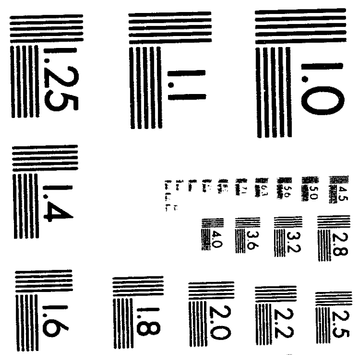
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WHC-MR-0289
Revision 3

Documentation of Hanford Site Independent Review of the Hanford Waste Vitrification Plant Preliminary Safety Analysis Report

D. I. Herborn

Date Published
November 1993

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and
Waste Management

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Richland, Washington 99352

Hanford Operations and Engineering Contractor for the
U.S. Department of Energy under Contract DE-AC06-87RL10930

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Applied Technology/Export Controlled Information or International Program	[ ]	[X]			
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	Yes	No
References Available to Intended Audience	[X]	[ ]
Transmit to DOE-HQ/Office of Scientific and Technical Information	[ ]	[X]

Author/Requestor (Printed/Signature) Date
Daniel I. Herborn
D. I. Herborn October 22, 1993

Intended Audience
[ ] Internal [ ] Sponsor [X] External

Responsible Manager (Printed/Signature) Date
D. G. Baide D G Baide 10/27/93

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CONTENTS

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DOCUMENTATION OF HANFORD SITE INDEPENDENT REVIEW OF THE HANFORD WASTE VITRIFICATION PLANT PRELIMINARY SAFETY ANALYSIS REPORT

1.0 INTRODUCTION

Westinghouse Hanford Company (WHC) is the Integrating Contractor for the Hanford Waste Vitrification Plant (HWVP) Project, and as such is responsible for preparation of the HWVP Preliminary Safety Analysis Report (PSAR). The HWVP PSAR was prepared pursuant to the requirements for safety analyses contained in U.S. Department of Energy (DOE) Orders 4700.1, *Project Management System* (DOE 1987); 5480.5, *Safety of Nuclear Facilities* (DOE 1986a); 5481.1B, *Safety Analysis and Review System* (DOE 1986b) which was superseded by DOE Order 5480.23, *Nuclear Safety Analysis Reports*, for nuclear facilities effective April 30, 1992 (DOE 1992); and 6430.1A, *General Design Criteria* (DOE 1989). The WHC procedures that, in large part, implement these DOE requirements are contained in WHC-CM-4-46, *Nonreactor Facility Safety Analysis Manual*. This manual describes the overall WHC safety analysis process in terms of requirements for safety analyses, responsibilities of the various contributing organizations, and required reviews and approvals.

The requirements for WHC independent review of the HWVP PSAR are contained in WHC-CM-4-46, Chapter 3.0, Section 4.6. Specifically, this manual requires the following:

- Formal functional reviews of the HWVP PSAR by the future operating organization (HWVP Operations), and the independent review organizations (HWVP and Environmental Safety Assurance, Environmental Assurance, and Quality Assurance)
- Review and approval of the HWVP PSAR by the Tank Waste Disposal (TWD) Subcouncil of the Safety and Environmental Advisory Council (SEAC), which provides independent advice to the WHC president and executives on matters of safety and environmental protection.

According to the interim guidance in DOE Order 5480.23, Attachment I, the HWVP PSAR is not required to fully comply with this Order because the initial submittal of the PSAR to the U.S. Department of Energy-Headquarters (DOE-HQ) occurred on June 26, 1992, well before 12 months after the date of issuance of this Order. Nonetheless, the PSAR will comply with the implementation requirement of Section 9c related to periodic updates. The PSAR will be reviewed and updated annually to ensure that the information is current and remains applicable.

2.0 COMMENT RESOLUTION PROCESS FOR FORMAL FUNCTIONAL REVIEWS

The Review Comment Record (RCR) process was used to obtain comments from WHC independent reviewers of draft versions of the HWVP PSAR, which were designated as Revisions A and B. The RCR process also was used to document comment resolution and disposition. Parallel reviews were conducted by the U.S. Department of Energy, Richland Field Office (RL) by representatives of the following RL organizations: Vitrification Project Office, Quality Assurance Division, and the Safety and Environment Division. Reviews also were conducted by RL's General Support Services Contractor, Stone and Webster Engineering Company.

Copies of the RCRs submitted by WHC and RL reviewers are contained in WHC-MR-0259, *Hanford Waste Vitrification Plant Project Preliminary Safety Analysis Report Comment Response Records* (Herborn and Campbell 1991). Final resolution or closing out of all these comments was achieved and is indicated by appropriate signatures on the RCR forms.

As part of the DOE-HQ approval process for the HWVP PSAR, the Office of Environmental Restoration and Waste Management Technical Review Group (TRG) for safety analysis reports reviewed Revision 0 of the PSAR and submitted a number of comments in accordance with its procedures (see page 1 of Herborn and Campbell 1991). The HWVP PSAR, Revision 1, was prepared to provide documented evidence that dispositions of the TRG comments have been implemented in the safety analysis documentation. The HWVP PSAR, Revision 1, revised pages were transmitted for review and approval to the same WHC organizations that originally approved Revision 0. As discussed in Section 4.0, all these organizations approved Revision 1; however, two organizations "approved with comment." These comments and the HWVP Project's responses to them are contained in Appendix B.

The HWVP PSAR revision, redesignated as WHC-SD-HWV-PSAR-001, Revision 0 (Herborn and Smith 1992), was issued on August 7, 1992, to provide a disposition of the remaining open comments from the review by the DOE-HQ TRG. The document designation and number were changed to a WHC "supporting document" format to conform to the documentation requirements of WHC-CM-4-46, Chapter 3.0, Section 4.2.1.3. Thus, WHC-SD-HWV-PSAR-001, Revision 0, supersedes the document designated as WHC-EP-0250, Revision 1 (Herborn and Smith 1991), and represents the next-ordered revision. The revised pages constituting the changes inherent in WHC-SD-HWV-PSAR-001, Revision 0, were transmitted for review and approval to the same WHC organizations that originally approved WHC-EP-0250, Revision 1. As covered in Section 4.0, all these organizations approved WHC-SD-HWV-PSAR-001, Revision 0. Three organizations "approved with comment," two of which submitted written comments and the other organization (HWVP Operations) gave verbal comments. These comments were all satisfactorily dispositioned; the written comments and the HWVP Project's approved responses are contained in Appendix B.

The HWVP PSAR revision designated as WHC-SD-HWV-PSAR-001, Revision 1 (Herborn and Smith 1993), was issued in August 1993 and constituted the first annual update that satisfies the requirements of DOE Order 5480.23. This revision incorporated revised PSAR information resulting from detailed design evolutions, revisions in safety analyses, completion of open items, and changes in safety procedures or requirements in force since the issuance of WHC-SD-HWV-PSAR-001, Revision 0. Revised WHC-SD-HWV-PSAR-001, Revision 1, pages were transmitted for review and approval to the same WHC organizations that approved previous versions of the PSAR. The review by the WHC organizations resulted in considerable comments, all of which were satisfactorily dispositioned. These written comments and the HWVP Project's approved responses are contained in Appendix B.

3.0 SEAC TWD SUBCOUNCIL REVIEW

Following review and close-out of comments on the HWVP PSAR, Revisions A and B, by the WHC independent review and operations organizations, the PSAR received top-level management review by the SEAC TWD Subcouncil. This review was accomplished at a series of Subcouncil meetings, at which the PSAR was reviewed on a chapter-by-chapter basis. Formal questions were asked by the Subcouncil to which the HWVP Project staff responded. In a number of cases, specific actions resulted from this interaction.

The SEAC TWD Subcouncil also reviewed the WHC-EP-0250, Revision 1, and WHC-SD-HWV-PSAR-001, Revision 0, revised pages at a number of Subcouncil meetings. As a result of the question and answer process at these meetings, one specific action was the product of these interactions.

Two SEAC TWD Subcouncil meetings were held to review the revisions associated with WHC-SD-HWV-PSAR-001, Revision 1. As a result of the presentation, question, and answer process used at these meetings, the Subcouncil developed a number of positions, which are reflected in the meeting minutes.

Detailed documentation of the Subcouncil review is available in the form of approved meeting minutes. The SEAC TWD Subcouncil meeting minutes for the HWVP deliberations are presented in Appendix A.

4.0 APPROVAL OF THE HWVP PSAR

Approval of WHC-EP-0250, Revision 0, by the required WHC organizations and offices is documented by the signatures on the Approval Page (iv) of the PSAR (Herborn and Smith 1991), which is reproduced in Appendix B.

The WHC-EP-0250, Revision 0, was approved by the RL manager for release to the DOE-HQ for final review. This transmittal letter is presented in Appendix B.

Approval of WHC-EP-0250, Revision 1, by the required WHC organizations and offices is documented by the signatures on Engineering Data Transmittal 400363, which is reproduced in Appendix B.

Approval of WHC-SD-HWV-PSAR-001, Revision 0, by the required WHC organizations and offices is documented by the signatures on Engineering Data Transmittal 400415 and the new approval page (iv) of the PSAR, which are reproduced in Appendix B. The documentation submitting the written comments that were submitted and the approved responses are reproduced in Appendix B. The letter from the RL director of the Treatment Projects Office to the DOE-HQ transmitting the approved HWVP PSAR is also presented in Appendix B.

Approval of WHC-SD-HWV-PSAR-001, Revision 1, by the required WHC organizations and offices is documented by the signatures on Engineering Change Notice 400293, which is reproduced in Appendix B. Because there is no specific requirement for approval by the WHC president, it is no longer necessary to obtain the signature of this office. The RCRs and HWVP Comment Records that document the written comments on WHC-SD-HWV-PSAR-001, Revision 1, and the approved responses are reproduced in Appendix B. The letter from the RL director of the Tank Waste Projects Division to the DOE-HQ transmitting PSAR, Revision 1, also is presented in Appendix B.

5.0 REFERENCES

DOE, 1986a, *Safety of Nuclear Facilities*, DOE Order 5480.5, U.S. Department of Energy-Headquarters, Washington, D.C.

DOE, 1986b, *Safety Analysis and Review System*, DOE Order 5481.1B, U.S. Department of Energy-Headquarters, Washington, D.C.

DOE, 1987, *Project Management System*, DOE Order 4700.1, U.S. Department of Energy-Headquarters, Washington, D.C.

DOE, 1989, *General Design Criteria*, DOE Order 6430.1A, U.S. Department of Energy-Headquarters, Washington, D.C.

DOE, 1992, *Nuclear Safety Analysis Reports*, DOE Order 5480.23, U.S. Department of Energy-Headquarters, Washington, D.C.

Herborn, D. I., and L. M. Campbell, 1991, *Hanford Waste Vitrification Plant Project Preliminary Safety Analysis Report Comment Response Records*, WHC-MR-0259, Westinghouse Hanford Company, Richland, Washington.

Herborn, D. I., and D. A. Smith, 1991, *Hanford Waste Vitrification Plant Preliminary Safety Analysis Report*, WHC-EP-0250, Revision 0, Westinghouse Hanford Company, Richland, Washington.

Herborn, D. I., and D. A. Smith, 1992, *Hanford Waste Vitrification Plant Preliminary Safety Analysis Report*, WHC-SD-HWV-PSAR-001, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

Herborn, D. I., and D. A. Smith, 1993, *Hanford Waste Vitrification Plant Preliminary Safety Analysis Report*, WHC-SD-HWV-PSAR-001, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

WHC-CM-4-46, *Nonreactor Facility Safety Analysis Manual*, Westinghouse Hanford Company, Richland, Washington.

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APPENDIX A

SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING MINUTES

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DISTRIBUTION COVERSHEET

Author	Addressee
D. H. Jones S1-57	K. R. Jordan B3-51

Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL (SEAC) TANK WASTE DISPOSAL (TWD) SUBCOUNCIL MEETING 91-12

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		SEAC Members		
		T. L. Aldridge	R3-20	
		P. B. Bourne	B3-04	
		W. R. Brooksher	L4-01	
		D. J. Newland	R2-38	
		M. Haas	T5-50	
		L. K. Severud	H5-60	
		D. D. Wodrich	R2-23	
		D. E. Wood	B2-19	

Westinghouse Hanford Company **Internal Memo**

From: Waste Tank Environmental Assurance and Integration DHJ91020
Phone: 3-4558 S1-57
Date: May 1, 1991
Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL (SEAC) TANK WASTE DISPOSAL (TWD) SUBCOUNCIL MEETING 91-12

To: K. R. Jordan B3-51

cc: Distribution Coversheet

The subject meeting was held on April 17, 1991. The purpose of the meeting was a review of chapters 4, 5 and 6 of the HWVP PSAR, Rev. 0. The following questions and comments were raised during the meeting:

Questions and Comments on Chapter 3:

1. The worst-case PFP accident situations described on page 3-19 (and summarized on page 2-11) should be revised to be consistent with the PFP accident description presented in the Grout FSAR.

   - **Action**: Description will be obtained from A. L. Ramble and suggested revisions will be made.

2. It was questioned whether the WESF accident presented in chapter 3 is the worst-case B Plant accident, especially in light of the large source terms associated with potential B Plant filter releases. The HWVP project responded that safety analyses (i.e., SARs) are not available for future B Plant operations.

Questions and Comments on Chapter 4:

1. The usage classification (i.e., hazard class) of the HWVP couldn't be found anywhere in the PSAR.

   - **Action**: That HWVP has a high hazard classification will be stated in chapter 1, 2 or 4.

2. The II-over-I safety classification approach outlined in WHC-SD-HWV-SEL-001 was not appropriately discussed in chapter 4.

   - **Action**: The discussion from WHC-SD-HWV-SEL-001 will be included after checking with F. R. LaSalle on suggested portions.

3. The compliance assessment of DOE Order 6430.1A in Appendix A, which is based on an SAIC report, is difficult to follow. The HWVP project stated that this assessment is at a snapshot in time, that it will be revisited, and that noncompliant and "TBD" items will be tracked for closure (i.e., compliance).

   - <u>Action</u>: Appendix A will be revised to explain that the noncompliant items are discussed, and that the "TBD" items will be listed.

4. The question was asked what the impact of MRP 5.46, Rev. 3 might be. The HWVP project indicated that electrical criteria will probably change, as well as the Safety Class 2 designation related to worker functions in the control room.

5. It was stated that the missile selection discussion in Section 4.2.4.2 is correct; whereas, the SDC-4.1 discussion is incorrect and needs revision.

6. Questions were asked about the maximum radionuclide concentrations given in the PSA and the expected ability to process all of the mission feeds. The HWVP project responded that a conservative approach, as described in chapter 4, was followed.

7. Questions were asked about the CSB design, capacity, canister heatup analyses, and the need to perform accident analyses. All were satisfactorily answered.

8. It was stated that criticality safety should be presented from the approach of establishing concentration limits and not on the basis of an evaluation of the reference feed. The HWVP project indicated that criticality reevaluations are following the suggested approach.

9. A number of nonmandatory action suggestions were made as follows: (1) feed specifications should be based on the assumption that PUREX will not restart, (2) a train safety switch is really an administrative control, which impacts probability of failure assumptions, (3) it is good practice to design ventilation stacks so that they can be flushed, which is the case for the HWVP Zone I stack.

10. A number of revisions were agreed to as follows:

    - <u>Actions</u>: (1) On page 4-1, delete the element "neptunium" as being a potentially sensitive term and correct the rationale for DSTs (to remove liquid from SSTs). (2) On page 4-12, in the third paragraph review and clarify if necessary the insert starting with "...(5.1)...", and (3) on page 4-50, refer to chapter 7 for definitions of low level and transuranic wastes.

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Questions and Comments on Chapter 5:

1. A question was asked about the safety classification of the electrical systems. It was responded that safety classes 1, 2 or 3 were specified, as appropriate.

2. It was indicated that HWVP HVAC descriptions were very detailed and thus somewhat confusing. The main features were verbally explained. it was stated that the DCS will control HVAC systems from the CCR, and that these controls will be separate from process controls.

3. Questions were asked about utility systems, especially the functioning and routing the steam and condensate system and the process cooling water system. All questions were satisfactorily responded to.

4. A question was asked with regard to the design interface between the HWVP and the Tank Farms. It was explained that physically the HWVP feed lines interface with a new diversion box (Project W028) and the HWVP waste lines interface with an old diversion box (ER 152). HWVP safety analyses consider transfer line accidents, but do not include diversion box incidents, which are the responsibility of Tank Farm SARs.

Plans for Next Subcouncil Meeting:

1. Scheduled for Thursday, April 25, 1991 in Conference Room 206, VITRO Building and will cover HWVP PSAR chapters 6, 7 and 8.

2. The Subcouncil requested a primer-level viewgraph presentation on chapter 6 that summarizes the process flow sheet and material balances; safety features (especially those associated with formic acid systems and equipment); and control parameters.

   - The basis for the formic acid injection point into tanks (in liquid or vapor space) needs to be explained.

3. The Subcouncil also requested a 15-minute presentation on chapter 8 that focuses on design features that address occupational safety during operations and maintenance. Exposure estimates should be proved where they have been determined.

Grout FSAR, Rev. A

Subsequent to the meeting, the TWD chairman polled the members to determine if they agreed that the Grout FSAR, Rev. A could be transmitted to DOE. A consensus was reached that all issues raised by TWD had either been adequately addressed in the version to be transmitted or included in listed

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items for future resolution. On the basis of this consensus, the chairman concurred in the transmittal on April 24, 1991.

D. H. Jones, Secretary
SEAC TWD Subcouncil

Approval:

W. F. Sheely, Chairman
SEAC TWD Subcouncil

mll

DISTRIBUTION COVERSHEET

Author	Addressee
D. H. Jones S1-57	K. R. Jordan B3-51

Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL (SEAC) TANK WASTE DISPOSAL (TWD) SUBCOUNCIL MEETING 91-13

INTERNAL DISTRIBUTION

Name	Location
SEAC Members	
T. L. Aldridge	R3-20
P. B. Bourne	B3-04
W. R. Brooksher	L4-01
M. Haas	T5-50
L. K. Severud	H5-60
D. D. Wodrich	R2-23
D. E. Wood	B2-19

Westinghouse Hanford Company **Internal Memo**

From: Waste Tank Environmental Assurance and Integration DHJ91021
Phone: 3-4558 S1-57
Date: May 6, 1991
Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL (SEAC) AND TANK WASTE DISPOSAL (TWD) SUBCOUNCIL MEETING 91-13

To: K. R. Jordan B3-51

cc: Distribution Coversheet

The subject meeting was held on April 25, 1991. The purpose of the meeting was a review of chapters 6, 7 and 8 of the HWVP PSAR Rev. 0. Viewgraphs presented will be kept by the Secretary in Subcouncil files. The following questions and comments were raised during the meeting:

Questions and Comments on Chapter 8:

1. Hanford experience with contamination incidents should be taken into specific account in the design and evaluation of HWVP. A recent report by H. W. Heacock summarizes Hanford events and accidents in this area.

   - Action: Reference should be made to the Heacock report and a commitment to review this Hanford Site experience should be made in the PSAR. This will be accomplished in Section 8.9.1, As Low As Reasonably Achievable Analysis, under "Items Requiring Further Development".

2. It was questioned whether the piping design was evaluated with regard to potential worker exposure to piping runs containing radioactive liquids. The HWVP project responded that consideration was given to this in access zone classification and traffic flow analyses associated with plant design; plus abnormal occurrence evaluations, such as "suck backs", are presented in chapter 9.

3. The question was asked whether an analysis had been performed that "mapped" the expected occupational exposures throughout the plant. The HWVP project responded that source estimates based on operating experience had been made at various locations in the plant in order to confirm the preliminary design shielding requirements. It is too early in the design to perform detailed exposure analyses.

4. The designs of the closed loop process cooling water and steam/condensate systems were questioned from the point of view of adequately precluding leaks that could contaminate the Vitrification Building and ultimately result in worker exposures. It was asserted that it will not be possible to achieve the design leakage paths under all credible failure potentials, and that there is a high probability that the leak detection and isolation features will not be effective.

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- Action: The HWVP project will make presentations on these systems and will either demonstrate that the current design will perform satisfactorily from a safety perspective, or the project will establish a commitment that is acceptable to the Subcouncil.

5. The orientation of the Railroad Well with respect to the Vitrification Building was questioned with regard to the possibility of a train crash. The HWVP project stated that the design is the same as DWPF's, and that the crash probability is reduced to an acceptable level by switches and use of "donkey" train.

Questions and Comments on Chapter 6:

1. A question was asked on the types of leak detection and collection features that will be used at the plant. The HWVP project responded that standard Hanford Site measures, such as troughs, sumps, low points, pipe encasements, etc. will be employed.

2. With regard to hydrogen detection in process tanks and the associated OSR, the question was asked in the OSR required measuring the concentration of hydrogen. The HWVP project responded that the OSR is written on a required amount of air dilution, which can be readily measured.

   - Action: The general concern of hydrogen detection will be addressed in Section 6.9.1 under "Items Requiring Further Development".

3. The question was brought up of how much liquid radioactive waste the HWVP plans to return to the Tank Farms, and why this is being planned. The HWVP project responded that, after the vast majority of radionuclides are removed from the feed and vitrified, the remaining liquid volume that will be returned to the Tank Farms will be slightly more than the volume of feed received. This was a policy decision made a number of years ago (i.e., it was more cost-effective to use the 242A Evaporator and Grout facility to concentrate and dispose of the low-level waste (LLW) than to have HWVP build its own facilities.) HWVP plans are for this returned LLW to meet Grout Facility specifications.

4. It was commented the assumptions on HWVP evaporators having a DF of 10^{-4} was either very conservative or indicated a poor design. It was asserted that optimally-designed Hanford evaporators achieved a DF of 10^{-6}. The HWVP project replied that the design and DF are the same as that used at DWPF. Actual test data are expected to show the evaporators will likely exceed this assumed performance.

5. The safety of introducing formic acid into process tanks below the liquid level was questioned because of the potential of vigorous chemical reactions producing gaseous reaction products inside the piping. It is generally preferable to introduce chemicals into the tank vapor space to preclude such an incident. The HWVP project responded that the location of formic acid injection (liquid or vapor

space) has moved back and forth over the last several years. The design is based on the DWPF process and can easily be changed.

- **Action**: The HWVP project will review the current design concept and potential associated hazards that will either: (1) demonstrate the design will perform satisfactorily from a safety perspective, (2) revise the design, or (3) establish an alternate commitment that is acceptable to the Subcouncil.

6. The question was asked about what features prevent staff from mating a steam line with a formic acid line resulting in a significant reaction. The HWVP project responded that such an inadvertent hookup is made difficult by nozzle arrangements. Such a connection could conceivably be made with a flex jumper, but this would not be expected to result in major adverse consequences.

7. The possibility of mixing of incompatible chemicals was questioned. The HWVP project responded that most pipinq is dedicated to specific chemicals, and that where common piping issued for different chemicals, then installation of removable spool pieces designated for a specific chemical is required. In addition, administrative procedures will require that seal pots be flushed when line usage is switched.

8. The feed specification was discussed in relation to measuring feed concentration. In addition, the basis for determining the nominal concentrations for NCAW was questioned. R. C. Roal will contact R. A. Watrous for details on the basis.

9. The potential effect of organics in CC feed was questioned. The HWVP project responded that a small amount of non-volatile organics will be no adverse effects on melter safety. Large amounts of organics in the feed would have to be removed during pretreatment.

10. It was observed that the PSAR information on the flow sheet and material balances was much too detailed to be easily understandable. In the FSAR, when the flow sheet, material balances, and system design are fixed, the goal will be to make the presentation as logical and easily understandable as possible. A summary flow sheet with only key streams will be considered.

11. The design practice of tying flush lines to process lines, and requiring complicated block valves and interlocks to prevent inadvertently pressurizing the flush lines was questioned. The HWVP project stated by the WHC independent safety review organization, which resulted in the addition of some safety features.

    - **Action**: The HWVP project will make a presentation on this topic addressing the specifics of the design features, and the rationale why potential consequences are acceptable.

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May 6, 1991

12. A question was raised whether precipitation or accumulation of solids in the DWTT or other process tanks was addressed as a potential criticality concern.

    - Action: The HWVP project will revise the discussion in Section 6.9.6 under "Items Requiring Further Development" to make sure that proper consideration is given during the criticality safety evaluation to the precipitation and accumulation of solids in process tanks.

Questions and Comments on Chapter 7:

1. The relationship between the HWVP, WRAP and TEDF was discussed. The HWVP project stated that WRAP has as a criterion the requirement to take an HWVP failed melter. If necessary, a commitment will be made to use DOT-approved containers to transport a failed melter to WRAP. With regard to disposing non-hazardous waste water, HWVP will have the capability to recycle it or send it to TEDF under conditions that will meet their acceptance criteria.

2. A question was raised if HWVP plans to decontaminate and repair a significant amount of its equipment. The HWVP project responded that it will primarily replace failed equipment and properly dispose of it. Some decontamination and repair of equipment may be performed in the REDC and CDMC (e.g., pumps and agitators).

3. The Subcouncil will see if L. A. Garner has any additional questions or concerns on this chapter. If this is the case, she will get into contact with D. F. Iwatate.

Plans for Next Subcouncil Meetings:

1. The next Subcouncil meeting is scheduled for Thursday, May 2, 1991 in Conference Room 206, VITRO Building for 2:00 p.m. and will covers chapter 9 and 10.

    - The HWVP project will make a presentation on a matrix that correlates accidents, engineered safety features for which credit is assumed, and OSRs. If possible, this matrix will be distributed to the subcouncil members for review prior to the meeting.

2. The Subcouncil review meeting on chapters 10 and 12 is scheduled for the week of May 6th.

W. F. Sheely for DHJ.
D. H. Jones, Secretary
SEAC TWD Subcouncil

Approved: W. F. Sheely
W. F. Sheely, Chairman
SEAC TWD Subcouncil

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CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
D. J. Hart 3-4115	K. R. Jordan B3-51	

Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 91-14

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		SEAC Members		
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		M. Haas	T5-50	
		D. J. Newland	R2-28	
		L. K. Severud	H5-60	
		D. D. Wodrich	R2-23	
		D. E. Wood	B2-19	

Westinghouse
Hanford Company

Internal
Memo

From: Facility Operations Division
Phone: 3-4115 R2-67
Date: May 9, 1991
Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 91-14

To: K. R. Jordan B3-51

cc: Distribution
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The subject meeting was held on May 2, 1991. The purpose of the meeting was a review of Chapters 9 and 11 of the HWVP PSAR, Revision 0. The following questions and comments were raised during the meeting:

General Issues

1. During the review of Chapter 11 on operational safety requirements (OSRs), it became apparent that criteria were being used other than off site/on site consequences for the establishment of OSRs. This included OSRs for hydrogen, environmental releases and the facility worker. The Subcouncil found a similar condition during the review of Revision A of the Grout FSAR. Some of the OSRs were developed as a result of informal customer feedback, formal customer correspondence and requirements in CM-4-46, but not contained in DOE Orders. In view of the current legal environment and the need for a solid base for technical evaluation, consistent internal WHC criteria for OSRs needs to be formulated, agreed upon and implemented.

