

This was very encouraging minor comments. I'm pleased!

MH

**Draft Final OU6 RFI/RI
Walnut Creek Priority Drainage**

COMMENTS FROM SAIC

General Comments

The document is thorough and unusually well written. Some of the detail on general information and discussion of methods could be moved to an appendix to reduce the bulk of the text. As usual with such a document, technical editing should be conducted. In some instances the table of contents is incomplete and figures could be adjusted to improve clarity.

Title of report should not use "Phase I" unless there are plans to prepare additional RFI/RI reports entitled "Phase II," etc.

Specific Comments

Page iv, Table of Contents, OU6 List of Acronyms and Abbreviations - 1,2,-dichloroethane is misspelled

Page iv, Table of Contents, OU6 List of Acronyms and Abbreviations - The chemical designation for Cesium should be "Cs"

Page lvi, Table of Contents, OU6 List of Acronyms and Abbreviations - The definition for "meq/l" should be "milliequivalents/liter"

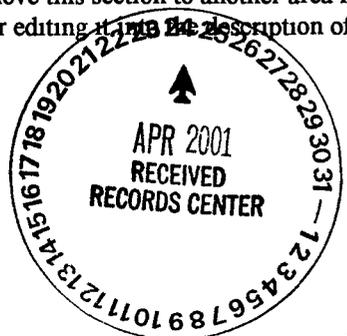
Pages 2-7, 2-9, 2-12, 2-13, 2-21 - Figures 2 1-2, 2 1-3, 2 1-4, 2 1-5, and Table 2 2-3 are missing from the report

Section 1 3 2 1st paragraph The symbols used in Figure 1 3-3 (referenced in 1 3 2) for the historical locations of IHSSs 167 2 and 167 3 is the same except for different line weight as the symbol used for the present landfill, IHSS 114. Symbols with more significant difference should be used. The legend does not show the symbol for the landfill. The text only refers to the historical and revised boundaries of IHSS 167 2, but the figure shows revised boundaries for both IHSSs.

2nd paragraph This paragraph indicates that the locations of IHSS 167 2 and 167 3 were revised and the boundaries of 5 other IHSSs adjusted in the HRR based on a reevaluation that happened after the OU6 Work Plan was written. This paragraph goes on to say that the investigations were carried out according to the specifications in the work plan but that the Phase I boreholes and wells were located after a review of the historical data and aerial photographs. It is assumed that the investigations were conducted in the adjusted areas rather than in the previous locations. This is not clearly stated in the text.

Section 1 3 2 1 4th sentence, 3rd paragraph Delete one of the two references to June, 1972

Section 1 3 2 2 This section contains a description of the streams that drain surface water from the area and does not describe particular IHSSs. It does, however, lead into the description of the A and B-Series ponds. Consideration should be given to move this section to another area in the report that describes physiographic features such as Section 3, or editing it into the description of the A and B-Series ponds.



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ADMIN RECORD

A-0006-000580

Section 1 3.2 4 The 5th paragraph says that the B-3 pond receives effluent from the STP. It is not clear how the effluent reaches B-3 without encountering ponds B-1 and 2. These 2 ponds lie between the STP and B03 and no diversion or pipeline is shown that would by-pass B-1 and 2 (see figures 1 3-3 & 1 3-6)

Figure 1.3-8 The area of detail for IHSS 143 is not graphically consistent with the drawing it details. The detail map uses the designation "stream" which must be the McKay Ditch shown on the larger drawing. The orientations of these 2 features ("stream" and McKay Ditch) are not consistent on the 2 drawings. Both maps should use the same designations and show similar features in the same orientation so that the reader can easily relate the features.

Section 1 3.2.9 2nd paragraph. A reference is made to a 1988 EPA document that provided information about the history of the A, B, and C Trenches. Earlier, in section 1 3 2, 3rd paragraph, the sources for the descriptions of the IHSSs was given and the EPA document was not included in that list of sources.

Section 1 3 2 10 This section is not listed in the Table of Contents.

Section 1 4 2nd paragraph. Six Technical Memoranda were prepared and the purpose of this paragraph was apparently to list them. The paragraph lists 7 documents as bulleted items and only labels 5 as being TMs. This inconsistency should be fixed.

