

<p align="center">United States Environmental Protection Agency, Region IX Responses to letter from Michelle Dineyazhe dated December 17, 2007</p>				
No.	Original Rev. F Comment	Rev. F Response	Rev. G Comment	Rev. G Response
	Responses to Specific Comments			
1	<p>Section 1.3.3, Upper-Bound Contaminant Loading Estimates for Soil to Ground Water Contaminant Migration, Page 1-10; Table 1-1, Summary of Upper-Bound Contaminant Loading Estimates for Soil to Ground Water Contaminant Migration; Appendix E, Section E.1, Upper-Bound Contaminant Loading Estimates for Soil to Ground Water Contaminant Migration, Page E.1-1; Appendix E, Section E.1.4, Uncertainty, Page E.1-2 and Appendix E Tables: It is not clear why these estimates are considered upper-bound contaminant loading estimates, since the contamination was assumed to be equal to the California maximum contaminant level (MCL) or to background concentrations. MCLs do not constitute upper bounds for contaminant concentration, since they are based on detection limits and risk associated with contaminants, so assuming that the maximum concentration would be the MCL is somewhat arbitrary. An upper-bound for contaminant loading would be associated with the solubility limit for each compound, or in the case of multiple compounds, Raoult's law could be used to determine partitioning. Please revise these estimates to use the solubility limit, Raoult's law, or revise the title, text, and tables to clarify that the calculated concentrations are based on an arbitrary selection of the MCL as the dissolved concentration in ground water of soil contaminants.</p>	<p>Comment noted/Clarification. The upper-bound contaminant loading estimates are calculations of upper-bound plume size based on concentrations in ground water equal to MCLs or background. The words "upper-bound" will be removed from Section 1.3.3, Table 1.1 and Appendix E. The text and tables will be revised to clarify that the calculations do not predict maximum concentrations.</p> <p>Changes were made to:</p> <p>Section 1.1, Page 1-4; Section 1.3.3, Page 1-10; Section 4.4.3.2.3, Page 4-18; Section 4.4.4.1, Page 4-29; Section 4.6.3.2.3, Page 4-46; Section 4.7.3.2.3, Page 4-67; Section 4.11.3.1.1, Page 4-85; Section 4.11.3.2.3, Page 4-86; Section 4.12.3.1.1 and 4.12.3.1.3, Page 4-105; Section 4.12.3.2.3, Page 4-106; Section 4.12.3.3.3, Page 4-108; Section 4.12.4.1, Page 4-118; Table 1-1, Appendix E, Tables E-1 through E-16</p>	<p>Response to Specific Comment (SC) 1: The response partially addresses the comment. The words "upper-bound" have been removed from the text and tables. However, the text and tables have not been revised to clarify that the calculated concentrations are based on an arbitrary selection of the maximum contaminant level (MCL) as the dissolved concentrations in groundwater of soil contaminants, or that the calculations in Appendix E do not predict maximum concentrations. Please revise the appropriate text and tables to clarify that the calculated concentrations are based on an arbitrary selection of the MCL as the dissolved concentration in groundwater of soil contaminants, and that the calculations do not predict maximum concentrations.</p>	<p>Agree: The following will be added after the first sentence of Section 1.3.3 and in Table 1-1:</p> <p>“These calculations do not predict maximum concentrations.”</p>
2	<p>Section 4, Alternatives Involving Contingent Remedial Action: Alternative 2 for most areas includes contingent evaluation of remedial options if groundwater contaminants show an increasing or constant concentration trend. Although EPA generally prefers non-contingent alternatives, the installation of new downgradient monitoring wells in these areas may result in conditions (e.g., contaminant concentrations above the MCL or preliminary remediation goal [PRG]) that can not be predicted at this time, so a contingent remedy may be necessary in order to move the CERCLA process forward. Since these potential remedial options are not and can not be specified, a little more information about the proposed process should be included. For example, it could be clarified if this would involve producing an FS-equivalent document that will lead to a new proposed plan and a record of decision (ROD) amendment. It is also not clear if this would occur if there is only a small increase in contaminant concentrations like those that have occurred for several contaminants, based on the graphs in Appendix F. Please briefly explain how and when the evaluation of potential remedial options would occur.</p>	<p>Comment noted. As discussed in Section 4.4.2.2 and other descriptions of contingent remedial action, four consecutive ground water COC sample results in assigned ground water compliance monitoring wells which exceed site background and show an increasing or constant concentration trends would trigger an evaluation of remedial options.</p> <p>No changes were made to FS document.</p>	<p>Response to SC 4: The response does not address the comment because the process and/or specifics of the evaluation that would be done were not provided as requested in the original comment. Please specify how the evaluation will be conducted, the document(s) that would be produced, and how the Regulatory Agencies would be involved in the process to decide on the contingent remedial option.</p>	<p>Agree: An addendum to the Remedial Action Work Plan will be prepared if an evaluation of remedial options is triggered. The following process description will be added to Section 4.3.2:</p> <p>“If monitoring data trigger an evaluation of remedial options, an addendum to the Remedial Action Work Plan will be prepared. The Remedial Action Work Plan addendum will present a plan to address data gaps, if necessary, an engineering evaluation of remedial options and the preferred remedial option. The evaluation will be designed to meet the substantive requirements of CERCLA and applicable DOE requirements. RPM review and approval of the Remedial Action Work Plan addendum will be required.”</p>