2. The review of Chapter 6 in meeting 91-13 resulted in a further review of the process flowsheets for HWVP. A similar examination was made by the Subcouncil at Grout. The Subcouncil does not find evidence that there is a baseline flowsheet for integrated waste processing. In chemical plants, the flowsheets provide the base parameters for product form, feed and raw material requirements, equipment requirements, material balance and flow rates. These flowsheets provide the base for the facility design and operation and the safety envelope. The lack of these comprehensive flowsheets for both HWVP and Grout as well as feed characterization of tank contents will make it difficult to demonstrate comprehensive operational safety. This issue will be reviewed outside the Subcouncil with senior line management.

A presentation was made on PSAR Chapters 9 and 11 using a matrix format describing the relationship between accident analyses, credited engineered safety features, and operational safety requirements (OSRs).

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Questions and Comments on Presentation Matrix

1. It was questioned whether an active Safety-Class 1 Zone HVAC system was really needed under worst-case credible accident conditions to assure public safety. A structure that could assure sufficient confinement would be a lot less costly. The HWVP project responded that hazard classification analyses indicate that under worst-case accident conditions the leakage of radionuclides released during the accident would violate offsite risk acceptance guidelines.

2. The use of the term "backup power" was questioned in connection with the requirements of WHC-SD-GN-DGS-303, which provides the preferred Hanford site-wide definitions (i.e., "safety class power" and "emergency poser").

   - Action: The HWVP project will either provide justification why its definitions are acceptable, or change the PSAR terminology to be consistent with Site-wide usage.

3. With regard to steam and process coolant water isolation features to prevent flooding in the Vitrification Building, it was questioned whether it may not be better to prevent flooding of the exhaust tunnel by design (e.g., not being a low point) than to provide safety class features to preclude flood damage.

   - Action: The HWVP project needs to provide the rationale for the current design, options for a design that prevents flooding of the Zone I HVAC system, and/or the costs associated with such changes. Then a decision can be made on the basis of technical justification and/or cost-effectiveness of potential design change recommendations.

4. With regard to the railroad track switch interlocks that prevent an overspeed locomotive from leaving the main line and entering the railroad well (RW) at high speed, it was questioned whether it may not be better to prevent a train car from impacting the RW endwall by design (e.g., reorient the RW with respect to the Vitrification Building) than to provide safety class features.

   - Action: The HWVP project needs to provide the rationale for the current design, options for a design that prevents impact with the Vitrification Building, and/or the costs associated with such changes. The decision can be made on the basis of technical justification and/or cost-effectiveness of potential design change recommendations.

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5. The question was asked if wind-borne missile damage to non-Safety Class I buildings was looked at in the extreme wind accident analysis. The HWVP project responded that missile damage to the Cold Chemical Building was examined and that a significant release of hazardous material from this initiator was found not to be credible.

6. The necessity of active Zone I confinement was questioned since the ash fall accident, where active confinement flow is assumed lost, yielded acceptable consequences. The HWVP project responded that the DBE, which assumes active Zone I confinement, involves a much larger source term (all process tanks fail versus SRAT and offgas system releases for the ash fall incident) and a longer release period. It was determined that the DBE without active Zone I confinement yielded consequences that exceeded the risk acceptance guidelines.

7. The technical basis for the OSR on hydrogen control was questioned. The HWVP project responded that this OSR was written in response to a PSAR comment by DOE-RL. (General Issue 1).

   - Action: The HWVP project will review its hydrogen explosion analysis in relation to those prepared by PFP and Tank Farms (contact C. J. Moore) to see if any changes are justified.

8. The need for OSRs on equipment that is concerned with HWVP occupational worker and/or onsite personnel safety was discussed. The HWVP project stated that this is currently required by MRP 5.46, Rev 2. However, draft MRP 5.46, Rev 3 is expected to specify that control room habitability/manual action is the worker safety issue of concern. Thus, as soon as Rev 3 becomes official, then it will be possible to reduce some OSRs (e.g., on WHT confinement, on CAMs, etc.). (General Issue 1).

9. With regard to transfer line leak detectors and the associated OSR, the question was asked as to which project will be responsible for them and why is there a need for an OSR to control them. The HWVP project responded that the leak detectors will be under the control of HWVP, and that the OSR was written to satisfy the current WHC criterion on "environmental impact". The Subcouncil identified a need to assure that WHC criteria on OSRs are internally consistent. (General Issue 1).

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10. The question was asked why a radionuclide release from the CSB vault was not analyzed as a credible accident. The HWVP project responded that evaluations to date indicate that this is not a bounding accident because mechanisms for release of powdered glass from damaged canisters and for a driving force to disperse material from the vault area are judged not to be present in sufficient form. This accident sequence is currently being reviewed from a PRA perspective.

11. With regard to effluent monitors and associated OSRs, the question was asked what types of radiation was being monitored. The HWVP project responded that from an accident analysis standpoint the beta-gamma monitors in the Zone I stack will be of safety interest.

12. It was noted that operators may have difficulty implementing the OSRs because the of manner in which they are currently written (e.g., Section 11.5.2.2.1 specifies applicability for Modes 1, 2 and 3; whereas, in Section 11.5.2.2.5 gives only a recovery action for Mode 1 and operators wouldn't know what is required for Modes 2 and 3). The HWVP project responded that the intent of the OSR descriptions provided in the PSAR are not to establish actual operational requirements, but rather to identify plant systems that may be impacted.

    - <u>Action:</u> Chapter 11 should contain a sufficiently qualified discussion to reflect the purpose of the OSRs with regard to system design and that they do not constitute specific operational requirements that will have to be met in the future.

13. With regard to OSRs on HVAC system operability, the need for monitoring for specific values of pressure differences was questioned. It is operationally more difficult to determine these values than to establish that the fans are running. The HWVP project responded that there is a need to establish that the exhaust system is performing its safety functions.

14. There was a discussion of problems associated with the GENII computer code. The question was asked if the project had taken this into consideration in the accident analyses. The HWVP project responded that it was aware of these, and in some cases was the instigator of required changes. For this reason HEDOP was asked to review and approve the appropriate analyses in Chapter 9, which it has.

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15. There was an OSR discussion of surveillance frequency requirements on instrumentation calibration as well as on monitoring instrument readouts. The HWVP project responded that at this stage, no calibration requirements have been considered, but rather the intent in the OSR is to verify that systems are functioning properly. The monitoring frequencies were based on best judgements at this stage.

16. The need for administrative OSRs was questioned. In addition, the Subcouncil was uncomfortable with the format and content in which they are written. The HWVP project responded that they are mandated by WHC-CM-4-46, NRC R.G. 3.26, and DOE-RL. In addition, administrative OSRs are not very meaningful at the PSAR stage of a program. The Subcouncil was concerned about setting precedents, and suggested that the project review the PFP administrative OSRs and try to be consistent with them.

    - <u>Action:</u> The HWVP project will review the PFP administrative OSRs to determine if there are any good reasons why the HWVP OSRs should be significantly different. If not, Chapter 11 should be revised to be consistent with other WHC submittals. In addition, the administrative OSR on the Railroad Well should be moved to either the first part of Section 11.5.13, or be presented last in the previous section.

17. Conclusions about a discussion on feed specifications and flow sheets between R. C. Roal and R. A. Watrous were reported. The Subcouncil felt that for the whole waste management process there is no realistic, baseline flow sheet, and associated feed streams, for the integrated system (e.g., pretreatment, HWVP, Grout Facility, etc.). (General Issue 2).

<u>Plans for Next Subcouncil Meeting:</u>

1. The next Subcouncil meeting is scheduled for Thursday, May 9, 1991 in Conference Room 278A, VITRO Building and will cover:

    - HWVP PSAR Chapters 10 and 12

    - HWVP project report on all Action items

D. J. Hart, Secretary Pro Tem
SEAC TWD Subcouncil

APPROVAL: 5/1/91
W. F. Sheely, Chairman
SEAC TWD Subcouncil

skw

Westinghouse Hanford Company

Internal Memo

From: Process and Analytical Laboratories
Phone: 3-4115 R2-67
Date: May 14, 1991
Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL (SEAC) TANK WASTE DISPOSAL (TWD) SUBCOUNCIL MEETING 91-15

To: K. R. Jordan B3-51

cc: Distribution
DJH File/LB

The subject meeting was held on May 9, 1991. The purpose of the meeting was a review of Chapters 10 and 11 of the HWVP PSAR, Revision 0. The following questions and comments were raised during the meeting:

Questions and Comments on Chapter 10:

The attached list of comments were made by Mr. D. J. Hart, and constituted the basis for the review of this chapter.

1. It was commented that the HWVP PSAR did not discuss the Westinghouse corporate organization that has resources available to assist WHC and the HWVP project.

   Action: The HWVP PSAR will be revised to include a discussion of the Westinghouse Electric Corporation relationship similar to that presented in the Grout Treatment Facility SAR.

2. It was commented that the operating organization would be more effectively described by basic functional structure than by position. The HWVP project responded that the provision of detailed positions was at the request of another PSAR reviewer.

   Action: The HWVP PSAR will be revised to include a discussion of the basic functional structure.

3. There was a discussion on the comment regarding the A/E being the independent safety review authority on design. The HWVP project stated that under the integrated management team organization adopted by DOE-RL and WHC that WHC is responsible for reviewing and approving all safety criteria and the SARs.

   Action: The HWVP PSAR will be revised to state that WHC will be responsible for the overall safety of the HWVP project.

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4. It was commented that there should be a short discussion on the preoperational testing program so that the impression isn't left that not much will be done in this area until the FSAR stage. The HWVP project responded that there currently is a considerable program in this area and that future plans are well developed.

   Action: The HWVP PSAR will be revised to briefly discuss preoperational testing programs currently underway and future plans.

5. It was commented that the description of the training program lacks information on standard programs currently used by other WHC operating organizations.

   Action: The HWVP PSAR will be augmented to include information on standard WHC programs.

6. It was commented that the Emergency Planning discussion seemed to be in greater depth than is necessary. The HWVP project responded that the details were provided so that members of the public could understand that the Hanford Site has a comprehensive emergency response program currently in place.

   Action: In the HWVP PSAR, revise the discussion to indicate that the HWVP Emergency Plan will be referenced in the FSAR, not included in the FSAR.

7. It was commented that the discussion of the Strontium Hot Semi-Works in the decommissioning section seemed irrelevant. The HWVP project responded that this discussion was provided to demonstrate to the public that Hanford has had previous experience with decontaminating and decommissioning other plants, which lends credibility to claims about future programs for HWVP.

8. It was commented that this chapter lacked information on management systems that will assure control over the design and construction.

   Action: The HWVP PSAR will be augmented with a brief discussion of DOE Order 4700.1 and the hierarchy of project management plans.

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Questions and Comments on Chapter 12:

1. It was commented that it is difficult to relate the information presented in Chapter 12 to the requirements specified in the other PSAR chapters. The HWVP project responded that the Chapter 12 format represents basically a step-wise process: (1) it presents the melding of QA requirements from multiple source documents into those applicable to the whole project, and (2) these QA requirements are assigned to participants on the basis of IMT responsibilities.

2. It was commented that it is difficult to make the connection between safety class items classification and how the safety criteria/requirements will be met. The HWVP project responded that there are a number of means to verify that correct actions are taken. During design, these consist of: audits of a whole system, surveillances of critical items, and management assessments to ensure the QA program is functioning properly. During fabrication/construction, inspections and tests are the means to verify actions are correct.

3. The question was asked how WHC would know if other participants or their vendors/subcontractors would meet the appropriate QA requirements. The HWVP project responded that WHC QA requirements are passed down the chain of responsibility to the lowest subcontractor. Through oversight, WHC has QA purview of all activities performed by other participants and their vendors.

4. With regard to Section 12.12, Control of Measuring and Test Equipment, the question was asked if use of "stickers and tags" to trace calibration status applied to all installed gauges/meters and portable equipment. Since stickers and tags may fall off, PUREX has been allowed to use "alternative methods" and the Subcouncil advised the HWVP project to also look at this. The HWVP project stated that the QA program is principally concerned that only properly calibrated equipment is used, and that it thought that sufficient flexibility is built in with regard to using the best method.

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Review of Previous Action Items:

The attached summary was passed out with the current status of the actions identified during the review. The summary presents three types of actions:

1. Those comments which were readily incorporated from the review. Change pages were provided to reflect incorporation. Each Subcouncil member was to review their comments for adequate resolution.

2. Those action items which require additional explanation by the HWVP (Items 6/5, 9-11/2 and 9-11/7).

3. Actions for which Fluor made an explanatory presentation.

Reviews of Steps 2 and 3 are provided below.

Type (2) Action Item Review:

1. Item 6/5: Since the HWVP project position of introducing formic acid into the tank vapor space satisfies the Subcouncil recommendation, it was readily accepted by the Subcouncil.

2. Item 9-11/2: The HWVP project position with regard to the use of the term "backup power" is that it does not contradict the recommendations in WHC-SD-GN-DGS-303 and allows the PSAR to remain flexible. The Subcouncil said that this is not a safety issue, but rather one of clarity. The Fluor representative stated that the detail design analysis was underway and until completed, the use of backup power provided better terminology.

3. Item 9-11/7: Since the technical basis for the OSR on hydrogen control is direction from DOE-RL and the HWVP hydrogen explosion analysis is conservative, the Subcouncil found that this is not a safety issue. The HWVP project will review other WHC facility analyses and in future analyses will try to maintain a consistency with them.

Type (3) Action Item Review:

1. Item 8/4: A Fluor representative made a presentation on the potential worker exposure from a coil leakage accident. The attached diagrams on process cooling water and steam typical closed loop arrangements are representative of the 4 steam and 8 water loops in HWVP. The Subcouncil was satisfied with the design features and equipment location that prevent/mitigate a slug of contaminated water from endangering workers. The

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Subcouncil advised the HWVP project to perform FMEAs on these systems when the design is finalized, and to have HWVP Operations review these from the perspective of credible operator errors/human factors.

2. Item 6/11: A Fluor representative made a presentation on the potential worker exposure from a flush line incident. The attached diagram on melter feed loop and sample flush water arrangements shows the systems involved. The Subcouncil was generally satisfied with the design features that prevent/mitigate against endangering workers. However, it expressed some concern that one "safety valve", which receives permissive signals on air pressure, tank level, and radioactivity, provides most of the protection. The Subcouncil advised that if FMEAs indicate the potential for adverse consequences (risk) for a flush line incident, then the project should consider either a second independent "safety valve", or moving the flush tank to a shielded location.

   Action: Fluor is to provide the Subcouncil with the flow rates and pressures associated with the equipment in the flush water diagram. This is not preclusive to PSAR approval by the Subcouncil.

3. Item 9-11/3: A Fluor representative made a presentation on the flooding protection analysis for the Zone I exhaust tunnel. It was assumed that all process tanks are full and spill, all closed loops spill, waste from Tank Farms continues to be pumped for one-half hour and spills, firewater is pumped into the Vitrification Building and spills into the cells, etc. The conservatively-assumed water source fills the lined cells to a height of 4.5 ft, with the air ports for the tunnel still 1.5 ft above the flood level. The exhaust tunnel does not form a trap, but rather water would flow downhill to the sand filter, which has considerable volume. The Subcouncil thought that flooding within the Vitrification Building would not adversely impact offsite safety since Zone I confinement flow could be maintained, and thus found the design acceptable.

4. Item 9-11/4: A Fluor representative made a presentation on the railroad well (RW) orientation and the potential for a train crash. The orientation of the RW was based on engineering considerations and the best way to handle material flow into and out of the plant. Even if a train were to crash into the end wall at speeds of 15 mph or less, the Zone I HVAC operating at 160,000 cfm can maintain confinement flow for this situation. Thus, no unacceptable offsite consequences can arise from such an accident. Since this accident scenario is low probability and

offsite safety is not adversely impacted, the Subcouncil found the design acceptable. Further review with the safety analyst on the consequences will be conducted.

Concern Raised by B. K. Horsager:

1. The attached concern is associated with the Safety Class 1 confinement system being adversely impacted by Safety Class 2 and 3 equipment. The Fluor representative responded that this issue has been taken care of by the requirement that all Safety Class 2 and 3 air supplies and dampers will be shutdown during a DBA by Safety Class 1 equipment.

DOE-HQ Technical Review Group Outstanding Concerns:

1. The Subcouncil believed that the TRG concern with regard to worker exposure analyses will be adequately addressed by the HWVP ALARA program.

2. The Subcouncil believed that WHC is actively addressing the TRG concern with storage of failed melters.

3. The Subcouncil believed that the TRG concern with regard to feed specification is similar to the one that it raised with regard to the integrated waste management process (e.g., pretreatment, HWVP, Grout Facility, etc.). There was substantial discussion with respect to plutonium presence and criticality control. The safety analyst provided insight that the accident analysis assumed that the material transferred was at the criticality control limits in the tank farm. This provides a more conservative approach than using the average feed analysis.

4. The Subcouncil wanted more information on the TRG concern with regard to the resuspension factor. Since this is a normal operation/release issue, it does not impact the accident analyses and offsite safety.

   Action: Provide the Subcouncil with the supporting information used in the resolution discussions with the TRG, especially the Mishima analysis.

The Subcouncil reviewed the remaining actions for its members to approve the PSAR.

1. Bob Roal to examine the Mishima resuspension analysis.

2. Each member to review the resolution pages for comment incorporation provided.

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3. Schedule a special review session for May 13, 1991, with Health and Safety Assurance, G. D. Wright, to examine the independent safety review process and any open issues.

Plan for Next Subcouncil Meeting

1. Review independent safety methods and issues.

2. Provide Chairman with a position statement on the PSAR.

D. J. Hart, Secretary Pro Tem
SEAC TWD Subcouncil

skw

Attachments 5

APPROVED BY:

W. F. Sheely, Chairman
SEAC TWD Subcouncil

Date 5/21/91

TWD SUBCOUNCIL ACTION ITEMS

Meeting Date	Chapter/ Action	Issue	Status	Notes
4-18-91	3/1	PFP accident description	Complete	See pp. 3-19/2-11
4-18-91	4/1	HWVP hazard/usage classification	Complete	See pp. 1-2/4-9
4-18-91	4/2	III-over-I safety class approach	Complete	See p. 4-80
4-18-91	4/3	6430.1A compliance assessment "TBD" items	Complete	See revised App A
4-18-91	4/10	Various Chapter 4 suggestions	Complete	See pp. 4-1 thru 4-51
4-25-91	8/1	Site experience on contamination incidents	Complete	See p. 8-76 (uncleared report can't be referenced)
4-25-91	8/4	Worker exposure from coil leakage accident	Open	Fluor will make presentation
4-25-91	6/2	Measuring hydrogen concentration	Complete	See p. 6-116
4-25-91	6/5	Location of formic acid injection point	Complete	See justification of current design
4-25-91	6/11	Flush lines connected to pump discharge	Open	Fluor will make presentaton
4-25-91	6/12	Criticality from precipitation of solids	Complete	See p. 6-118
5-2-91	9-11/2	Safety class electrical power terminology	Complete	See justification for use of term "backup power"

5-2-91	9-11/3	Flooding of Zone I exhaust tunnel	Open	Fluor will make presentation
5-2-91	9-11/4	RW orientation and train crash	Open	Fluor will make presentation
5-2-91	9-11/7	Hydrogen explosion assumptions/analysis	Complete	See review of other Hanford projects
5-2-91	9-11/12	Implementing OSRs by operations personnel	Complete	See pp. 11-1/2
5-2-91	9-11/16	Administrative OSR consistency	Complete	See pp. 11-28 thru 11-30

FLUOR DANIEL

CALCULATIONS and SKETCHES

DATE

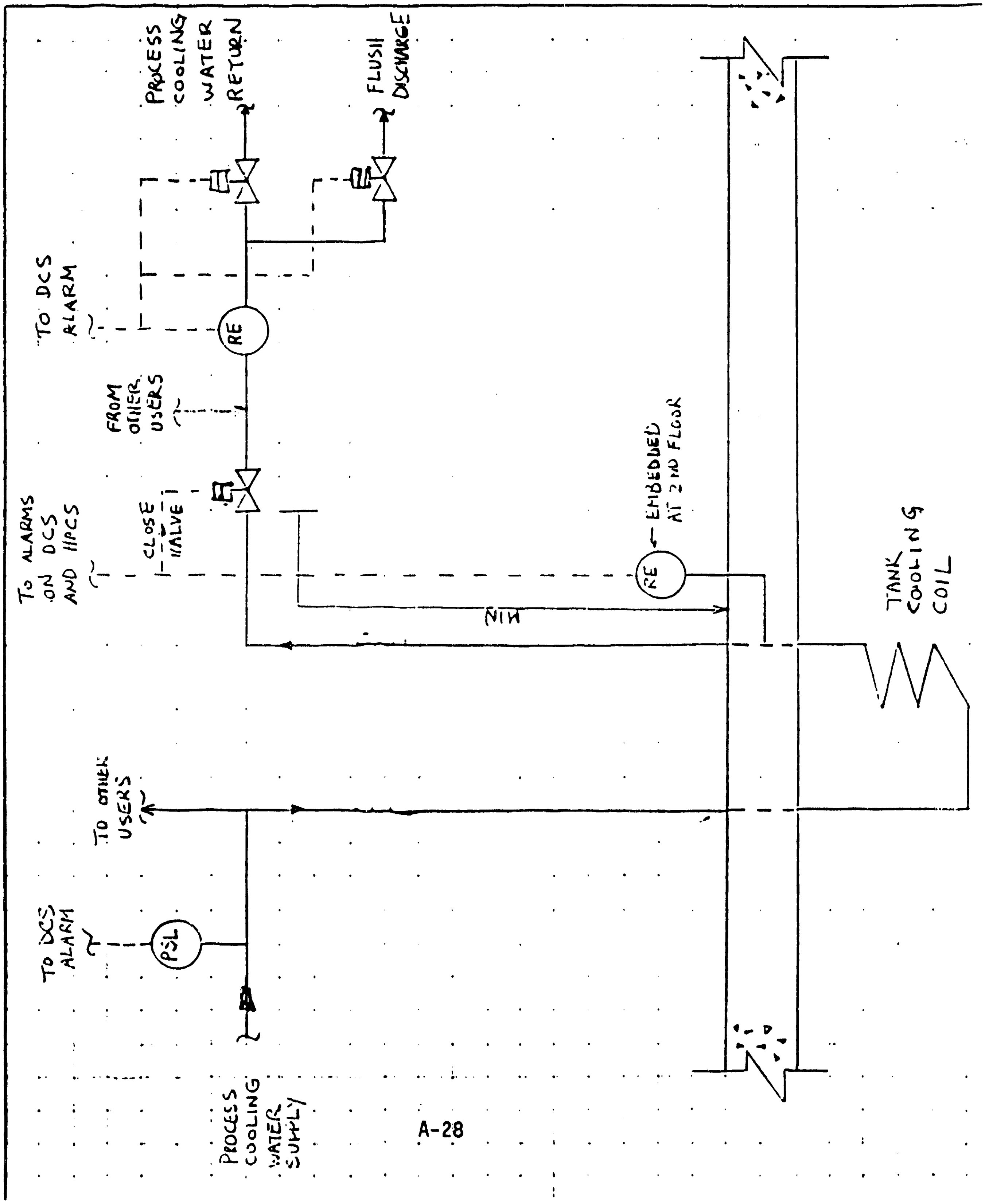
CONT. NO.

BY CHK'D

SHEET NO.

PROCESS COOLING WATER

TYPICAL CLOSED LOOP ARRANGEMENT



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FLUOR DANIEL
CALCULATIONS and SKETCHES

DATE
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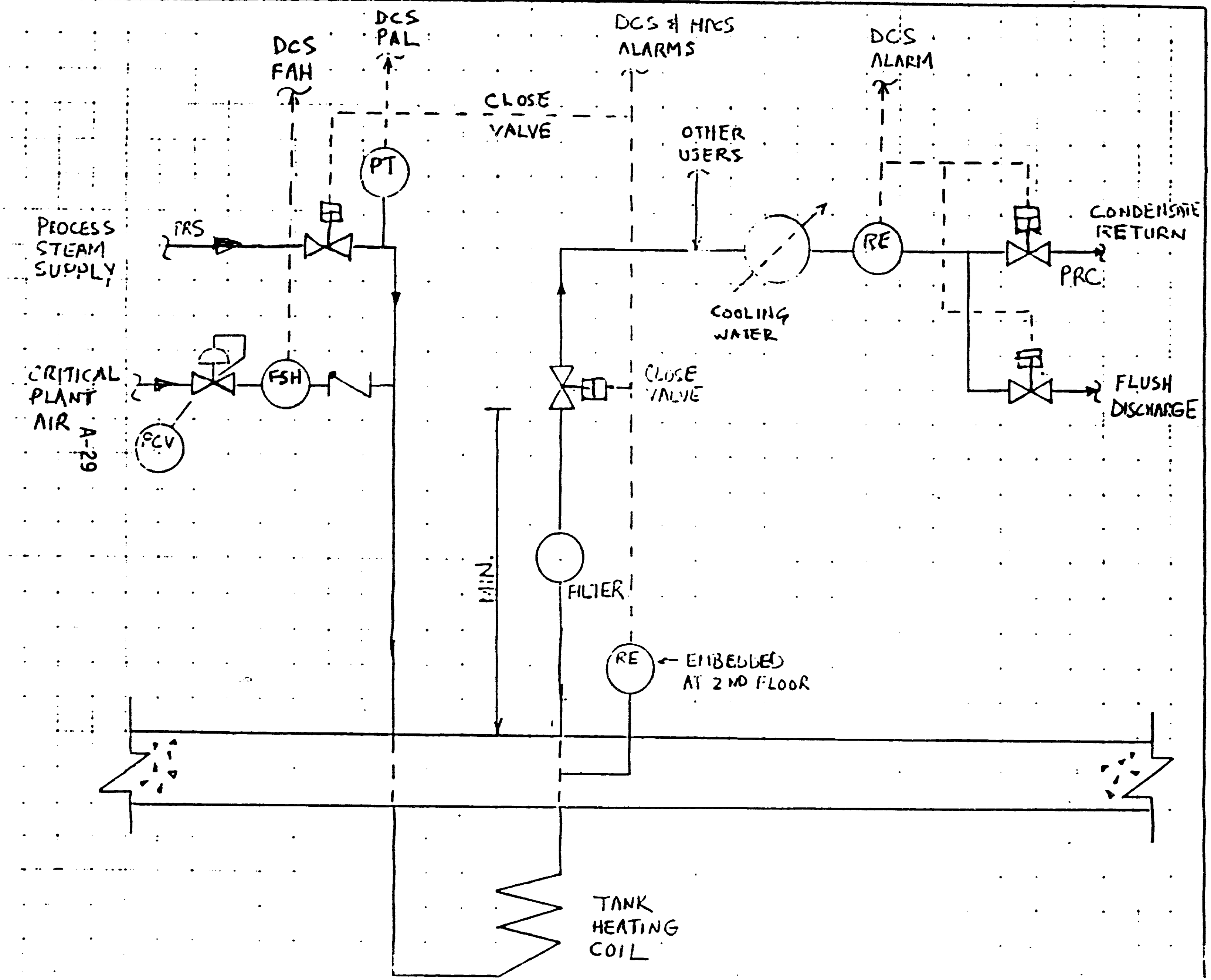
BY
CHK'D
SHEET NO.

