



Department of Energy

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93-ERB-132

Mr. Paul T. Day
Hanford Project Manager
U.S. Environmental Protection Agency
Region 10
712 Swift Boulevard, Suite 5
Richland, Washington 99352

Mr. Roger F. Stanley, Director
Tri-Party Agreement Implementation
Nuclear and Mixed Waste Management Program
State of Washington
Department of Ecology
P. O. Box 47600
Olympia, Washington 98504-7600

Dear Messrs. Day and Stanley:

TRANSMITTAL OF THE PUREX SOURCE AGGREGATE AREA MANAGEMENT STUDY REPORT (AAMSR), REVISION 0

This letter transmits the Revision 0, PUREX Source AAMSR to the U.S. Environmental Protection Agency (EPA) and the State of Washington Department of Ecology (Ecology).

The PUREX AAMSR Draft A, was prepared as a secondary document in accordance with the objectives of the Hanford Past Practice Strategy (DOE/RL-91-04) and the methodology and format for the AAMSR presented in AAMSR Chapter 1, which was submitted as Interim Milestone M-27-01.

The U.S. Department of Energy, Richland Field Office (RL) transmitted the Draft A, PUREX AAMSR for review and comment by EPA and Ecology on May 29, 1992. RL received EPA and Ecology's comments on July 15, 1992, and initially provided their dispositions on August 14, 1992. To effectively disposition the regulators' comments and finalize the S Plant AAMSR, the redlined version Draft B was prepared and submitted to EPA and Ecology on October 5, 1992. This version included: 1) finalized generic text based on U, Z, S, and T AAMSRs regulator comments; 2) reduced Section 2.3.2 repetitive text regarding Single-Shell Tanks; 3) a generic physical conceptual model in Section 4.0; 4) implementation of the analogous site concept in Section 9.0; 5) a summary of physical and chemical setting for analogous groupings in Section 9.0; and 6) minor changes as a result of Westinghouse Hanford Company technical editing.



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The following comments were addressed and the resolutions reached as noted.

1. Comment #7 - Comment disposition was acceptable if a reference to Section 9.2.3 was added. No text change required.

Response - Accepted. Change made.

2. Comment #116 - A statement relating information in Section 5.1 to Section 4.2 was requested.

Response - Accepted. A sentence was added to Section 4.2 in which the onsite worker as being the primary recipient of exposure to the waste was added. A similar statement was also added to the comment disposition.

3. Comment #137 - A statement in Section 5.2.2 relating the discussion of wind erosion and fugitive dust in Section 4.2.2 was requested.

Response - Accepted. A sentence was added to Section 5.2.2 directing reader's attention to the fugitive dust discussion in Section 4.2.2 was added. Comment disposition was changed to reflect this information.

4. Comment #138 - A discussion of the Environmental Protection's rating system was requested. Comment disposition change to be made to reflect this information.

Response - Accepted. Pending search of Environmental Protection's Quarterly Reports, several documents have been cleared for public release and one of them would be cited to provide, by reference, that discussion. It was found that the Huckfeldt 1991, reference; originally used in this text, provided a description of the rating system. No changes were made to the text. Comment disposition was changed to reflect this information.

5. Comment #153 - A request to drop the paragraph discussing Method A, B, and C cleanup standards was made. WHC suggested that no changes were warranted as the paragraph was an unenforceable opinion of which Ecology would have the final say in Work Plans. Ecology suggested that they did not accept the statement as opinion, that its iteration in the text lent a sense of truth to the statement it did not deserve. WHC suggested that the statement was cited after MTCA text (although it was paraphrased after MTCA Section 700-706 text). Changes to the text were not desirable as this section appeared in all AAMSRs. After considerable discussion it was agreed to disagree over leaving the statement in the text and that the paragraph would stand as is.

Response - The text was left as is. (However, the decision has since been made to delete the paragraph.)

Any remaining comment dispositions not discussed were also accepted as is. The meeting adjourned at 11:00 AM.

MEETING MINUTES

Subject: Meeting Minutes for PUREX AAMSR Regulatory Review

TO: N. Uziemblo, Ecology
L. Gadbois, EPA

Kennewick, WA
B5-01

FROM: D. B. Erb, H6-03

CHAIRMAN: P.M. Pak, A5-19

Dept-Operation-Component	Area	Shift	Meeting Date	Number Attending
Environmental Engineering			12/17/92	4

Attendees:

N. Uziemblo, Ecology	P. M. Pak, DOE
L. E. Gadbois, EPA	D. B. Erb, WHC

The meeting was held at the Washington State Department of Ecology's Kennewick office from 8-11 AM.

Ecology expressed concern over the disparity between a number of comments' dispositions and the actual text changes. A large number of 'Accept' comments hadn't been changed, and several 'Reject' comments appeared to have been accepted. There was also concern over the removal of process-related information from the first 4 pages of Sec. 2.3.

WHC explained that a number of changes had been made to the PUREX Aggregate Area Management Study Report beyond those from the regulator's PUREX comments. The basis for the changes came from the review of the U-Plant's Draft B version which was reviewed by the regulators. To complete the review, a meeting had been held to discuss remaining problems with the Draft B and to reach a decision resolving the points of concern. These points were documented in meeting minutes which were distributed to all attendees. Additional changes were discussed in the September, 1992, Unit Managers meetings and accepted.

It was explained that several DOE-directed changes had also been made to condense the information presented in all AAMSRs. For example, all source AAMSRs discussions of Tank Farms has been radically reduced by eliminating repetitive text and providing data in tables and by reference to active operations documents. Also, the PUREX process-related information was moved to Sec 2.4 in Draft B of the document.

Ecology requested that all 'Accept' comment dispositions be checked to determine if the comments were really accepted or were rejected, and, that dispositions and affected text be adjusted accordingly.

Ecology and EPA then inquired about the dispositions of certain comments and requesting information to clear up uncertainties. The comments and concerns are listed below.

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1. Comment #24 asked about the definition of interim stabilization mentioned in the 241-C Tank Farm and its applicability to all other PUREX Tank Farms. The comment was rejected, and text rewritten in this section referred to new Chapter 2 tables which provided no direct description of interim stabilization.

Response - An addition to the text will be added on P. 2-15 and will include a description of interim stabilization as was presented in the PUREX Draft A version.

2. Comment #27 inquired about the wording in one sentence due to its confusing nature and the dispostion rejected any changes stating that the sentence was in response to an earlier comment. The Draft B text, however, did away with the wording.

Response - The comment will be accepted and noted as being changed.

3. Comment #28 requested dates of proposed grout campaigns. The comment was accepted but no changes were made.

Response - The comment will be rejected with the reason that no schedule has yet been established. The Part B Permit has not been approved.

4. Comment #48 requested information on the volume of the 244-AR Vault and the comment was accepted. However, no text was added to indicate the 244-AR Vault's volume.

Response - A search for documents and diagrams has yielded the information that 2 - 177,150 liter (46,800 gal) tanks and 2 - 19,200 liter (5,076 gal) tanks in the 244-AR Vault. The information will be included at Sec 2.3.2.7.

5. Comment #49 requested a discussion of UPR-200-E-70 which is listed as occurring at the 244-AR Vault. The comment was accepted but no information was provided. Ecology noted that Table 2-6 showed the Unplanned Release to be associated with the 244-A Lift Station.

Response - The text in Sec 2.3.2.6 now notes that UPR-200-E-70 occurred at the 244-A Lift Station. A description of the Unplanned Release is found in Table 2-6.

6. Comment #50 requested information of the volume of the 244-CR vault and the comment was accepted. However, no text was added to address the comment.

Response - A search for documents and diagrams has yielded the information that there are 2 - 151,400 liter (40,000 gal) tanks and 2 - 56,800 liter (15,000 gal) tanks in the 244-CR Vault. The information will be included in Sec 2.3.2.8.

7. Comment #63 requested that the date of closure of the 216-A-10 crib be given. The comment was accepted and a date of March 1986 was indicated. Meanwhile, the text change indicated the closure date was March 1987. Ecology requested that the date be clarified and corrected in the appropriate place.

Response - The March 1987 date is correct and has been changed in the comment response.

8. Comment #64 requested that the term 'Neutral/Basic' be defined and the comment was accepted. No definition was presented in the text.

Response - No definition of the term 'Neutral/Basic' has been found in any text. The term is used in the Maxfield document (RHO-CD-673) to describe general waste chemistry, which is relevant to the properties of Hanford soils/sediments to retain radionuclides from the various waste types. The interest in being able to assign a pH range to the waste stream may be beneficial in characterizing the waste receiving sites, but no set number or range can be assigned for the terms.

9. Comment #68 requested a definition of "too radioactively contaminated" as applied to the 216-A-36A crib. The comment was rejected using the rationale that the statement was a quote. Ecology wanted to know what the phrase meant.

Response - At the time of the meeting, available references for this specific statement were in documents not cleared by the release process and couldn't be cited. A search of the WIDS file did reveal a source that provided a statement that over 147,000 curies of short-lived beta activity had been sent to the crib. This statement has now been added to the text.

10. Comment #70 requested information on any measurements of releases at or clean-up actions related to the unplanned release at the 216-A-42 retention basin. The comment was rejected with a statement that the text noted the '...ground was wet down and the basin was flushed.'

Response - It was agreed that the 'Reject' disposition would stand but that the reason would be changed to indicate that the information is provided in Table 2-6.

11. Comment #71 noted that, in Sec 2.3.9.1, there are two unplanned releases which were reportedly associated with the 200-East Burning Pit and were misidentified in the body of the text. The comment was accepted and changes were made. The concern was whether the correct identifier (UN vs UPR) had been attached and to determine if the UN-200-E-62 release applied to the 200-E Burning Pit.

