

Brooks, Laura

From: Rampe, John
Sent: Tuesday, September 13, 2005 8:15 AM
To: Spreng, Carl; David Kruchek; Mark Aguilar; Larry Kimmel
Cc: Brooks, Laura; Castaneda, Norma; Walstrom, Jan; Shelton, Dave
Subject: Soil N&E comment responses



Nature and Extent
Response to ...

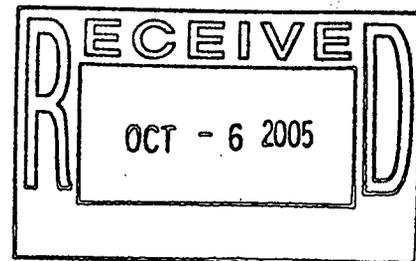
Dear Friends:

Attached (belatedly, and my apologies for that) are our draft responses to comments on the Nature and Extent of Soil Contamination report, for your review.

Please let me know if you have any comments or questions.

Thanks.

JR



ADMIN RECORD

**Comment Response
7/28/05 CDPHE Comments, 7/27/05 EPA Comments, and 8/5/05 FWS Comments on
June 30, 2005 Draft Nature and Extent of Soil Contamination Summary Report**

Number	Comment From	Comment	Response
General Comment 1	CDPHE	It is unclear why Americium-241 and Plutonium-239/240 in soils from 0.5-3.0 feet are considered to be subsurface soils, rather than surface soils, and correspondingly are screened as AOIs against the less stringent subsurface WRW PRGs. Under the RFCA Modifications, Attachment 5 of May 2003, the interval is considered to be surface soil with WRW action levels of 76 and 50 pCi/g. Thus, the WRW PRG screening thresholds of 88.4 and 112 thresholds are inconsistent with what the public considers significant relative to the action levels. If there is a need to distinguish the nature and extent of contamination technically from the RFCA protocol, that need must be clearly communicated to the regulators and the public. Accordingly, it may also become necessary to show residual nature and extent of Am/Pu contamination relative to RFCA as a secondary objective.	<p>The May 2003 Attachment 5 modifications apply to accelerated actions. The WRW action level is not a trigger for actions being evaluated in the Corrective Measures Study/ Feasibility Study for final remedy purposes and is not used in the evaluation of nature and extent of soil contamination or the Comprehensive Risk Assessment (CRA) for risk calculations.</p> <p>The CRA Workplan and Methodology, which was approved by both regulatory agencies on September 28, 2004, defines surface soil as 0 to 6 inches (0.5 feet) and subsurface soil as greater than 6 inches. An explanation of this difference is provided in Section 1 of the RI/FS Report.</p>
General Comment 2	CDPHE	Pending the response to Comment No. 1, including the 0.5-3.0 increment in Table 4, and thus subject to the 7.69 and 9.80 surface WRW PRGs would yield a greater number of AOIs to be carried forward to the Fate and Transport Section of the RI/FS Report. (Doing so would be expected to increase the frequency of occurrences above the PRGs and above 10xPRGs.) Since the RFCA surface soil action levels for Am and Pu are not specifically associated with protection of surface water, the Division does not advocate those levels to be an appropriate substitute in AOI Screen 2.0.	Please see response to CDPHE general comment 1. Section 7 of the RI/FS report discusses fate and transport of contaminants from one medium to another, such as subsurface soil to groundwater, groundwater to surface water, and surface soil via overland flow to surface water.
Specific Comment 3	CDPHE	Section 1.0: Specifically, explain why WRW levels of any kind are appropriate to use as a screening tool for transport and fate modeling. If such remains appropriate, please summarize why WRW PRGs, not WRW Soil Action Levels, were chosen as AOI Screen 2 levels and include the principal factors that make the WRW PRGs for surface soil and subsurface soil different.	<p>Please see response to CDPHE general comment 1. The CRA Methodology defines the human health PRGs developed for the wildlife refuge worker for organics, inorganics, and radionuclides in surface and subsurface soil. The principal factor that makes the WRW PRGs for surface soil and subsurface soil different is the amount of time a WRW worker is exposed to surface soil versus subsurface soil. See specifics below.</p> <p><u>Surface Soil Screening-Level PRGs</u> The WRW surface soil exposure scenario consists of the following exposure pathways: ingestion of surface soil,</p>