PROCESS STEAM
TYPICAL CLOSED LOOP ARRANGEMENT



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CALCULATIONS and SKETCHES

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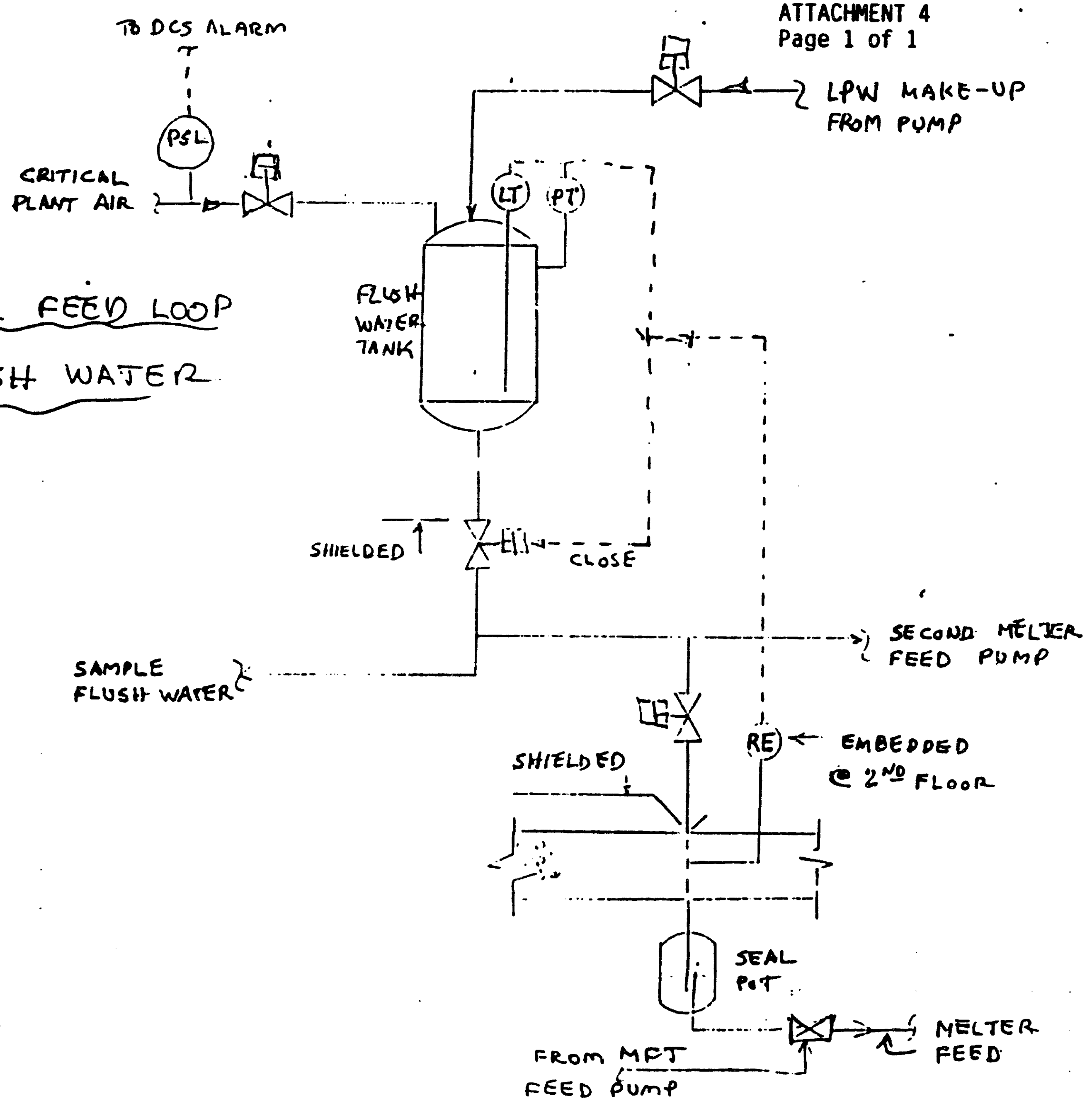
ATTACHMENT 4
Page 1 of 1

MELTER FEED LOOP

FLUSH WATER



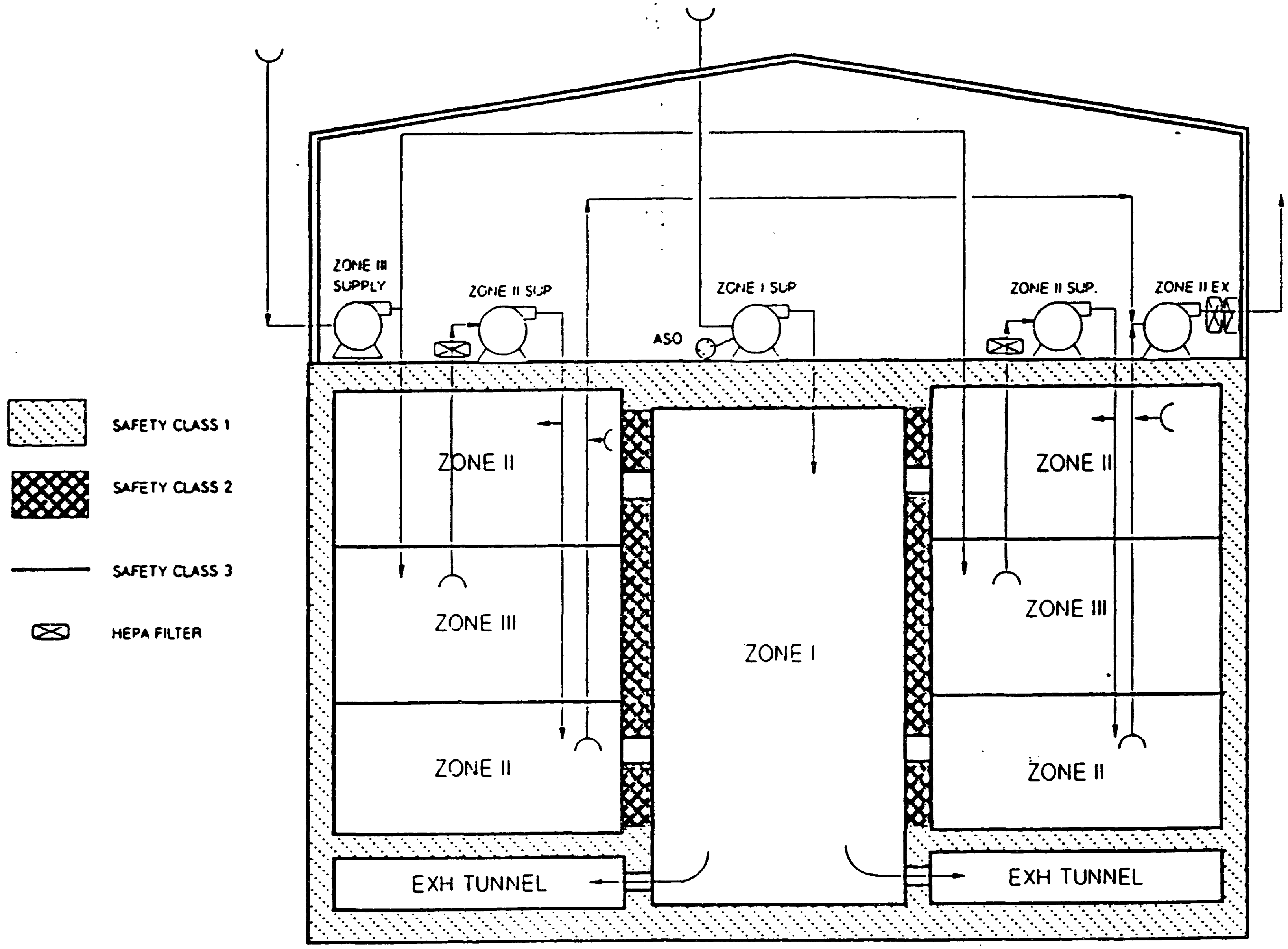
HWVP CONCERNS

- DOES NOT MEET THE REQUIREMENT THAT AT LEAST ONE CONFINEMENT BOUNDARY AND IT'S VENTILATION SYSTEM BE SAFETY CLASS 1. (6430.1A; 1300-7.2)

- IF SAFETY CLASS 2 CELL PENETRATION FAILS AND ZONE II EXHAUST CONTINUES TO RUN, CONCEIVABLY CELL ATMOSPHERE COULD BE EXHAUSTED THROUGH ZONE II (NON SAFETY CLASS SYSTEM).

- IF ZONE III EXHAUST FAILS BUT SUPPLY CONTINUES TO RUN THE SAFETY CLASS 1 BOUNDARY COULD BE PRESSURIZED.

HWVP CONCERNS



CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
D. J. Hart 3-4115	K. R. Jordan B3-51	

Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 91-16

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		<u>SEAC Members</u>		
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		W. R. Brooksher	L4-01	
		M. Haas	T5-50	
		D. J. Newland	R2-28	
		L. K. Severud	H5-60	
		D. D. Wodrich	R2-23	
		D. E. Wood	B2-19	

Westinghouse
Hanford Company

Internal
Memo

From: Process and Analytical Laboratories
Phone: 3-4115 R2-67
Date: May 14, 1991
Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 91-16

To: K. R. Jordan B3-51

cc: Distribution
DJH File/LB

The subject meeting was held on May 13, 1991. The purpose of the meeting was to review the independent safety review of the HWVP PSAR, Rev. 0. The focus of the meeting was to gain insight as to the effort and approach applied and the acceptability of the document to the Restoration and Remediation Safety Assurance organization. G. D. Wright was the assigned Safety Assurance manager for the PSAR. The Subcouncil choose to interview him to gain insight into the overview.

Mr. Wright related that the approach his organization used was not only a comprehensive review of the document, but also a review of the document while it was in development in the preceding revisions and safety review during the design process. The resources that were applied included four engineers in his organization who have a wide range of technical experience in the nuclear field spanning nuclear engineering and reactor operations, mechanical engineering, structural engineering and health physics. Specialists from within Westinghouse in HVAC systems and electrical systems were also obtained to assist in the reviews. In addition LATA was subcontracted to assist in the reviews.

In summary Mr. Wright concluded that there were no major issues which would preclude issue of the PSAR. He felt that the issues they had brought up through the RCR process were adequately addressed and postponing some of the items for further definitive design was appropriate. Specifically the issues that were included in the letter issued April 12, 1991 by E G. Hess to R. A. Smith identified these items and that their disposition would be handled as part of the open item list.

One of the specific items above was the need for an accident analysis in a design basis fire. Mr. Wright commented that carrying this as an open issue was acceptable since there was no major source of combustibles available. This position would be reexamined as part of the FSAR development. Mr. Wright was further questioned on hydrogen mitigation given the concerns at DWPF at Savannah River. He stated that his group was aware of the DWPF concerns and that they had been factored into the safety analysis and design.

Mr. Wright shared with the Subcouncil some issues which will need to be monitored including the following:

- The people that Fluor assigns to the design of the project need to be pressed to keep high quality, experienced people on the design.

- In terms of the PSAR/FSAR, standards for the acceptability of the document are being developed as we go. There is little precedence for the standards such a document must meet for a chemical processing facility.

- Maintainability and safety of the design is part of the continuing review. Attention is needed for the filter systems, baffles and damper operation.

- There is an appraisal of the Fluor independent safety review of the design process about to be initiated which will provide some insight as to the effectiveness of the review.

It is his expectation that the safety team assigned to the project will continue to monitor the above issues in conjunction with management of the project.

The Chairman polled the committee as to the acceptability of the PSAR and recommendation for approval. Mr. Roal will review with the safety analyst the basis for the consequences of the railroad tunnel accident since the HVAC system is supposed to be designed to mitigate the release by the railroad car penetrating the wall. Mr. Sloughter will reexamine the resolution of the administrative OSRs and the QA criteria applied in Chapter 12 relative to waste acceptance criteria and form. Other members of the Subcouncil present had no outstanding issues. When the issues above have been resolved the Chairman will be advised so the document can be approved.

An updated matrix of actions with the Subcouncil and the Project was passed out and is attached for review. The lone open issue on the list for a revision to the training material was reviewed on May 14 and found to be acceptable.

Based on the status of the HWVP PSAR, grout documentation and evaluations of pretreatment strategies, it was determined that there was no need to meet as a subcouncil on May 16, 1991. The Chairman advised that the SEAC will be reviewing OSR issues on May 16 and subcouncil members were invited to attend.

D. J. Hart, Secretary Pro Tem
SEAC TWD Subcouncil

APPROVED BY:

W. F. Sheely, Chairman
SEAC TWD Subcouncil

skw

Attachment

TWD SUBCOUNCIL ACTION ITEMS

Meeting Date	Chapter/ Action	Issue	Status	Notes
4-18-91	3/1	PFP accident description	Complete	See pp. 3-19/2-11
4-18-91	4/1	HWVP hazard/usage classification	Complete	See pp. 1-2/4-9
4-18-91	4/2	III-over-I safety class approach	Complete	See p. 4-80
4-18-91	4/3	6430.1A compliance assessment "TBD" items	Complete	See revised App A
4-18-91	4/10	Various Chapter 4 suggestions	Complete	See pp. 4-1 thru 4-51
4-25-91	8/1	Site experience on contamination incidents	Complete	See p. 8-76 (uncleared report can't be referenced)
4-25-91	8/4	Worker exposure from coil leakage accident	Complete	Fluor made presentation
4-25-91	6/2	Measuring hydrogen concentration	Complete	See p. 6-116
4-25-91	6/5	Location of formic acid injection point	Complete	See justification of current design
4-25-91	6/11	Flush lines connected to pump discharge	Complete	Fluor made presentation
4-25-91	6/12	Criticality from precipitation of solids	Complete	See p. 6-118
5-2-91	9-11/2	Safety class electrical power terminology	Complete	See justification for use of term "backup power"

5-2-91	9-11/3	Flooding of Zone I exhaust tunnel	Complete	Fluor made presentation
5-2-91	9-11/4	RW orientation and train crash	Complete	Fluor made presentation
5-2-91	9-11/7	Hydrogen explosion assumptions/analysis	Complete	See review of other Hanford projects
5-2-91	9-11/12	Implementing OSRs by operations personnel	Complete	See pp. 11-1/2
5-2-91	9-11/16	Administrative OSR consistency	Complete	See pp. 11-28 thru 11-30
5-9-91	10/1	Westinghouse Corporate organization	Complete	See p.10-3
5-9-91	10/2	Functional structure of operations	Complete	See p. 10-5
5-9-91	10/3	A/E independent safety review	Complete	See p. 10-5
5-9-91	10/4	Preoperational testing program	Complete	See p. 10-10
5-9-91	10/5	Training program description	Open	
5-9-91	10/6	Emergency Planning	Complete	See pp. 10-19 and 10-22
5-9-91	10/8	Information on management systems	Complete	See p. 10-4

DISTRIBUTION COVERSHEET

Author	Addressee
D. J. Hart 3-5703	K. R. Jordan B3-51

Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL (SEAC), TANK WASTE DISPOSAL (TWD) SUBCOUNCIL HWVP PSAR APPROVAL AND FOLLOW UP ON ISSUES

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		SEAC Members		
		T. L. Aldridge	L8-20	
		P. B. Bourne	B3-04	
		W. R. Brooksher	L4-01	
		M. Haas	T5-50	
		D. J. Newland	R2-28	
		L. K. Severud	H5-60	
		D. D. Wodrich	R2-23	
		D. E. Wood	B2-19	

Westinghouse Hanford Company **Internal Memo**

From: SEAC TWD Subcouncil
Phone: 6-8859 B4-03
Date: June 24, 1991
Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL (SEAC), TANK WASTE DISPOSAL (TWD) SUBCOUNCIL HWVP PSAR APPROVAL AND FOLLOW UP ON ISSUES

To: K. R. Jordan B3-51

cc: DJH:File/LB

This letter is to document the subcouncil approval of the HWVP PSAR since its last meeting, documented in the meeting minutes 91-16, dated May 14, 1991. All issues raised by the subcouncil with respect to the HWVP PSAR, revision 0, were resolved by HWVP with the subcouncil members. R. C. Roal, Vice Chairman, signed the PSAR on May 17, 1991 indicating subcouncil approval.

During the review of the PSAR the subcouncil identified several issues which need to be addressed and resolved in the FSAR when it is issued. These issues are shown below.

- The process flowsheet supporting the PSAR is not adequate for the FSAR. Comprehensive process flowsheets for <u>ALL</u> HWVP feeds identified in the Project Schedule 44 must be presented.

- The analysis of the design for the closed loop steam and cooling water returns in the operating gallery must demonstrate acceptable routine exposure and risk of exposure to operating personnel in accident conditions.

- The design shall ensure that the consequences of a locomotive breaking the wall into the canyon process cells has acceptable on-site/off-site consequence, without reliance on administrative controls.

- The personnel exposure incurred by operations and maintenance personnel to support expected operation/maintenance scenarios shall be estimated to ensure ability to comply with DOE Order 6430.1A requirements.

- The HVAC Zoning and Safety Class Systems must be clearly identifiable and compliance with the design criteria substantiated.

K. R. Jordan N/A
Page 2
June 24, 1991

- The final design of the formic acid addition into process tanks should be examined. It is preferable to introduce chemicals into the vapor space. This design has changed several times during the project. We believe that it is important to prevent vigorous chemical reactions which produce gaseous reaction products inside the piping.

- Since there are no unacceptable on-site /off-site consequences resulting from a hydrogen concentration build up and the method by which it is measured and controlled is uncertain, the OSR requirement and design to control should be reexamined in light of forthcoming DOE guidance on OSR's.

- In the PSAR the term "backup power" was extensively used because the detail design and analysis of the systems were not completed and it was not certain which would be "emergency power". The completion of this analysis and the correct terminology should be validated.

- The ability to implement the administrative OSR's, as they were described in the PSAR, caused considerable concern for the subcouncil. These OSR's should be reexamined in the FSAR to ensure completeness and that they can be implemented.

Given these issues and those which the Project is analyzing and resolving as a part of the open item process the subcouncil will meet and review progress with the Project regularly to ensure closure.

W. F. Sheely

W. F. Sheely, Chairman
Tank Waste Disposal Subcouncil

kls

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
D. H. Jones	K. R. Jordan B3-51	

Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 91-17

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		SEAC Members		
		T. L. Aldridge	L8-20	
		P. B. Bourne	B3-04	
		W. R. Brooksher	L4-01	
		M. Haas	T5-50	
		D. J. Newland	S4-55	
		L. K. Severud	H5-60	
		D. D. Wodrich	R2-23	
		D. E. Wood	B2-19	

54-6000-117 (9/88) (EF) WEF008
Distribution Coversheet

Westinghouse
Hanford Company

Internal
Memo

From: SEAC TWD Subcouncil
Phone: 376-9383
Date: October 18, 1991
Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 91-17

To: K. R. Jordan B3-51

cc: Distribution
DHJ-File/LB

The subject meeting was held on October 17, 1991. The purpose of the meeting was to review the status of the HWVP PSAR Rev. 0, and to inform the Subcouncil members of the remaining issues and discuss progress toward resolution.

The HWVP PSAR Rev. 0 has been undergoing detailed review by the Technical Review Group (TRG) of the U.S. Department of Energy Headquarters. The TRG has made 195 comments on Rev. 0 - submitted on August 9, 1991. The comments and the HWVP Project responses on RCR sheets had been circulated to the Subcouncil and reviewed prior to the meeting. There are 17 comments still open which the Project has in work.

The Project plans to have all TRG comments "conditionally accepted" by mid-October, 1991. "Conditionally accepted" means that if the PSAR is revised in accordance with the Project response, the TRG will approve the change. All of the comment resolutions will be incorporated - when complete - into Rev. 1 of the PSAR.

The Project does not believe that there are any new open safety questions resulting from this review - only matters of further detail and supporting information. The PSAR Rev. 1 revised pages will be issued for approval along with the RCR's resulting from the TRG review. The PSAR Rev. 1 will be approved by the WHC independent oversight groups, and the Subcouncil. These approvals will use the EDT process.

In addition to discussion of the PSAR Rev. 0, a presentation on the PSAR Commitment Control Database was made, along with discussion of the issue of hydrogen generation. The Project position on this issue is that design changes are expected to be moderate.

The Project concluded the presentation by handing out copies of a report documenting Hanford site independent reviews of the PSAR.

K. R. Jordan
October 18, 1991
Page 2

The Subcouncil concluded that the next action will be a review of changes to the PSAR resulting from the TRG review. These changes will be incorporated in PSAR Rev. 1. The Project position is to allow two weeks for review.

Viewgraphs used in the presentation and reports handed out are on file in the Secretary's office.

W F Sheely for DHJ

D. H. Jones, Secretary
SEAC TWD Subcouncil

Approved by: W F Sheely

W. F. Sheely, Chairman
SEAC TWD Subcouncil

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
D. J. Hart, 3-5703	K. R. Jordan B3-51	

Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 91-18

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		SEAC Members		
		T. L. Aldridge	L8-20	
		P. B. Bourne	B3-04	
		W. R. Brooksher	L4-01	
		M. Haas	T5-50	
		D. J. Newland	S4-55	
		L. K. Severud	H5-60	
		D. D. Wodrich	R2-23	
		D. E. Wood	B2-19	

Page 2 of 2

Westinghouse Hanford Company | **Internal Memo**

From: SEAC TWD Subcouncil
Phone: 373-5703
Date: November 5, 1991
Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 91-18

To: K. R. Jordan B3-51

cc: Distribution

The subject meeting was held on October 31, 1991. The purpose of the meeting was to review the status of the Technical Review Group (TRG) comment resolutions on the HWVP PSAR Rev. 0 in preparation for submittal of revision 1. In the prior meeting the Project had provided the RCR's which documented the status of the closure actions for the vast majority of the items with 17 of 195 comments to be closed. The project had provided the day before the meeting an update of the RCR forms provided by the TRG and the revised page changes for the PSAR. The Project has a schedule requirement for submittal of the PSAR, Rev 1, by November 8, 1991.

The opportunity for further comment was provided for the previous RCR comment dispositions for those identified as "Accept" or "Conditional Accept". The subcouncil did not have any comment or question on this closure actions and was in agreement with the actions.

The Subcouncil's approach was to cover the remaining open items and to identify the closure actions or points where resolution with the TRG did not appear possible for this submittal. The Project had concluded that the revision 1 would be issued with some comments not reconciled with the TRG. Since a number of the subcouncil members were not present and the new material had just been received, closure with the subcouncil would be achieved at a later session in the following week. This was to permit a more detail review and discussion in particular with the members not present.

The status of the RCR comments was that the Project believed that there were 11 actions still open (including 1 which changed from "Conditional Accept") and 7 actions that were categorized as "Conditional Accept". There was one item which was directed to the adequacy of the preliminary analysis that would be done as part of the PSAR. Specifically there were four issues identified by the reviewer. Two of these four had preliminary analysis that had been developed in response to comments in other sections of the PSAR. Two others were in question with regard to the extent of the preliminary analysis, with different interpretations being applied by the author and the reviewer. The opinion expressed by Project personnel was that closure with the reviewer on these items in the next review session was possible.

There were three comments open with respect to the design of the parking lot and potential flooding in the event of heavy precipitation. While there was

K. R. Jordan
Page 2
November 5, 1991

a potential concern for accessibility of emergency vehicles it was pointed out by the Project that the design was such to drain the water away from any safety class structures or equipment. This appears to be an issue that will be submitted without further closure.

There were 7 items associated with exposure and radiological dose estimates. Of these seven, six were identified as "Conditional Accept" with one remaining open. The project believed that the one open item was simply an administrative omission and would also be closed with the reviewer.

There were two comments associated with the processing of single shell tank (SST) waste in HWVP. These two items dealt with plant and melter life. Since the plant design basis and the HDWEIS were based on processing of double shell tank (DST) waste the Project was going to leave these comments open. This programmatic decision could be made when the plant mission and resulting NEPA documentation was completed for processing SST waste.

A comment on canister contamination control was satisfactorily resolved with the reviewer.

There was a comment on the preliminary analysis associated with the HEPA filters and the heat removal analysis. After some discussion it was suggested that the preliminary computations which showed a large safety margin for filter operation be placed into a Supporting Document. This would allow closure on the comment pending completion of the detail analysis by the A/E.

The remaining portion of the meeting was devoted to consideration of the three comments which addressed criticality control issues. The Project had presented a case that criticality control was based on measures employed in the Tank Farms and the specification of the feed to be provided by the waste pretreatment processing. Criticality control in HWVP was to be ensured by control of plutonium concentration and by "solids composition control for inert waste solids. A key assumption was that there were no processes or conditions present that would cause a separation of plutonium from the inert waste solids. Without the flowsheets available for processing of this PFP waste material this could not be further substantiated. In discussions with the Project it was concluded that this feed requirement topic had not been discussed with pretreatment process development management.

Given the limited number of subcouncil members present it was decided that a further discussion with other members was appropriate before finalizing a council position. The subcouncil tentatively set Tuesday, November 5, 1991 to meet on this topic.

D. J. Hart, Acting Secretary
SEAC TWD Subcouncil

Approved by: W. F. Sheely, Chairman
SEAC TWD Subcouncil

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
D. J. Hart	K. R. Jordan	
373-5703	B3-51	

Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 91-18

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		SEAC Members		
		T. L. Aldridge	L8-20	
		P. B. Bourne	B3-04	
		W. R. Brooksher	L4-01	
		M. Haas	T5-50	
		D. J. Newland	S4-55	
		L. K. Severud	H5-60	
		D. D. Wodrich	R2-23	
		D. E. Wood	B2-19	

Westinghouse Hanford Company **Internal Memo**

From: SEAC TWD Subcouncil
Phone: 373-5703
Date: November 7, 1991
Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 91-19

To: K. R. Jordan B3-51

cc: Distribution

The subject meeting was held on November 5, 1991 to continue the review started earlier on the HWVP responses to Technical Review Group comments and the related changes in revision 1 of the HWVP PSAR. Since these were the only modifications which were introduced into the PSAR, review of the comment disposition and resultant page changes would be the basis for Subcouncil approval of revision 1. The prior meeting, 91-18, had reviewed the comment resolution issues with the exception of 3 comments dealing with criticality control. Meeting 91-18 had been adjourned to permit further consideration of the items and the assembly of some committee members, who were not available for 91-18, to provide their technical insight to this issue.

At the beginning of the meeting the chairman summarized the status of the 18 comments (including the 3 dealing with criticality control) and polled the subcouncil to determine if there were any open issues or concerns with the disposition of the non-criticality related comments.

> <u>The consensus of the subcouncil was that HWVP's proposed responses and changes in revision 1 of the PSAR for these topics were appropriate</u>.

The subcouncil then addressed the three comments related to criticality control as described in the PSAR and the Project position. The method proposed by HWVP for criticality control was the establishment of a feed specification for material to be transferred from the Tank Farms to HWVP which established limits on the plutonium concentration and the inert solid waste components of the feed. The TRG reviewers were concerned: that potentially plutonium rich feed materials might be received from the TRUEX pretreatment process, about the currently undefined flowsheet values from pretreatment processing and about the potential to directly deliver this material from the TRUEX processing step to HWVP.

The Project indicated that all feed transfers were to be from a tank farm feed tank after the sampling had been done to demonstrate compliance with the feed specifications necessary across the entire chemical and physical property range to make acceptable glass product.

The Project position was that because the pretreatment process is currently under development, the front end feed flowsheet from pretreatment for HWVP is not known for all of the four feed types involved. However, HWVP has

K. R. Jordan B3-51
Page 2

addressed the type of feed that must be delivered tc the HWVP needed to assure criticality safety. This information is subject to confirmation through the detailed criticality analysis committed to in chapter 1 of the PSAR.