Response - As far as can be determined, the location of the UN-200-E-62 release is not related to the Burning Pit. Research to continue until comments finalized. No further information found.

12. Comment #94 requested that the term 'Steppe' not be applied to a vegetation type but rather to a biome. The comment was accepted but no changes were made. Ecology requested an explanation and the "consistency" issue for all AAMSRs was offered.

Response - The comment will be rejected as the term is appropriate as used and has been similarly used in all other AAMSRs.

13. Comment #99 noted that in Chapter 3, there were discrepancies between formation abbreviations in cross-sections and formation abbreviations in the cross-section legend. The comment had been accepted but no changes were made in Draft B.

Response - The corrections had not been made but have now been rectified.

14. Comment #100 requested that the text explain why four of seventeen air samplers were removed from service in 1989. The comment was accepted but no changes were made.

Response - The disposition will be changed to 'Reject. Information not available.' if no additional data is available. Conversations with individuals involved in monitoring activities suggest that a sampling effort was halted for lack of significant data. This item is still being investigated. If data is available in a referenceable form, it will be included in text; otherwise, the explanation provided in comment response and meeting minutes will stand. (This comment has since been accepted and text has been added to reflect that new siting requirements were instituted by DOE.)

15. Comment #102 requested an explanation of the disposition of the 40 dosimeter sites abandoned in 1990 and a determination if any information was still being obtained from them. The comment was accepted but no text was added.

Response - Research has not produced additional information on the 40 TLDs. Conversations with individuals working on the monitoring effort indicate that the old sites were abandoned and no additional information obtained due to budgetary restrictions. The comment will be rejected because 'Information not available.' unless new information is found. (This comment has since been accepted and text added to indicate the dosimeter location changes were based on a DOE desire for more site-specific information.)

16. Comment #118 requested that a reference be added to support a statement. The comment was accepted but no reference was added.

Response - No reference can be added as the document has not been cleared for public release.

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17. Comment #123 requested that screening criteria for contaminants of concern should include screening criteria noted in EPA Region 10 guidance. The comment was rejected but the rejection also indicated that the text would be clarified. The text in Draft B did clarify the issue by including the guidance. Ecology requested a change to the disposition.

Response - The change (and the comment) was accepted.

18. Comment #124 correctly suggested that the table discussing mobility of contaminants was mislabeled. The comment was accepted but the wrong table was cited, especially after Draft B changes.

Response - The comment disposition will now indicate the correct table to be 4-35, the correct ID for Draft B.

19. Comment #127 requested that the text include the HEAST slope factors for all radionuclides. The comment was accepted but no changes were made.

Response - The cited text was changed but no specific reference to HEAST slope factors was noted. Further investigation indicated that Heast slope factors are part of the Hanford Baseline Risk Assessment process and are included in the AAMSR by reference to that process.

20. Comment #136 addressed a statement that (to paraphrase) "since access restrictions are not applied at (unplanned release) sites with residual contamination levels less than control levels, the lack of current radiological survey data implies the absence of contamination levels or dose rates requiring access controls is a data gap and is identified as such in Sec 8.0." The comment suggested that the absence of current radiological survey data should not imply the absence of contamination levels/dose rates requiring dose control and asked for an explanation as something other than a data gap. The comment was accepted but no obvious change was made.

Response - The text has been modified for all AAMSR and in a manner that did not appear to address the comment. The text indicates that information on the current radiological status of remediated unplanned releases is deficient and is identified as a data gap. Unless the new text answers the question, the comment is rejected on basis of consistency. (Further examination of the text indicated that the text change did answer the comment. Therefore, the comment was accepted as offending text had been removed and rewritten. However, the text still identifies the lack of data as a data gap.)

21. Comment #137 requests that the section include wind erosion as a fugitive dust contributor and that ecological migration of the contaminant should be discussed. The comment was accepted but the text was not changed. Additionally, the regulators suggested that the comments should be incorporated as they added value to the text and upgrade the document.

Response - There was no significant text changes that addressed this comment. As a result, because of the generic nature of this section in all other AAMSRs, this comment is rejected for consistency. (Further research indicated that text in Sec 4.2.2 addressed wind erosion as a fugitive dust contributor and this was added to the comment disposition.)

22. Comment #138 requested a discussion of the ranking system used by WHC Environmental Protection group in evaluating waste management units and unplanned releases. The comment was accepted but no comment-specific text was added. The regulators again, noted the value added to text and document by incorporating the comment.

Response - The comment was rejected as the text in Sec 5.3 is generic in the other AAMSRs and will not be changed because of consistency issues. Further, it is not clear that any document containing the description has been cleared for public release and thus cannot be cited.

23. Comment #144 requested that a quantitative discharge value be provided as the basis for a high qualitative rating rather than a qualitative indicator of migration potential. It also suggested applying an additional criteria of radionuclide inventory to determine site priority. The comment was rejected but text changes were proposed which would indicate the sites which received a qualitatively 'high' score, based on large discharge volumes would have the volumes specified. Additionally, the disposition indicated an acceptance of the radioactive inventory criteria.

Response - The comment was rejected as there was no specific value used as a cut-off between high and low migration potential. While there may be merit to the recommendations, an uneven application of site prioritization methods cannot be allowed. (Further investigation indicated that the HRS system does not address radionuclides and that the mHRS does factor the radionuclide content to some degree.)

24. Comment #153 requested deleting a paragraph regarding using a certain method of clean-up standards, stating it was an opinion Ecology could not accept. The comment was rejected and no text change was made. Ecology still favors the comment and noted that the citation was not included. They did recognize that the information presented in this section is not binding and that compliance is determined in the Work Plan.

Response - The rejection stands as dispositioned.

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MEETING MINUTES

Subject: PUREX AAMSR Comment Final Resolution Meeting

to: Nancy Uziemblo, Jeff Phillips, Ecology; Larry Gadbois, EPA; Paul N. Pak, DOE

FROM: D. B. Erb, WHC

CHAIRMAN: Paul N. Pak

Dept-Operation-Component	Area	Shift	Meeting Date	Number Attending
Environmental Restoration			February 19, 1993	4

Attendees: Nancy Uziemblo, Ecology
 Jeff Philips, Ecology
 Paul N. Pak, DOE
 David Erb, WHC

The meeting was convened at 8:30 AM on Friday, February 19, 1993 at the Washington State Department of Ecology's conference room in Kennewick, WA.

PREFACE

The meeting was held to reach closure on a number of comment dispositions based on revisions arising from the first meeting of December 17, 1992. In that meeting, Ecology made a request that all comments should be reviewed to determine how some ACCEPT comments had been dispositioned, as the changes were not obvious in the text. A deadline of January 15, 1993 was specified at that time.

During the course of reviewing these comment dispositions, a number of dispositions were changed to REJECT as there was no obvious changes at the specified text citations. Where this occurred, a statement of 'Generic Text' was added based on the acceptance of generic text in the U-Plant, Draft B, as reviewed, amended and accepted by the regulators in a September 1, 1992 meeting. Such responses were not acceptable to Ecology as generic text was not regarded as a satisfactory reason not to improve the document. A renewed effort to investigate where, how and/or why the comments were addressed was begun, and succeeded to the point that all the generic text rejections were dispositioned in a more specific manner. In some cases the comments had been accepted and dispositioned elsewhere in the text while, in other cases, the comments were rejected for more specific reasons.

Over the intervening 5 weeks between the January 15 deadline and this meeting, a number of phone conversations and cc:Mail message exchanges clarified some of the comments. The following comments were considered in that time interval: 10, 24, 27, 28, 29, 30, 47, 48, 49, 50, 55, 57, 61, 63, 64, 68, 70, 71, 77, 78, 79, 80, 81, 90, 92, 94, 96, 97, 99, 100, 102, 105, 108, 111, 112, 113, 114, 115, 116, 118, 119, 120, 122, 123, 124, 126, 127, 131, 133, 134, 136, 137, 138, 140, 143, 144, 146, 154, 159, 160, 162, 167, 168, 170, 171, 172, 173, 174, 175, 176, 179, 183, 185, 193, 195, 197, 198, 199, 201, 203, 204, 205, 212, 217, 222, 223, 224, and 226. The February 19 meeting was held to provide the opportunity to review and approve all changed comment dispositions still in question.

Meeting Minutes

After opening comments, the following PUREX, Draft A comments were reviewed and approved as currently dispositioned: 10, 28, 47, 64, 68, 77, 78, 79, 80, 81, 91, 118, 122, 143, 144, 154, 162, 175, 176, 185, 193, 197, 199, 204, 205, 212, and 224.

25. Comment #161 suggested that biota contamination is the result of soil contamination and that soil remediation automatically provides biota remediation. The comment was rejected and no change was made to the text as it is generic to all AAMSRs.

Response - The rejection and disposition stands. For the record, it is noted that all soil remediations are also effective biota remediations as the former cut off the biota source.

26. The second part of comment #174 requested that in Table 7-1, the general response action column should include no action/institutional control actions and dust control measures for the environmental media 'Air'. This part of the comment was rejected as remediation of air release is covered by soil remediation technologies and that air releases are a transport route derived from soil contamination.

Response - The regulators asked that the following be added to the disposition "The current air filtration is not tied to just soil remediation as happens now before soil remediation. HEPA filtration addresses treatment of air quality prior to discharge to the atmosphere." The addition to the rejected comment disposition was accepted.

27. Comment #179 requested that text be modified in Sec 8.1.3 by replacing the phrase currently ending a sentence as "...possible, where contamination is or is not present." with "... possible, where contamination may or may not be present." The comment was accepted but no change was made.

Response - The text change has not been propagated throughout all AAMSRs, based on the U-Plant, Draft B review and approval. The decision to include the change is made for the 200-East AAMSRs. (Later phone discussions brought agreement that the text said essentially the same thing as the desired change and the text would be left alone.)