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			<p>inhalation of dust (outdoors), external radiation from radionuclides, and dermal contact for non-radionuclides for a WRW working at the site for an average of 18.7 years, spending 230 days per year, 4 hours per day exposed to surface soil.</p> <p><u>Subsurface Soil Screening-Level PRGs</u> The WRW subsurface soil exposure scenario consists of the following exposure pathways: ingestion of subsurface soil, inhalation of dust (outdoors), external radiation from radionuclides, and dermal contact for non-radionuclides for a WRW working at the site for an average of 18.7 years, spending 20 days per year, 4 hours per day exposed to subsurface soil.</p>
Specific Comment 4	CDPHE	Section 3.0: In the fourth paragraph of the section, reference to the 10,000 subsurface soil samples at depth interval 0.5-3.0 feet do not distinguish from Am and Pu “surface” samples of the same interval. Please address.	Please see response to CDPHE general comment 1.
Specific Comment 5	CDPHE	Section 4.2: Please explain how the exposure scenario differential at eight feet resulted in different WRW PRGs for 0.0-0.5 feet and 0.5+ feet. Since Tables 4 and 5 are based on the 0.5-foot depth, the discussion should revolve around those facts more so than a depth of eight feet.	The CRA evaluated two exposure scenarios: one for surface soil (0 to 0.5 feet) and one for subsurface soil (0.5 feet to 8 feet), to evaluate risk. Please see response to CDPHE specific comment 3 regarding the differences between these two exposure scenarios. Only data with a start depth of eight feet was used in the CRA. The following sentence has been added to Section 4.2 for clarification, “For data collected at depths greater than eight feet, the nature and extent evaluation used the subsurface soil WRW PRGs calculated based on a maximum depth of 8 feet.”
Specific Comment 6	CDPHE	Section 4.4: The flow of the narratives could be simplified and improved by expanding the table, and subsequent tables, to include the number and percentage of exceedances. The current format congests and detracts from the narratives. It would better to refer to exceedances of the 10x WRW only when such occurred; the tables already show when a constituent is less than 10x.	Expanded tables have been developed for Section 5 in order to eliminate discussion in the text.
Specific Comment 7	CDPHE	Section 5.2.1, Chromium: Using the ChemRisk report to support process knowledge on the extent of use of metals, etc. is appropriate. However, this report has its own screening process and the ChemRisk report’s protocols for determining “off-site releases” should have no impact on whether a	The use of the ChemRisk report’s information to support eliminating an analyte is based on an analytes history of usage including the quantity of materials used. ChemRisk was only one process knowledge factor considered. An

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		constituent is carried forward.	analyte, such as chromium, was not eliminated as an AOI based on the determination that an analyte posed no risk to off-site receptors based on the outcome of the ChemRisk reports.
Specific Comment 8	CDPHE	Section 5.3.1: The heading of the first column in the table, and in subsequent tables, should be made consistent with the table in Section 4.5.	Table headings in Section 5 were made consistent with Section 4.5.
Specific Comment 9	CDPHE	Section 5.3.1.3, Benzo(a)pyrene: “Two locations are co-located with three....” is not actually possible. Please revise.	Text has been modified to indicate “Two locations are co-located with two...”
Specific Comment 10	CDPHE	Section 5.3.1.6: Please add a discussion of those constituent that exceed 10x WRW (10 ⁻⁵ risk) levels in this and subsequently summary sub-sections.	Constituents that exceed the 10xWRW PRGs also exceed the WRW PRGs, which are discussed in each summary subsection. For the final draft RI/FS, 10xWRW PRGs will be removed.
Specific Comment 11	CDPHE	Section 5.3.4.3: Using this sub-section as an example, please be specific, i.e., identify the IHSS PAC, etc., where the constituent was located, or from which it was sourced. If this was IHSS 118.1, as suspected, it is important to identify it so the regulators and the public can relate it to something specific within the IA.	For those areas within the former Industrial Area, specific reference is made if the sample locations correlate with an historic IHSS or building. A figure with historical source areas identified has been added to Section 3.2.
Specific Comment 12	CDPHE	Table 1 and 2: Data are missing from the tables, please address.	These background tables have been updated to indicate the number of detections and percent detections for those analytes with a blank entry field to be “0” and for the blank fields of maximum concentration detected and minimum concentration detected, an “NA” (not applicable) will be inserted into the tables. In addition, a note has been added to indicate that the Mean + 2StDev. column is based on using ½ the reported value for all non-detected data. This is also discussed in Section 3.0.
Specific Comment 13	CDPHE	Table 3: Data Summary Reports should be noted along with Closeout Reports for evidence of contamination or the references to Closeout Reports should be eliminated. Occurrences above the WRW, but less than three times the WRW of non-radionuclide constituents in surface soils, generally did not prompt a soil removal action or a Closeout Report. Referencing the frequency and number of detections above the WRW should be sufficient, even for the ubiquitous constituents.	Reference to data summary reports has been added to this Table.
Specific Comment 14	CDPHE	Figure 4: Using Figure 4 as an example, co-located triangles are virtually impossible to distinguish under the squares. Please address.	The maps have placed the highest concentration as the top layer on all figures for co-located samples. As a result, if the highest concentration is a triangle indicating a depth of 8 to 12 feet, it would be placed on top of the other depth interval