The subcouncil supported the premise that the Project would define and would not accept feed materials which did not meet the limits to be developed in the criticality evaluation.

Further discussions were pursued with respect to criticality control of materials in process in the plant. Subcouncil members discussed the need to ascertain that there would be no plutonium, (or other fissile material) accumulation in the plant as the result of a separation or precipitaticn of plutonium during the processing. Equally important was the need to assure that the process would not cause a change in the solids composition through dissolution or other complexing action which might degrade criticality safety. The discussions did not provide a basis to demonstrate conclusively that such separations would not take place or that plutonium would not accumulate in unexpected places in the plant.

The Project agreed that two types of approaches would be possible to establish the desired control. As part of the current feed processability studies, process chemistry studies will be performed to demonstrate that the plutonium will not separate from the main chemical streams and will become part of the glass product. An additional or alternate approach is to consider the use of operational procedural controls, based on the criticality analysis, to establish an inventory control program with periodic flushes to ensure that plutonium is not accumulating in the plant equipment. In may also be advantageous to make some detailed design feature changes which would serve to minimize the concern relative to plutonium accumulation. The Project agreed that the resolution of this issue would be included in the FSAR. Based on some of the preliminary information the Project personnel present judged that major changes in plant and facility design should not be necessary. The subcouncil concurred with the assessment that major design changes as a result of the detailed criticality evaluation should not be necessary.

Subject to the above changes being made in the comment resolution with the TRG and appropriate discussion in the revision 1 of the PSAR the subcouncil members recommend to the chairman, subcouncil approval of revision 1. It was expected that approval of the chairman would be sought on the document by November 8, 1991.

The subcouncil continues to be concerned about the need to develop flowsheets for all the four basic types of feed to HWVP. In particular this specific review emphasized the need for greater coordination between the process development activities for waste pretreatment and the identification and formalization of feed specifications for HWVP. This topic was reviewed by the chairman with Defense Waste Remediation management and additional reviews for subcouncil information will be established.

The next meeting will be held November 14, 1991 in B-103 2750E to review the current status of GROUT and impending plans for submittal of the FSAR to DOE-RL.

D. J. Hart, Acting Secretary
SEAC TWD Subcouncil

Approved by:

W. F. Sheely, Chairman
SEAC TWD Subcouncil

Westinghouse
Hanford Company

Internal
Memo

From: SEAC TWD Subcouncil
Phone: 376-9383
Date: August 10, 1992
Subject: SAFETY AND ENVIRONMENTAL ADVISORY COUNCIL TANK WASTE DISPOSAL SUBCOUNCIL MEETING 92-7

To: K. R. Jordan B3-51

cc: Distribution
DHJ-File/LB
WFS-File/LB

This meeting of the SEAC TWD Subcouncil was held on July 23, 1992.

The purpose of the meeting was to discuss the approval process for the HWVP PSAR, and to have a "heads-up" briefing on safety documentation for storing cesium/strontium capsules in the HWVP Canister Storage Building (CSB). A copy of the viewgraphs used is attached. The main presentation of the use of the CSB for storage of the capsules is expected in the fall.

Subsequent to the meeting, the Subcouncil agreed that based on their review of the June 1992 Grout FSAR and the processes used to produce and review it, the Grout FSAR was approved. The chairman signed the EDT on July 30, 1992. However, the Subcouncil felt that although the process information is adequate for purposes of the FSAR, it must be developed further for the next issuance of the Performance Assessment. The Subcouncil concluded that the description of the grout processes and flowsheet in the FSAR lacked the depth and specificity needed to assure that a product that meets performance requirements could be produced under all anticipated conditions. This conclusion will be documented to the Grout Project from the Subcouncil under separate correspondence.

Further, the Subcouncil completed its review of the HWVP PSAR and the chairman signed off the EDT on August 5, 1992.

D H Jones
D. H. Jones, Secretary
SEAC TWD Subcouncil

Approved by: W. F. Sheely 8/12/92
W. F. Sheely, Chairman
SEAC TWD Subcouncil

Hanford Operations and Engineering Contractor for the US Department of Energy

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
D. H. Jones, 376-9383	D. J. Swaim	N/A

Subject: SEAC TWD Subcouncil Meeting 93-5

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		T. L. Aldridge	L8-20	
		*K. L. Engelhardt	G6-16	
		J. W. Hagan	B3-55	
		*B. W. Hall	G6-16	
		*D. I. Herborn	G6-16	
		*D. F. Iwatate	G6-16	
		*F. D. Sargent	G6-16	
		*D. L. Scott	G6-16	
		*J. E. Shapley	H4-68	
		*D. A. Smith	G6-16	
		*G. D. Wright	R3-10	
		TWD Subcouncil Members		
		D. L. Gardner	R3-12	X
		D. J. Hart	R3-54	X
		*D. H. Jones	N1-36	X
		*M. R. Lindquist	H5-57	X
		*D. G. Ranade	B2-16	X
		R. D. Redekopp	T5-50	X
		R. C. Roal	S6-17	X
		*W. F. Sheely	B4-03	X
		J. P. Sloughter	T6-07	X
		*J. C. Sonnichsen	H4-14	X

*Attendees at Meeting 93-5

54-6000-117 (9/88) WEF008

Westinghouse Hanford Company **Internal Memo**

From: SEAC TWD
Phone: 376-9383 N1-36
Date: August 13, 1993
Subject: SEAC TWD Subcouncil Meeting 93-5

To: D. J. Swaim B3-51

cc: Distribution
DHJ File/LB

This meeting of the SEAC Tank Waste Disposal (TWD) Subcouncil was held on August 5, 1993. The purpose of the meeting was two-fold, i.e.,

- to review and approve the Revised Grout Treatment Facility Safety Analysis Report (SAR) Chapter 11.0 on Technical Safety Requirements

- to begin review of the HWVP Preliminary Safety Analysis Report (PSAR)

The Grout Chapter 11.0 was approved after some discussion which noted that source term concentrations for radionuclides were different between the SAR and Performance Assessment (PA). The SAR controls the nuclide concentration level and the PA controls the total disposal quantities. The differences are acceptable.

The HWVP Project personnel presented the attached material on Revision 1 of the HWVP PSAR. The significant areas of change were noted and discussed. The TWD Subcouncil requested a meeting to discuss the Canister Storage Building ventilation change, the hydrogen mitigation system, and the issue of plutonium accumulation. Discussion of these issues is scheduled for August 12, 1993.

DH Jones
D. H. Jones, Secretary
SEAC TWD Subcouncil

Approved by: WF Sheely
W. F. Sheely, Chairman
SEAC TWD Subcouncil

jvs

Attachment

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
W. F. Sheely, 376-8859	D. J. Swaim	N/A

Subject: SEAC TWD REVIEW OF HWVP PSAR REV1

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
	10/20/93	D. G. Baide	G6-16	X
		P. Felise	G6-06	X
		D. I. Herborn	G6-16	X
		R. A. Smith	G6-02	X
		L. K. Severud	H5-60	X
		TWD Subcouncil Members		
		D. L. Gardner	R3-12	X
		D. J. Hart	R3-54	X
		D. H. Jones	N1-36	X
		M. R. Lindquist	H5-57	X
		D. G. Ranade	B2-16	X
		R. C. Roal	S6-17	X
X WFS	10/20/93	W. F. Sheely	B4-03	X
		J. P. Sloughter	T6-07	X
		J. C. Sonnichsen	H4-14	X

Westinghouse Hanford Company **Internal Memo**

From: SEAC TWD Subcouncil
Phone: 376-8859 B4-03
Date: August 27, 1993
Subject: SEAC TWD REVIEW OF HWVP PSAR REV1

To: D. J. Swaim B3-51

cc: WFS:File/LB

The Hanford Waste Vitrification Project (HWVP) requested the Tank Waste Disposal (TWD) Subcouncil of SEAC (Safety and Environmental Council) review and approve Revision 1 of the HWVP Preliminary Safety Analysis Report (PSAR). TWD acknowledges that this PSAR issuance is one of a series of updates that will be performed on the PSAR.

HWVP did the following to assist TWD with its review:

- Presented to TWD a review of the significant changes in the PSAR which included discussions of the thermal analysis performed on the natural circulation system, progress on evaluation of hydrogen safety issues, and a statement which will be included in the PSAR on work to be done to resolve the issue of potential plutonium accumulation and its implications regarding criticality control

- Supplied TWD with copies of the version of the PSAR which was submitted for Operations and Independent Safety review.

- Supplied TWD with the HWVP Comment Record (HWR) sheets after agreement was reached between the reviewer Point-of-Contact and the PSAR chapter Author Originator.

- Supplied the TWD Chair with a copy of QA Surveillance Report SUR-1993-0100 which was performed to "verify that the status of comments on Revision 1 of the HWVP PSAR is accurately being tracked and the comments from reviewers have been dispositioned and accepted." This surveillance concluded that the HWVP response to the reviewers comments was systematically performed.

In its review of this revision, TWD concentrated on HWVP's response to independent Safety and Operation's reviews of the document changes and on the status of HWVP treatment of major issues. TWD concluded that HWVP response to the detailed comments presented by the reviewers was satisfactory.

TWD wishes to express concern about the progress in resolving two issues identified to HWVP in prior reviews: (1) evaluation the potential for plutonium accumulation and its implications on criticality control and (2) development of a flow sheet at the level of detail needed to support design and safety analyses.

SEAC TWD Review of HWVP PSAR Rev1
Page 2
August 27, 1993

Recognizing that the PSAR will undergo further development in preparation for future revisions, TWD concludes that it is appropriate to release Revision 1 and therefore the TWD Chair signed the ECN.

TWD requests that HWVP take the initiative to keep TWD abreast of major developments in the project in the coming year to facilitate review of the next revision.

We wish to thank Dan Herborn for his unfailing cooperation in supporting TWD in its reviews.

W. F. Sheely

W. F. Sheely, Chair
SEAC Tank Waste Disposal Subcouncil

kls

APPENDIX B

HANFORD WASTE VITRIFICATION PLANT PRELIMINARY SAFETY ANALYSIS REPORT APPROVAL DOCUMENTATION

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Document Title: HANFORD WASTE VITRIFICATION PLANT PRELIMINARY SAFETY ANALYSIS REPORT

Approved by:	R.A. Smith Hanford Waste Vitrification Plant Project	3/1/91 Date
Approved by:	Hanford Waste Vitrification Plant Operations	3/1/91 Date
Approved by:	Health and Safety Assurance	3/1/91 Date
Approved by:	W. H. Cogwinger Quality Assurance	3-1-91 Date
Approved by:	Environmental Assurance	3/1/91 Date
Approved by:	Tank and Waste Disposal Subcouncil Safety and Environmental Advisory Council	5/17/91 Date
Approved by:	President, Westinghouse Hanford Company	5/21/91 Date

RL F 1325.6(EF) DEF012

United States Government | Department of Energy

memorandum

Richland Operations Office

DATE: JUN 26 1991

REPLY TO ATTN OF: VPO:BLN /91-VTB-059

SUBJECT: APPROVAL OF THE HANFORD WASTE VITRIFICATION PLANT PRELIMINARY SAFETY ANALYSIS REPORT, REVISION 0

TO: Leo P. Duffy, Director
Office of Environmental Restoration
and Waste Management, EM-1

The HWVP Preliminary Safety Analysis Report (PSAR) has been prepared by the HWVP Project Office and is submitted for review and approval in accordance with DOE Order 5481.1B and SEN 6. This document, which follows the U. S. Nuclear Regulatory Commission Regulatory Guide 3.26, STANDARD FORMAT AND CONTENT OF SAFETY ANALYSIS REPORTS FOR FUEL REPROCESSING PLANTS, has undergone extensive review within the DOE-RL and contractor organizations. Under the direction of EM-343 the PSAR has also been reviewed by Los Alamos National Laboratory and the EM Technical Review Group. Comments from these reviews have been resolved with the reviewers and the comments have been incorporated in accordance with the resolutions. This document is approved for release to DOE-HQ with limited distribution as required for the DOE-HQ final review.

Copies of the PSAR are concurrently being transmitted to the EM Technical Review Group to facilitate their review. If there are any questions concerning the PSAR, please contact Bruce L. Nicoll of my staff on FTS 444-6006.

John D. Wagoner
John D. Wagoner
Manager

Enclosure

cc w/o encl:
V. G. Trice, EM-343 (w/encl)
J. E. Lytle, EM-30
M. W. Frei, EM-34
K. A. Chacey, EM-343
R. A. Smith, WHC (w/encl)
J. C. Tseng, EM-35

ENGINEERING DATA TRANSMITTAL

Page 1 of ___

1. EDT ~~XXXXXXX~~ 400363

2. To: (Receiving Organization) Distribution

3. From: (Originating Organization) HWVP Permitting & Regulatory Compliance

4. Related EDT No: N/A

5. Proj/Prog/Dept/Div: B-595/HWVP

6. Cog/Proj Engr: DI Herborn/6-2361

7. Purchase Order No: N/A

8. Originator Remarks: The Hanford Waste Vitrification (HWVP) Preliminary Safety Analysis Report (PSAR), Revision 1, WHC-EP-0250, addresses the DOE-HQ Office of Environmental Restoration and Waste Management Technical Review Group (TRG) comments on Revision 0 and provides formal documentation that dispositions have been implemented. Revised HWVP PSAR, Revision 1 pages are transmitted for review and approval.

9. Equip/Component No: N/A

10. System/Bldg/Facility: N/A

11. Receiver Remarks:

8. Originator Remarks: (continued) Original EDT will be circulated for your approval signature.

12. Major Assm Dwg No: N/A

13. Permit/Permit Application No: N/A

14. Required Response Date: 11/04/91

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev No.	(E) Title or Description of Data Transmitted	(F) Impact Level	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1			1	Hanford Waste Vitrification Plant Preliminary Safety Analysis Report revised pages	1	1		
2			.	TRG Review Comment Records for Independent Technical Review: HWVP PSAR (to be provided under separate cover)	N/A	3		

16. KEY

Impact Level (F)	Reason for Transmittal (G)	Disposition (H) & (I)
1, 2, 3, or 4 see MRP 5.43 and EP-1.7	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Impact Level for required signatures)

(G) Reason	(H) Disp	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp
1	1	Cog./Proj. Eng DI Herborn	Daniel I. Herborn	10-28-91	G6-16	WF Sheely (9 copies)	[signature]	11/5/91	B4-03	1	1
1	1	Cog./Proj. Eng. Mgr. P Felise	Paul Felise	10-28-91	G6-16	RA Smith	R.A. Smith	10-31-91	G6-02	1	1
1	1	QA ST Smith	SB [signature]	10/31/91	S1-53						
1	2	Safety EG Hess	[signature]	11/1/91	B3-09	OA Halvorson (5 copies)			G6-04	3	
1	1	TM Anderson	[signature]	11/1/91	B3-01						
1	2	JJ Dorian	[signature]	11/4/91	B2-16						
1	1	DW Hamilton	[signature]	10/31/91	G6-04						

18. Daniel I. Herborn — DI Herborn 10-23-91
Signature of EDT Originator — Date

19. Authorized Representative for Receiving Organization — Date

20. Paul Felise — P Felise 10/23/91
Cognizant/Project Engineer's Manager — Date

21. DOE APPROVAL (if required)
Ltr No. ______
☐ Approved
☐ Approved w/comments
☐ Disapproved w/comments

BD-7400-172 (2/89)

Westinghouse
Hanford Company

Internal
Memo

From: HWVP Project Engineering 85434-91-107
Phone: 6-0494 G6-16
Date: November 15, 1991
Subject: RESPONSE TO INDEPENDENT SAFETY REVIEW ORGANIZATION COMMENTS ON HANFORD WASTE VITRIFICATION PLANT PRELIMINARY SAFETY ANALYSIS REPORT, REVISION 1 REVISED PAGES

To: E. G. Hess R3-09

cc: O. A. Halvorson G6-04
D. I. Herborn G6-16 DIH
W. F. Sheely B4-03
R. A. Smith G6-02
G. D. Wright R3-10
PF:DIH-File/LB

Thank you for your organization's timely review of the Hanford Waste Vitrification Plant (HWVP) Preliminary Safety Analysis Report (PSAR), Revision 1 revised pages. This memo provides responses to the comments transmitted in Review Comment Record HWVP-91-112, dated November 5, 1991, which is associated with your dispositioning of Engineering Data Transmittal 400363. We trust that these responses satisfactorily address your concerns. Should you have any questions, please contact Mr. D. I. Herborn on 376-2361.

Paul Felise

P. Felise
Acting Manager

Enclosure

lmi

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
11/5/91	HWVP-91-112
3. Project No.	**4. Page**
B-595	1 of 7

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-EP-0250, Rev. 1, EDT 400363, HWVP Preliminary Safety Analysis Report	HWVP	R. E. Broz	WDSA/HSA	VITRO/6-8279

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

12/6/91
Date

REBroz
Reviewer

Daniel S. Sedar
Project/Cognizant Engineer

11. CLOSED

Date

Reviewer

Project/Cognizant Engineer

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Page 8-34, third paragraph, fourth line; "This data shows that, for the years 1988 through 1990, the average annual radiation worker exposure was 2.36 mSv..." Use of these years of Hanford worker doses does not include any actual operations and as such could be significantly low. Revise these worker doses to include years of actual operations at plants such as PUREX or B-Plant since this section is entitled "Exposure From Operations and Ancillary Activities. REB Comment		Accept. We have access to worker exposure data from earlier years when there was more operational activity at Hanford facilities. The addition of these data should enhance a discussion of HWVP ancillary exposure estimates, when they are compared with results based on a revised time period for historic Hanford Site dosimetry records. However, new estimates are not expected to alter the conclusions about the HWVP design in relation to preventing and mitigating worker exposure. As a result of this recommendation, we plan to incorporate earlier worker exposure data in future assessments of exposure from operations and ancillary activities.	OK REB

A-6400-090.1 (10/90) {EF} WEF011
Review Comment Record (RCR)

REVIEW COMMENT RECORD (RCR)

1. Date: 11/5/91	2. Review No.: HWVP-91-112
3. Project No.: B-595	4. Page: 2 of 7

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2.	Flooding of the north road impacting evacuation of the plant personnel.(TRG Comment #04-04) AAZ Comment		Flooding of the north road is not anticipated under severe downpour conditions. Even in the worst case, where the capacity of the underground culvert may not be able to handle all of the runoff, the water will simply drain across the road to the north side, and continue to flow in a northerly direction. This is not expected to impact emergency vehicle travel to and from the plant.	
3.	Flooding of Vitrification Building by rain water accumulated in the parking lot.(TRG Comm. 04-04) Safety related items; electrical switch gears, motor control centers, pumps, valves, etc. stored in warehouses need protection from rain water flood.(TRG Comm. 04-04) AAZ Comment		The warehouse is not expected to be damaged due to stormwater runoff following a severe downpour. The slope of the ground in the area of the warehouse is such that the water should continue draining to the north. But, in the unlikely event that there is flooding in a warehouse and that safety-class equipment stored in the warehouse is damaged, the QA program has provisions for preventing damaged equipment from being installed in the plant.	

A-6400-090.1 (10/90) (EF) WEF011
Review Comment Record (RCR)

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
11/5/91	HWVP-91-112
3. Project No.	**4. Page**
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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4.	No existing analysis determining centerline glass temperature in a canister located in the insulated storage rack.(TRG Comm. 04-03) AAZ Comment		The PSAR, Rev. 1, page 4-7, states "During detailed design, all the canister handling activities will be evaluated to determine the margin between the canister centerline temperature and the glass transition temperature." If the evaluation identifies potential adverse impacts of the HWVP canisters satisfying the waste form compliance requirements, then mitigating features will be provided and discussed in the waste form qualification report. The PSAR, Rev. 1, also states that the steady-state centerline temperature of the canister is expected to be well below the glass transition temperature.	
5.	P. 1-15, paragraph 4. Revision states that the "combined offgas passes through the cell wall into the Zone I exhaust tunnel." According to the drawings, the combined offgas passes through the cell wall, crosses the exhaust tunnel to the CMR where there is a final filter stage, then reenters the exhaust tunnel. The portion of the offgas system in the CMR is not insignificant in that on portion of the system is seismically qualified yet the CMR, as defined in the Rev. 0 drawings does not fully meet 6430.1A criteria for a secondary confinement boundary. SLE Comment		The text will be revised in the next safety analysis report (SAR) revision to change the wording in the last paragraph of Section 1.3.2, fourth sentence, from "...exhausters, where the combined offgas passes through the cell wall into the Zone I exhaust tunnel." to "...exhausters, before discharge of the combined offgas to the Zone I exhaust tunnel." The confinement boundary for the CMR will be addressed during final design and is an "item requiring further development" in the PSAR, Section 5.5.6.	

REVIEW COMMENT RECORD (RCR)	1. Date 11/5/91	2. Review No. HWVP-91-112
	3. Project No. B-595	4. Page 4 of 7

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
6.	Figure 1.5-1. Figure shows start of construction of HWVP during FY 91. should be revised to show FY 92. SLE Comment		A FY 1992 start of construction is accurately discussed in the fourth paragraph on page 1-5 and correctly shown on the project schedule (Figure 1.1-2). Figure 1.5-1, which is an exact reproduction of the schedule presented in the latest official Technology Plan, is intended to show the relative schedules of DWPF, WVDP, and HWVP, and how this will allow HWVP to take advantage of lessons learned on the other two projects.	

A-6400-090.1 (10/90) (EF) WEF011
Review Comment Record (RCR)

REVIEW COMMENT RECORD (RCR)	1. Date 11/5/91	2. Review No. HWVP-91-112
	3. Project No. B-595	4. Page 5 of 7

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
7.	Table 1.5-2. A general note should be added to Table 1.5-2 which states, to the effect, that analyses and bases to support closure of open items must be completed, reviewed and approved by the organization initiating the issue prior to commencement of construction and completion of detailed design of the affected structure, system or component. SLE Comment		The timely preparation, review, and approval of information acquired to address items requiring further development is a procedural matter that is more appropriately addressed in a context other than the HWVP PSAR, since this document represents a "snap shot in time". The documentation process for individual PSAR commitment tasks (which include all of the items in Table 1.5-2) is presented in Section 3.3.2 of WHC-SD-HWV-HP-001, Revision 1, "Hanford Waste Vitrification Plant Project Safety Documentation Plan". Section 3.3.2 explains that design, analysis, or requirement changes that will result in safety analysis report (SAR) revisions will be described and submitted via the EDT process as individual packages to the four WHC independent review organizations for review and approval of the SAR packages. Safety-significant design and analysis details that support an individual SAR description package should be available for review by these independent review organizations.	6/4 JJE
8.	P. 5-107, paragraph 6, line 8. The study which determined that the peak exhaust temperature to the HEPAs would be 300oF has not been made available to independent safety for review. We have no ability to assess the accuracy of this data. SLE Comment		The assumptions and equations used in the scoping study were provided to the DOE-HQ Technical Review Group (TRG) and are attached as TRG Exhibit B.	JJE c/c

A-6400-090.1 (10/90) (EF) WEF011
Review Comment Record (RCR)

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.	3. Project No.	4. Page
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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
9.	P. 9-44, Next to last paragraph. This discusses amounts of noncondensable gasses released. Then it states that "these releases would be mitigated by the exhaust filtration..." It should be clarified that the condensable gasses and particulate portions of the release, only, would be mitigated. SLE Comment		The paragraph will be revised as follows in the next safety analysis report (SAR) revision: "It is postulated that a surge of sufficient magnitude can force molten glass through the pour spout. The maximum credible surge magnitude is estimated to consist of 12 times the normal amount of vapor flow plus 5 times the normal amount of noncondensable gas (i.e., CO_2, CO, N_2) flow released to the offgas system. Venting of the MOG to the cell and volatilization from the spill of molten glass would result in elevated contamination releases to the Zone I ventilation system, until the molten glass cooled. Except for I-129, the radionuclides volatilized from the spill would be condensable at ambient temperature. The condensable vapors and particulates would be mitigated by the exhaust filtration..."	c/ jlE

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Review Comment Record (RCR)

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
11/5/91	HWVP-91-112
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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
10.	P. 10, Section 6.1.3.1; It appears that an agreement between HWVP, the pretreatment and storage (i.e., the Tank Farms) operations on acceptable HWVP feed compositions is an essential element of the Criticality Control for all four feed streams. This agreement should be concluded in an expeditious manner. In addition, the criticality safety of each stream needs to be established with a satisfactory margin for uncertainties. KKC Comment		An agreement will be concluded between HWVP, and the relevant pretreatment and the Tank Farm operations concerning the acceptability of HWVP's solids composition control vis-a-vis possible requirements that this may impose on these other systems and facilities. Since these operations will likely have similar potential criticality concerns as HWVP, composition control limits may be elements of their programs and thus should not present extreme burdens to pretreatment and Tank Farm operations. The detailed criticality safety evaluation that is specified in PSAR Section 6.9.6 will address the four major feed types that will be processed in the HWVP. This evaluation will appropriately consider the uncertainties associated with the feed material and the analytical models used in the assessment.	ok KKC

A-6400-090.1 (10/90) {EF} WEF011
Review Comment Record (RCR)

EXHIBIT B

Response to TRG Comment 05-08:

4th HWVP Response (10-30-91): The results of preliminary scoping calculations for the maximum credible accident, the DBE, with respect to excessive heat affecting the performance of the Safety Class 1 bypass HEPA filters are presented in Revision 1, Section 5.4.1.2.1, as explained in our third response to this comment. As discussed in the revision, the worst-case peak exhaust air temperature will not exceed 300 °F, which is several hundred degrees below the HEPA filter temperature limit of 500 °F.

Assumptions Used in Scoping Calculations:

- Normal power and cooling tower assumed lost
  - Process steam shuts down upon loss of normal power
  - Single fan on emergency power with HVAC exhaust flowrate at 3500 cfm (versus normal HVAC exhaust flowrate of 98,000 cfm)
  - HVAC chillers are lost, with incoming air assumed to be at 101 °F (normal supply air is 60 °F)
- Standby power assumed to keep melter hot
  - Melter and process tank decay heat = 160 kW (600,000 Btu/h)
- No heat is assumed transferred to cell or canyon concrete as air flows from melter cell through exhaust tunnel to the final HEPAs
- Energy balance assumptions:

  C_p of air at 200 °F = 0.241 Btu/lb °F = 0.015 Btu/ft^3 °F

  Temperature rise equation

  $$(600{,}000\ \text{Btu/h})/[(0.015\ \text{Btu/ft}^3\ {}^\circ\text{F})(3500\ \text{ft}^3/\text{min})(60\ \text{min/h})] = 190\ {}^\circ\text{F}$$

  Temperature leaving melter cell = 101 + 190 = 291 °F

[1] From: John I Gould at ~WHC137 11/1/91 3:34PM (5500 bytes: 102 ln)
To: Dan I Herborn at ~WHC87
cc: John J Dorian, Larry P Diediker at ~WHC171
Subject: HWVP PSAR RFEVIEW/APPROVAL, WHC-EP-0250/rev 1
------------------------------ Message Contents ------------------------------

DAN:

I HAVE REVIEWED THE CHANGES TO WHC-EP-0250, REV 1, WHICH INCORPORATED DOEHQ COMMENTS, PER YOUR LETTER OF 10/29/91.