Section 2 1 4th paragraph. This paragraph describes when decontamination of various equipment occurred. No mention of decontamination prior to the investigation has been made, only that equipment was decontaminated between IHSSs and at the end of the investigation.

Section 2 1 3 1 2nd paragraph. The text states, "VOC continuous samples were collected throughout the entire borehole depth for lithologic logging purposes." VOC samples and lithologic samples should be handled differently. Samples used for lithologic logging should not be used for VOC samples for obvious reasons.

Section 2 1 3 4 How were the 3 soil profile locations selected? They seem to be spread out across OU6 to give general coverage. Or were they selected based on specific IHSS requirements?

Section 2 2 2nd paragraph. Please give more detail to the explanation why the stage numbering in this report does not match the numbering assigned in the work plan. The stages numbered in the work plan follow the logical order in which the investigation should have proceeded. Later stages may be based on the preliminary data gathering or preliminary field surveys.

Section 2 2 2 Page 2-22, third para, A and B-Series Ponds (IHSSs 142 1 through 142 9), W&I Pond (IHSS 142 12), and Walnut Creek Drainages (Non-IHSS), Stage 4 - This paragraph states that no analytical results were used from the wells 75092 and 75292. If this is true, then Table 2 2-1 and this section should state that this was a deviation from the TM1 and was an incomplete Phase I investigation, since installation with no data availability does not constitute completion.

Section 2 2 3 Page 2-24. Deviations from the Work Plan - Why was the boundary of IHSS 143 not extended, if the suspected contamination was outside the defined area?

Section 2.2 5 Page 2-29, third para, Stage 2 - This paragraph presents some results for this IHSS, yet no other IHSS has results presented in Section 2. Why give results here?

Section 2 2 5 Page 2-29, Deviations from TM1 and Work Plan - The change in spacing from 25-foot to 40-foot should be explained.

Section 2.2.5 Page 2-30 Deviations from TM1 and Work Plan, second bullet - Explain why it is necessary to state that the SGS grid spacing was not reduced for this sample site

Section 2.2.6 Page 2-33 Stage 3, first para - This paragraph indicates that no soil borings were made and, therefore, no data was collected on the actual IHSS. If there was no time to perform this work after the IHSS location was redefined, this report should so state. Presenting data for a location that is not of interest and has no bearing on the investigation should be deleted from the report.

Section 2.2.7 Page 2-35 Stage 1, first para - The IHSS should be sampled, if the area of concern is not the IHSS, the IHSS should be relocated. IHSS 167.3 does not appear to have been sampled.

Table 2.1-1 second column, first item for Walnut Creek Drainage - What type of activity had 11 "things" done?

Table 2.2-1 page 4, IHSS 156.2, Soil Dump Area, Radiation Survey - Reason for Deviation is given as "As per EG&G." This is not a reason. The explanation in the text should be inserted here.

Section 2.4 The review of aerial photography showed that IHSS 156.2 extended further to the west than previously thought. This additional area was not sampled. No explanation other than paved and gravel covered areas were not sampled. Is this sufficient justification for not sampling about 1/4 of the IHSS? Gravel was removed prior to sampling in IHSS 165 (Section 2.2.5).

Section 2.2.5 Why were the deviations from TM1 and the work plan for Stage 2 activities made and what is the justification for them? Provide support for the reduced scope of the investigation (especially the rad survey) and evidence that it provides adequate information and meets the DQOs.

Section 2.2.6 The east part of Trench C was relocated south of the soil borings (taken to investigate this trench) based on the geophysical survey. Are the existing borings sufficient to characterize Trench C? If so give supporting reasons and if not what is the justification for not taking new soil borings within the new boundary of the east part of Trench C?

Section 3.6.2.1.2 This section describes the recharge to the UHSU. The 4th paragraph describes recharge from the present landfill (IHSS 114) and refers to Figure 3.6-1. Please show the location of the present landfill on this figure to assist the reader. The text states that groundwater flows from the present landfill to the southeast toward South Walnut Creek. The southeast flow from the present landfill is actually toward North Walnut Creek.

Section 3.7.3 This section discusses the capacities of the A and B series ponds relative to volumes of runoff. The section discusses previous high precipitation events but does not include the probable record runoff of 1995. While this data may be too new for thorough analysis, this report should mention the event and its impact on the ponds and potential off-site migration of contaminants in a general qualitative way.