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			symbols. Summary statistic Tables 5 and 6 also provide additional information regarding the concentration of specific analytes above the 8 to 12 feet depth interval.
Specific Comment 15	CDPHE	Figure 5: It is unclear how this figure based on soil above or below a depth of eight feet results in different WRW PRGs above and below 0.5 feet. See footnote “c” and AOI Screen 2 of Tables 4 and 5.	Please see response to CDPHE specific comment 5. Clarification has been added to Figure 5 to indicate the two sets of WRW PRGs based on two exposure scenarios for surface soil and for subsurface soil, defined as 6 inches to 8 feet, have been used. For soil depths greater than 8 feet, the same subsurface soil WRW PRGs were used.
General Comment 1	EPA	EPA realizes that this document is a section of a much larger report, specifically, Section 3.0 of the Remedial Investigation/Feasibility Study (RI/FS). We assume that the introductory sections of the RI/FS will adequately present the framework or context in which this document is prepared (i.e., RFCA, CRA, Accelerated Actions, WRW ALs, WRW PRGs, ESLs, process knowledge evaluations, etc.)	Section 1 of the RI/FS provides the background and framework in which the RI/FS Report was prepared.
General Comment 2	EPA	The Draft Nature and Extent of Soil introduces several topics, such as PRGs, ALs, and other reports and references not previously discussed. Readability of each section would be greatly enhanced if a short summary of description is presented prior to referencing the document. For example, throughout Sections 5.2 and 5.3, the text references the ChemRisk reports and Historical Knowledge of Metals White Paper. A short description of these two reports should be included in the introductory paragraphs of Section 5.0.	Section 1 of the RI/FS Report provides the history of using RFCA Action Levels (ALs) for accelerated actions at RFETS. The text has been modified to eliminate specific use of ChemRisk and the metals white paper. Information from these reports may be included and references have been provided.
Specific Comment 1	EPA	Section 3.0, Data Source, Page 3 This section discusses the processes used to extract and reduce data. Based on the information presented, approximately 450,000 records were eliminated. Please provide a more thorough discussion as to the reason for elimination. Furthermore, please clarify whether the NLR samples were removed prior to or after the data extraction and reduction process that generated 850,000 records.	As described in the RI/FS Report Appendix A-Comprehensive Risk Assessment, Volume 2 of 15-Data Description and Evaluation, Attachment D-CRA Data Quality Assessment, data from SWD is put through a ten step “scrubbing” process to create a CRA-ready dataset of real data (this scrubbing process is not applied to QC data). This “scrubbing” process includes removing data for the following reasons: <ol style="list-style-type: none"> 1. The record does not represent an actual analyte. 2. Surface soil and subsurface soil do not have associated starting and ending depths. 3. The analyte is a surrogate or tentatively identified compound (TIC). 4. The sampling location has been removed during remediation and the sample is No Longer

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			<p>Representative (NLR) of site conditions.</p> <ol style="list-style-type: none"> 5. The sample collection date is prior to June 28, 1991. 6. Data were analyzed by gamma spectroscopy or SW-846 (x-ray fluorescence). 7. Data were rejected during validation. 8. The derived unit is not appropriate for the media (e.g., µg/l for soils). 9. The record is a replicate, having the same sample number, derived name and field filtered indicator as at least one other analytical record in the data set. 10. The record is from a location with a known issue and professional judgment is used to apply reason codes. For example, sample was collected at an expected sediment location, but the medium is actually soil; or the soil at a sampling location was removed during a remediation and the sample is no longer representative of the site conditions, however, a closeout report for the area has not yet been approved by the regulatory agencies. <p>The reference to Appendix A, Volume 2 is included in section 3.0.</p>
Specific Comment 2	EPA	<p>Section 5.2, Section 5.2.1, Page 9 The RFCA Action Level is first mentioned in this section; however, it is not previously presented or discussed in this Nature and Extent document. This specific comment illustrates the need for an introductory section in the RI/FS that discusses the RFCA framework for better readability and context.</p>	<p>Section 1 of the RI/FS Report explains how accelerated actions were implemented at RFETS. The term RFCA action level (AL) is used when discussing the <u>historical</u> sampling and analysis results of metals when RFCA accelerated actions were conducted. RFCA accelerated actions were conducted in accordance with RFCA Attachment 5, RFCA ALs. This information was provided to supplement the results of sampling and analysis results as compared to WRW PRGs.</p>
Specific Comment 1	FWS	<p>In the Introduction and in Section 4.2-It should describe why Ecological Screening Levels are not being used to define Areas of Interest in this report. CERCLA says cleanup to protect human health and environment, yet this only covers human health.</p>	<p>The purpose of soil AOIs is to focus the nature and extent evaluation on all constituents that were detected at concentrations that may contribute to the risk of future receptors and, to show overall trends of those constituents in maps on a sitewide basis. Accordingly, human-health based PRGs were used to focus the list of all constituents detected. In addition to the AOIs described and mapped in the N&E</p>