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	<p>Section 4.12.4.3, Long-Term Effectiveness and Permanence, Page 4-119: The text states that Alternatives "1 and 2a are equally effective," but the lack of monitoring in Alternative 1 means that there is no way to monitor the effectiveness of this alternative. Further, the contingency for evaluation of potential remedial actions means that Alternative 2a would be more effective than Alternative 1. Please revise the quoted statement to clarify that Alternative 2a is more protective than Alternative 1.</p>	<p>Agree. The text will be modified as requested.</p> <p>Changes were made to:</p> <p>Section 4.12.4.3, Page 4-119</p>	<p>Response to SC 6 and Section 4.12.4.3, Long-Term Effectiveness, Page 4-119: The change made to the text does not reflect the distinction identified in the original comment. The comment asked that the text be modified to clarify that Alternative 2a would be more protective than Alternative 1. Instead, the text was modified to state "Alternative 2a is effective due to the protectiveness of monitoring and contingent remedial action." However, the effectiveness of an unspecified contingent remedy cannot be determined because it is unclear what contingent remedies would be considered or selected. Similarly, groundwater monitoring is not protective in and of itself; instead, groundwater monitoring is used to evaluate contaminant concentrations and therefore protectiveness. Please replace the quoted statement with one that simply states that Alternative 2a would be more protective than Alternative 1.</p>	<p>Agree: The second sentence in Section 4.12.4.3 will state:</p> <p>“Alternative 2a is more protective than Alternative 1.”</p>

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4	<p>Response to Comments 7, 8, and 9: Based on the responses to these comments, it appears that there is a misunderstanding that the effectiveness of an alternative and that reduction of toxicity, mobility or volume can be assumed without monitoring. While it is true that the decay rate of Strontium 90 (Sr-90) is a known constant, there are factors other than the decay rate of Sr-90 that also need to be considered. For example, it is possible that Sr-90 is still leaching into soil and groundwater, so the net impact on the overall concentration of the decay rate, which would reduce levels of contamination, and possible leaching, which would increase levels of contamination, cannot be estimated. In addition, the total mass of Sr-90 in the environment is not known. Therefore, neither the assumption that monitoring is not necessary and that Alternatives 1, 2, and 4B can be assumed effective, nor the assumption that toxicity and volume are decreasing can be made. Please revise the text to state that without monitoring, it is not possible to verify the concentration of Sr-90 in soil and groundwater and that as a result, it cannot be assumed that toxicity, mobility, and volume are reduced under Alternatives 1, 2, and 4B (Specific Comments 8 and 9) and that the effectiveness of Alternatives 1 and 2 (Specific Comment 7) cannot be determined. In addition, please revise the text of Section 4.14.3.4 to state that land use restrictions will be required for an indefinite period of time (Comment 8).</p>	<p>Agree in part: Alternatives 1 and 2 do not reduce toxicity, mobility or volume and dieldrin is not expected to undergo natural degradation. However, monitoring is not necessary to demonstrate long term effectiveness at the EDPs. Alternatives 1 and 2 are effective in the long term because the EDPs residential receptor risk is within the CERCLA acceptable risk range. The representative concentration of Sr-90 is at the EDPs cleanup goal (Table 2-1) and the residential receptor risk for dieldrin (3×10^{-6}) is acceptable under CERCLA.</p> <p>Changes to discussion of long term effectiveness were made to Section 4.14.3.1.3, Page 4-127; Section 4.14.3.2.3, Page 4-128; and, Section 4.14.4.3, Page 4-131.</p> <p>Changes to discussion of toxicity, mobility and volume were made to Section 4.14.3.1.4, Page 4-127; Section 4.14.3.2.4, Page 4-128; and, Section 4.14.4.4, Page 4-131.</p> <p>Please note that Section 4.14.3.4 was deleted because EDPs Alternative 4 is no longer applicable.</p>	<p>Response to SC 7,8,9 and 10 and July 10,2007 Response to Comments 7,8, and 9:</p> <p>The response to July 10 comments 7 and 8 states, "[Monitoring is not necessary to demonstrate long term effectiveness at the EDPs [Eastern Dog Pens]. Alternative 1 and 2 are effective in the long term because the EDPs residential receptor risk is within the CERCLA acceptable risk range." According to EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA - Interim Final, dated October 1988, long-term effectiveness and permanence considers the "risk remaining at the site after response objectives have been met." While the EDPs residential receptor risk is within the CERCLA acceptable risk range without monitoring it is not possible to verify the persistence and toxicity of the concentration of Strontium-90 (Sr-90) and associated risk in soil and groundwater.</p> <p>In our first comment resolution to Draft Rev. F on September 26, 2007, EPA had requested that DOE place in the text more information on the fact that both Strontium 90 and Dieldrin are persistent pollutants. Long-term Effectiveness and Permanence does address the magnitude of residual risk. Part of the residual characteristic is the (contaminant's) propensity to bioaccumulate. Please place in 4.14.1 and 4.14.4.3 text that states that Strontium 90 and Dieldrin are both persistent pollutants and can bioconcentrate.</p>	<p>Agree: the following text will be added to the end of Sections 4.14.1 and 4.14.4.3:</p> <p>"Sr-90 and Dieldrin are both persistent pollutants and can bioconcentrate."</p>