Section 3.7.4 6th paragraph. This paragraph discusses several of the sub-basins of Walnut Creek. The first sentence uses the term "best developed drainage" to define the sub-basins essentially around the security area. Define the meaning of "best developed drainage."

Section 3.8 Ecology section, "To be supplied by Stoller," is missing.

Section 3.9.1.2 2nd paragraph. The text says that 2 borings were drilled adjacent and parallel to 2 other borings. What does parallel mean in this usage?

Section 4.2.4 Please include a brief discussion of the 5X and 10X rules referred to in the 4th paragraph

Section 4.3.5 5th paragraph Why were antimony and manganese retained as COIs?

Section 5.1.3 5th paragraph Please explain the meaning of "when flow carrying capacity is less than the resistance of sediment" in the first sentence

6th paragraph Isn't outflow from at least some of the ponds restricted and as a consequence any sediment flowing into the pond will necessarily precipitate in the pond unless resuspended by a large storm event? If this is the case the discussion of when deposition will occur in the ponds is unnecessary because all sediment will ultimately precipitate in the ponds

Section 5.2.1 Sediment Transport The last sentence says that sediment transport processes tend to slow the migration of chemicals with high partition coefficients relative to those with low coefficients. This is not exactly true. Chemicals with high partition coefficients rely on sediment transport for migration. These chemicals, because they are bound to sediment particles due to their high partition coefficients, are not free to migrate as dissolved constituents of water. It is not the sediment transport process that slows their migration but their high partition coefficient.

Section 5.3.2 Last paragraph Metals and radionuclides have been found in groundwater from wells located near the W&I Pond. Is it possible that these contaminants are associated with surface soils that were introduced to the groundwater during the drilling and well installation process rather than from groundwater itself? There have been problems with contamination introduced to groundwater by drilling in this area.

Section 5.4 1st paragraph In this paragraph the text says that "It was determined that only one of the identified conditions (VC in well 3586) required some type of quantitative modeling." What is the support for this conclusion, where is it presented, and has it received regulator concurrence? If this conclusion is supported later in this document, it should be so stated here.

Section 5.5.1 Last paragraph Of the metal COCs only Antimony is modeled because it is the worst case metal says the text. The reason given is that if it results in no risk, the other metals are not a problem. What about the cumulative effects of all metals especially if Antimony approaches unacceptable risks?

Table 5.5-1 & Section 5.5.2 The explanation provided for the significant prediction errors for Ponds A-1 through A-3 and Ponds B-1 through B-4 does not appear to be sufficient for justifying the validity of the model results. Having plus and minus deviations added together to cancel out the errors does not appear to be an appropriate scientific approach.

Baseline Risk Assessment Comments

The risk estimates for potentially exposed receptors are very low. Cumulative noncarcinogenic hazard indexes were below 1 for all exposure areas and all receptors. Reasonable maximum exposure cancer risk estimates were $9E-06$ or below for all exposure areas and all receptors. Estimated annual radiation doses for onsite receptors were 0.1 mrem/year or below. These results indicate that no adverse noncarcinogenic health hazards, cancer risks or radiation exposures are expected. These results may be used to support a decision that remediation is not warranted for the protection of public health.

In general, the Human Health Risk Assessment and associated Appendices present the data, methods, definitions and assumptions used for the Baseline Risk Assessment very clearly. The methods used are

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We need to take advantage of this + try to go W&I on the OU.
Although not inline w/ DHS priority

consistent with good practice, and are as detailed in the Technical Memoranda, and are sufficiently rigorous to be defensible. The data is well organized. The equations are clearly presented and terms are well defined.

More specific comments follow.

Attachment J1 Estimating the Concentration Term

This attachment contains a discussion of the statistical methods used to test the distribution of the data and to calculate the concentration term. All of the sample results used in the calculations are presented in tables.