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			<p>sections of the RI/FS, all analytes are evaluated in the CRA for both human health and ecological receptors. Ecological contaminants of interest are screened to identify ecological contaminants of potential concern for ecological receptors using conservative ecological screening levels (ESLs). The data adequacy section of the RI/FS report, Appendix A, Volume 2, includes sitewide figures, by analyte group, comparing data to ESLs. Individual volumes of the CRA (RI/FS Report, Appendix A, Volumes 3-15) include figures of any analyte that was carried through ecological risk characterization. Regulators and stakeholders have the opportunity to review figures of analytes potentially impacting human health and the environment.</p>
Specific Comment 2	FWS	<p>In Section 5.1 and Figure 1- My memory is failing yet, I thought DOE retained areas would comprise the Industrial Area OU, while the Buffer Zone OU was to be the lands to be transferred. I think you explained to me why you were leaving it as reported in this document, but I can't remember.</p>	<p>The OU boundaries used in the RI/FS Report are consistent with the OU boundaries as defined in RFCA. One outcome of the RI may be to re-draw the IA OU boundary. The RFCA Parties may decide at that time to have an IA OU boundary that is consistent with what may become DOE retained areas. It would be inappropriate to make that determination in the RI.</p>
Specific Comment 3	FWS	<p>In Section 5.2 through 5.3.5. and all of the AOI maps - The maps do not show the extent of a chemical in the soil, it shows the extent of the sample results of the soil testing. My expectation of maps showing the extent of soil contamination was maps with isopleths of the contamination (more like the groundwater plume signature maps), produced by some type of geospatial analysis such as kriging. I think the maps need to be changed or the description of what the maps represent should change.</p>	<p>The nature and extent evaluation in an RFI/RI typically identifies and delineates source(s) of contamination that may exist. At RFETS, sources of contamination have been identified and delineated based on previous studies and investigations, and through the RFCA accelerated action process these sources have been remediated. This nature and extent shows the extent of contamination in soil remaining after accelerated actions. The purpose of these figures (as stated in Section 5) is to show the sampling locations and relative concentration of AOIs as a means to depict areal extent. For those locations where an analyte was detected, surrounding sample locations show the concentration of contaminants in soil to be below background or are no longer detected, laterally. And in general, the concentration of contaminants in soil decrease, are below background, or are not detected, the further away samples were collected from the IA OU (where most RFETS-related activities occurred). The vertical concentrations of samples were also bound by</p>

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			<p>reviewing both the figures and the summary statistics provided for each analyte.</p>
<p>Specific Comment 4</p>	<p>FWS</p>	<p>In some sections, such as 5.2.2 and 5.2.3 – Statements are made that most or all of the results show the problem in the industrial area; however, when you look at the maps the buffer zone does not have sample locations in most of its area. I find those types of statements to be misleading. I believe that the statements should be modified to be better describe the maps.</p>	<p>As stated in Sections 2.0 and 5.1, knowledge about the nature and extent of soil contamination is based on documented historical information about sources, location of historical substances released to the environment, and on measurement of contamination levels in soil. A new figure will be included that identifies the location of former sources that have potentially impacted groundwater and surface water, and have been dispositioned through RFCA accelerated actions. No other areas had activities that indicated any waste management or industrial activities that would potentially affect subsurface soil or other environmental media. Thus, any contamination from the IA OU and nearby BZ sources would be evident in surface soil samples (with the exception of VOCs that would volatilize in surface soil) or from other environmental media.</p> <p>Analyte data for metals and radionuclides were determined to be adequate to support statistical, exposure and risk calculations for the CRA if one or more metal and radionuclide surface soil sample was available per 30-acre blocks outside of historical source areas and through the consultative process with agencies data were determined to be adequate for all other analyte groups and media. (Final CRA Work Plan and Methodology, September 2004).</p>