TWO ITEMS WERE NOTED WHICH HAVE POTENTIAL ENVIRONMENTAL COMPLIANCE IMPACT, AS FOLLOWS:

1. THE ASSUMPTIONS FOR RESUSPENSION FACTORS DO NOT SEEM WELL JUSTIFIED OR REFERENCED.

Page 7-10, 2nd par: The text references a document which admits nine orders of magnitude in the resuspension factor [exp-10 to exp-1]. It then selects a mid-range value of 1 x exp-6 and designaters this as "conservative" (eg. bounding). This needs clarification.

Page 9-54: Other mechanisms of getting potential contamination into the air need similar referencing and/or justification for selection of bounding values, such as for "splatter."

Page 9-87: Similar referencing needs to be added to justify the wind speed at which "worst case conditions" are found/ experienced. My personal observation is that during the area's winter, a meteorological inversion develops; this would have mimimal dispersive effect and hence probably maximize the airborne dose to nearby on-site workers.

2. THE DOCUMENT DISCUSSION SEEMS TO GIVE LITTLE ATTENTION TO HAZARDOUS (NON-RADIOACTIVE) MATERIALS.

Page 8-3: ALARA principles need to be applied to the non-radioactive arena, also. The bullets seem to be slanted as if the only problems to be envcountered at HWVP are radioactive ones. Clarify this on page 2-18.

Page 8-43: Stack release criteria and associated monitoring needs to conform to WHC-CM-7-5 (both parts C & D).

* * * * *

IN ADDITION, THE FOLLOWING MISCELLANEOUS ITEMS WERE NOTED:

3. Do you have a page with acronyms and abbreviations? Too much of the text is difficult to read because of excessive use of "alphabet soup!"

4. Add reference to effluent release criteria (WHC-CM-7-5, parts C & D) to section 1.3.2 (page 1-15) or similar.

5. Page 2-4: The precipitation runoff can act as a concentrating agent for contamination from all the surfaces

at HWVP. Where is the runoff designed to be sent, and will this be monitored as a potential source of contamination?

6. Page 2-11: Clarify the meaning of the term "facility boundary" -- is this a fence around only HWVP? the 200 East Area? the north bank of the Columbia River? Try giving an approximate distance.

7. Page 2-14 & 2-27: Add the reference which discusses the computer code "CAP88." There is some uncertainty, whether the accumulated exposure includes both a one-year release and a continuous ground-source, which is decayed with time; please clarify.

8. Page 5-11, bottom par: The temporary construction (shacks) often are used for storage of items containing hazardous materials (paints/primers, selants, solvents). In an "accident" these become a hazardous waste stream.

9. Page 6-28, top par: The text is vague and flowery; it needs to be more specific. Does the cold startup of a melter have potential human or environmental safety problems?

10. Page 6-40, section 6.2.1.1, 3rd par: It should specify somewhere -- how far outside the reference max/min that the feed compositions were picked for the bounding safety analysis. How about -- "exceeding the 95% confidence limit?"

[just a suggestion.]

11. Page 6-44, 2nd par fr [illegible] tom: Since non-NCAW feeds are to be investigated for organic content (hence as potential for hazardous contribution to the off-gas system), is this item to be given a trackable number (TBD list, etc)?

12. Page 6-45: The use of the Fe (2+/3+) ratio as the basis for the redox potential applies only if there is a reservoir of electrons to which each species can react! This isn't probably the case in a solidified glass mix as postulated.

The merit of the paragraph is open to question, it can be deleted without any loss to the purpose of the PSAR.

13. Page 6-74, 3rd bullet: Two words (depth and level) are being used in the same sentence to mean the same thing.

Westinghouse
Hanford Company

Internal
Memo

From: HWVP Project Engineering 85434-91-106
Phone: 6-0494 G6-16
Date: November 15, 1991
Subject: RESPONSE TO ENVIRONMENTAL ASSURANCE ORGANIZATION COMMENTS ON HANFORD WASTE VITRIFICATION PLANT PRELIMINARY SAFETY ANALYSIS REPORT, REVISION 1 REVISED PAGES

To: J. J. Dorian B2-16

cc: L. P. Diediker T1-30
J. I. Gould B2-16
D. I. Herborn G6-16 D.I.H.
W. F. Sheely B4-03
R. A. Smith G6-02
PF:DIH-File/LB

Reference: cc:Mail Message, J. I. Gould to D. I. Herborn, "HWVP PSAR Review/Approval, WHC-EP-0250, Revision 1," dated November 1, 1991.

Thank you for your organization's timely review of the Hanford Waste Vitrification Plant (HWVP) Preliminary Safety Analysis Report (PSAR), Revision 1 revised pages. This memo provides responses to the comments enclosed in the referenced message, which is associated with your dispositioning of Engineering Data Transmittal 400363. We trust that these responses satisfactorily address your concerns with regard to potential environmental compliance impacts. Should you have any questions, please contact Mr. D. I. Herborn on 376-2361.

Paul Felise

P. Felise
Acting Manager

Enclosure

lmi

RESPONSES TO ENVIRONMENTAL ASSURANCE COMMENTS ON HWVP PSAR, REVISION 1 CHANGE PAGES

1. Page 7-10, Second Paragraph Comment:

The discussion in PSAR Section 7.2.1.1.3 (pages 7-8 through 7-10) carefully develops the topic of possible resuspended contamination by (1) identifying this mechanism as a principal source of potential contamination, (2) determining the extent of contamination possible from resuspended material, (3) comparing the resuspension factor used in the HWVP methodology to reported values, and (4) establishing the overall conservatism of the HWVP approach. At each stage of the Section 7.2.1.1.3 discussion, references are provided to support the validity of the statements and assumptions made. The HWVP method used to analyze potential resuspended contamination was reviewed by Mr. J. Mishima, a recognized expert in this area. The results of his review, which indicates that the HWVP approach tends to overestimate potential routine resuspension of deposited process materials, are presented in the attached letter report.

Page 9-54 Comment:

All other potential release mechanisms following a design-basis earthquake are discussed in PSAR Section 9.2.1 (i.e., glass fracture from cooling, glass film fracture, liquid volatilization, glass volatilization, vigorous boiling, resuspension of liquids, and resuspension of dried solids). (See pages 9-52 through 9-74.) The rationale for selecting many of the bounding values assumed for the release mechanisms is summarized in PSAR Section 9.0.

Page 9-87 Comment:

The accident described on this page is the result of hypothetical damage caused by extreme winds. It is a strong wind that causes the building to fail, and results in the subsequent release of radioactive material. Credit has to be taken for the dispersion effects of the high wind, since a release would not hypothetically exist for a lesser wind. The reference for the Gaussian plume model and dispersion coefficients used to calculate the high wind dilution factors is provided on page 9-86 (i.e., Till and Meyer 1983.)

2. Page 8-3 Comment:

The discussion in PSAR Sections 8.1 and 8.1.1 (on page 8-1) clearly establishes a broad definition of ALARA, which includes hazardous nonradioactive material goals as well as ones for radioactive materials. In this context, the "key elements" of DOE Order 5480.11 take on a much broader meaning (i.e., includes nonradioactive hazards as well as radioactive ones).

Page 8-43 Comment:

Appropriate reference to Parts C and D of WHC-CM-7-5,"Environmental Compliance Manual" is provided in the second to last paragraph on page 8-42.

3. At the beginning of each PSAR chapter there is a list of the acronyms used in that chapter. In addition, each acronym's associated meaning is spelled out in the chapter where it is first used. Abbreviations used in the PSAR conform to the guidance given in the Government Printing Office Style Manual (see the third paragraph on page 1-2).

4. As noted in the response to Comment 2, reference to Parts C and D of WHC-CM-7-5, "Environmental Compliance Manual" is made and discussed in PSAR Chapter 8. Chapter 1 is a summary chapter, and thus is not the appropriate place to provide this type of detailed discussion.

5. The HWVP is designed to comply with strict requirements on all forms of effluents that can result in contamination of external surfaces. Operation of the HWVP within the environmental guidelines and limits on effluents, especially with regard to those on airborne releases, will ensure that there are no significant accumulations of contamination on outside surfaces. Thus, there will be no viable source of contamination on which precipitation runoff can act as a concentrating agent. Since the environmental guidelines governing the plant are geared toward ensuring that there will be no external sources of contamination, there are no current requirements for monitoring precipitation runoff.

6. The "facility boundaries" specified in the text table on page 2-11 refer to the PUREX and WESF plant boundaries. The doses listed apply to the maximally exposed individuals onsite at PUREX and WESF. HWVP is at a distance of about 1.5 and 0.25 mi, respectively, from these plants. (See the discussion on pages 3-17 through 3-19 for details.)

7. Section 8.6.3 of the PSAR contains a detailed discussion of the CAP88 computer code and associated references. The assumptions made in the population dose estimates are given as a footnote to Table 8.6-10 (i.e., 70-yr committed dose from 1 yr of operation and uptake/exposure period.)

8. The HWVP PSAR addresses safety concerns associated with the design and operation of the plant, and not safety issues connected with construction of the facility. The general construction contractor, UE&C-Catalytic Inc. (UCAT), has responsibility for addressing construction safety. In GCC-PL-009, "Environmental Protection Plan," UCAT addresses storage of construction-related hazardous materials. During plant operations, the HWVP staff does not plan to store hazardous materials of the type commented on in the temporary buildings discussed on page 5-11 of the PSAR.

9. Detailed discussions on potential environmental and safety issues associated with cold startup of the melter, under both normal and abnormal conditions, are contained in Chapter 6. Specifically, Sections 6.1.3.3, 6.1.3.4, 6.4.4.3, 6.5.3.5, and 6.9.7 contain, respectively, discussions on: shutdown and startup conditions, confinement and

containment barriers, melter offgas safety considerations, safety classification of systems, and safety-significant items requiring the development of further information.

10. The results of bounding criticality safety analyses are presented in Section 6.1.3.1, in which the assumptions with regard to material compositions relative to the reference feed maximum value for fissile plutonium concentration are discussed. For NCAW feed, the hypothetical bounding plutonium concentration assumed in Section 6.1.3.1 is 31 times the reference feed maximum value. For PFP feed, which is expected to contain the highest concentration of fissile plutonium relative to total waste oxides of the four candidate HWVP feeds, a safety factor of about three is calculated to exist relative to the above hypothetical bounding plutonium concentration.

11. The safety issue pertaining to potential organic reactions is discussed in PSAR Section 6.9.2. This issue is identified as an item requiring further information, and is coded as item P-06-006 in the PSAR commitment control database, which is described on PSAR page 1-17.

12. The discussion relative to controlling the redox potential by the ferrous/ferric ratio applies only to foaming and the metals reduction conditions noted in the molten glass, and not to the solidified glass matrix.

13. The use of synonyms is common practice in order to not be repetitive and thus make material more interesting to read.

Science Applications International Corporation
An Employee-Owned Company

January 17, 1991 91-0017JM

Mr. D. H. Nyman, Acting Manager
HWVP Regulatory Compliance
Westinghouse Hanford Company
P. O. Box 1970, MSIN G6-02
Richland, WA 99352

REVIEW - RESUSPENSION ISSUES AND PROPOSED DISPOSITION OF TRG COMMENT ON RESUSPENSION FACTORS USED IN ANALYSIS

Dear Mr. Nyman:

At your request, I reviewed the information provided (4 pages of material faxed by D. I. Herborn to Vince Panesko 12/3/90) on the reasonableness of the assumptions presented in the analysis of the potential routine resuspension of materials from the process cells during the operation of the Hanford Waste Vitrification Plant. In my opinion, the factors applied provide an overall conservative (tends to overestimate) estimate of the potential routine resuspension of process materials deposited on the cell surfaces. I have provided a detailed discussion of the reasons for my opinion below. If you have any questions, please feel free to contact me on 943-3133.

RESUSPENSION - Resuspension in this application is the aerodynamic suspension of process materials deposited on the surfaces of equipment and process cells in the Hanford Waste Vitrification Plant (HWVP). There are two principal sources for the process materials - process liquids leaked from process equipment and piping and airborne process materials that were deposited due to the inability of local conditions to keep them suspended. The surface areas affected by leaked process liquids are directly under and around joints/breaks in the equipment and piping and represent a small fraction of the total surface area available. The suspendability of leaked process liquids will increase as the aqueous solutions dry and form a saltcake.

The surface area affected by the deposition of airborne materials is larger but, since the local conditions did not support the suspension of the material initially, do not appear to be candidates for significant resuspension without significant changes in local conditions. Under routine conditions, significant changes of flow conditions are not anticipated. Thus, the principal change that could affect resuspension are changes of the deposited materials. It is anticipated that the process materials airborne in the HWVP process cell will be solid particles. The principal change that could affect the suspendability of solid particles is the reduction of size.

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Some of the key assumptions that determine the estimate of materials resuspended are discussed below. They are the amount of surface area assumed to be involved, the level of contaminants available for resuspension, the airflow patterns that suspend the contaminant, and the fraction of deposited materials assumed suspended (resuspension factor).

Inventory-at-Risk. The amount of material that is affected by a event or mechanism is termed the Inventory-at-Risk. In this application, the Inventory-at-Risk is the contaminated surface area times the level of contamination. For the analysis in question, the total surface area of the process cells were assumed to be contaminated to a level of 7.5 g/sq-m of dried SRAT solution.

The assumption with respect to the total surface area involved does not include the surface area of equipment present. The surface area of equipment is expected to increase the surface area estimate by less than a factor of 2. The areas that may have high levels of contaminants (the area where dried, leaked process liquids accumulates), are very limited. The dried materials will accumulate under or around the joints/seals that leak, even further limiting the surface area involved. Major leaks that result in process disruption will be repaired and cleaned rapidly and are not considered.

The remaining surfaces may have deposits of dried process liquids from materials lost from the gas phase. If airborne materials are deposited on these surfaces, it indicates that the local conditions (flow, surface, airborne material characteristics) are not adequate for continued suspension of these materials. If the local conditions do not support continued airborne suspension, why would resuspension occur? Some local conditions must change. Under routine processing conditions, local flow conditions are not expected to vary significantly. The deposited materials are in the laminar boundary layer covering the surfaces and may even be in the surface roughness of the concrete and metal. Therefore, even assuming all the cell surface (without the equipment and piping surface) is contaminated results in a very conservative estimate of the contaminated surface area.

The SRAT is the most concentrated solution of radionuclides in the facility by a factor of 4 to 100 and only represents some limited fraction of the total volume of liquids in the facility. The contamination level of 7.5 g/sq-m is based upon the visibility of the contamination and is not directly applicable to condition within a process cell where visibility of the surface is not an important consideration. The surfaces of process cells and equipment will receive periodic decontamination for repair and maintenance activities. Thus, assuming all the process cell surfaces are contaminated at the stated level of dried SRAT solution is grossly conservative (probably by orders of magnitude).

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The combination of assumptions used for the Inventory-at-Risk appear to overestimate the materials subject to resuspension due to the gross overestimation of the radionuclide concentration of the contaminant and the surface area involved.

Local Flow Conditions. Flow through volumes where air at higher pressures is drawn into and out of a volume through openings (as in the HWVP and most other nuclear processing facilities) generally behaves as flow streams through the volume (Mishima et al. XXXX, Prompt Detection Manual). Thus, it is anticipated that the airflow the HWVP process cells will be in streams entering the cell at the inlet, expanding as it flows through the cell, and contracting as it is pulled through the outlets. Therefore, it would be anticipated that various areas of the process cell would be subjected to different flow conditions. The flow velocities and conditions are such that laminar flow is anticipated with turbulence where the flow is interrupted such obstructions. The expansion and contraction of the air volume passing into and out of the cell will generate recirculation cells and provide areas of reduced air velocities.

The flow conditions at surfaces would vary depending upon the type and location of the surfaces. The cell surfaces form the boundary of the volume and are generally separated from bulk flow conditions by a laminar boundary layer. Flow may be jetted into the laminar layer where the flow impacts the cell walls/ceiling/floor directly. Surfaces protruding into the flow as with piping and equipment may also have depleted boundary layers and areas of reduced pressure on the lee side of the flow.

Thus, the assumption that material is entrained by local flow conditions from all the surfaces to the same level is conservative.

Resuspension Factor. The amount of material suspended from surfaces is commonly expressed in two ways - resuspension factors and resuspension rates. Resuspension factors quantify the fraction of the contamination level on the surface expected to be found in the air above the surface. The concept of a resuspension factor is simplistic - it anticipates that conditions (including the level and characteristic of the material deposited and the surface characteristics) remain constant. The factor does not specify a time period. It would appear that resuspension factors are most applicable to indoor conditions where flow and surface relationships are constant. The conditions outdoor appear to be much too variable for resuspension factors to be viable. Sehmel (March 1979) reviewed published resuspension factors and found nine orders of magnitude variation (1 E-1 to 1 E-10, Table 12.9) in reported values.

A resuspension rate quantifies the amount of material made airborne from a surface as a function of time. Reported values for resuspension rates vary six orders of magnitude and are all for outdoor situations (Sehmel 1980). A cautionary note on the use of resuspension rates, unless the rate is a diminishing value or uses a diminishing value for the inventory-at-risk, it may be possible to resuspend more material than is present by the blind application of the resuspension rate.

A variety of resuspension factors are available as shown in Sehmel (1979). A value of 1 E-6/m was suggested for the resuspension of material from the metal surfaces of a fuel fabrication facility process glovebox (Mishima, Schwendiman, and Ayer 1978). Gloveboxes tend to have much higher surface to volume ratios than process cells and the distances separating surfaces are less since gloveboxes are used for contact operations. The various surfaces present in gloveboxes (glovebox structure and contained equipment) are subjected to greater variations in flow condition due to the insertion of gloves into the volume during use that may result in significant flow perturbations. If a value of 1 E-6 is applicable to the resuspension of materials from the glovebox surfaces, a lesser value should be applicable for conditions in the HWVP process cells.

A resuspension factor of 2 E-8/m was reported by Jones and Pond (1967). Plutonium oxide and plutonium nitrate were deposited on various surfaces (bitumenized paper, PVC sheeting, and waxed and polished and unwaxed linoleum) on the approximately 1 E+5 sq-cm floor surface of a laboratory ventilated at the rate of 540 cu-m/h (318 cfm). Resuspension factors were determined for type of material deposited and level of activity and ranged from 2 E-8/m with no activity to 5 E-5/m for walking at 36 steps/min. Walking at the rate of 14 steps/min resulted in resuspension factors of 1 E-6 (plutonium nitrate) to 1 E-5/m (plutonium oxide). The resuspension factors measured for freshly deposited material with moderate activity were close to that applied to plutonium gloveboxes. The value determined for no activity, 2 E-8/m, should be applicable to gloveboxes during periods of inactivity and would be conservative for process cells with less rigorous flow conditions. Applying the resuspension factors to the total process cell surface area with the knowledge that flow, material and surface conditions do not favor suspension for most surfaces make use of this factor even more conservative.

Therefore, although the factor chosen, 2 E-8/m, is not necessarily conservative for the maximum suspension conditions postulated, it appears to be conservative when applied to all process cell surfaces.

<u>Summary</u>. Review of the assumptions and factor used to evaluate the potential emission of radionuclides from the HWVP process cells, indicate that:

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- The assumption and factors used to specify the inventory-at-risk are conservative. The estimate of total surface area should include a estimate of the surface area associated with equipment and piping. Assuming the deposited materials have the radionuclide concentration of the SRAT (the most active solution in the entire process) probably overestimates the concentration by a factor of 10 to 50. An average concentration would appear to be more realistic. The mass concentration level assumed, 7.5 g/sq-m, is not necessarily a maximum for process cell where visibility of the surface contamination is a major factor. Assuming this concentration over all process cell surfaces is very conservative.

- The assumption that routine flow condition will result in resuspension from all surfaces is very conservative. As mentioned in the discussion, the presence of materials in most area (except areas where process liquids are direcly leaked to surfaces) indicates that local conditions do not support suspension of the materials.

- The choice of a resuspension factor to evaluate the emission of radionuclides from process cell surfaces appear justified considering the choice (resuspension factors or resuspension rates). The specific value selected, 2 E-8, appears to be justified by the similarity of the experimental and process cell conditions. When the conservatism applied to the inventory-at-risk and local flow condition are also considered, there appears to be more than adequate conservatism to account for the uncertainties in postulated conditions.

- The overall estimate of process materials emitted from the process cell appears to be very conservative.

References

Jones, I.S. and S.F. Pond. 1967. "Some Experiments to Determine the Resuspension Factor of Plutonium From Various Surface", Surface Contamination (B.R. Fish, Ed), Pergamon Press, London, UK.

Mishima, J., L.C. Schwendiman and J.E. Ayer. 1978. Increment of Analysis - An Estimate of Airborne Release of Plutonium From Babcock and Wilcox Plant as a Result of Severe Wind Hazard and Earthquake, PNL-2812, Pacific Northwest Laboratory, Richland, WA 99352.

Sehmel, G.A. March 1979. Deposition and Resuspension Processes (Chapter 12 for Atmospheric Sciences and Power Production - 1979), PNL-SA-6747, Pacific Northwest Laboratory, Richland, WA 99352.

Sehmel, G.A. 1980. "Particle Resuspension: A Review", Environment International, 4: pp 107-127.

Mishima, J., J. Hunt, W.D. Kittenger, G. Langer, D. Ratchford, P.D. Ritter, D. Rowan and R.G. Stafford. July 1988. Health Physics Manual of Good Practices for the Prompt Detection of Airborne Plutonium in the Workplace, PNL-6612, Pacific Northwest Laboratory, Richland, WA 99352.

Sincerely yours,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

Jofu Mishima

Jofu Mishima
Sr. Scientist

cc: D. I. Herborn, WHC
M. M. Beary, SAIC-Richland
File/LB

ENGINEERING DATA TRANSMITTAL

400415 Page 1 of 1
1. EDT ~~156380~~

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) HWVP Permitting & Regulatory Compliance	4. Related EDT No.: 400363
5. Proj./Prog./Dept./Div.: B-595/HWVP	6. Cog. Engr.: DI Herborn/6-2361	7. Purchase Order No.: N/A
8. Originator Remarks: The HWVP PSAR, WHC-SD-HWV-PSAR-001, Rev 0 (which supersedes and revises WHC-EP-0250, Rev 1) primarily addresses remaining outstanding DOE-HQ Technical Review Group concerns, which are given in the DOE "Safety Evaluation Report - Hanford Waste Vitrification Plant, Revision 1". This report was previously distributed under separate cover. The revised HWVP PSAR pages are transmitted for review and approval. Original EDT will be circulated for approval signatures.		9. Equip./Component No.: N/A 10. System/Bldg./Facility: N/A
11. Receiver Remarks:		12. Major Assm. Dwg. No.: N/A 13. Permit/Permit Application No.: N/A 14. Required Response Date: 07/05/92

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Impact Level	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-HWV-PSAR-001		0	HWVP PSAR revised pages	1	1		

16. KEY

Impact Level (F)	Reason for Transmittal (G)	Disposition (H) & (I)
1, 2, 3, or 4 (see MRP 5.43)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Impact Level for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
1	1	Cog.Eng. DI Herborn	[signature]	6/5/92	G6-16	WF Sheely (9 copies)	[signature]	8/5/92	B4-03	1	1
1	1	Cog. Mgr. DG Baide	[signature]	6/5/92	G6-16	RA Smith	[signature]	7/20/92	G6-02	1	1
1	1	QA J Weber (2 copies)	[signature]	6/5/92	G6-07	SL Engstrom (5 copies)			G6-04	3	
1	2	Safety EG Hess	[signature]	7-15-92	R3-09						
1	2	Env. JJ Dorian (2 copies)	[signature]	7/6/92	B2-16						
1	1	TM Anderson	[signature]	6/7/92	B3-01						
1	2	DW Hamilton	[signature] for C. Halen	7/13/92	G6-04						

18.	19.	20.	21. DOE APPROVAL (if required)
DI Herborn [signature] 5-26-92 Signature of EDT Originator / Date	Authorized Representative for Receiving Organization / Date	DG Baide [signature] 5/28/92 Cognizant/Project Engineer's Manager / Date	Ltr. No. [] Approved [] Approved w/comments [] Disapproved w/comments

WHC-SD-HWV-PSAR-001, REV. 0

Document Title: HANFORD WASTE VITRIFICATION PLANT PRELIMINARY SAFETY ANALYSIS REPORT

Approved by:	Hanford Waste Vitrification Plant Project	7/20/92 Date
Approved by:	for C. Haller Hanford Waste Vitrification Plant Operations	07/13/92 Date
Approved by:	John Bell by GDW (see EDT 400415) Health and Safety Assurance	7/14/92 Date
Approved by:	Jack Weber Quality Assurance	6/5/92 Date
Approved by:	Environmental Assurance	7/9/92 Date
Approved by:	Tank Waste Disposal Subcouncil Safety and Environmental Advisory Council	8/5/92 Date
Approved by:	President, Westinghouse Hanford Company	8/7/92 Date

Westinghouse Hanford Company | **Internal Memo**

From: HWVP Permitting & Regulatory Compliance 7F134-92-028
Phone: 6-3274 G6-16
Date: July 13, 1992
Subject: RESPONSE TO INDEPENDENT SAFETY REVIEW ORGANIZATION COMMENTS ON HANFORD WASTE VITRIFICATION PLANT PRELIMINARY SAFETY ANALYSIS REPORT, REVISION 0, REVISED PAGES

To: E. G. Hess R3-09

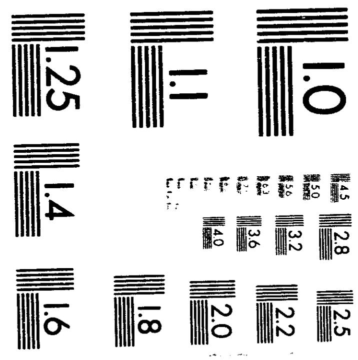
cc: S. L. Engstrom G6-04
P. Felise G6-06
D. I. Herborn G6-16 DGH
W. F. Sheely B4-03
R. A. Smith G6-02
G. D. Wright R3-10
HWVP DPC G6-51
DGB File/LB/Route

Thank you for your organization's timely review of the Hanford Waste Vitrification Plant (HWVP) Preliminary Safety Analysis Report (PSAR), Revision 0, revised pages. This memo provides responses to the comments transmitted in Review Comment Records HWVP-92-022 which are associated with your dispositioning of Engineering Data Transmittal 400415.

We trust that these responses satisfactorily address your concerns. Should you have any questions, please contact Mr. D. I. Herborn on 6-2361.