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General Comments				
1			<p>Section 4.4.3.2.5, Short-Term Effectiveness, Page 4-19; Section 4.6.3.2.5, Short-Term Effectiveness, Page 4-47; Section 4.7.3.2.5, Short-Term Effectiveness, Page 4-67; Section 4.11.3.2.5, Short-Term Effectiveness, Page 4-87; and Section 4.12.3.2.5, Short-Term Effectiveness, Page 4-107: Since the contingent remedial action has not been specified and a list of potential remedial actions has not been provided, the text should not conclude that Alternative 2 will "be protective within five years." Since the type of contingent remedial action has not been specified, no conclusions can be drawn about its potential effectiveness or the time period involved. Please delete the quoted statement from each of these sections and simply state that monitoring may trigger a contingent remedial action.</p>	<p>Agree: The text in the referenced sections and associated tables will be changed from:</p> <p>"if monitoring results trigger contingent remedial action this alternative is expected to be protective within five years."</p> <p>to:</p> <p>"if monitoring results trigger an evaluation of remedial alternatives, the time until each alternative is protective will be presented in an addendum to the Remedial Action Work Plan."</p>
2			<p>Section 4.14.3.1.3, Long-Term Effectiveness and Permanence: Please clarify the last sentence by stating the residual COC, concentrations, and cleanup goals.</p>	<p>Agree: The following text will be added to Section 4.14.3.1.3:</p> <p>"The Sr-90 exposure point concentration is 0.33 pCi/g and the cleanup goal is 0.3 pCi/g. The dieldrin exposure point concentration is 0.019 mg/kg and the cleanup goal is 0.006 mg/kg."</p>
3			<p>Section 4.14.3.2.3, Long-Term Effectiveness and Permanence: Please add a final sentence that states, "This is due to dieldrin being a persistent contaminant. Since there is no monitoring in Alternative 2, it will not be possible to verify whether dieldrin in soil has degraded over time."</p>	<p>Agree: The EPA text will be added to the end of Section 4.14.3.2.3.</p>

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4			<p>Section 2.2, Applicable or Relevant and Appropriate Requirements:</p> <p>EPA does not necessarily agree that the list of potential ARARs identified in the FS is either complete or accurate (For example, DOE cited a whole series of DOE Orders, which are non-promulgated, as "Applicable" which is not correct.) However, once DOE has selected a proposed alternative, EPA will work with DOE and the State to review, in the context of the proposed alternative, each of the identified potential ARARs, as well as any other, missing ARARs, and to appropriately categorize them.</p> <p>EPA guidance states that radioactive waste should be treated just like any other Contaminants of Concern (COCs). Our cleanup standard is based on risk and is not expressed in term of dose. EPA rejected the NRC decommissioning standard of 25 mrem/year as not protective because it is outside of the risk range. In our guidance, we state cleanup standard is determined on a site specific basis. In addition, Superfund guidance states that when 40 CFR 192 is ARAR, we should use 5 pCi/g for both surface and subsurface soils. This is explained in EPA Directive no. 9200.4-25 "Use of Soil Cleanup Criteria in 40 CFR 192 as Remediation Goals for CERCLA sites" (Feb. 12, 1998). This directive can be found at: http://www.epa.gov/superfund/health~contaminants/radiation/pdfs/umtrcagu.pdf</p>	<p>Comment noted.</p>

Deleted: Constituents addressed in 40 CFR 192 are not COCs at LEHR based on the results of the LEHR site-wide risk assessment. 40 CFR 192 is not identified as ARAR in the Draft Final FS.¶