28. Comment #199 requested that the asterisk used in Table 8-1 be defined in the footnotes section of the table. The comment was rejected but has been included in the Draft B version of the PUREX AAMSR.

Response - The comment disposition will be changed to Accept and the Table has been changed.

At the conclusion of the meeting, the regulators requested that a revised dispositions covering all comments in question (as described above) be sent to them by January 15, 1993. The meeting was adjourned at 11:00 AM.

**ENVIRONMENTAL ENGINEERING AND GEOTECHNOLOGY
COMMENT RECORD FORM**

1. Date _____ 2. Page 1 of 75
 3. Document Title/Number PUREX Plant Source AAMS, DOE/RL-92-04, Draft A
 4. Lead Engineer/Scientist Dave Erb 5. Organization 200/300
 Environmental Engineering
 6. Location/Phone/MSIN 450 Hills/6-1402/H4-55
 7. Reviewer Ecology/EPA; letter N. Uziemblo to P.M. Pak 8. Organization _____
 Sign and Print Name Date
 9. Location/Phone/MSIN 450 Hills/2-1402/H4-55
 10. The document was reviewed, and the reviewer had no comments.
 Reviewer _____ 11. Date _____
 12. I have reviewed the disposition of comments with the Lead Engineer/Scientist.
 Reviewer _____ 13. Date _____

14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
1.	<p>This document contains extensive sections of incorrect generic text. This suggests that comments submitted and accepted in previously reviewed Management Study Reports have not been incorporated into this document. In addition, there are numerous typographical errors, format inconsistencies, and unit labels missing. This report should be reexamined by an editor and the spelling checked. These findings suggest that the report submitted for milestone M-27-06 is a draft report still under internal review. Multiple drafts and prolonged delays in approving the final document are likely to result due to asking the regulators to review incomplete reports.</p> <p>All future Management Study Reports must be complete, reasonably accurate, and satisfy the intent of the milestone before being submitted to the regulators for review.</p>	<p>Accept. These comment dispositions and the production of the PUREX Draft B based on regulatory review of U-Plant's Draft B document will clarify the discrepancies and will allow presentation of a complete AAMSR.</p>

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**ENVIRONMENTAL ENGINEERING AND GEOTECHNOLOGY
COMMENT RECORD FORM (cont.)**

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
2.	<p>Since this report is a guide for preparing a work plan for the Purex source, it should contain as much information as possible from available reference sources instead of merely citing statements from the sources. The type of wastes received by each of the waste management units (WMU) is stated, but the origin of the waste generated and the suspected or known constituents in each waste type are not clearly discussed.</p> <p>One example is laboratory cell drainage from the 202-A building and the 291-A-1 stack drainage; the nature and composition of these wastes are not described.</p>	<p>Accept. Information regarding origin of wastes will be included if it is available. (Ecology: T-Plant comment#3.)</p>
3.	<p>Although facility, process, and operational history descriptions are thoroughly presented, some information is missing for certain facilities addressed in the specific comments sections. When discussing the known and suspected extent of contamination, the contaminants of concern at each WMU should be provided. Dry well logs and monitoring data for radiation monitoring wells for each WMU should also be included in an Appendix. Lists of chemicals discharged to each WMU should be tabulated and referenced in the text.</p>	<p>Accept. References of the extensive lists of WMU contaminants are included; geophysical data is included in an appendix and lists of contaminants of concern are listed in the text. (Ecology: T-Plant comment #4.)</p>

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**ENVIRONMENTAL ENGINEERING AND GEOTECHNOLOGY
COMMENT RECORD FORM (cont.)**

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
4.	<p>There is no indication of a scheduled time-frame to submit the report on the limited amount of field characterization work that is performed in parallel with preparation of the AAMS report (Section 1.4) to meet the objective to "conduct limited new site characterization work if data or interpretation uncertainty could be reduced by the work" (Section 1.3, page 1-9). For example, some of the unplanned releases and WMUs (Table 5-1) are evaluated as low priority sites on the basis of hazard ranking system (HRS) scores and radiation monitoring data. Limited field characterization data gathered from samples collected at these unplanned releases and WMUs may indicate current risk to human health and environment and may support decisions for expedited, interim, limited, or no action. Although some of the WMUs (examples: 216-A-37-2 crib, 207-A retention basins, and 216-A-42 Retention Basin) are potential sources for contaminant migration to groundwater and environmental threats, these WMUs are dispositioned for investigation to an unknown later date. An expedited response action (ERA) is warranted if further degradation of the medium occurs.</p>	<p>Accept. The report will be submitted following completion of the AAMS. Limited Field Investigations are being conducted in support of the AAMS including spectral borehole and groundwater monitoring. Spectral borehole logging results will not be available to support source AAMSR but will be reported in separate topical reports and will be used to support future work plans. Preliminary groundwater data will be used to support GW AAMSR and final results will be reported in a topical report. No characterization work was conducted to evaluate data uncertainties since no data were found that could be enhanced by additional field investigations within a time frame to support the AAMS. (Ecology: U-Plant comment G-1; S-Plant comments G-1 and G-3.)</p>

**ENVIRONMENTAL ENGINEERING AND GEOTECHNOLOGY
COMMENT RECORD FORM (cont.)**

Reviewer Ecology/EPA; letter; N. Uziemblo to P.M. Pak

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
5.	<p>The discussion on preliminary development of alternatives is too general. EPA (1988) recommends that once the existing site information has been analyzed and a conceptual understanding of the site is obtained, a preliminary range of remedial action alternatives and associated technologies should be clearly identified for each contaminated medium. The identification of potential technologies at this stage will help ensure that the data needed to evaluate them (e.g., solvent selection for chemical extraction, particle size classification for physical separation, selection of reagent mixtures for fixation/solidification/stabilization, literature data on existing and innovative technologies, performance and cost information for commercial technologies from vendors and landfill capacities) can be collected as early as possible. In addition, the early identification of technologies will allow timely determinations as to the need for treatability studies.</p> <p>To the extent practicable, a preliminary list of broadly defined alternatives should be developed in the work plan that reflects the goal of presenting a range of distinct, viable options to the decisions maker. In this way, the preliminary identification of remedial actions will allow an initial identification of ARARs and will help focus subsequent data gathering effects.</p>	<p>Reject. The preliminary development of alternatives is intended to be general because of the number of waste management units. The complexity of the sites, and the limited amount of WMU-specific information. A more specific development will be presented in future feasibility studies.</p>

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**ENVIRONMENTAL ENGINEERING AND GEOTECHNOLOGY
COMMENT RECORD FORM (cont.)**

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
6.	<p>Although the various criteria are used to evaluate the sites for an expedited response actions (ERA), the sites are selected finally on the basis of surface contamination using the 1990 radiological survey data for an ERA. This approach may be inappropriate due to the following reasons:</p> <ul style="list-style-type: none"> • The base line values used to determine the sites having surface contamination that exceeded the baseline values for an ERA on the basis of measured surface radiation levels in units of counts/minute, disintegration/minute and mrem/hour are not provided. • A rationale for only using the 1990 data for surface contamination is not provided. Some of the WMUs are eliminated from consideration for an ERA because the 1990 radiological survey did not identify any area of contamination. This assumption is not correct. For example, the 1988 survey did not identify any surface contamination at 216-A-28 French Drain (Section 4.1.2.3.37). But even after the center of the unit was excavated and backfilled to grade in 1981, during the 1990 radiological survey direct readings of 10,000 dis/min (beta-gamma) and 2,300 dis/min (alpha) were identified. 	<p>Reject. As stated, the most recent (1990) survey would be preferable to prior surveys, as current conditions of surface radiation are critical to the site evaluation.</p>
7.	<p>The logic used to select representative WMWs for limited field investigations (LFI) is not clearly justified.</p>	<p>Accept. Further justification will be included in Sec 9.2.3.</p>

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**ENVIRONMENTAL ENGINEERING AND GEOTECHNOLOGY
COMMENT RECORD FORM (cont.)**

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
8.	<p>The rationale provided for investigation of groundwater as a single 200 East Area wide groundwater operable unit (GOU), rather than in individual source operable units is not adequate. Unless data gathering events for groundwater investigations for the single 200 East Area wide GOU are planned efficiently for representative data, delays in obtaining data for risk characterization and remedial actions is anticipated. This may not serve the purpose of implementing the three paths (ERA, IRM, and LFI) for decision making (Section 1.1.2). Groundwater investigations in individual source operable units may be more appropriate for interim decision making if any threat is identified to human health and the environment.</p>	<p>Reject. Groundwater study in the area in question must, by nature of the media, utilize a larger scale than the associated source operable units. (Ecology: S-Plant comment #G-10.)</p>
9.	<p><u>Table of Contents</u> The executive summary is not listed in the table of contents. The titles for Appendices A and D are not consistent with the appendices title pages. These discrepancies should be resolved.</p>	<p>Accept. The table of contents and appendices titles will be corrected.</p>
10.	<p><u>Executive Summary Page ES-5, lines 17-25</u> The text states that health and environmental concerns are presented in Section 5.0. The text continues with a discussion of potential human health concerns, but does not include a discussion of ecological concerns. The text should include a discussion of potential ecological concerns.</p>	<p>Accept. Although there has been no changes in the Executive Summary, several sentences have been added in Chapter 5, Page 5-1, Lines 10-14. The additions recognize that ecological assessments are important to overall site assessment and that the current lack of data is a data gap. (Ecology: T-Plant comment #G-5.)</p>
	<p>CHAPTER 1</p>	
11.	<p><u>Section 1.1.2, Page 1-3, lines 30-35</u> A Focused Feasibility Study must be prepared discussing remedial alternatives for each type of waste unit. For each waste unit, a proposed plan followed by an Interim Record of Decision will be required.</p>	<p>Reject. The Hanford Site Past-Practice Strategy provides for remedy selection without a focused feasibility study. Interim Records of Decision will be made on a unit or group of units included in an action. (Ecology: S-Plant comment #2.)</p>