DG Baide
D. G. Baide
Manager

mcv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REVIEW COMMENT RECORD (RCR)

1. Date 7/7/92	2. Review No. HWVP-92-022
3. Project No. B-595	4. Page 1 of 3

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWVP-PSAR-001, rev. 0	B-595/HWVP	AA Zaman	HSA/WDSA	G6-04/6-1692

17. Comment Submittal Approval:

Organization Manager (Optional)

Author/Originator

10. Agreement with indicated comment disposition(s)

7/9/92
Date

A.A. Zaman
Reviewer/Point of Contact

Author/Originator

11. CLOSED

7/9/92
Date

AA Zaman
Reviewer/Point of Contact

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	The following excerpt, especially the underlined part, from chapter 1 page 1-5 does not provide actual representation of the length of missions:"....For the bounding case of retrieving all 149 SSTs and pretreating the waste with TRUEX process, it is estimated that an additional 10,000 glass canisters will be produced, <u>requiring 30 years of operation. These conclusions indicate that it should be possible to process the SST wastes during the 40-yr plant life using melters of current design capacity"</u>. The following statements from the HWVP Risk Assessment document WHC-EP-0421, page 1-27, shows need for extended HWVP mission:"Potential schedule delays within DST waste treatment program, coupled with the possibility of a multi-decade program to dispose of the SST wastes, could ultimately exceed the 40-yr design life of HWVP. An assessment of the impacts of increasing the HWVP design life to 50 to 60 yr should be made to determine.........to avoid significant costs in the future". Modification of the text is necessary to include the later scenario of upto 60 yr design life.		NOT ACCEPTED The current baseline criteria for the design life of the HWVP is 40 years. The PSAR provides documentation to present and discuss the safety significant features of the current design to support this criteria. The recommended modification to PSAR text regarding the design life of the plant would inaccurately describe the current design.	

A-6400-090.1 (03/92) WEF011

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
7/7/92	HWVP-92-022
3. Project No.	4. Page
B-595	2 of 3

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2.	The figure no. 3.4-5 that is referred in the PSAR text(page 3-36) and is attached for review is of poor reproduction quality. Note that the contour line elevations could not be read. These are necessary for the reviewer to evaluate the finished level gradients that will direct the rain water overflows away from the vitrification building.		NOT ACCEPTED....The reproduction quality of the cited figure does obscure the most detailed features of the drawing. However, these copies are only for reference to support PSAR discussions, and are not appropriate, nor intended, for use during actual detailed design review. Design reviewers have access to full size drawing sheets. An attempt will be made to mark-up the PSAR copy to include several major contour line values to aid in understanding the figure.	
3.	Text in page 5-12 relating to the helicopter evacuation is limiting to one or two severely injured person. The issue of "facility" and "on-site" workers evacuation need be addressed more clearly.		NOT ACCEPTED....The cited text presents a discussion regarding the potential consequences of plant site flooding. Helicopter use is addressed to demonstrate an alternate means of evacuating workers in the event of access road flooding. The reviewer is correct in recognizing that additional information will be required to address worker evacuation by helicopter, however, this information is inappropriate for the PSAR. The HWVP Emergency Plan (to be prepared prior to startup) is the proper document for this discussion.	

A-6400-090.1 (03/92) WEF011

REVIEW COMMENT RECORD (RCR)	1. Date	2. Review No.
	7/7/92	HWVP-92-022
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	B-595	3 of 3

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4.	Page 5-12: Equipment storage warehouse which are safety class three if storing SC1 or 1E items should avoid flooding to control damage to capital items. Refer to UCRL-15910 section 6.3 for Flood Design for SC3(e.g. important or low hazard) facilities.		ACCEPTED The reviewer's concerns have been addressed in Section 4.2.3.4 (page 4-13); *"With regard to Safety-Class 3 and 4 items, (UCRL 1990) also requires that the HWVP site be designed to mitigate the effects of design basis storms such that performance goals are satisfied and that the chance of damage and interruption of operations is acceptably low."* Also, under the requirements of the UCRL guidance, in the event that a low-probability flooding event does occur, those SC-1 and 1E items stored in Safety-Class 3 buildings could not be used if damaged.	

A-6400-090.1 (03/92) WEF011

REVIEW COMMENT RECORD (RCR)

1. Date 7/10/92	2. Review No. HWVP-92-022
3. Project No. B-595	4. Page 1 of 4

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
EDT 400415	HWVP	S.L. Engstrom	Safety	Vitro 6-9797

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

7/13/92
Date

Reviewer

Project/Cognizant Engineer

11. CLOSED

10/19/92
Date

Reviewer

Project/Cognizant Engineer

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	P. 1-18, states that "the information that will be developed at a later date will be predominantly confirmatory in nature." This indicates that the author has specific information which shows that over 50% of the "items requiring further development" will not require redesign. To date an excessive amount of redesign has been required due to lack of design basis analysis prior to completion of preliminary design. The statement appears to have the intent to downgrade the importance of the design basis analyses which Fluor has yet to produce. This should be revised to indicate greater importance to design basis analyses.		ACCEPT. There was no intent to indicate that no design changes are expected during detailed design for the items requiring further development. It is expected that based on the preliminary assessments specified in Column 4 of Table 1.5-2 and technical judgement, that the design concepts presented should be able to be developed so as to resolve safety concerns. The term "current design" in the eigth to last line will be revised to read "current design concepts".	

A-6400-090.1 (10/90) (EF) WEF011
Review Comment Record (RCR)

REVIEW COMMENT RECORD (RCR)	1. Date 7/10/92	2. Review No. HWVP-92-022
	3. Project No. B-595	4. Page 2 of 4

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2.	P. A-1, states that "The designer has since demonstrated compliance with DOE Order 6430.1A criteria on each of these 23 noncompliant items and they have been removed from Appendix A...." Through the review of FDI's Resolution of PSAR Noncompliant Items, it can be established that only a few "demonstrate compliance". Many others offer an "intent" to comply, but there is no demonstration of compliance. Still others indicate that they may not comply. This section should be reworded "intent to comply or seek waivers". A summary of review of FDI's responses follows:		ACCEPT. At this stage of the design and construction process, it is sufficient for the designer to show compliance with DOE Order 6430.1A criteria by stating in baseline Project documentation that the requirements will be met (see the first two paragraphs of Appendix A.) The second to last sentence in the third paragraph on Page A-1 will be revised to change "...demonstrated compliance..." to read "...documented intent to comply...." Actual compliance with these criteria cannot be demonstrated until the as-built plant is examined against the requirements. At the FSAR stage, an intermediary state of compliance can be judged based on the completed detailed design.	
	#1. Establishes only intent to comply. They cannot verify compliance until the DBFA is completed and approved.			
	#2. FDI does not appear to understand the intent of the Order criteria. Their response is aimed at seismic events and Safety Class. The order requirement does not address DBAs but rather off normal events which could lead to inability to enter a facility (doors locked or other) or lack of air locks which would prevent spread of hazardous materials.			
	#4. Establishes intent, only, to perform ALARA Analyses. No ALARA analyses have been received to date.			

A-6400-090.1 (10/90) (EF) WEF011
Review Comment Record (RCR)

REVIEW COMMENT RECORD (RCR)	1. Date 7/10/92	2. Review No. HWVP-92-022
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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
	#7. Response states intent to meet DOE requirements with "either an equivalency interpretation or a criteria deviation." This does not demonstrate compliance.			
	#9. See #4., above.			
	#10. The current design does not meet the 3-over-1 requirement at this time. The problem with the Flood Analysis and current lack of resolution establishes lack of demonstration of compliance. The FDI response indicates apparent lack of understanding of the requirement. Much of the FDI response is unrelated to the issue.			
	#11. FDI response establishes intent, only to meet order requirements. The response also does not indicate that the analyses will be completed prior to construction of affected structures and systems but states, rather, that analysis will not be completed "until all ... and cables have identified and routed." The response also is not fully consistent with the DOE requirement in that the requirement pertains to single failures and the response deals only with the subset of common mode failures.			
	#14., & #20. See #4., above.			
	#15. The DOE section is not a requirement, per se, but a "to be considered". This has been previously interpreted to mean that a study should be made which would support why the guidance is not being met, if it is not being met. Further, the FDI response states that the tunnel can be accessed to decontaminate.... Due to recent redesign, apparently this is no longer true.			

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
	#16. See #15. In addition the FDI response states that specific areas cannot be accessed or filter maintenance. This is not considered valid as the specified areas can be accessed with remote equipment.			
	#17. See. #15.			
	#18. The FDI response refers to the DOE Order Criteria as "guidance" . FDI response does not really indicate that they meet the criteria and indications from previous responses indicate that they do not meet Order criteria.			
	#19. FDI response does not indicate that they will meet Order requirements but rather indicates that some alternate mitigation measure will be applied. Further, as in #4., without a DBFA there is no method of determining at this time whether the design meets criteria.			
	#21. See # 19. Further, the canyon area, specifically, does not meet this criteria.			

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5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
EDT 400415 REV. 0 WHC-SD-HWV-PSAR-001 HWVP PSAR REVISED PAGES	HWVP	K K CHITKARA	WASTE DISPOSAL SAFETY ASSURANCE	VITRO/6-1710

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

7/10/92 KKChitkara
Date Reviewer/Point of Contact

Daniel L. Herting
Author/Originator

11. CLOSED

11/06/92 KKChitkara
Date Reviewer/Point of Contact

Daniel L. Herting
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	P4-6, Paragraph 3. A comparison of Tables 4.1-14 through 4.1-17 shows that ^{239}Pu is the highest (at a value of 0.0024 Ci/L) for Complexant Concentrate Waste and not for PFP waste as stated in the write-up.		AGREE Typographical errors were made with regard to the titles, bodies, and footnotes of Tables 4.1-14 through 4.1-17. For instance, the body found in Table 4.1-16 goes with the title and footnote of Table 4.1-15. The write-up is correct and these tables will be corrected.	

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2.	P6-10 thru 6-17. The results presented in the assessment have not been checked or reviewed as per the procedure of Safety Analysis & Regulation.		AGREE The calculations supporting the revised preliminary criticality safety assessment presented in Chapter 6 are being documented in a Criticality Safety Evaluation Report (CSER). This CSER is being prepared, reviewed and approved in accordance with Criticality Engineering Analysis organization procedures. A draft of this document is scheduled to be completed by the end of July 1992. Review and approval of the CSER is expected by the end of August 1992. Any substantive changes or impacts arising from this review and approval process will be addressed in a future HWVP PSAR amendment. In the last paragraphs on P 6-12 and P6-14, the first paragraph under "Spreadsheet" (P6-15), and the first paragraph under "Conclusion" (P6-16), the terms "value," "values," "evaluation," and "results" will be preceded by "preliminary."	

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3.	P6-13, Paragraph 2. Provide technical data to justify that the code-derived parameter value is more conservative.		AGREE The following information justifies this statement and will be inserted after the second sentence of the second paragraph: "The code-derived value uses the largest value for the silicon neutron absorption cross section found in the literature (0.160 barns); whereas, the four-factor formula case assumes a value of 0.130 barns for this cross section. The code-derived value also accounts for the variation in the average number of neutrons per fission and the neutron absorption cross sections as a function of the neutron energy spectrum. Use of a larger neutron absorption cross section is conservative because it lowers the concentration of plutonium required for criticality." REVISED DISPOSITION The paragraph referring to the conservativeness of the code-derived parameter value has been deleted (plus half of the previous paragraph) since there is no need to compare the four-factor formula-derived value to the EGGNIT computer code-derived value for the methodology to work.	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4.	P6-15, Paragraph 2. The statement that the total oxide concentration in both sludge and boiled-down solid is exactly the same needs further explanation. If this is an assumption, it should be so stated.		AGREE The assumptions associated with the statement in the second paragraph are clarified by replacing the sentence "The total oxide concentration in both sludge and boiled-down solid has a value of 1,738 g waste oxides per liter" with the following: "For calculational convenience, both sludge and boiled-down solid are assumed to have the same total oxide concentration, which is a value of 1,738 g waste oxides per liter."	
5.	P6-15, Paragraph 3. A value of 1,583 is given for barns/Pu atom in the case of safe condition, whereas this value is 1,538 on P6-14.		AGREE The value given for the "safe conditions" barns/Pu atom of 1,583 is a typographical error. This will be replaced by the following value: "1538".	
6.	P6-16. Clarify further the reason for stating that limits on g plutonium per liter could, <u>in theory</u>, be established.		AGREE The concept of establishing a plutonium concentration criticality limit is better expressed by rewording and combining the second and third sentences in the second to last paragraph on this page as follows: "A plutonium concentration criticality limit can be given in terms of g plutonium per liter; however, it is more convenient to express the plutonium concentration criticality limit in terms of the maximum ratio of plutonium oxide to non-plutonium waste oxides in the feed."	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
7.	P6-17, Paragraph 3. Provide technical data to support the statement that the addition of only 3 wt/% of an acid-insoluble borosilicate frit to pretreated waste oxides could make the dry solid waste system safe with at least a factor of 10 margin of safety.		AGREE Analytical data is not available to support the phrase "safe with at least a factor of 10 margin of safety". Preliminary analysis and technical judgement indicate that insoluble borosilicate frit added to dry solid waste feed should be criticality safe. The last sentence in the second to last paragraph will be revised to read: "It is expected that the addition of 3 wt% of an acid-insoluble borosilicate frit to pretreated waste oxides should make the dry solid waste system criticality safe."	
8.	P6, T-9. Explain the term "Not available" in Table 6.1-9.		AGREE The term "Not available" means that the preliminary flowsheet indicated a 0 wt% PuO_2 in CC feed (see Table 4.1-13.) This will be revised to read "0^b", where a second footnote will be provided as follows: "^{b} Preliminary result."	
9.	P9-9, Paragraph 1. Refer to Comment #1 above		AGREE The Chapter 9 write-up is correct. See the disposition of Item 1 for the revisions that will be made for the Chapter 4 tables.	

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1. Date	2. Review No.
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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 400415, WHC-SD-HWV-PSAR-001, Rev. 0	HWVP	R. E. Broz	HSA/WDSA	VITRO/6-8279

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

Date

Reviewer/Point of Contact

Author/Originator

11. CLOSED

Date

Reviewer/Point of Contact

Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
	NO COMMENT			

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Westinghouse Hanford Company | **Internal Memo**

From: HWVP Permitting & Regulatory Compliance 7F134-92-026
Phone: 6-3274 G6-16
Date: July 7, 1992
Subject: RESPONSE TO ENVIRONMENTAL ASSURANCE ORGANIZATION COMMENTS ON HANFORD WASTE VITRIFICATION PLANT PRELIMINARY SAFETY ANALYSIS REPORT, REVISION 0, REVISED PAGES

To: J. J. Dorian B2-16

cc: P. Felise G6-06
J. I. Gould B2-16
D. I. Herborn DH G6-16
E. G. Hess R3-09
D. F. Iwatate DFI G6-16
W. F. Sheely B4-03
R. A. Smith G6-02
DIH File/LB/Route G6-16
HWVP DPC G6-51

References: cc: Mail Message, J. J. Dorian to D. I. Herborn, "Review of Revised HWVP PSAR," dated July 2, 1992 (attached)

WHC EDT #400415, "Review of HWVP PSAR (WHC-SD-HWV-PSAR-001) revised pages, dated May 28, 1992.

This memo provides responses to Environmental Assurance Organization comments (transmitted in the referenced message) pertaining to review of Hanford Waste Vitrification Plant Preliminary Safety Analysis Report, Revision 0, revised pages (EDT 400415).

We trust that these responses satisfactorily address your concerns. Should you have any questions, please contact Ms. D. F. Iwatate, on 376-8856.

for D. G. Baide
Manager

mcv

Attachments (2)

RESPONSES TO ENVIRONMENTAL ASSURANCE COMMENTS ON HWVP PSAR, REVISION 0, CHANGE PAGES

COMMENT 1. Page 3-37. The 2nd paragraph says that Figure 3.4-5 shows the Columbia/Yakima River drainages. Figure 3.4-5 (in my copy) is the surface water drainage of the HWVP Site. The same figure is repeated as 5.1-3.

HWVP P&RC Response: The comment identifies errors in the numbering and placement of two figures within Chapter 3. A previously provided figure (3.4-5) was inadvertently deleted, a new figure was included and improperly referenced, and the numbering sequence for Chapter 3 figures was not updated. These errors will be corrected.

The reference to, and information provided in, Figure 5.1-3 is correct and requires no action.

COMMENT 2. Page 6-18, first full paragraph. Line says, *"TUREX"*, when it should be, *"PUREX"*.

HWVP P&RC Response: The comment identifies a typographical error, however, the correct spelling should be, *"TRUEX"*. The word will be corrected.

Attachment to: 7F134-92-026

[3] From: Verle Q Hale at ~WHC137 7/2/92 2:42PM (827 bytes: 17 ln)
To: Dan I Herborn at ~WHC87
cc: John J Dorian
Subject: REVIEW OF REVISED HWVP PSAR

------------------------------- Message Contents -------------------------------

Dan,

Due date July 5, 1992? You didn't really expect to get this on Sunday, did you? Anyway, I have just a couple of comments and they certainly aren't show stoppers.

PAGE 3-37. The 2nd paragraph says that Figure 3.4-5 shows the Columbia/Yakima River drainages. Figure 3.4-5 in my copy is the surface water drainage of the HWVP site. The same figure is repeated as 5.1-3.

PAGE 6-18. You have no doubt caught this one. The 1st full paragraph, line says TUREX when it should surely be PUREX.

The document looks pretty good now.

Verle

RL-F-1325.6# DEF012
(05/92)

United States Government | Department of Energy

memorandum

Richland Field Office

DATE: AUG 18 1992

REPLY TO ATTN OF: TPO:SDB/92-TPO-336

SUBJECT: TRANSMITTAL OF THE REVISION TO THE HANFORD WASTE VITRIFICATION PLANT (HWVP) PRELIMINARY SAFETY ANALYIS REPORT (PSAR) (WHC-SD-HWV-PSAR-001, REVISION 0)

TO: Kenneth A. Chacey, Director
Vitrification Projects Division, HQ, EM-343

This memo transmits the latest revision to the HWVP PSAR, WHC-SD-HWV-PSAR-001, Rev 0, for HQ review. This revision dispositions the remaining seven open comments from the review by the DOE-HQ, Office of Environmental Restoration and Waste Management Technical Review Group (TRG) on Safety Analysis Reports.

Please direct any questions or comments regarding the PSAR to Mr. Stephen D. Bradley, of my staff, on (509)-376-7333.

Robert W. Brown, Director
Treatment Projects Office

Enclosure

cc w/o encl:
J. Hennessey, DOE-HQ, EM-343
R. A. Smith, WHC

REVIEW COMMENT RECORD (RCR)

1. Date: July 26, 1993	2. Review No.
3. Project No.	4. Page: 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 3		S. L. Engstrom		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/6/93
Date

S. L. Engstrom
Reviewer/Point of Contact

Daniel L. Herborn
Author/Originator

11. CLOSED

9/29/93
Date

S. L. Engstrom
Reviewer/Point of Contact

Daniel L. Herborn
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	P. 22, Para. 2, line 3. Formic acid should be added to examples of hazardous chemicals to be transported.		ACCEPTED. Formic acid will be added as an example in addition to chlorine and ammonia.	
2.	P. 23, 3.3. The meteorology section will need to expand its coverage of historical temperature data to support analysis of the Canister Storage Building's natural draft cooling system.		ACCEPTED. The record highest temperature of 115 degrees fahrenheit in 1939 provided in Table 3.3-2 is assumed as the extreme temperature condition (115 degrees) for the Canister Storage Building (CSB) performance evaluation (see page 5-116). Because of the diurnal variation of the outside air temperature and the long time constant for heat transfer within the CSB concrete structure, it is judged that 115 degrees fahrenheit is conservative for analysis of natural convective air flow. A detailed thermal analysis will be performed using statistical variations for the highest potential outside air temperature to confirm the above conclusion. This will be reported in the next Preliminary Safety Analysis Report, Revision 2.	

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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 4		S. L. Engstrom		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/18/93 x S. L. Engstrom

Date Reviewer/Point of Contact

Author/Originator

11. CLOSED

10/11/93 x S. L. Engstrom

Date Reviewer/Point of Contact

Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	P. 3, 4.1.1.2, paragraph. Line 4 contains "...actinides(TRU)..." Actinides and TRU are not equivalent. Actinides go from 89 to 103. Transuranic elements start at 92. Discussion should use one or the other, but not both.		Accept. This line will be revised with "(TRU)" removed.	C
2.	P. 15, 4.2.3.4, 4th para. This discusses need for SC-1 and -2 structures, etc to be protected from internal flooding. This should be broadened to cover internal flooding and concurrent DBE. Aftershocks could occur following the initial DBE, which led to the flooding. The possibility may also exist of needing to address upper floor flooding in conjunction with the hydrogen explosion, which could occur some length of time following the DBE.		Accept. Design will need to look at these possibilities in their analyses. This particular section is only discussing flooding and will not be expanded to discuss these scenarios. As discussed in PSAR Section 4.4, Safety-Class 1 and 2 structures, components, and systems will be designed to be functional for all applicable Design Basis Accidents (DBAs). The third paragraph on page 4-79 describes interaction analyses which will be conducted to identify potential hazards to Safety-Class 1 and 2 targets, such as from internal flooding. This item will be tracked as a CCDB task.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
3.	P. 17, Table, Missile. Parameters are provided for a 15 lb. plank at 50 ft ht. Is there a formula for lighter missiles at greater heights? The CSB intake screens are between something over 37 ft. to 59 ft. There is a need to determine impact of missile damage to screens in terms of blocking flow. It is not clear from drawings what portion of the screens are under 50 ft. ht.		Accept. The need to analyze the possible effect of missiles blocking the flow through the CSB intake screens is valid. The missiles will be applied up to the maximum 50 foot height. There is no formula for lighter missiles at greater heights unless such is a requirement of the project. A subsection will be added to Section 5.5, "Items for Further Development" to insure that an analysis is provided to evaluate the potential for restriction of the CSB vault ventilation air flow.	C
4.	P. 48. **Abnormal Event Shutdown.** This section needs a more clear cut definition of an abnormal shutdown. Much of the discussion concerns actions which cannot be taken following a loss-of-power incident. The next to last line of paragraph discusses "...all emergency shutdown conditions." A distinction may be needed to separate abnormal from emergency, or emergency from DBA.		Not accepted. Section 4.3.1.3 and the subsection entitled "Abnormal Event Shutdown" are included in the PSAR primarily to discuss criteria and design requirements. The latter subsection provides a reference to Section 6.1.3, where the various process shutdown modes are defined and discussed in more detail. The process modes covered in Section 6.1.3.3 include short-term shutdowns, extended shutdowns, abnormal event shutdowns, and post-Design-Basis Accidents shutdowns.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
5.	P. 48. **Abnormal Event Shutdown.** 2nd paragraph states, " ...facility will be designed to allow safe unattended operation after an abnormal event shutdown..." Please clarify the definition of "safe". Does this include ALARA? With the removal of the standby generator there has been no ALARA analysis to determine whether it is "safe" (ALARA safe) to reenter all sections of the building after a loss of power incident. Of specific interest is the MRB.		Accept. The second paragraph under this subsection will be removed. In Section 6.1.3.3 (pages 6-30 and 6-31), an abnormal event shutdown (AES) is defined as an unplanned shutdown of process operations implemented because of a major failure, detection of a potentially unsafe condition, or detection of conditions that could lead to major property damage. It is expected that this will be an infrequent occurrence, and that recovery actions will be implemented on a case-by-case basis. Similarly, evacuation and other ALARA actions will need to be taken on a case-by-case basis. As pointed out in the last paragraph on page 6-30, procedures implementing an AES and for approving restart after an AES will be developed prior to plant operation. Again, ALARA actions will be on case-by-case basis.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
6.	P. 49. Top of page. Discussion, Post DBA section addresses only the Vit. Bldg. There should be some discussion of the CSB.		Accept. The following paragraph will be added before Section 4.3.2: "The Canister Storage Building (CSB) vault, air intake structures, and air exhaust stack are designed as Safety-Class 1 and cooling of the vault structure and the non-Safety Class canisters is passive by natural convection. There are no functional components associated with the vault or instrumentation required to perform following a DBA. Therefore, the Safety-Class 1 vault system, by design, assures that confinement of radioactive material is maintained following a DBA." The present design does not include and does not require stack monitors in the CSB.	C
7.	P. 49, 4.3.2. First line appears to be inaccurate in describing the escape of radioactive materials as the primary safety hazard. The potential of chemical hazards, such as mixing formic and nitric acid may be equally hazardous. Paragraph should be revised. Bulleted list is ok.		Accept. The line will be revised to read "...and the potential of chemical hazards are the primary safety hazards."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
8.	P. 53, Table. Description of Neutral zone is somewhat confusing. The description is "Areas not requiring confinement ventilation." Please provide the basis for "require". The CSB operating area currently has CAMs, an HP room and Ch. 9 discusses HPs performing rad. monitoring to mitigate events and yet this is a neutral zone which does "not require" confinement ventilation.		Accept. This item will be added to the CCDB list. Neutral zone definitions in the FDC and the TDP are not mutually inclusive and make it difficult to clearly assign a proper classification. Normal usage of the term "neutral zone" refers to transition areas between zones as is indicated in the TDP. The FDC states that it is an area not requiring confinement ventilation. The definition problems and a clearer zone classification rational need to be provided before this concern can be adequately resolved. The Operating Area of the CSB is classified as a neutral zone. This classification will be discussed further under the CCDB item. As designed, the CAMs, etc., in the CSB are over and above what is required and are there to be able to prove to Ecology that there has been no radiological release.	C

REVIEW COMMENT RECORD (RCR)

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
9.	P. 54. Last para. Criterion is given, "...there shall be no common walls between supply and exhaust air tunnels or ducts." Please provide the basis for or requirements driving this criterion given the current design. Please provide the definition for "wall". How many feet of concrete define a wall? FDI has driven this criterion to absurd design configurations which may lead to reduced structural integrity of the building. With the current design, i.e. backflow dampers, intake fan shutdown, etc., there does not appear to be a strong requirement for this criterion. If the criterion is to be maintained, "wall" should be defined as, e.g., 4 in. concrete, minimum. Hence, if intake and supply systems are separated by 3 ft. of concrete the criterion could be considered as met.		Not accepted. The criteria has led Fluor to add a void space between supply and exhaust tunnels which does "in fact" satisfy the criteria. Fluor's structural analyses verify the adequacy of the designs and UCAT has indicated the capability to install forms as required to pour concrete. It is not necessary to define "wall thickness"; but more prudent to ensure that the design is structurally adequate by the Fluor analysis. The criteria is per the FDC and Fluor has provided the accomodating design to satisfy this criteria.	C
10.	P. 59, Top of page. The minimum DP for DBA conditions for the Process zone (I) is defined as "Sufficient to maintain confinement". This does not really provide FDI with design criteria. This can be taken to mean anything from "sufficient DP to insure no off-site release in excess of..." to "sufficient DP to insure a minimum 125 ft./min across all leakage paths", the latter being the equivalent to zero leakage. This criterion must be clarified in order assure adequate ventilation and resultant 1E load list.		Accept. The phrase "Sufficient to maintain" will be replaced by "Sufficient to maintain confinement such that there is no unacceptable radiological release onsite and at the site boundary."	C
11.	P. 63, 4.3.3.4. Definition of Single Failure Criteria needs further discussion. It is not clear from this discussion that the single failure refers only to SC-1 systems and assumes failure of all non-SC-1 systems. This should be clarified in that many FDI engineers do not understand this concept.		Accept. Further discussion of single failure will be added that is based on DOE Order 6430.1A and MRP 5.46. The discussion will include a statement that Non-Safety Class 1 items are assumed to fail for the purposes of determining whether criteria is met.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
12.	P. 79, para. 2 and 3. The discussion concerning SC-1* and -2* systems must be further refined. The use of the term "limited safety function" must be clarified. FDI has taken this concept to classifications never envisioned by the development of this classification. It must be clarified that an item listed SC-1* (for instance) would not be required to be in the design to assure safe shutdown. I.e., while failure of the item could endanger a SC-1 system, deletion of the item from the design would not impact safe shutdown. FDI is currently listing structures which are inherent portions of the structural integrity of the canyon as SC-1*. Further, criteria for QA of the SC-1 portions of SC-1* systems needs to be clarified. Apparently, FDI intends to provide a lower level of QA for these items. Last sentence para 3 needs rework to assure understanding of the difference between "functional failure" and "required mitigative functions." As the paragraph stands it appear contradictory.		Replace the Second Paragraph on p. 4-79 with the attached Insert JJJ. The last sentence in paragraph 3 will be revised so that the word "functional" is changed to read "limited."	C
13.	P. 84, 4.4.2.1.1. A new design basis event must be defined with the introduction of the concept of natural draft cooling with respect to SC-1 facilities. Failure of the natural draft cooling system to provide adequate cooling of the structural concrete of the vault could lead to vault failure with a consequent off site release. The thermal analysis of the system must utilize a Design Basis Heatwave - or whatever - to adequately support the Safety Analysis of the facility.		Partially accepted. The DOE design documents do not require us to create a new natural phenomena category for a possible extreme condition.To address the valid concern, a subsection will be added to Section 5.5, "Items for Further Development."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
14.	P. 85, **Single Failure**. This discussion does not appear to be complete. There is no discussion of passive failures. As given, the discussion would not include SC-1 pipe breaks, for instance. Please provide a complete discussion of single failure at some point in the Chapter - see item 11, above.		Accept. See Item #11, above.	C
15.	P. 86, **Emergency Power**. Next to last line, delete "for guidance".		Accept. The phrase "for quidance" will be removed.	C
16.	P. 4T-31. Vit Building Rationale (SC-1) is contradicted by SC wall drawings in Ch. 5. Suggest deletion of the drawings. Rationale appears correct.		Accept. The safety class drawings have been revised to be consistent with the text.	C
17.	P. 4T-31, CMR - SC-1*. Safety is not in a position to approve this designation, not having seen the analysis to support the rationale. Please provide supporting analysis.		Accept. Fluor is in the process of revising the CMR classification to SC-1. The PSAR will be revised to show this more correct classification.	C
18.	P. 4T-31, MRB. Portions of the MRB should be SC-1* in that a branch of the zone 1 exhaust tunnel comes from the MRB and a SC-1 backflow damper is not located in the Vit. Bldg (hence protected) portion.		Not accepted. There appears to be no SC-1* interface. The current pre-January drawings reflect only Zone II/III systems in the MRB. There is an apparent change in progess due to an increased source term requiring the Decon stations to be Zone I. The discharge from these stations is to be filtered through two stages of HEPA's and exhausted in conjunction with all other MRB Zone II exhaust to the Vitrification Building Zone II stack.	C
19.	P. 4T-34, last 2 items. What system includes Zone II/III supply fan shutoff? Somewhere in one of the systems there is a SC-1 function. Please identify that system.		Accept. The system is not identified by design at this time. The PSAR will add this information when it becomes available from design.	C

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[Attachment with Item #12]

INSERT JJJ
(Replace second paragraph on Page 4-79 with the following:)

" Items classified as Safety-Class 1* or 2* are items that have no inherent Safety-Class 1 or 2 safety functions, but whose failure could prevent Safety-Class 1 or 2 items, respectively, from performing their required safety functions during and following DBAs. The designation Safety-Class 1* or 2* indicates that there can be a limitation to the scope of the safety design criteria applied to these type of items. Safety class design criteria only apply to those aspects of the Safety-Class 1* or 2* item that prevent the item from failing in a manner that compromises the safety function of the Safety-Class 1 or 2 items. Items classified as Safety-Class 1, 1*, 2, or 2* must have their safety functions clearly identified. Furthermore, those aspects of the item that accomplish the safety function must be identified. The safety function aspects must be developed, designed, procured, constructed, fabricated, installed, and/or maintained commensurate with the item's safety classification. For Safety-Class 1* and 2* items, the criteria governing the design of the safety functions shall be in accordance with Safety-Class 1 and 2 requirements, respectively. The aspects of a Safety-Class 1* or 2* item that do not have a safety function must be classified to indicate their proper classification."