The discussion of the statistical methods used is very clear and adequately detailed. However, the procedures applied which vary depending on the frequency of non-detect values seem contradictory. In Case 2, when the frequency of non-detects is greater than 15% but less than 90%, it is correctly stated that the simple substitution of one-half of the sample quantification limit (SQL) for non-detect values introduces an unacceptable bias and is not recommended by EPA. In Case 3, where the frequency of non-detect values is greater than 90%, the substitution of one-half the SQL is used, even though the bias thus introduced is greater than was unacceptable in Case 2. However, the bias introduced by this method would tend to increase the estimates of risk rather than decrease it. Therefore, changing the method would not increase the estimates of risk or alter the Human Health Risk Assessment conclusions.

There are some errors in the reported numbers of samples in the data tables, specifically Tables 10 and 17. The calculations for these data sets are apparently in error. However, the errors are such that the resulting estimates of risk are increased rather than decreased. Therefore, changing the method would not increase the estimates of risk or alter the Human Health Risk Assessment conclusions.

Ecological Risk Assessment Comments

General

There are typographical errors and inconsistent definition of acronyms in the document. Suggest conducting a technical edit of the document. The technical memoranda (TM) referenced (TM1, TM2, and TM3) in the summary document were not available for this ecological review.

Specific

Page 7-1, Paragraph 1 The first sentence indicates that the ERA for the Walnut Creek watershed is summarized in this document, however, the title of the document references Woman Creek. Is the Walnut Creek ERA included in the Woman Creek ERA summary?

Page 7-1, Paragraph 2 The text indicates that "ERAs are now required for four areas." It is unclear from this statement whether or not these ERAs have been completed. This paragraph further indicates that the ERA accompanying this report addresses ecological risks in the Walnut Creek and Woman Creek watersheds. Is "this report" referring to Appendix F or to the current summary?

Page 7-1, Paragraph 3 The last sentence of this paragraph states that the methodology used in the current risk assessment evaluates the likelihood that effects from chemical stressors are occurring or may occur, however, the summary text focuses primarily on the likelihood of current effects. Risk assessments under CERCLA require an assessment of current and future risks. Consider using a subheading under each existing summary of risks heading to highlight current and future risks. In addition to discussing the risks from chemical stressors, the summary also discusses the risks from radionuclides.

Page 7-2, Section 7.1, Paragraph 1 The text states that the ecological risk assessment methodology (ERAM) was developed to support risk decisions for individual OUs, however, the second paragraph on page 7-1 implies that risk assessments should be conducted on watershed boundaries rather than on artificial administrative boundaries. Does this apparent difference imply that the ERAM might not be appropriate for conducting risk assessments on watershed boundaries?

Page 7-4, Section 7.2, Paragraph 5 This paragraph states that the Hazard Index (HI) is used to approximate cumulative risk. While the HI does have value as an additive measure of risk from different chemicals, it does not necessarily accurately depict cumulative risk to a species. Other factors such as loss or degradation of habitat and changes in availability of food source(s) can impact the cumulative risk to a species and would not be accounted for in HI. Further, HI as defined in this paragraph, appears to measure current risk only and not future risk. Please discuss the limitations of using HI as a measure of cumulative risk.

Page 7-4, Section 7.2, Last Paragraph The text identifies wide-ranging species as coyote, mule deer, and red-tailed hawk, but does not identify these species as receptors. This same sentence states that four receptors with more restricted home ranges were also identified, but the text does not identify them and introduces the phrase "limiting species". Please clarify if the wide-ranging species identified are also receptors. Please also clarify if the four receptors referred to in the same sentence should be considered as four receptor species and identify the species in this paragraph.

Please also clarify that species such as the coyote, mule deer, and red-tailed hawk may cover large areas during certain life stages and during certain seasons and that life stage of an individual is also important relative to exposure and toxicity. Please also indicate what life stage of these species, if any, was considered for the ERA and whether any of these species have local, more restricted home ranges at RFETS (e.g., is the red-tailed hawk at RFETS considered migratory or non-migratory for this ERA?)

This paragraph also indicates that for wide-ranging species (receptors?), no HQs or HIs were greater than 1 and therefore risk is negligible. It is not clear if the risk referred to is current or future risk.

This paragraph further indicates that ECOCs were identified for limiting species and aquatic receptors. Please clarify if limiting species are considered species with limited home ranges and whether or not this group of species is exclusive of any aquatic receptors. This same sentence states that because these species spend all or most of their time in small areas, they are therefore in more frequent contact with contaminants. Species with limited home ranges and/or confined by media (e.g., fish in water) are only in more frequent contact with contaminants if the media they are restricted to is contaminated.