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
12.	<u>Section 1.2.1, Page 1-4, lines 18-21</u> Figures 1-3 and 1-4 are referred to as showing the eight source aggregate areas in the aggregate area management study (AAMS) program. The eight source aggregate areas include the source operable unit 200-NO-1, which is located in the 200 North aggregate area (Table 1-1). The cited figures (Figures 1-3 and 1-4) show only the 200 East and West aggregate areas. A separate figure for the 200 North aggregate areas, showing the 200-NO-1 source operable unit, should be included and referenced in the text.	Accept. Reference to Figures 1-3 through 1-5 will be made on lines 19-20, however, no new Figure will be added. (Ecology: S-Plant comment #3.)
13.	<u>Section 1.2.2, Page 1-5, lines 28-32</u> The text states that a separate report for step 3 (conduct limited field characterization activities) will be prepared. Since step 3 is included in the scope of the AAMS and is a parallel effort in the AAMS, the completion date for step 3 should be indicated in this report.	Reject. The report will be issued after completion of the AAMSR. (Ecology: S-Plant comment #5.)
14.	<u>Section 1.2.2, Page 1-6, line 3</u> The word physiography is obsolete and it's meaning has changed in the U.S. A more descriptive word describing the configuration of the earth's surface is geomorphology. (reference: <u>Dictionary of Geological Terms</u> , Bates and Jackson, 1984).	Reject. The word physiography is used conventionally in Hanford Site literature to refer to geomorphic and broader scale descriptive aspects of the site. (Ecology: S-Plant comment #6.)
15.	<u>Section 1.2.2, Page 1-7, lines 25-38</u> A reference document for regulatory agency approval for expanded groundwater monitoring programs and in situ assaying of gamma-emitting radionuclides as part of the AAMS process should be cited. The date for submission of field characterization results topical reports for each AAMS should be presented.	Reject. The Hanford Site Past-Practice Strategy document has been referenced and provides a basis for regulatory agency approval. See comment 13 for response to submission date of field characterization results. (Ecology: S-Plant comment #8.)
16.	<u>Section 1.2.2, Page 1-8, line 18</u> The word "retain" should be "remain".	Accept. Change "retain" to "remain". (Ecology: S-Plant comment #9.)

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
17.	<u>Section 1.3, Page 1-9, lines 27-28</u> Since field screening activities are a part of the AAMS process (page 1-7, line 25), deliverables for an AAMS should also include topical reports for field characterization results.	Reject. See comment 13. (Ecology: S-Plant comment #10.)
18.	<u>Section 1.4, Page 1-11, first paragraph</u> This section should reference where in this report information concerning ongoing field characterization is discussed. The text on quality assurance should also reference standard EPA documents e.g., <u>Contract Laboratory Program Statement of Work for Organic analysis</u> (EPA August 1991), and the <u>Quality Assurance Project Plan</u> (EPA, QAMS-005/80) being written for 100 Area work plans.	Accept. Section 1.2.2 indicates that this information will be discussed in a separate report. EPA Guidance documents will be referenced as appropriate. (Ecology: U-Plant comment #2 and S-Plant comment #11.)
19.	<u>Section 1.5, Page 1-12, line 27</u> The actual title of Appendix D is Information Management Overview.	Accept. Change Line 27 to "Appendix D: Information Management Overview". (Ecology: Z-Plant comment #1 and U-Plant comment #3.)
20.	<u>Figure 1-5, Page 1F-5</u> The 200-NO-1 source operable unit is incorrectly identified as an isolated operable unit. This discrepancy should be corrected.	Accept. Modify figure to correctly identify 200-NO-1. (Ecology: S-Plant comment #12.)
CHAPTER 2		
21.	Figure 1-3 (200 East Aggregate Areas) should be referenced in the text when there is discussion on the 200 East area, not Figure 1-4 (200 West Aggregate Areas). This occurs predominantly in Chapter 2.	Accept. Figure 1-3 will be referenced where necessary.
22.	<u>Section 2.1, Page 2-1, lines 30-33</u> Text discusses the operable units and aggregate areas in the 200 East Area; however, the referenced figure, Figure 1-4, shows 200 West Aggregate Areas. Figure 1-3, 200 East Aggregate Areas, should be appropriately referenced.	Accept. Figure 1-3 will be referenced.

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
23.	<u>Section 2.2, Pages 2-1, 2-2, lines 42, 1</u> Names of all the reactors need to be provided. This will help in tracking the history of the Hanford Site.	Accept. The names of the reactors will be included. (Ecology: S-Plant comment #14.)
24.	<u>Section 2.2, Page 2-3, lines 11-12</u> Explain if the ..."detailed description of the initial stabilization process ... discussed in Section 2.3.2" applies to all tanks or only tanks in the 241-C Tank Farm. This sentence only appears in the general discussion for the 241-C Tank Farm.	Accept. Explanatory text has been inserted into Sec. 2.3.2, 6th paragraph.
25.	<u>Section 2.3, Page 2-7, lines 27-29</u> Explain if the 242-A Evaporator Process Condensate will be re-sampled for volatile organic identification.	Reject. There is currently no schedule for resampling. Such activity is an operational responsibility and beyond the scope of this AAMSR.
26.	<u>Section 2.3.1, Page 2-9, lines 11-25</u> Provide a schedule for discussion of closure process for buildings and structures located within the aggregate area but not addressed in this document.	Reject. The process and schedule for structure closure is an operational responsibility and beyond the scope of this AAMSR.
27.	<u>Section 2.3.1.1, Page 2-11, lines 8-10</u> The text states, "When the PUREX Plant resumed operations in 1983, another facility (the PUREX plant) was added that produced plutonium oxide from the plutonium nitrate." This sentence is confusing. The text should be clarified.	Accept. The text has been revised.
28.	<u>Section 2.3.1.2.3, Pages 2-12 to 2-13</u> Provide dates of proposed grout campaigns.	Reject. There are no proposed dates for the grout campaign. The Part B Permit is still awaiting approval.
29.	<u>Section 2.3.2, Page 2-15, lines 13-14</u> Explain how the tanks will be determined to be classified with > or < 99% confidence so that the tank is sound.	Accept. Text revisions have not directly addressed this comment. Section 2.3.2 was rewritten and condensed per DOE-RL direction and discusses or provides references to this material. In the revision, Table 2-4 summarizes individual tank data and Table 2-5 provides references for additional tank information.

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
30.	<p><u>Section 2.3.2, Page 2-15, lines 24-26</u> Define "partial interim isolation".</p> <p>Explain if partial interim isolation will be changed to interim isolation or has removal ceased.</p>	Accept. Text added. See P. 2-13, Lines 35-38.
31.	<p><u>Section 2.3.2.1.2, Page 2-17, line 14</u> As discussed here and throughout Chapter 2, define "sound".</p>	Accept. See response to Comment #29.
32.	<p><u>Section 2.3.2.1.5, Page 2-18, lines 18-19</u> Heat load is supplied for the 241-A-105 Single-Shell tank. Provide heat load for all other tanks.</p>	Accept. See response to Comment #29.
33.	<p><u>Section 2.3.2.2, Page 2-19, line 5</u> Supply number of airlift circulator assemblies installed in tanks other than 241-AN-107 and working order status.</p>	Accept. See response to comment #29.
34.	<p><u>Section 2.3.2.2, Page 2-19, lines 37-39</u> This list of 241-AN Tank Farm wastes does not include the 100/300 Area customer waste (Page 2-20, line 18) and 1-N Area waste (Page 2-21, line 29) for the 241-AN-101 and -106 tanks, respectively. Supply complete listing of waste in the 241-AN Tank Farm in Section 2.3.2.2.</p>	Accept. See response to comment #29.
35.	<p><u>Section 2.3.2.2, Page 2-20, lines 4-7</u> Locate and quantify "Several dry wells within the tank farm ..." and "...groundwater monitoring well around the ... Tank Farms." This appears several times throughout the rest of the document.</p>	Accept. See response to comment #29.
36.	<p><u>Section 2.3.2.3.2, Page 2-23, line 30</u> Describe plan after initial waste transfer to this unit.</p>	Accept. See response to Comment #29.
37.	<p><u>Section 2.3.2.7.1, Page 2-33, lines 28-30</u> The listed contents of the 241-AZ-101 tank (3,651,480 L supernatant liquid and 132,300 L of sludge) exceeds the stated capacity for this tank (3,704,000 L [Section 2.3.2, Page 2-14, lines 18-19]).</p>	Accept. See response to comment #29.
38.	<p><u>Section 2.3.2.8, Page 2-34, line 20</u> Clearly state capacity for 241-C tanks as number, not "over" value.</p>	Accept. Tank capacity will be stated precisely in Table 2-1.

