is the maximum size chosen for exposure units.

3. **Section 1.7.7 Application of MARSSIM Guidance and Area IV Organization:** Because the focus of the Data Gap study is for site characterization and risk assessment purposes and not final site status, text regarding full MARSSIM compliance has been removed from the Draft Gap Report. The actual risk assessment using all valid data will be based on the overall findings and data distribution, and not necessarily the survey units used to assess the existing data. The exposure unit sizes in this study were evaluated only for future sample collection considerations, and not to delineate proposed areas under which a future risk assessment will be based. The current survey unit boundaries only take into consideration the distribution and concentrations of the existing data.

4. **Section 3.1.1, Step 1 – State the Problem:** Text revised to address this comment.

5. **Section 3.1.3, Step 3 – Identify Information Inputs:** BPRGs have not been used or referenced since they are provided in units that are not applicable to the type of data that will be used to model the exposures to the potential receptors. The inhalation, ingestion and external exposure pathways will be evaluated by RESRAD BUILD modeling from both the total and removable surface contamination, assuming appropriate release fractions and conversion fixed contamination to removable contamination over time rather than from measured dust, or air concentrations.

6. **Section 3.2.1.1, Potential Receptors, Offsite Human Receptors and Section 3.2.1.2 Potential Exposure Pathways:** For those instances where numeric data exist or can be modeled to define an exposure point concentration at the receptor location, a quantitative risk evaluation will be performed. For those instances where the data don't exist or cannot be modeled, the risk will be addressed qualitatively. An example would be for surface water where quality leaving Area IV is known but is not known a mile away after the drainage intersects drainages not associated with Area IV.

7. **Section 3.3.1.1, Chemical (This text is now located in Section 3.4.1.1):** The chemical background data were used in this study as provided in *Soil Background Report, Santa Susana Field Laboratory, Ventura County, California* (MWH 2005). The commentor is referred to the background report used to develop the background data to address concerns about the dataset. DOE understands that as part of the RCRA RFI, DTSC is evaluating the need for further development of background for chemicals. For the future risk assessment, DOE will use the dataset acceptable to DTSC in that analysis.

8. **Section 3.3.1.1, Chemical:** This Level V validation text comes directly from the source document referenced in the Data Gap Report. According to the authors of the source document, the data validators modified the Level II validation protocols and named the modifications Level V.

9. **Section 3.3.1.2, Radiological:** Section 3.4.1.2, page 3-19 (of the revised Report), and Appendix C, describe the sources and what is known about the data set used as the background screening criteria. There is no report summarizing all of the background data collected, sampling protocols, and rationale for sampling for the radionuclides which is one of the reasons EPA is engaged in defining a background study that addresses the concerns in the comment.

10. **Section 3.6.2 Selection of Exposure Units.** The EUs were identified as a planning tool to divide up the site based on land uses and topography and to assist in analysis of the data for data gap analysis purposes, only. As

stated above, the survey areas for the subsequent risk assessment will be determined following a review of all of the data.

11. **Section 3.6.5 Calculation of MARSSIM-Required Number of Samples, Page 3-36:** Additional text has been added to justify this approach. Text is now in Section 3.6.6.1, page 3-38.

12. **Section 3.6.5, Calculation of MARSSIM-Required Number of Samples, Page 3-35:** The text is correct as written. We request further information from EPA regarding their comment and concern.

13. **Section 3.9.4, Conclusions:** The text has been corrected. The text is now in Section 4.8.4, page 4-34.

14. **Section 4.1.1.1, Statistical Approach, Page 4-6:** The statement in question applies to the sample locations identified in Table I-8 and is not intended to indicate that only one additional sample is required for characterization purposes overall. This is only a starting point for the investigation. If the "additional" sample exceeds criteria, then additional sampling, both vertically and horizontally, may be warranted. This sampling approach will be described in the field sampling plan.

15. **Section 5.1.2, Radionuclide Gap Analysis Approach:** The text has been revised.

Minor Comments

1. **Section 3.3.1, Background:** The text has been revised and is now contained in Section 3.4.1.

2. **Section 3.3.1.1, Chemical:** The text has been corrected and is now contained in Section 3.4.1.1.