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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 5		S. L. Engstrom		

17. Comment Submittal Approval:

Orga

10. Agreement with indicated comment disposition(s)

S. L. Engstrom

Reviewer/Point of Contact

Date 8/19/93

Fred D Sargent

Author/Originator

11. CLOSED

~~nization Manager (Optional)~~

S. L. Engstrom

10/13/93

Date

Reviewer/Point of Contact

Fred D Sargent

Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Second page, middle page: This states "...CSB vault provides a double-containment function with no HVAC system for contaminant mitigation." This should be revised to reflect that there is only one containment boundary, the canister. The tube floor plug contains a HEPA filter, hence that is a confinement boundary and the HEPA does provide some measure of mitigation.		ACCEPTED. The referenced sentence will be revised to read "In the CSB vault, the canisters provide a containment function and the storage tube, floor plug, and the floor plug Heating, Ventilating, and Air Conditioning (HEPA) filter provide a confinement boundary. The HEPA filter performs two functions: 1) it allows the storage tube to breathe and thus prevents pressure buildup when loading thermally hot canisters into cold storage tubes and 2) it mitigates any potential contamination from the storage tube."	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2.	5.1.1.1, fourth page: Discussion of the transfer system doesn't include a description of where is the last valve outside of the Vitrification Bldg. and who controls that valve (or other flow halting mechanism). This discussion should be included to allow determination of source term following a DBE as the design no longer includes the RLST tanks.		Accept. This section is an overview section and refers to Sections 5.2.2.1 and 5.2.3.1 for detail. This section also refers to Chapter 6 as describing the system in detail. More information has been added to Sections 6.4.1.1 and 6.4.2.1. In addition, a further development section 6.9.10 has been added. No change is considered necessary to this facility location and layout section.	C
3.	5.1.1.2, second paragraph: Discussion of HVAC intake and exhaust locations contradicts discussion of more recent designs later in the chapter and should be revised.		Accept. The text on lines 6 and 7 will be changed to read: "...(intake for Zone I and central Zone III, exhaust for Zone II), which...." The text on line 11 will be changed to read: "...belowgrade. The CMR also houses the east Zone III intake and the east Zone II booster fans. The shipping..." The text in Section 5.1.1.6, lines 7 and 8 will be change to read: "...contains the the HVAC equipment for the OC/REB building, the west Zone III intake and the west Zone II booster fans. This building..."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4.	5.1.1.2, fifth page: This states that the "(the exterior structure is Safety Class 1)" which seems to indicate that the canyon walls aren't. The last drawings from FDI indicate that they intend the outer structure to be only SC-1*. The latter, however, is unacceptable to WHC independent safety. Suggest revision to a less controversial description.		Accept. The indicated sentence will be revised to read "The Vitrification Building is a Safety-Class 1 Building with the exception of the metal building...Safety-Class 1*." This sentence is meant to be a general introduction to the HWVP buildings.	C
5.	5.1.1.9: Discussion should note that the 1E power is provided for Safety Class 1 and 2 loads.		Accept. Third sentence will be revised to read: "Normal power is provided for the Safety-Class 3 loads and emergency (1E) power is provided for the Safety-Class 1 and 2 loads."	C
6.	5.1.1.13: Does the M/E building contain a SC-1 (or 2) valve? At one time there was such a device which should be discussed if that design is still current.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C
7.	5.1.2.4.2: This section describes a "High-pressure steam system..." This is later referred to as a medium pressure steam system (about 150 lbs.).		Accept. The text will be revised to read: "... plant. The high-pressure steam is reduced at the HWVP to produce medium-pressure steam, which..."	C
8.	5.1.2.6: This section describes Vitrification Building Zone 1 stack as SC-1*. This should be SC-1 as the stack has a function other than not falling on something else.		Accept. The "SC-1*" has been replaced with "SC-1."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
9.	5.1.2.6, second paragraph: This states that the Zone 1 Vitrification Building and CSB stack (exhaust?) are SC-1 so as not to fail. This is not a very good description in that these stacks must continue to operate, not just not fail. Description also should note that the CSB intake stacks, also, are SC-1 to assure continued operation. The paragraph generally fails to note revised designs of the CSB and the Zone 1 Vitrification exhaust stack. Last line discusses stack sumps and maintenance as if this also applied to the CSB stacks. Discussion should clarify whether this applies to CSB stacks.		Accept. Revise the 2nd para. to read "The Vitrification Building (Zone I) stack is designated Safety-Class 1. The stack must continue to operate without any restriction to the Zone I exhaust flow. The Vitrification Building Zones II and III stack (Safety-Class 1*) is located so that it will not impair the function of the Vitrification Building or any Safety-Class 1 or 2 items should it fail. The CSB stack is designated Safety-Class 1 since it must continue to operate without restriction to the CSB exhaust flow. The design ... exhausted air. The Vitrification Building and the CSB stack sumps are designed such that routine draining, other operations, and maintenance can be performed without entering the stack." A paragraph will be added to describe the CSB SC-1 air supply stacks.	C
10.	Pages 10 and 11: Some discussion is missing between end of page 10 and beginning of page 11.		Accept. A sentence will be added at the beginning of the second paragraph of Section 5.1.2.7.1 as follows: "A paved parking lot will be provided for HWVP personnel."	C
11.	5.1.2.7.2: SC-1 features of rail system should be noted.		Not accepted. The reference to Section 5.2.3.2.5 is sufficient at this time.	C
12.	Page 14, first paragraph: Design Basis Heat Wave should be added to the list as a result of the design of the CSB.		Not accepted. The design will account for the high temperatures. The DBAs shown in this paragraph are directly from the FDC.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
13.	5.2.1.1, 14th page, fifth line: This should discuss "safe shutdown" rather than "safe operation." Last line, add explosion and hot weather.		a) Accept. The second sentence will be replaced by the following: "Safety classes are designated to items according to the items' importance in preventing or mitigating the consequences of hazards and postulated DBAs." b) Not accepted. List reflects the FDC, Sections 4.1.3 and 4.1.4.	a)C b)C
14.	5.2.1.3, second paragraph: This should read "... radioactive OR TOXIC materials..."		Accept. The text will be changed to read: "... radioactive and toxic materials..."	C
15.	Page 18, first un-indented paragraph: Descriptions should determine whether and of the SC features of the Zone 1 intake or Zone 2, 3 intake or exhaust are actually located on the 4th floor. If so, do any of these pieces of equipment require SC-1 power? There is a need to determine whether the 4th floor classification is adequate.		Accept. The Zone I and Central Zone II/III intake systems and the Zone II Central, East and West Zone II exhausts are located on the fourth floor. No SC-1 power is required for these systems as they are designed to fail in a safe configuration. No direct interface is necessary for events resulting in loss of total normal power to the plant. Any interface control equipment or instrumentation required for other than total loss of normal power will be provided with appropriate safety class protection. No changes are required to the text at this point as it is an overview section not requiring additional detail. See Section 5.4.1 for description on location of HVAC main equipment and detail on system operation and support.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
16.	Page 18, middle of page: Section discusses "...internal shock and blast loads,..." It has not yet been determined whether the canyon design can adequately withstand a hydrogen explosion, or a hydrogen explosion following a DBE. Capability to withstand aftershocks may, yet need to be determined. This may need to be a new Section 5.5 issue.		Not accepted. The design is actively taking these phenomena into account and will continue to do so. The designer is not required to design the structure to take a hydrogen explosion load. We can't make that item a Section 5.5 issue. The hydrogen mitigation issue is in Section 6.9.1.	C
17.	5.2.2.1.1: See comment two, regarding control of source term to plant.		Accept. (See Item #2, above.)	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
18.	5.2.2.2.3: The FDI design philosophy behind Fig. 5.2-2 is unacceptable. FDI spokesman has said that the rationale for SC-1* designation of primary structural members of the Vitrification Building is to cut costs by cutting down on QA. It is not acceptable to reduce QA on structures which are required to assure safe shutdown of the plant. Most of the walls designated as SC-1* are required not to fail during normal operation as their failure would cause an off-site release in excess of... All walls required for the structural stability of the canyon, and necessary to assure safe shutdown (i.e., failure of that structure would assure confinement failure) during normal operation and DBAs shall be SC-1. Comments on these drawings, already sent to FDI are attached and should be treated as part of this review. These sketches post date the January cut off for design change approvals. Further, I don't believe this has been approved. Inclusion of this material, but not the inclusion of the HEMFs instead of the sand filter, which has been approved, is not understood.		a) Not accepted. The PSAR is a reflection of the design. The figures show the latest design information. A consistency between the design and the PSAR must be maintained. The reviewer has the option to discuss this matter with the designer and if the design changes, the PSAR information will change, in like manner. Where the PSAR text and Figure 5.2-2 differ, the author has tried to revise the Figure to match the text data and the data from Table 4.4-1. b) For this revision of the PSAR, a date was picked (1/1/93) for a snapshot in time for consistency of information to be included in the document. It was expected that there would be some overlap of information that actually would arrive after the "cut-off" date. A "best effort" to achieve consistency is what is seen in the PSAR.	a)C b)C
19.	5.2.2.2.3, second paragraph: What is the significance of reference to 5481.1B in this context? Either delete or provide some insight to the meaning of the inclusion.		Accept. This reference will be revised to DOE Order 5480.1B from 5481.1B.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
20.	Page 29, first paragraph: This should be dropped as it probably can't be supported. The implication becomes that the separate zone system could result in contamination to Zone 1 intake equipment and to the outside environment, by extension of logic. The latter is a little harder to defend than backflow to operating galleries of Zone 2 exhaust contamination which is implied here. Most of the logic used to support not using a full cascade system has not been supported by analysis, only by discussions as given here.		Accept. The paragraph will be deleted. Even though it may be true, no documentable analysis is available to lead to these conclusions.	C
21.	Page 29, middle of page: Please note that the roof slab of structure is only the secondary confinement boundary, although it doubles as tertiary.		Accept. First sentence, third paragraph will be changed to read: "Secondary confinement is provided ...process areas, process area cells, canyon walls and roof, pipe around pipe..." Fourth paragraph will be changed to read: "Tertiary or final confinement...structural concrete and the Zone II/III..."	C
22.	Page 29, second bullet: Discussion of Vitrification Building SC is at odds with drawing 5.2-2. See comment 18, above.		Accept. The figures are being revised to show the primary outer walls as part of the SC-1 structure which follows the text.	C
23.	Page 30: Delete most of line nine. Confinement concept for CSB and Vitrification Building are vastly different.		Accept. The sentence "The general design...and WHT Buildings" will be deleted.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
24.	5.2.2.3.3, page 30: Revise discussion of "sealed canister storage tubes" as these are not sealed, as such, as they are HEPA filtered and allow air flow.		Accept. The first paragraph will be revised to read "Containment and confinement features have been designed into the CSB. Containment consists of the sealed glass-filled stainless-steel canisters. Confinement consists of the steel storage tubes, the sealed shielding floor plug, and the floor plug HEPA filter which allows the tube to breathe."	C
25.	Page 32, next to last full paragraph: Discusses "commingling areas." This may need revision if the design criteria was to avoid commingling.		Accept. The words "and commingling" will be taken out.	C
26.	Page 33: This page and several other locations need to include discussion of the SBS cell.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C
27.	Page 36, last paragraph: Discusses "...no single failure can cause an uncontrolled load drop..." None of the systems described are SC-1 so this description does not appear appropriate. Section should be revised in terms of SC-1* type discussion.		Accept. On page 39, top partial paragraph, revised "Safety-Class 3" to "Safety-Class 1*." Also, the last para. on Page 5-36, 1st sentence, "so that no...cause...." will be replaced by "to prevent...." The crane will be added to Table 4.4-1 under System 71 as a SC-1*.	C
28.	Page 38, last sentence: Revise to read, "OFFSITE AND onsite..." Discussion of SC-2, and 3 systems should be separate. Continuation on page 39 should discuss the crane as designed to NOT FALL during a DBE.		a) Accept. Added words "Offsite and." b) Accept. Removed the words "2 and." c) Accept. Revised the last sentence to read: "The canyon crane is Safety-Class 1* and is qualified to not fall during a DBE."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
29.	Page 39: Discussion indicates Fire protection alarm and control systems... which would appear to be in the canyon. Please assure accuracy of this description.		Accept. Page 5-39, fifth paragraph, next to last sentence, "Fire protection...(see Section 5.4.9)." will be removed.	C
30.	Page 39, last paragraph: Discussion should include whether or not the impervious cell liner is SC-1. If not then it isn't impervious under all conditions. This needs to be clarified, as it pertains to the flooding analysis.		Not accepted. Since text does not say the liner is SC-1, it should be assumed that it is not SC-1. Text does not take credit for liner during DBAs.	C
31.	Page 40, second paragraph: The DBF analysis should be qualified as draft rather than preliminary. The latter carries the connotation of review and approved at that stage. The DBFA has no such qualification.		Accept. The word "preliminary" is being revised to "draft."	C
32.	Page 41, end of first paragraph: The criteria discussed should have been changed long ago as this has led to unwieldy design and construction improbability. This criteria was to have been revised by systems engineering and is important to the design of the plant. Perhaps this is a Section 5.5.... issue.		Not accepted. The description is still in line with the design. The designer is following project requirements in the FDC.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
33.	Page 47, next to last paragraph: States that the ..."structural components of the AF that are an integral part of the Zone I confinement boundary are Safety-Class 1." Figure 5-2.2, page 3 of 10 indicates that the analytical cells are SC-1* rather than SC-1. I believe the drawing should be revised and that the text is correct. There should be agreement.		Not accepted. The text is referring to the common walls with the inner process cells which are SC-1.	C
34.	5.2.3.2.3, page 48: Title of the section is "Access, Egress, and Commingling." However, the word "commingling" never appears in the text of the section, hence there is no policy statement for commingling nor is there explicit description of those areas where commingling will be allowed. Section should be revised to provide specific policy and description.		Accept. The word "Commingling" will be removed from the title.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
35.	Page 55, et al,: There is no specific discussion sections for the railroad washdown area. Other than there being shielding between it and the railroad well. There needs to be a discussion of shielding between the washdown area and adjacent potentially occupied areas for off normal events such as removal of a failed full melter.		Accept. The recommendation to add discussion about shielding between the washdown area and adjacent areas, is appropriate. Text will be added to the cited paragraph after sentence three, as follows: *"Facility baseline shielding requirements, including RW washdown area design, provide required protection between this area, and adjacent areas, even during the most significant operational event posing radiation dose risk: removal of a failed full melter. Chapter 8 provides additional discussion of facility shielding design requirements."* It should be noted that the removal of a failed melter is not considered to be an off-normal event and the design basis shielding requirements and assumptions include consideration of melter removal. Melter removal presents the most significant source term consideration for shielding design. The cited paragraph (Section 5.2.3.2.5.3, Bullet 3) includes discussion about the railroad washdown area that is relevant to the topic of the paragraph: Design Basis and Safety Assurance Considerations. Melter removal is a planned part of operations and is recognized in the design process. The definition of radiation access zones (discussed in Chapter 8) provides evidence of design consideration for dose/exposure risk relative to operations. The RW washdown area is included in this approach.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
36.	Page 55, last paragraph: The next to last line, "The OC/REB Safety-Class 1 interlock..." indicates SC-1 electrical or other connections in the OC/REB or between the OC/REB and the track. The agreed to design (WHC Safety, WHC Safety Analysis and FDI was for SC-1 interlocks only between the two railroad switches and the interface with the OC/REB was to be SC-3. FDI's latest description in their latest draft safety analysis of the runaway train seemed to present a design different from either. One design concept, only should be presented and that should be the agreed to design concept.		Accept. The last two sentences will be replaced with "The interlocks between the railroad switches are Safety-Class 1 and are hardwired and redundant. The interface between the railroad switches and the OC/REB are Safety-Class 3."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
37.	Page 62, CMR: (a) There appears to be a contradiction of design policy with respect to ALARA in the description given and the probable usage of the room. At the present time there is only a back-draft damper between this room and the exhaust tunnel, no HEPA. Even a testable HEPA would be in aid of ALARA for work in this room. Operations is of the opinion that entry into this room may be "on mask" which is not compatible with ALARA or use of coverblocks for removal of potentially high radiation level HEPAs of the off-gas system. This room has been listed as Zone 1. Discussion is therefore needed to further describe how work will be conducted - ALARA, and on airlocks for Personnel entry and for the equipment hatch leading to the first floor gallery. (b) Discussion is also needed of the stairwell to the outside environment and how this meets 6430.1A requirements (or doesn't).		(a) Accept. The cited paragraph accurately describes the current design features and operational plans for the CMR area. The current design does include a back draft damper between the CMR and the exhaust tunnel, as required by the design. The discussion in the last part of the paragraph pertains to the use of the CMR to assist in recovery from the abnormal event of break through of the HEPA filters in the CPC. Operations would prepare for such an event with the required work permit(s), and would also have to develop an ALARA analysis and plan for the intended task(s). ALARA analyses would have to be prepared on a case-by-case basis considering the different ways that the design features of the CMR could be used by Operations. The paragraph discusses design considerations that have been incorporated into the CMR to assist in such an unlikely event. The topic of potential back-draft damper leakage and ALARA will be evaluated as part of the design/safety analysis commitment made in Section 5.5.6.	a)C

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37.	(continued)		(b) Accept. The topic of the "*stairwell to the outside environment*", will be evaluated further as part of the design/safety analysis commitment made in Section 5.5.6 to determine if a 6430.1A compliance issue exists.	b)C
38.	5.2.3.2.7.3, page 64: More description is needed of design of supply fan shutdown control and location of the system.		Accept. Paragraph 1 line 3 will be changed as follows: "...Safety-Class 1. The safety class controls will be located in areas with appropriate safety class protection. Supply fans..." Paragraph 2 line 4 will be changed as follows: "...Safety-Class 1. The safety class controls will be located in areas with appropriate safety class protection. No significant..."	C
39.	Page 64 and 65: Description also needed of design and location of shutdown interlock for Zone II & III supply fan.		Accept. See response to Item 38.	C
40.	5.2.3.3.1, page 65: States that the CSB operating area is monitored for contamination. This is a contradiction to the apparent Zone IV nature of the operating area, by definition. An explanation is needed to explain this apparent contradiction.		Not accepted. No change to the PSAR is required. This monitoring is in excess of what is required for a neutral zone. Although radiological contamination is not anticipated from either the SCT or storage tubes, it is prudent to be able to verify and document that no release has occurred.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
41.	Page 66: Discussion is needed of the chemical (elect.) interaction between stainless-steel canisters and carbon steel storage tubes.		Not accepted. No reaction between the stainless-steel canisters and the carbon steel storage tubes will be possible because they will not be in contact. The canisters and storage tubes will be maintained apart as a result of the design of the stainless-steel bottom guide assembly and the stainless-steel impact limiters located between canisters.	C
42.	5.2.3.3.3, page 66, second paragraph: States that the storage tubes are Safety-Class 1, but does not provide an explanation of those accidents for which the tubes are rated SC-1. It must be clarified that the tubes are qualified for a DBE but not a canister drop.		DOE Order 6430.1A states that "safety class items will be capable of performing required safety functions under DBA conditions." The storage tubes' safety functions are described in Table 4.4-1, Sheet 2 of 11 which explains the classification of the CSB canister storage vault. The canister storage vault is classified SC-1, with the rationale being that damage to the vault may result in loss of cooling of the canisters or structural failure of numerous canisters, which could lead to unacceptable results. This same rationale also applies to the storage tubes, which are an integral part of the canister storage vault system. To fulfill these safety functions, storage tube design must address all relevant DBAs and credible adverse events. The relevant DBAs and events are related to the integrity of the vault configuration and not to failure of one tube from a canister drop.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
43.	Page 66, last sentence: Use of meaningless phrases such as "well-established engineering practices" is not an acceptable design basis. Revise and provide actual design bases.		Accept. Last phrase - "using well-established engineering practices" - will be removed. The design bases are provided in Section 4.2 and the rest of this Section 5.2.3.3.3. The DBAs are referenced in Section 4.4.	C
44.	Page 67, second paragraph: Provide definition of "normal operating conditions."		Accept. Second paragraph, third sentence will be revised to read "under normal meteorological conditions (See Section 3.3.1.)." The word "meteorological" will replace "operating."	C
45.	Page 67, third paragraph: The BNFL study, which was not conservative for this design indicated the concrete temperature could exceed 200 F. Provide bases and reference to analysis.		Accept. The third paragraph, last sentence will be revised to read "structural concrete may approach 99°C (210°F)" instead of "structural concrete will not exceed 93°C (200°F)." The reference for this is FRF-1373, R.N. Gibbons to R.B. Morson dated January 9, 1992.	C
46.	Page 67, fourth paragraph: Discusses conditions under which temperatures in excess of 66 degrees may be allowed. What is WHC doing about conducting such tests?		Accept. The testing has been completed and recorded in the references in Item #48, below.	C
47.	Page 68, first paragraph: States that significant ...degradation does not occur below 200 F. How much degradation can the concrete supporting walls withstand and still withstand a DBE with the SCT in a vulnerable location? Provide reference to analysis.		Accept. This item will be added to Section 5.5, "Items For Further Development." See Attachment A.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
48.	Page 68, second paragraph: Provide reference to test data and relevance to the concrete and aggregate mix to be used for the CSB.		Accept. "Modeling of Time-Variant Concrete Properties at Elevated Temperatures" by C.H. Henager, PNL, April 1988; "Effects of Long-Term Exposure to Elevated Temperature on the Mechanical Properties of Hanford Concrete," RHO-C-54, Portland Cement Association, October 1981. Any differences in cement and aggregate or any admixtures must be taken into account between the tests and the actual being used on site. These documents will not be referenced in the PSAR since the Henager document was never officially released and the PCA document would not be useful in this matter as a standalone.	C
49.	Page 68, third paragraph: Provide reference and bases for reviewed and approved analysis.		Accept. Same as above.	C
50.	GENERAL, page 68: A "Design Basis Heat Wave" will have to be defined for this facility at this location in the same manner as a DBE or DB High Wind, Ash Fall, etc. As long term atmospheric heat has not been an issue at any other Hanford facility, there is no such designation. Without such a designation, and perhaps a SDC - there is no way to evaluate the qualification of this structure against a natural phenomena which could lead to an off-site release in excess of regulatory limits.		Partially accepted. The DOE design documents do not require us to create a new natural phenomena category for a possible extreme condition.To address the valid concern, a subsection will be added to Section 5.5, "Items for Further Development." See Attachment A.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
51.	Page 69, top of page: There is no discussion of the canister storage tube HEPA filter arrangement. This should be included.		Accept. The second complete sentence in the top paragraph will be revised to read, "The canisters are designated as the containment for the vitrified waste, and, when placed in the storage tube, the tube, the floor plug, and the floor plug HEPA filter become the confinement boundaries."	C
52.	5.3.1.1.4.1, page 72: Explanation is needed to explain difference between Zone I exhaust flow and intake flow rate.		Accept. The difference is due to a combination of infiltration air into the facility, exhaust from the analytical laboratory, which intakes from Zone II, and temperature increases between the supply and exhaust systems.	C
53.	Page 72, fourth bullet: Route of exhaust needs to be described. Drawings indicate that a portion of the MRB exhausts to the Zone I exhaust tunnel.		Partially accepted. Drawings indicating MRB Zone I going to both the Zone I exhaust and to the Zone II exhaust, are post-PSAR, Rev. 1 cutoff date (1/1/93), and are incorrect. System currently being revised and plans are to filter the MRB Zone I exhaust and route to Zone II/III stack.	C
54.	5.3.2.2.4.2, page 73: Provide basis for emergency Zone I exhaust flow rate.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C
55.	Page 74, fifth to the last line: Replace "utilized" with "required."		Accept. The word "utilized" will be replaced by "required."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
56.	5.3.1.2.3, page 75: Provide basis for size of 1E generators and reference to load list. Provide the margin between required load and generator capacity.		Accept. This section, the second paragraph, and the sixth sentence will be revised from "...Safety-Class 1 and 2 loads." to "...Safety-Class 1 and 2 equipment that is required to maintain confinement in the event of a loss of normal power (See Table 5.3-2)." The latest load list shows the margin between required load and generator capacity at about 8%. There is no requirement for spare capacity on the generator.	C
57.	Page 78: Location of steam boiler and supply and return lines should be described as the location are important for industrial safety and ALARA purposes.		Accept. Add new paragraph at bottom of page as follows: "The electric boiler, steam distribution system and condensate return system interface are located at the north end of the remote cell operating gallery. Steam and condensate piping are insulated as required. Piping is routed to the pipe run area at the top of the remote cell operating gallery and route as necesary through the facility"	C
58.	5.3.1.4.4.3, page 79: Discussion should note that these sources do need to shut off for safe shutdown.		Accept. Add the following sentence: "The systems must shut down, however, on a seismic event to prevent potential flooding of the exhaust tunnel."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
59.	5.3.2.2.1, page 84, second paragraph: Applicable DBAs and habitability requirements should be described or should state, "will be designed..."		Accept. The design of the hardened control room needs to investigate DBAs and meet habitability requirements. The words of the PSAR say this. Nevertheless, the phrase "is designed" will be replaced with "will be designed."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
60.	Page 95, first four bullets: Ventilation zones are not defined in terms of radiation levels, only contamination levels. Radiation levels are the bases for shielding zones. E.g., Zone II will not have a potential for high radiation levels.		Accept. Replace the bullets with the following: "• The Zone I areas in the facility consist of the interior of a hot cell, glovebox, or other containment for handling highly radioactive material. The design confinement features of Zone I areas limit the spread of radioactive particulates within the zone and mitigate their release. Normally, these areas are inaccessible to personnel. • The Zone II areas consist of glovebox and hot cell operating areas, hot cell service or maintenance areas, or other building space where contamination could be present. Access by personnel is controlled. • Zone III and IIIA areas consist of general operating areas, general laboratory, maintenance and general working areas that are usually "cold" but are subject to low levels of contamination. Access by personnel is controlled. • Zone IV areas consist of office and "cold" shop areas. Access by personnel is not controlled."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
61.	Page 95, fourth bullet: This states that Zone IV has "no potential for airborne contamination..." yet there are radiation monitors in the operating area of the CSB which is Zone IV. Explain discrepancy.		Partially accepted. The topic of definitions of ventilation zones will be added to the CCDB list. The FDC and the TDP do not have the same definitions. The definition problems and a clearer zone classification rational need to be provided before this concern can be adequately resolved. The Operating Area of the CSB is classified as a neutral zone. This classification will be discussed further under the CCDB item. The monitoring in the Operating Area is over and above what is required and is there to be able to prove to Ecology that there has been no radiological release.	C
62.	Page 95, next to the last paragraph: Revise, as not all HVAC systems have standby and backup power capability, only Zone I and portions of Zone II.		Accept. The words "back-up power," will be removed. This section does expand the HVAC description by stating the Safety-Class 1 exhaust fans are supplied by the emergency 1E system.	C
63.	Page 95: Explain the role of and requirement for the isolation dampers in Zone I supply ducts.		Accept. The primary purpose of an isolation damper is to prevent flow through a system (set of equipment) when the system is shut down. Most if not all of the so called 'isolation' dampers are not really required as safety class equipment. Most if not all of these dampers are 'control' dampers. The first sentence, last paragraph, and the first sentence, first paragraph, Page 96 will be changed to read: Safety-Class 1 backdraft dampers and duct..."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
64.	Pages 95 through 97: Increased organization is needed in this section as the discussion appears to shift from building to building and system to system. Much of this could be deleted and discussed only in the appropriate building section that follows. (Editorial)		Accept. The entire chapter needs to be better organized. This will not be done for this revision.	C
65.	Page 97, fifth paragraph from the bottom: Replace "safe operation" with "safe shutdown." Safe operation would imply ALARA and include the Zone II and III systems.		Accept. The word "operation" will be replaced with "shutdown."	C
66.	Page 98, last paragraph: Add CMR and portions of MRB to list of areas exhausted by Zone I.		Partially accepted. The text in the next to the last line will be changed to read: "...cells, canyon, CMR, analytical and..." (See disposition for Item #53.)	C
67.	Page 99, Description, first paragraph: At the time Systems Engineering reviewed a "Great Idea" developed by safety, the rationale for rejection of the Great Idea was that heat load was not the main driver for the Zone I exhaust flow rate. Please delete or provide a means of justifying this description with Systems Engineering and Resident Engineering HVAC engineers.		Not accepted. The disposition of the "Great Idea" did not state that heat load was not the main driver for the Zone I exhaust flow. It stated that it was not practical to mechanically cool tanks (SRAT & SME) that we are trying to heat up every 80 hours.	C
68.	Page 99, Description, third paragraph: Delete CMR from list of cells which exhaust to canyon via coverblocks.		Accept. The text in the 3rd paragraph line 1 will be changed to read: "...CCMC, RW and CDMC cascades..."	C