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
39.	<u>Section 2.3.2.8, Page 2-34, line 33</u> Tanks 201-204 are cascaded in a group of four. Change line 33 to read "groups of three or four".	Accept. See response to comment #29.
40.	<u>Section 2.3.2.8, Page 2-34, lines 33-40</u> Text implies that after the first tank, waste cascaded to fill remaining two or three tanks. The discussion on each tank suggests that each tank was individually filled as well as received "cascaded" waste from other tanks. Explain.	Accept. See response to comment #29.
41.	<u>Section 2.3.2.8, Page 2-35, lines 30-31</u> Detail results of ammonia and organic vapor sampling.	Accept. See response to comment #29.
42.	<u>Section 2.3.2.8.2, Page 2-36, lines 13-14</u> Describe why none of the radiation monitoring wells are active around 241-C-102 tank.	Accept. See response to comment #29.
43.	<u>Section 2.3.2.8.13, Page 2-41, lines 12-13</u> Describe why none of the radiation monitoring wells are active around 241-C-201 tank, especially since this tank is "an 'assumed leaker'" (line 22).	Accept. See response to comment #29.
44.	<u>Section 2.3.2.8.14, Page 2-41, lines 27-28</u> Describe why none of the radiation monitoring wells are active around 241-C-202 tank, especially since this tank is "an 'assumed leaker'" (line 38).	Accept. See response to comment #29.
45.	<u>Section 2.3.2.8.15, Page 2-42, lines 1-2</u> Describe why none of the radiation monitoring wells are active around 241-C-203 tank, especially since this tank is "an 'assumed leaker'" (line 10).	Accept. See response to comment #29.
46.	<u>Section 2.3.2.8.15, Page 2-41, line 6 and Section 2.3.2.8.16 Page 2-42, line 20.</u> The text states that tanks 241-C-203 and 204 received PUREX high-level waste. Explain if this was the only waste in the tanks or did these tanks also receive cascaded waste from tanks 201 and 202.	Accept. See response to comment #29.

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
47.	<u>Section 2.3.2.11, Page 2-43, lines 7-10</u> Identify the current contents of 241-A-350 Catch Tank.	Reject. Quantity and nature of liquid in the 241-A-350 Catch Tank is unknown. The volume of the tank has been inserted into text.
48.	<u>Section 2.3.2.16, Page 2-44</u> Provide volume of 244-AR Vault.	Accept. Volume of tanks in 244-AR Vault will be provided in text.
49.	<u>Section 2.3.2.16, Page 2-44</u> Provide discussion of UPR-200-E-70.	Accept. UPR-200-E-70 will be correctly related to the 244-A Lift Station. Description of the release is given in Table 2-6.
50.	<u>Section 2.3.2.17, Page 2-44</u> Provide volume of 244-CR Vault.	Accept. Volume of tanks in 244-CR Vault will be provided in text.
51.	<u>Section 2.3.3, Page 2-45, lines 13-31</u> Referenced figures do not match figures provided. Change text to state Figure 2-8 instead of 2-6, 2-9 instead of 2-7, and 2-10 instead of 2-8.	Accept. Changes will be made to correct referencing.
52.	<u>Section 2.3.3, Page 2-45, line 17</u> Move definition of sisalkraft paper liner from page 2-46, line 5 to page 2-45, line 17.	Accept. The definition will be moved.
53.	<u>Section 2.3.3.1, Page 2-45, lines 39-41</u> The text describes 216-A-1 crib with a 1:1.5 slope from the surface to 2 m and a 1:2 slope from 2.1 m to 5 m. Figure 2-9 illustrates a typical crib with a surface to first level slope equal to 2:1 and second level slope of 1.5:1. Explain why 216-A-1 crib may not be designed as a typical crib. Review all other crib descriptions for accuracy.	Reject. Figure 2-9 is a schematic of a typical crib and not intended to be an exact representation of any specific crib.
54.	<u>Section 2.3.3.1, Page 2-46, line 4</u> Provide thickness of "two layers of sisalkraft paper".	Reject. This level of detail exceeds section requirements.
55.	<u>Section 2.3.3.1, Page 2-46, line 11</u> Explain how specific retention capacity is determined.	Accept. Specific retention capacity is defined in the 2nd Para, Sec 2.3.3 and elaborated on further in 1st Para, Sec 2.3.5.

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
56.	<u>Section 2.3.3.3, Page 2-47</u> Describe how 216-A-3 Crib is marked. Other crib descriptions are missing details of area markings for crib delineation.	Reject. Reference to marking posts is not essential information. This material and other similar material will be deleted.
57.	<u>Section 2.3.3.3, Page 2-47, line 2</u> Text states that "...Between 1967 and 1970, the unit discontinued receiving discharge from silica-gel regeneration wastes. However, page 2-46, lines 38-40, it is stated that ..."From the beginning of operation until November 1967, the waste management unit received wastes from the silica-gel regeneration in the 203-A Building,...". Does this imply that the unit received silica-gel regeneration wastes till 1970? Please clarify.	Accept. Text has been deleted so as to indicate that the silica gel regeneration waste stream ceased discharging to the 216-A-3 crib in Nov 1967.
58.	<u>Section 2.3.3.5, Page 2-48, line 1</u> Detail over what years the crib received waste.	Accept. Change "over the years" to "while active".
59.	<u>Section 2.3.3.6, Page 2-48, line 17</u> Define SCD. Add to acronyms list.	Accept. Delete "SCD" and insert "Steam condensate".
60.	<u>Section 2.3.3.7, Page 2-49, line 10</u> Provide date of deactivation of 216-A-7 Crib.	Accept. Date of deactivation will be provided.
61.	<u>Section 2.3.3.3, Page 2-49, line 36</u> Define radionuclide capacity and how it is determined.	Accept. Radionuclide capacity has been defined in 2nd Para., Sec 2.3.3.
62.	<u>Section 2.3.3.8, Page 2-50, line 2</u> Remove "take".	Accept. Delete "take".
63.	<u>Section 2.3.3.10, Page 2-51</u> State when 216-A-10 Crib was closed.	Accept. Add "in March 1987".
64.	<u>Section 2.3.3.12, Page 2-52, line 6</u> Define neutral/basic.	Reject. Neutral/basic is a non-quantified term as used in the references and no specific pH ranges can be inferred.
65.	<u>Section 2.3.3.12, Page 2-52, line 9</u> Describe how 216-A-24 Crib was stabilized.	Accept. Stabilization will be described.

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
66.	<u>Section 2.3.3.12, Page 2-52, line 10</u> Describe how the concrete marking posts are marking the unit.	Reject. Reference to marking posts is not essential information. This material and other similar material will be deleted.
67.	<u>Section 2.3.3.16, Page 2-54, line 6</u> Provide reference source for activity expectation.	Accept. Reference source will be added.
68.	<u>Section 2.3.3.17, Page 2-54, line 24</u> Define "too radioactively contaminated".	Accept. While no information is available to quantify the phrase, text will note that the crib received over 147,000 Ci of mostly shortlived beta emitters.
69.	<u>Section 2.3.5 and subsequent sections</u> Figures referenced in the text do not correspond to figures provided at end of chapter.	Accept. Figure references will be corrected.
70.	<u>Section 2.3.8.2, Page 2-77, line 38</u> The section describes an unplanned release of beta/gamma contamination associated with the 216-A-42 retention basin. This section should discuss whether any actions taken to determine the extent of this release or any corrective measures taken to remediate the location of the release.	Reject. No unplanned releases are discussed in detail in Sec 2.3 text. Refer to Table 2-6 for all available information.
71.	<u>Section 2.3.9, Page 2-78, lines 6 and 26</u> This section discusses unplanned releases UN-200-E-62 and UPR-200-E-106. Line 6 refers to the UPR-200-E-62 release. The correct release identifier is UN-200-E-62. Line 26 refers to UPR-200-E-100 release. The correct release identifier is UPR-200-E-106. The correct identifiers should be used throughout the text.	Accept. Identifier has been corrected. UPR-200-E-106 is referenced in Sec 2.3.9.1 and UN-200-E-62 has been deleted from Burning Pit discussion.
72.	<u>Figure 2-8 Page 2F-8</u> Add street names to figure since they are referenced in the text.	Reject. Street names are provided in Plate 1.
	CHAPTER 3	

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
73.	<u>Section 3.2.1, Pages 3-2 and 3-3</u> The description should include information concerning seasonal storm events. This would lead into more detailed discussions in sections 3.5.1 and 3.5.2 concerning potential impact of storm water runoff on recharge and the spread of contamination.	Accept. Seasonal storm event information will be added. (Ecology: U-Plant comment #19, S-Plant comment #95.)
74.	<u>Section 3.3.1, Page 3-4</u> It is noted that surface drainage from the Horse Heaven Basin enters the Pasco Basin. As shown in the Figure 3-7, the Horse Heaven Basin does not drain into the Pasco Basin. Clarify.	Accept. Reference to Horse Heaven Basin will be deleted. (Ecology: Z-Plant comment #31, S-Plant comment #96, T-Plant comment #39.)
75.	<u>Section 3.3.3, Page 3-5, last paragraph</u> Identify if any well-defined drainage channels exist in the Purex Source Aggregate Area. It was mentioned in 2nd paragraph, page 3-5 that approximately one-third of the Hanford site is drained by the Yakima River system. Provide information on whether or not the Purex Source Aggregate Area belongs to the Yakima River system.	Reject. Drainage channels in Purex Aggregate Area are identified. (Ecology: S-Plant comment #97.)
76.	<u>Section 3.4.1.1, Page 3-7, line 10</u> This sentence refers to "... Neogene- to Quaternary- age sediments." Paleogene and Neogene, and Tertiary and Quaternary are two different sets of nomenclature for the periods within Cenozoic Era. It would be more correct to use one nomenclature or the other and not mix the two.	Accept. "Neogene" will be changed to "Tertiary". (Ecology: S-Plant comment #99.)