Page 7-6, Section 7.3.1, Paragraph 4 This paragraph lists 5 groups of receptors. Please clarify what categories (wide-ranging or limiting) these receptor groups correspond to and identify the specific species in each of the 5 groups. For example, which of the 5 groups do the coyote and mule deer belong to? If the 5 receptor groups on this page are the result of screening that eliminated the mule deer and coyote from further consideration due to negligible risk, then please clarify why the receptor group terrestrial-feeding raptors remains.

Different receptor groups are also referenced in Table F4-1. The groups listed in Table F4-1, however, do not include terrestrial-feeding raptors, while the summary document does. Table F4-1 also lists as a group aquatic-feeding wildlife, while the summary document does not, but lists aquatic-feeding birds. The table also includes an additional category, Radionuclide Effects to Vegetation and Wildlife, which is not a receptor group. Please clarify the differences between Table F4-1 and the receptor groups listed in the summary document (Are the receptor groups identified in the summary and in Table F4-1 supposed to match?)

Page 7-6, Section 7.3.1, Paragraph 6 The first sentence of this paragraph states that endpoints were identified for each resource category Please define resource category This phrase is not defined in the previous text or in the referenced Table F4-1

Page 7-7, Section 7.3 2, Paragraph 1 The last sentence of this paragraph indicates that "more accurate" or quantitative methods were used Does this sentence imply that the methods used in other cases are less accurate or less quantitative Should the work precise be substituted for the work accurate? Please clarify

Page 7-7, Section 7.3 2, Paragraph 2 The first sentence of this paragraph refers to measurements in biota but does not identify the biota (e g , tissue samples?) Please clarify

The second sentence of this paragraph references Suter, 1993 following the statement "These data were reliable indicators of exposure " Please clarify if Suter 1993 is the reference for the reliability of these particular data or for these general data types

This paragraph also references Table 7 3 1 but Table 7 3 1 is not included in the summary package received for review

Page 7-7, Section 7 3 2 1, Paragraph 3 The first sentence states that HQ and HI calculations predict risk levels The last sentence of this paragraph implies that HQ and HI predict toxicity Do these metrics actually predict toxicity or are they merely a measurement or estimate of risk? Please clarify

It is not clear what is meant by the second sentence of this paragraph Please clarify

Page 7-8, Section 7 3 2 1, Paragraph 4 It is not clear what is meant by the reference to community composition (e g , total organism density and species richness) Was community composition measured using total organism density and species richness only?

It is also not clear what is gained by the discussion in Paragraphs 4-7 in this Section If this Section is supposed to summarize risks to aquatic life, it might assist the reader to clearly state what the current and future risks to aquatic life are estimated to be

Page 7-9, Section 7 3 2 2, Paragraph 1 The last sentence in this paragraph requires a reference

Page 7-9, Section 7 3 2 3, Paragraph 4 The last sentence of this paragraph suggests that further sampling is required further refine exposure estimates It might also be helpful to conduct prey studies of local kestrel populations to more precisely estimate the percentage and source of mammals comprising their diet

Page 7-11, Section 7 3 2.4 Should this Section be renamed "Summary of Risks to Preble's Jumping Mouse"? Was this species chosen to represent all small mammals?

Page 7-11, Section 7 3 2 4, Paragraph 2 It is assumed that references to the "jumping mouse" refer to the Preble's meadow jumping mouse If so, suggest using consistent terminology

Page 7-12, Section 7 3 2 5, Paragraph 1 The fifth sentence in this paragraph should be deleted if it can not be supported one way or another

Page 1, Table 7 3-1 Suggest using the heading "Receptor" instead of "Receptors at Risk" in the table heading

It would assist the reader if all of the "Source Areas" identified in Table 7 3-1 corresponded to a map such as Figure 7 2-2

It would assist the reader if Hazard Indices were also included in this Table

Figure 7.2-2 It would be helpful if this Figure were modified for reproduction in black and white. The current black and white review copy does not reflect any difference in the patterns used to depict Hazard Indices for American kestrel, great blue heron, or mallard.