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
77.	<p><u>Section 3.4.2.3, Pages 3-11 and 3-12</u> The text describes five separate intervals identified as A, B, C, D, and E within the lower half of the Ringold Formation. Lindsey and Gaylord (1990) and Lindsey (1991a and b) also have recognized five separate sand and gravel fluvial sequences in the Lower Ringold, which are designated as FSA, FSB, FSC, FSD1, and FSE. Explain if these two classifications correlate. Revision of the stratigraphy of the Ringold Formation should be made in context with the recent publications wherever applicable.</p>	<p>Accept. Based on the results of the U-Plant, Draft B regulatory review, this correlation has been introduced into the text. (Ecology: S-Plant comment #100.)</p>
78.	<p><u>Section 3.4.3.3, Pages 3-15 to 3-17</u> See comment #77.</p>	<p>Accept. See comment #77.</p>
79.	<p><u>Section 3.4.2.6, Page 3-11 and Section 3.4.3.4, Page 3-15</u> As mentioned in the text, Figures 3-11 and 3-12 do not indicate Early "Palouse" Soil. The Figure 3-12 must show the stratigraphic position of the Early "Palouse" Soil. Some of your previous reports (eg. S-plant Aggregate Area Report) describe the unit as a part of the Hanford Formation. This discrepancy must be solved and reported with a reference. Provide a reference for the information found in Figure 3-12, page 3F-12.</p>	<p>Accept. Based on the U-Plant, Draft B regulatory review and meeting, Sec 3.4.2.6 was revised to provide a consistent description for all AAMSRs, or for the 200-E area. (Ecology: S-Plant comment #101.)</p>
80.	<p><u>Section 3.4.2.7.1, Page 3-13</u> As per the stratigraphic Figure 3-12, the gravel dominated facies is the Pasco Gravel. The Pasco Gravel has been identified in the stratigraphy and the words "Gravel Dominated Facies" should be replaced by Pasco Gravel.</p>	<p>Accept. Based on the U-Plant, Draft B regulatory review and meeting, Sec 3.4.2.7.1 was revised to provide a consistent description for all AAMSRs, or for the 200-E area. (Ecology: S-Plant comment #102.)</p>

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
81.	<p><u>Section 3.4.2.7.2 and 3.4.2.7.3, Pages 3-13 to 3-14</u> As per the stratigraphic figure 3-12, the Touchet bed seems to correspond to the sand dominated facies and slack water facies. These need to be checked with the latest publication(s) and if so, appropriate changes are to be made, i.e., instead of calling them sand dominated facies, etc., it should be named "Touchet beds".</p>	<p>Accept. Based on the U-Plant, Draft B regulatory review and meeting, Sec 3.4.2.7.2 and 3.4.2.7.3, have been revised to provide a consistent description for all AAMSRs, or for the 200-E area. (Ecology: S-Plant comment #103.)</p>
82.	<p><u>Section 3.4.2.8, Page 3-13 and Section 3.4.3.6</u> Remove the word Holocene from "Holocene Surficial Deposits".</p>	<p>Accept. "Holocene" will be deleted. (Ecology: S-Plant comment #104.)</p>
83.	<p><u>Section 3.5.2.1, Page 3-23, 3rd paragraph</u> References to UNSAT-H and PORFLO-3 are missing in the text.</p>	<p>Reject. The text is discussing the cited authors study (Smoot et al. 1989) who used the two models to perform the work. The models themselves are not being discussed in the text. (Ecology: S-Plant comment #109.)</p>
84.	<p><u>Section 3.5.2.1.2, Page 3-24, lines 28-29</u> The water table is defined as the zone where the fluid pressure in the pores of the porous medium is exactly atmospheric. The pressure head at the water table is equal to zero. It would be more correct to say that "... capillary pressure within the horizon may exceed atmospheric, i.e., saturated conditions may develop."</p>	<p>Accept. Add "i.e., saturated conditions may develop" to lines 28-29. (Ecology: S-Plant comment #110.)</p>

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
85.	<p><u>Section 3.5.2.1.3, Page 3-22, lines 20-25</u> The term "confined" is not appropriate since there is evidence of direct communication of Unit A with Unit E. The term "semi-confined" seems to be the most appropriate name for the Unit A aquifer. Also when we use any of these terms, it should end with the term "aquifer" not by "groundwater" as used in the text (e.g., semi-confined groundwater in line 24, p 3-25, should be semi-confined aquifer).</p>	<p>Reject: First Part. Based on conventional usage, and as defined by Freeze and Cherry (1979), confined aquifers occur between aquitards - two less permeable stratigraphic units. Aquitards "may be permeable enough to transmit groundwater in quantities that are significant to the study of regional groundwater flow" (Freeze and Cherry 1979). Inter-communication of different aquifer units may therefore be expected to be inhibited, but not prevented by the presence of an intervening aquitard. This condition is expected to occur in the 200 West Area where the Ringold lower mud sequence aquitard separates aquifers within the Ringold Unit A and Unit E gravels. The lower Ringold Unit A gravels would occur as a confined or semi-confined aquifer between the overlying Ringold lower mud sequence and the underlying Elephant Mountain member of the Saddle Mountains Basalt.</p> <p>Accept: Second Part. Sentences on lines 21 through 24 will be revised to eliminate the term "groundwater." (Ecology: S-Plant comment #112, Z-Plant comment #B32, and T-Plant comment #42.)</p>
86.	<p><u>Section 3.5.2.2, Page 3-22</u> This section should be titled as "Natural Groundwater Recharge and Discharge" and should identify if there is any discharge of groundwater. For example, shallow groundwater discharges to the Columbia River along the northern margin of the 100 area have been documented by many investigators. This needs to be investigated for Purex Source Aggregate Area and mentioned.</p>	<p>Reject. Title is consistent with all previous AAMS that have been submitted and will remain unchanged. (Ecology: S-Plant comment #113.)</p>

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
87.	<u>Section 3.5.3.2, Page 3-30</u> See comment #86.	Reject. See comment #86.
88.	<u>Section 3.5.2.2, Page 3-26, 3rd paragraph onward</u> The conclusion that less than 25% of the precipitation falling on typical Hanford site soil actually infiltrates to any depth (page 3-23, lines 28-30) is contrary to the previous conclusion made in Section 3.5.1, page 3-20. Clarify.	Reject. As the text states on Page 3-20, line 25, the results of infiltration studies vary. The discussion on Page 3-20 cites only two of the studies. Additional studies cited on Page 3-26 to 3-28 give additional ranges in infiltration rates. (Ecology: S-Plant comment #114.)
89.	<u>Section 3.5.2.2, Pages 3-27 and 28</u> Examples of precipitation recharge studies showing different recharge rates need more explanation on evapotranspiration. Some of the results seemed to be the opposite of what Gee (1987) and Rouston and Johnson (1990) have found. Explain.	Reject. Existing text provides sufficient information on the differences in the studies that account for the opposite results. References are provided as a source of additional detail. (Ecology: S-Plant comment #115.)
90.	<u>Sections 3.5.3.1.1, Page 3-30, 1st paragraph</u> Moisture content is described in terms of volume in the text in Section 3.5.2.1.1 and in Figures 3-33 and 3-34, but as moisture content by weight percent in the text on page 3-30. Units should be consistent in the report for comparison. Convert the moisture contents listed by weight percent on page 3-30 to a volume percent if the data is available to support this conversion.	Accept. However, conversion could not be made due to lack of data. (Ecology: S-Plant comment #120, Z-Plant comment #34, and T-Plant comment #45.)
91.	<u>Section 3.5.3.2, Page 3-30</u> Higher infiltration rates would also be expected in areas where the topography is flatter. Add this information.	Accept. Information will be added. (Ecology: S-Plant comment #121.)

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
92.	<p><u>Section 3.6, Pages 3-31 to 3-36</u> There is a great deal of information in this section. Unfortunately, there are no references provided to simplify additional data collection.</p> <p>For example, it would be helpful for planning field work to know the location of sensitive or threatened flora. Reference is made to badgers (section 3.6.3.1) and harvester ants (section 3.6.1.3.4), and data indicating these fauna can spread contamination. A key data objective for this and subsequent studies is to quantify environmental pathways; this report should consistently support satisfying this objective.</p> <p>The text notes that there are no "domestic" groundwater supply wells within the aggregate area. State if there any public groundwater supply wells. The text should explain where on-site workers derive their potable water.</p> <p>The text also notes that the nearest domestic well is over 20 miles distant from the study area. Wells 699-24-95 and 66-52-C are located approximately 5 miles WSW of the 200 West Area. The text should be modified.</p>	<p>a) Reject. This is original research performed by WHC.</p> <p>b) Reject. The text states that there are no domestic supply wells and infers that there are no public supply wells (since public supply wells are part of domestic use designation).</p> <p>c) Accept. However, no information regarding well 66-52-C could be found. The well identified as 66-52-C is regarded as a misprint of the 6652-C well, designation already discussed in the text as the water supply to the Battelle Observatory atop Rattlesnake Mtn. The supply is reported to be a spring near the summit at elevation 3160 ft (HEHF-88). Well 699-24-95 provides water for an infrequently-used field lab supporting the Arid Lands Ecology site and is near the Rattlesnake Springs area at the base of Rattlesnake Mtn., approx. 5 miles WSW of 200-W Area. The 699-24-95 information was added to the text. (Ecology: U-Plant comment #22 and S-Plant comment #122.)</p>
93.	<p><u>Sections 3.6.1.1 to 3.6.1.4, Pages 3-32 to 3-36</u> Several scientific names within the text are misspelled or archaic. The text should be revised to include current scientific names with accurate spelling.</p>	<p>Accept. The names will be corrected and updated as necessary. (Ecology: Z-Plant comments #35 and #37.)</p>

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
94.	<p><u>Section 3.6.1.1, Page 3-32, first paragraph, line 7</u> The text includes the statement, "The vegetation of the 200 Areas Plateau is characterized by native shrub steppe interspersed with large areas of disturbed ground with a dominant annual grass component." The word steppe should be removed, as it is indicative of a biome not a vegetative type.</p>	<p>Reject. The use of "Steppe" as a descriptor of vegetation type was kept, as it is an appropriate designation. (Ecology: Z-Plant comment #36 and T-Plant comment #47.)</p>
95.	<p><u>Section 3.6.1.2, Pages 3-33 and 3-34</u> Scientific names of all species should be included in this section.</p>	<p>Accept. The scientific names will be included. (Ecology: T-Plant comment #48.)</p>
96.	<p><u>Section 3.6.2, Page 3-36</u> Access to the entire Hanford site is administratively controlled and is expected to remain this way for the foreseeable future to ensure public health and safety and for reasons of national security. This information needs to be incorporated in the text.</p>	<p>Accept. Page 3-36, Section 3.6.2 will be appended with a slight modification of the suggested text, to read: "Access to the Hanford Site is administratively controlled and is expected to remain this way to ensure public health and safety and for reasons of national security". (Ecology: S-Plant comment #123.)</p>
97.	<p><u>Section 3.7.2, Page 3-33</u> The text needs details in regards to references, especially on publications by Rice, 1980, and Chatter, 1989. Chatters, J., 1989, <i>Hanford Cultural Resources Management Plan</i>, PNL-6942, Pacific Northwest Laboratory, Richland, Washington. Rice, D.G., 1980, <i>Cultural Resources Assessment of the Hanford Reach of the Columbia River, State of Washington</i>, U.S. Army Corps of Engineers, Seattle District, Seattle, Washington.</p>	<p>Accept. The references will be cited. (Ecology: S-Plant comment #124.)</p>
98.	<p><u>Figure 3-8, Page 3F-8</u> The figure does not show the "Structural Provinces of the Columbia Plateau" as the title indicates, but rather shows the "Columbia Plateau and Surrounding Structural Provinces". Consider changing the title.</p>	<p>Accept. The title of the figure will be changed to "Columbia Plateau and Surrounding Structural Provinces". (Ecology: T-Plant comment #49.)</p>

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
99.	<p><u>Figure 3-16, Page 3F-16</u> "Hun" is identified in this figure but not in the explanation on page 3F-15. Is this a typographical error for "Hug"? Figure 3-14, page 3F-14-I is identified as the north end here, but shown as the south end in Figure 3-16. This should be consistent.</p>	<p>Accept. This figure has been modified to address the new units encountered in the 200-E area. Figures 3-14 and 3-16 will be made consistent.</p>
	CHAPTER 4	
100.	<p><u>Section 4.1.1.1, Page 4-4, line 1</u> The text should explain why four of the seventeen air sampling stations are removed from service in 1989.</p>	<p>Accept. Air stations were removed when new siting requirements were instituted by DOE.</p>
101.	<p><u>Section 4.1.1.2.1, Page 4-4, lines 31-32</u> It is not clear why it is "nearly impossible" to convert gross gamma counts to a meaningful exposure rate due to "complex distribution of radionuclides on the site". It would be better to attempt to make sense of what the data does indicate, with limitations, rather than explaining what it does not tell us.</p>	<p>Accept. Section will be clarified regarding the usefulness of this data. The text will indicate that the radiological survey technique provides an indication of both surface and subsurface contamination. Without direct sampling data to determine the location and speciation of contaminants, exposure calculations would be based on supposition. The data does however provide an indication of where additional sampling might be done to provide data required to calculate exposure rates. (Ecology: Z-Plant comment #39, S-Plant comment #129.)</p>
102.	<p><u>Section 4.1.1.2.2, Page 4-6, 2nd paragraph</u> The text mentions the twenty-five new dosimeter sites installed in 1990. State what happened to the forty old sites. State if these sites are totally abandoned at those locations. Explain if any information is being obtained from these old sites.</p>	<p>Accept. The site changes are explained in Sec 4.1.1.2.2 and are based upon a memo of understanding between DOE and WHC to provide more site specific information.</p>
103.	<p><u>Section 4.1.1.2.2, Page 4-6, line 36</u> This section discusses soil samples, analytical results, and counting errors associated with the samples. This section should include information on how these counting errors are determined.</p>	<p>Reject. The information summarized in this section is taken from the annual surveillance report and is presented as it appears. This section is not intended to be a data evaluation discussion.</p>

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
104.	<u>Section 4.1.1.2.2, Page 4-6, Table 4-7</u> The relationship of the Total to maximum and minimum values shown in Table 4-7 should be clarified.	Accept. The value presentation will be clarified.
105.	<u>Section 4.1.1.2.3, Page 4-7, 2nd paragraph</u> The plate 3 depicts only 17 locations instead of 18 as mentioned in the text. This discrepancy must be corrected.	Accept. Per 1990 Environmental Surveillance Annual, there are 16 soil sampling sites in the PUREX area. An extra triangle is included near the 218-E-1 burial ground and will be deleted. The text discrepancy will be corrected.
106.	<u>Section 4.1.1.5, Page 4-8, lines 10-13</u> According to the text, gross gamma-ray logs were used to evaluate radionuclide migration in the vadose zone beneath the selected waste management units. However, the text does not mention anything on the results of these evaluation of migration of radionuclides. A brief description of the result of the evaluation is necessary and should be provided.	Reject. Page 4-8, lines 20-21 state that logs are discussed in detail in Appendix A.
107.	<u>Section 4.1.1.5, Page 4-8, Table 4-13</u> The rationale used for the interpretation of potential migration to unconfined aquifer as shown in Table 4-13 must be given in the text.	Reject. The rationale is discussed on page 4-8, lines 29-41.
108.	<u>Section 4.1.2.1, Page 4-9</u> The text refers to Table 4-7 and states that the external radiation monitoring TLDs averaged 95 and 107 mrem/yr for 1990. Table 4-7 presents minimum, maximum, and total external radiation monitoring TLDs for various sites. The two locations for TLD sampling at the Grout Treatment Facility are not presented in the table. These discrepancies should be clarified.	Accept. The Grout Treatment Facility TLD locations have been added to Tables 4-6 and 4-7.
109.	<u>Section 4.1.2.2.1.4, Page 4-12</u> The text should mention that geophysical logging showed new tank leaks and migration of contamination to the soil.	Reject. The text is intended to be a general review of the data.

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
110.	<u>Section 4.1.2.2.1.5, Page 4-13, line 5</u> This section refers to Table 4-24 for information on the vertical and lateral distribution of tank leaks. This table should provide the actual measurement of the distribution.	Reject. Provision of the actual measurements is beyond the intent of this section.
111.	<u>Section 4.1.2.2.2, Page 4-13</u> This section states that there is no volume, chemical, or radiological data available for vaults. Conversely, the information on waste currently stored in the 244-A Receiving Vault and the radiological contamination from unplanned releases associated with 244-AR vault are presented in Sections 2.3.2.15 and 2.3.2.16. This discrepancy should be clarified.	Accept. This section has been rewritten to include available data on known unplanned releases and appropriate material originally in Sec 2.3.2. See P. 4-15, Lines 15-23 for new text. The 244-A Lift Station is also known as the 244-A Receiver Tank.
112.	<u>Section 4.1.2.2.2.1, Page 4-13</u> The text in this section states that the 241-A-302A catch tank is an active waste management unit (WMU) when it is not (Section 2.3.2.9). This inconsistency should be addressed and the text changed where appropriate. This comment is applicable to 241-C-301 catch tank.	Accept. The text in Sec. 2.3.2.9 will be changed to indicate that it is active.
113.	<u>Section 4.1.2.5.1, Page 4-25</u> The text states in the first paragraph that it is "inactive", but then notes in the third paragraph, under the DOE/RL "plan" (undefined) general steps, "discontinue discharges of hazardous materials to the facility." Describe the plan and if it is active or not.	Accept. The plan will be described and the unit is correctly identified as inactive as several steps in the process have been completed. Reference has been added.

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114.	<p><u>Section 4.1.2.7, Page 4-27</u> Only unplanned release at the 241-CR-151 Diversion Box is stated here. Other unplanned releases associated with the Diversion Boxes are not reported. Examples include:</p> <ul style="list-style-type: none"> • Several unplanned releases associated with the 241-A-151 Diversion Box (Section 2.3.7.3) • A release associated with the deactivated 241-C-151 Diversion Box (Section 2.3.7.22). The release, estimated at less than 500 millicuries of ⁹⁰Sr spread detectable contamination over approximately a 2 mi² (square miles) area. • A release associated with 241-C-152 Diversion Box <p>This inconsistency should be addressed and the text changed where appropriate.</p>	<p>Accept. The text on Pp 4-32 and 4-33, has been revised to discuss four unplanned releases at the 241-A-151 Diversion Box, one unplanned release at the 241-CR-151 Diversion Box, one unplanned release at the 241-C-151 Diversion Box, and one unplanned release at the 241-C-152 Diversion Box. Text has been modified to more clearly tie the unplanned releases to the respective facilities.</p>
115.	<p><u>Section 4.1.2.8.2, Page 4-28</u> The unplanned release associated with the 216-A-42 retention basin should be discussed here or a reference section (Section 2.3.8.2) should be cited.</p>	<p>Accept. The text has been revised to include all available information on unplanned release UPR-200-E-66 at the 216-A-42 basin. See P. 4-33, Lines 39-41.</p>
116.	<p><u>Section 4.2, Page 4-30</u> The text should acknowledge increased risk to on-site workers during investigative and remedial activities.</p>	<p>Accept. See Sec 5.1, P. 5-3, Lines 7-10 for this reference. A sentence has been added in Sec 4.2 referencing this text.</p>
117.	<p><u>Section 4.2.2, Page 4-33</u> This section discusses transport pathways and lists examples of such pathways. This section should also include ingestion of soil as a transport pathway.</p>	<p>Reject. Ingestion of soil is not a transport pathway, it is an exposure pathway. (Ecology: Z-Plant comment #46 and U-Plant comment #34.)</p>
118.	<p><u>Section 4.2.2.1.4, Page 4-36, lines 10-12</u> A reference is not, but should be given for the information presented on the leaching of americium.</p>	<p>Reject. Source is not referencable as it has not been cleared for public release.</p>

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
119.	<u>Section 4.2.2.3, Page 4-37, lines 29-33</u> The text states that surface water is only available at the 216-A-29 Ditch and the 207-A Retention Basins. The text discusses the ditch, but not the retention basins. A discussion of the retention basins should be included.	Accept. The text will be revised to note that the only surface water is available at the 207-A retention basins. The 216-A-29 ditch has been backfilled and the 216-A-42 retention basins are concrete covered. See P. 4-44, Lines 14-15.
120.	<u>Section 4.2.3, Page 4-38, line 1;</u> <u>Figures 4-3</u> The conceptual model figures depict arrows in both directions between humans and biota through the ingestion exposure route. The arrow should only indicate a transfer from biota to humans.	Accept. The figure will be corrected to indicate no transfer between biota and humans, in receptors column. (Ecology: S-Plant comment #145.)
121.	<u>Section 4.2.3, Page 4-39, lines 10-11</u> The text states that only some of the unplanned releases are indicated on Figure 4-3. The rationale for not indicating all unplanned releases on Figure 4-3 should be provided.	Reject. The text states that some of the unplanned releases are associated with known waste management units and these are indicated on Figure 4-3 with a "U". Other unplanned releases are shown on the figure and are labelled as "Unplanned Releases".

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
122.	<p><u>Section 4.2.4, Page 4-40</u> The rationale or reference for using the second criterion is not presented, and contaminants appear to be inappropriately eliminated by the use of the third screening criteria.</p> <p>The second criterion indicates that buildup of short lived radionuclide daughter activity to a level of 1 percent or greater of the parent radionuclide activity causes the daughter to be included on the contaminant-of-concern list. However, the rationale or reference for this criterion is not included, and should be. If the parent activity is extremely high, 1 percent may not be a conservative screening level.</p> <p>The third criterion indicates that contaminants were placed on the contaminant-of-concern list if they are known or suspected carcinogens or have an EPA noncarcinogenic toxicity factor. It appears that contaminants not meeting such criteria are eliminated from the contaminant list. This screening fails to follow the contaminant screening process outlined in DOE (1991) methodology. This criterion should be deleted.</p>	<p>Accept. The text has been clarified. Note that the criteria are criteria provided are more conservative than those presented in DOE, (1991). (Ecology: Z-Plant comment #48, U-Plant comment #37, and S-Plant comment #146.)</p>
123.	<p><u>Section 4.2.4, Page 4-40, third bullet</u> The screening criteria used for selecting contaminants of concern should not be limited to only those contaminants that are known or suspected carcinogens, or that have an EPA noncarcinogenic toxicity factor. Toxic, noncarcinogenic contaminants do exist; an example is lead. The screening criteria should follow EPA Region 10 guidance (EPA 1991).</p>	<p>Accept. The text has been clarified. Note that the criteria provided are more conservative than those presented in EPA (1991). (Ecology: T-Plant comment #88.)</p>

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
124.	<u>Section 4.2.4.3, Page 4-42, line 32</u> The text discusses the mobility of contaminants listed in Table 4-27. However, mobility is a discussion item listed for Table 4-31 (see page 4-41, lines 1 and 2). The text should be changed to reflect Table 4-31.	Accept. The text has been revised to indicate Table 4-32.
125.	<u>Section 4.2.4.5.1, Page 4-46, lines 1-5</u> The text states that genetic and teratogenic effects occur at higher exposure levels than those required to cause cancer. A reference and dose levels should be provided.	Accept. Reference will be added. (Ecology: Z-Plant comment #49 and U-Plant comment #39.)
126.	<u>Section 4.2.4.5.1, Page 4-46, line 23</u> The reference listed for excess cancer risks is "EPA 1991." This reference is for the 1991 Integrated Risk Information System (see page 10-4, line 43). However, the information provided in this paragraph is found in the 1991 Health Effects Summary Assessment Tables (HEAST). The text should be corrected in both this section and in Section 10.0 References to reflect the appropriate resource.	Accept. Reference will be corrected to be EPA (1991b) and will be included in Section 10.
127.	<u>Section 4.2.4.5.1, Page 4-46, lines 25-29</u> The text discusses the method to use for determining risks for radionuclides that do not have EPA slope factors. However, the 1992 HEAST contains slope factors for all radionuclides. This paragraph should be deleted.	Reject. Per Sec 4.2.4.5.1, 4th paragraph, the Hanford Baseline Risk Assessment is the agreed-upon basis for evaluating radionuclide toxicity which includes, by reference, the HEAST slope factors.
128.	<u>Section 4.2.4.5.2, Page 4-47, lines 11-12</u> The text discusses the carcinogenic and noncarcinogenic health effects associated with chemicals anticipated at the aggregate area. The text should indicate that these health effects, which are presented in Table 4-38, may be associated with either human or animal data.	Accept. The text will be revised as indicated. (Ecology: T-Plant comment #92.)

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
129.	<p><u>Section 4.2.4.5.2, Page 4-47, lines 15-16</u> This paragraph states that many chemicals lacking toxicity criteria have "... negligible toxicity or are necessary nutrients in human diet." There is no citation provided for this assertion, and it is of questionable validity.</p> <p>Many trace metals are necessary in the human diet, and most are highly toxic, some acutely so, in sufficient levels. Clarify the point of this statement.</p>	<p>Accept. Text will be clarified. (Ecology: U-Plant comment #43 and S-Plant comment #150.)</p>
130.	<p><u>Figure 4-1, Page 4F-1</u> "the results are displayed as relative levels of man-made radionuclide activity." Does this mean that background was subtracted? If so, how and where was background measured?</p>	<p>Accept. Background was subtracted and text discussing background measurement will be added. (Ecology: S-Plant comment #151.)</p>
131.	<p><u>Figure 4-3, Page 4F-3</u> The arrow leading from human to biota for ingestion should be reversed because it is generally assumed that humans ingest biota more than biota ingest humans.</p>	<p>Reject. The figure will be revised to indicate no connection between humans and biota. (Ecology: U-Plant comment #45, S-Plant comment #145, and T-Plant comment #93.)</p>
132.	<p><u>Table 4-5, Pages 4T-5a through 4T-5i</u> This table is unclear. For example:</p> <p>1) Why is there a column for both counts-per-minute and disintegrations-per-minute?</p> <p>2) There are many places where the radiation type is unknown. The type of instrument used for the survey will usually tell you the type of radiation that is being measured.</p>	<p>Reject. All information available was provided. Different instruments provided readings in different units which cannot be converted. Type of instruments used in the survey were not found. (Ecology: S-Plant comment #153.)</p>
133.	<p><u>Table 4-33, Page 4T-33a</u> The acronym "MEPAS" should be defined. The pH should be given in the columns headings for the second and third columns which present soil-water distribution coefficients.</p>	<p>Accept. Requested information is given in Table 4-35 as footnotes or as applicable to radionuclide. (Ecology: T-Plant comment #96.)</p>

**ENVIRONMENTAL ENGINEERING AND GEOTECHNOLOGY
COMMENT RECORD FORM (cont.)**

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14. Item	15. Comment(s) (Provide technical justification for the comment and proposed action to correct or resolve the comment.)	16. Disposition (Provide brief justification if NOT accepted.)
	CHAPTER 5	q
134.	<u>Section 5.0, Page 5-1, line 15</u> The text indicates that candidate contaminants of potential concern are presented in Table 4-26. However, the information is presented in Table 4-30. The text should be corrected.	Accept. The text now references Table 4-32.
135.	<u>Section 5.1, Page 5-2, second paragraph</u> The text states that the occupational exposure scenario is the most appropriate for identifying health hazards associated with the PUREX Plant Aggregate Area. The text should indicate that the occupational exposure scenarios is the most appropriate for identifying <u>current</u> health hazards.	Accept. The text will be revised as indicated. (Ecology: Z-Plant comment #49 and T-Plant comment #97.)
136.	<u>Section 5.2.1, Page 5-4, line 26;</u> The current absence of radiological survey data should not imply the absence of contamination levels or dose rates requiring access control. Explain association other than as a data gap.	Accept. The identified association was deleted. The simple lack of data in these cases requires they be identified as a data gap.
137.	<u>Section 5.2.2, Page 5-5</u> This section should include a discussion on wind erosion as a fugitive dust contributor. Ecological migration of contaminants should be discussed.	Accept. Section 4.2.2 addresses wind erosion as a fugitive dust contributor. Text was added in Sec 5.1 to direct reader to this information.
138.	<u>Section 5.3, Page 5-6</u> The first paragraph in this section states that criteria used for setting priorities for waste management units and unplanned releases include the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Hazard Ranking System (HRS), and the system used by the Westinghouse Hanford Environmental Protection Group. This section discusses the HRS, but does not discuss the Westinghouse system. A discussion of the Westinghouse system should be included.	Accept. The Huckfeldt (1991) reference is a source for this information. It is publicly available and contains the description requested. Note that the Environmental Protection rating system is a qualitative ranking used for prioritizing clean-up of contaminated sites. Once clean-up is complete, the site is dropped from the list.

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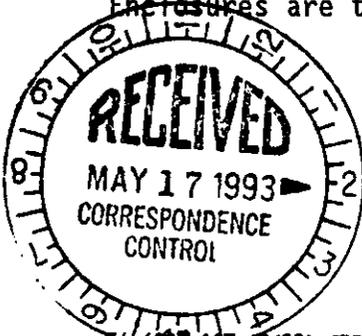
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