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69.	Page 99, Description, fourth paragraph: Please verify the contents of this paragraph. There was, initially, to be a flow rate requirement for: 1) between coverblocks and 2) into cells from canyon when up to four coverblocks were removed. These requirements are to prevent excess contamination in the canyon above coverblock level where personnel entry will occasionally be required. There is a statement indicating that supply airflow ... is determined by cooling load. I believe that the design driver is exhaust port number per cell to assure cooling load as the supply to cells is less easily controlled. Please verify the discussion. Last sentence, same paragraph, I don't think there's an analysis to back this statement. With the given design concept and no dynamic analysis for support, I don't think this statement can or should be made.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C
70.	Page 100, first two lines: Delete. This is inaccurate and cannot be supported. Contamination will spread throughout the canyon. The design may reduce contamination spread but it cannot eliminate it.		Accept. Change lines 1 and 2 to read: "...installation, airborne contamination spread to the entire canyon will be reduced because airflow..."	C
71.	Page 100, third paragraph: Replace "...slots prevents migration...contamination..." to "slots reduce migration..."		Accept. Change para 3 line 3 to read: "...these slots reduces migration..."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
72.	Page 100, last paragraph: Add "SC-1" before backdraft dampers and remove the word "isolation". Provide a basis for the use of "fail-safe control dampers." (Editorial), line five, should state that backdraft dampers are "normally open and close when supply air stops" which is more in tune with the function of this equipment.		Accept. Additional information on the basis for fail-safe control dampers is not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly. Change text in lines 2 and 3 to read: "...equipped with fail-closed pressure control dampers and SC-1 backflow dampers. The backdraft dampers prevent..." Change text in line 5 to read: "Backdraft dampers are usually fail closed dampers which open when supply air starts to flow and return to a closed position..." Change text in line 10 to read: "The backdraft dampers and the control..."	C
73.	Page 100, last five lines: Series arrangement of control and backdraft damper are not required to meed redundancy requirements for single-failure criterion. Even the single backdraft damper is needed only if the exhaust fans (SC-1) fail to perform as designed - which is the single failure. There is no criterion or requirement driving the design of SC-1 control (motor operated) dampers. Further, I don't think there's a "zero leakage" requirement. The requirement, given a DBA is to not have an off-site release which exceeds regulatory requirements. (Editorial - exhaust duct discussion should be in a new paragraph.)		Accept. The last 5 lines will be changed to read: "The series arrangement of the Zone I supply dampers provides additional assurance that the single-failure criterion will not be violated. Control dampers are designed to minimize contamination of the surrounding area by flow reversal. The exhaust ducts that connect the cells to the exhaust tunnel are made of stainless steel for corrosion resistance."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
74.	Page 101, first line: What is the meaning of "fixed and removable" orifice plates? Perhaps "adjustable" is what is meant?		Accept. Fixed means that the plate has a preset orifice size. Removable means the plate can be removed from the exhaust tunnel slot. Changing the flow conditions requires the existing plate to be removed and replaced with a new plate with a modified orifice. The text will be changed to read: "Removable stainless...exhaust tunnel."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
75.	Page 101, second paragraph: Removal of coverblocks is not an abnormal condition, please revise. Third line. Please note that while there may not be flow reversal in other cells, in those cells which do not exhaust directly to exhaust tunnel, the negative pressure may be met only by reducing intake flow which thereby reduces the air changes per hour in those cells which have occasional human entry which may increase contamination in those areas. The dynamic analysis hasn't been completed to verify dynamics of the exhaust system.		Accept. The text in paragraph 2 will be changed to read: "During coverblock removal, the airflow rate increases in the opened cell and may decrease in the remaining..." Removal of cover blocks on a cell will increase the flow into the affected cell. Airflows into other cells may decrease. Air changes are not relied on to control contamination or to assure breathing conditions in permitted entry cells. If the air velocity at the cover blocks in other cells decreases below 125 feet per minute, then contamination could increase. The air velocity into an opened melter or chemical process cell must be at least 50 feet per minute. All others must maintain direction in flow from less to greater contamination. A velocity drop below 125 feet per minute increases the potential for back contamination, however, the greatest potential is probably from the coverblock when it's being moved or from the crane hook. A dynamic analysis is needed to verify the system response as much as possible. The analysis hasn't been completed to date and is tracked under Section 5.	a)C b)C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
76.	Page 103, second paragraph: Please clarify what is meant by "... emergency trains are located..." It's not clear whether the discussion pertains to electrical or mechanical systems or both. Also editorial, provide some heading to distinguish discussions of exhaust and intake systems. (Editorial)		Accept. Replace last two paragraphs, page 5-102 and the first two paragraphs, page 5-103 with Insert LLL.	C
77.	Page 104, first bullet, second dash: This states, "If this fan fails to start, the second emergency exhaust fan starts automatically." Please verify this. The statement appears to be in violation of IEEE-308. Assuming one fan is on train A and the other on train B, then if Generator A picks up the load, first but for some reason fan A fails to start, fan B may have to be manually switched to generator A. Of course, if fan A fails to start because generator A fails to start, generator will automatically pick up the load and start fan B.		Accept. Activation of the emergency power system results in the startup of both A and B generators. Design information is not available to define operation of systems after generator startup. Final resolution will be tracked in response to Section 5.5. The following text will be added to Section 5.5: **"5.5. Zone I Exhaust Systems A and B Operation** Only limited information is available to describe the control interfaces between the emergency switchgear, emergency exhaust fan A and emergency exhaust fan B. Information is also needed to describe the interface between fan electrical control, instrumentation, busses and the emergency fans to determine if the fans will switch upon failure of the operating emergency fan and whether both generators will continue to operate."	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
78.	Page 104, next to the last paragraph: Section discusses adjustment of orifice plates prior to hot startup only. There is no discussion of how these can be adjusted after hot startup if change of operations warrants this. Please provide this discussion.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C
79.	Page 105, third paragraph: States that the process cooling water is supplied with backup power. I am unaware of any source of backup power for this system. Please revise.		Accept. The second complete paragraph, fourth sentence, "However, the heat load...backup power." will be deleted. The fifth sentence will be revised to read, "Even if the melter continues heating during an outage, since the process cooling water would be without power, preliminary investigations...300 °F."	C
80.	Page 105, fourth paragraph: Discusses results of preliminary fire studies. Probably should delete this reference. FDI has stated that their DBFA is criteria only, not results. Hence there really is no fire analysis.		Accept. In the third complete paragraph, second sentence, the word "show" will be replaced by "estimate" and the third sentence will be revised to read, "A Fire Hazards Analysis will be developed as discussed in Section 5.5.1."	C
81.	5.4.1.2.2, page 105, first paragraph: This provides no discussion of intake system to CMR.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C
82.	Page 106, first paragraph: If a portion of the supply air is drawing into the suction side of the blowers, than a bath exist for flow reversal and increased contamination spread to the CMR. Design for mitigation needs to be addressed.		Not accepted. Although there are no backflow or filter devices on the inbleed system, the design calls for HEPA filters upstream and a check valve down stream of the blower. The check valve should reasonably stem any backflow that might come from the exhaust tunnel side. The CMR is also Zone I. No mitigation appears to be necessary.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
83.	Page 106: Somewhere in the CMR discussion ventilation of the stairwell to the environment, or lack thereof needs to be addressed as the current design appears to violate 6430.1A. Also to be discussed is the existence of airlocks for human entry and for the equipment hatch to the first floor ops. gallery and airflow requirements for these.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C
84.	Page 106: The last three to four lines appear to be part of some other discussion and do not seem to relate to the topic which, I think, is still Zone I.		Accept. The sentences relate to the analytical/sample cell HVAC system. The text on the last three lines will be changed to read: "...serving all these analytical related areas. The exhaust...located between the exhaust fans and these analytical related areas."	C
85.	Page 107, first paragraph: As there are no HEPAs at the exhaust ports of the analytical cells, this report must discuss in some section the method planned for decontamination of the exhaust duct between these cells and the exhaust tunnel.		Accept. Insufficient information is available to adequately address this concern. The current design concept for inaccessible areas and ducts is to provide stainless steel lined concrete openings for ducts through walls or floors. With a stainless steel liner, nothing precludes decontamination of the exhaust duct using routine decontamination methods and tools. The nature of the work to be performed in the cells mandates that contamination levels be maintained at low levels and as such stringent administrative controls and the application of ALARA principles will be required to assure that the analyses can be performed successfully. The item will be included as a CCDB task resolved accordingly to update the text to current conditions.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
86.	Page 107, et al.: Somewhere in this section, the design or lack of design for the decontamination of the exhaust tunnel should be addressed. In a 1990 letter, Smith (WHC) to Brown (DOE), WHC committed to provide a system for online decon of the Zone I exhaust tunnel.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly to update the text to current conditions. The need for possible change in the exhaust tunnel must be addressed during the design process, as the PSAR documentation process is not to be used to affect design change.	C
87.	Page 110, third paragraph: Please verify that there still are enclosed work spaces for HEPA filter change-out.		Accept. The latest HVAC FLOW CONTROL DIAGRAMS show that there are enclosed work spaces for HEPA filter change-out still required (H-2-129580, H-2-129600, H-2-129610, H-2-129620 and H-2-129630.	C
88.	Page 111, fifth paragraph: Please provide the backup power source for the SC-2 AHUs.		Not accepted. In this same review, it was noted that these AHUs are Safety-Class 3 and not 2. Therefore, there is no backup source. The text will be revised to say "3" and not "2."	C
89.	5.4.1.3, page 114, first paragraph: The statement that there are "Heating, ventilating, and air-conditioning systems...for the CSB vault, ..." is not strictly accurate. There is no provision for either heating or air conditioning of the vault, only airflow.		Accept. In Section 5.4.1.3, first sentence, the words "the CSB vault," will be removed. A second sentence will be added - "The canisters in the CSB vault are cooled by natural convection."	C
90.	Page 114, last paragraph: If the CSB operating area is Zone IV, than it should be so stated.		Accept. The words "at atmospheric pressure" will be revised to "at slightly positive pressure above atmospheric."	C

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91.	Page 115, second paragraph: Description provides for an HP office, adjacent to a Zone IV or neutral ventilation zone, which by definitions of the FDC are "Clean areas. areas where contamination is unacceptable" and "areas not requiring confinement ventilation," respectively. Either a justification of the zoning is required if an HP office is needed, or justification of existence of the HP office is needed.		Not accepted. The designated HP area is provided because of radiological monitoring equipment (see Comment #40).	C
92.	Page 115, first paragraph: (a) line seven revise to "generated within the canisters, and adjacent walls, floors and vault roof." Please note heat is generated anywhere a gamma lands, so a fraction of the heat is generated elsewhere. (b) lines nine and ten state that "...leakage of rad...material to the vault air is...not...credible." Is this accurate, or does the analysis indicate that leakage is insufficient for an on-site or off-site release in excess of regulatory requirements. As the tubes are not qualified for a canister drop and the canisters may not be qualified for a 3-high drop and the impact limiters are SC-3, hence low QA and may occasionally not exist...no leakage may not be accurate within definitions of credible. If statement is not accurate, please revise.		Accept. The fourth sentence will be revised to read "Radioactive decay heat generated within the canisters and from gamma deposition into the vault structure will be removed by the...stack." The last sentence will be replaced by "HEPA filtration is not necessary for the vault exhaust because the postulated accident wherein a canister is dropped from the operating area to the bottom of the tube (no impact absorber installed) does not result in a radioactive release in excess of regulatory requirements. In this postulated accident, the canister and the storage tube are breached."	C

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93.	Page 115, fifth paragraph: (a) Please verify that there are no baffles. It may be more accurate to state that the cooling system has "no moving components,..." (b) There needs to be a definition of what vault air parameters are being monitored by the equipment.		Accept. The fifth paragraph, first sentence will be revised to read "The natural...has no moving components that can fail...blockage." The second sentence will be revised to read "Instrumentation...temperatures of the vault inlet air, vault air, air leaving the vault, and the exhaust stack air effluent air."	C
94.	Page 115, seventh paragraph: Safety does not accept, at this time, that there are no credible failure modes of the ventilation system. Full discussion will be needed concerning protection of intake systems against missiles, hoar frost, etc. Further, there is no definition of a Design Basis Heat Wave which is needed for accuracy of analysis to assure that the vault (hence the ventilation system) will not collapse or otherwise fail. A section 5.5 item may be needed.		Fluor is taking into consideration all credible failures which could lead to loss of vault cooling and subsequent vault failure. Results of analyses and design features will be incorporated in a subsequent PSAR revision. Fluor is using 1971 PNL summer temperature data as a structural concrete design verification tool. This is currently being evaluated. It is obvious that discussion will not be completed for this PSAR revision. We may not call this a "design basis heat wave" but "thermal criteria." A subsection will be added to Section 5.5 on this matter.	C

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95.	Page 118, second paragraph: The FDI analysis needs to be referenced. Provide evidence that 115 F is unrealistic. For what return frequency is this unrealistic. As the consequences of vault failure would be an off-site release, one would expect a Design Basis Heat Wave with return frequency in the range of the DBE and DB Ash Fall. End of this paragraph needs to provide the consequence or lack thereof of situations developed in the last five lines.		Partially Accept. The thermal analysis that forms the basis for the performance evaluation presented in Section 5.4.1.3.2.1 has not been cleared for public release and thus can't be referenced in the PSAR. A copy of this thermal analysis has been made available to Waste Remediation Safety Assurance (WRSA). An inlet air temperature of 115 °F has been assumed as the extreme temperature condition for the Section 5.4.1.3.2.1 performance evaluation. See the response to WRSA Comment #2 on Chapter 3 for a discussion on the conservativeness of this value. A Section 5.5.16 will be added which discusses the engineering analyses that will be performed to confirm the structural integrity of the vault. (See Attachment A.)	C

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96.	Page 118, last paragraph: This paragraph appears to be comparing the BNFL report and the FDI model. BNFL admitted that there analysis was not conservative for the CSB design for three reasons. That analysis still concludes that the concrete could reach 217 degrees F. The FDI analysis is not referenced here and has not been reviewed by Safety. As a result no conclusion can be reached concerning the validity of that report.		The British Nuclear Fuels Ltd. analysis discussed on pages 5-117 and 5-118 of the PSAR was provided solely as an independent performance evaluation upon which to judge the reasonableness of the project performance evaluation presented in Section 5.4.1.3.2.1. This reasonableness is established by the comparison presented on pages 5-118 and 5-119 of the PSAR. As stated in the response to WRSA Comment #95, a copy of the thermal analysis that forms the basis for the Section 5.4.1.3.2.1 performance evaluation has been made available to WRSA. A Section 5.5.16 will be added which states that a revised thermal performance evaluation will be performed to take into account the latest system design changes. This evaluation should confirm acceptable performance. (See Attachment A.)	C
97.	Page 119, first paragraph: There is no basis for the assumption that 115 F is an extreme climatological case. A Design Basis Heat Wave, as a new DBA, needs to be established for natural convection of SC-1 systems.		See Item #94, above.	C
98.	5.4.1.5, page 121: Drawings indicate that there is a branch of the Zone I Exhaust tunnel which comes from the MRB. This should be discussed.		Partially accepted. See disposition on Item #53.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
99.	Page 122, fifth line from the bottom: States that "The Zones II and III areas HVAC systems are not required to operate on loss of normal power." This is not technically accurate. 6430.1A requires an ALARA analysis of designs and design options. No ALARA analysis was performed for the design decision to delete the SC-3 standby generator. An ALARA analysis might conclude that a backup power system is needed on loss of normal power. This statement should be deleted, or a basis supporting the conclusion provided.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C
100	Page 123, third to the last paragraph, last sentence: States that the Zones II and III HVACs don't "serve any safety-related function." Please use some other phrase than "safety-related" as there is no strict definition which relates this term only to SC-1.		Accept. The sentence will be changed to read "...does not perform any SC-1 or SC-2 related function and..."	C
101	Page 124, fourth paragraph: Discusses ALARA requirements and HEPAs. However, this if following the discussion of the HVAC equipment room which is stated to exhaust through louvers. Please revise.		Accept. Move this paragraph to the beginning of Safety Considerations and Controls section at the bottom of page 5-122.	C
102	Page 126, The **HVAC Equipment Room HVAC System**: The section is followed by a **Safety Consideration** and **Control** section which discusses the control and computer room HVAC. There seems to be some confusion of organization.		Accept. The title to paragraph 4 will be eliminated and the text in paragraph 4 will become the first paragraph in the Safety and Consideration and Controls section at the bottom of the page.	C

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103	Page 126: There does not appear to be a description of the SC-1 HVAC system which supplies air to the hardened control room and meets all habitability requirements. What is the status of this design?		The design status is that it has been through a design review but the drawings have not been released.	C
104	Page 133, lines before the bottom paragraph: As there is no definition provided for "safety-related", delete "non-safety-related equipment and are." The sentence will be fully accurate without the phrase.		Accept. Will delete "non-safety-related equipment and are."	C
105	Page 134, last sentence, third paragraph: Revise to "Two fuel storage tanks..."		Accept. Sentence will be revised to read "Two fuel storage tanks are provided, each one capable of supplying its respective generator with a minimum of 72-h full capacity operation."	C
106	Page 136, fifth paragraph: Please provide a reference for the reliability analysis.		Accept. The reliability calculations were performed by Fluor Daniel, Inc. and are documented in Transmittal # FRP-357, Availability requirements, Jan. 1992, and Conference Notes 605, Utility Service to Critical Plants and 1E Emergency Power Preferred Power Supply.	C

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107	Page 139, first sentence: Will the system described meet requirements of IEEE 308 for auto transfer?		The static transfer switch functions as a safety feature to the UPS. Upon sensing of a fault or overcurrent condition, the transfer switch automatically switches to the alternate power supply to prevent the battery charger and inverter from seeing the high current. There is also high currents associated with starting larger motors. This switch allows for the starting of the motors using the alternate power supply until the motor comes up to speed. Inverters then can be sized for their steady state operation (ie. not oversized). This auto transfer capability is a feature of the UPS with a sole purpose of protecting the UPS.	C
108	5.4.4.1, page 142: Provide a description of the physical location of the electric steam generator and the steam and return condensate routing.		Accept. Add the following paragraph between the paragraph ending "...steam generator." and paragraph beginning "The P&ID's...": "The electric boiler, steam distribution system and condensate return system interface are located at the north end of the remote cell operating gallery. Steam and condensate piping are insulated as required. Piping is routed to the pipe run area at the top of the remote cell operating gallery and route as necessary through the facility."	C

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109	5.4.4.2, page 142, second paragraph: Provide description of steam shutoff devices. Provide reference for evaluation of 1-minute release. At this stage in the design of the B210A package this analysis should be complete.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C
110	Page 143, second paragraph: Provide routing design of steam and condensate return line and shielding provided.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly to update the text to current conditions.	C
111	Page 143, fourth paragraph: States the monitor for radiation contamination is close to the source of contamination (process user) and accessible for maintenance and calibration. All of this seems a contradiction. If the monitor is close to the source, any contamination would be swamped by background radiation. No locations close to the source would be readily accessible for maintenance and calibration. Please explain locations.		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C
112	Page 143, next to the last paragraph: Please explain the need for a Safety-Class 2 isolation valve. Where is this located?		Accept. Additional information not readily available is required to complete this request. The item will be included as a CCDB task resolved accordingly.	C

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113	Page 154, fifth to the last paragraph: Delete "...and tornado" as tornados are not longer required to be analyzed. High winds, however, are. Further, consideration should be given to discussion of the Design Basis Hydrogen Explosion.		Accept. The term "tornado" is being revised to read "high wind". During normal operations, no hydrogen release from the process system is expected as a result of the formating reaction. The Fire Hazards Analysis that is discussed in PSAR Section 5.4.9.1 will examine other sources of hydrogen. The low-probability process system hydrogen explosion is being considered as a Design Basis Accident.	C
114	5.5.1, page 167: Change "preliminary" as in DBFA to "draft." Preliminary indicates a reviewed and approved document. The DBFA has no such qualification.		Accept. The word "preliminary" has been replaced with "draft."	C
115	Page 168: What is the basis for deletion of 5.5.5?		Both standby power and backup power were eliminated from the project requirements. The requirements ensure emergency (1E) power supplied to all SC-1 and 2 functions. (See FRT-2005/9301410. Replace Section 5.5.5 "(Deleted)",Page 5-168 with "5.5.5 **Separation Between Safety Classes 1 and 2 Electrical Loads** An engineering analysis shall be performed during detailed design to verify that Safety-Class 2 loads will not degrade the reliability of the Safety-Class 1 Emergency (1E) loads. Information from this analysis will be prepared and documented during detailed design and incorporated into the FSAR."	C

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Attachment A

INSERT KKK
(Items #47, 50, 94, 95, and 96)(New subsection in Section 5.5)

5.5.16 Canister Storage Building Engineering Analyses

The CSB vault is a Safety-Class 1 structure cooled by a natural convection system. The intake and exhaust structures for the vault are also Safety-Class 1. A revised thermal performance evaluation will be performed to take into account the latest system design changes. This evaluation will confirm the adequacy of the cooling system design. Also, an engineering analysis will be performed to confirm that the structural integrity of the vault is maintained considering worst case ambient air temperature extremes and temperature changes. A confirmatory analysis will be performed on the potential for restriction of the vault ventilation air flow due to a credible mechanism plugging or damaging the ventilation intake or exhaust. The design will be revised as necessary to mitigate any resultant adverse impacts on cooling or vault structural integrity.

INSERT LLL
(Item #76)(Replaces last two paragraphs, Page 5-102, and the first two paragraphs, Page 5-103)

During normal operation, three exhaust fans operate and one is in a standby mode. All exhaust fans are supplied with normal power, none is required to operate following an event. On failure of the operating exhaust fan in an off-normal condition, an emergency exhaust system starts. The exhaust fans are located in the Zone I exhaust fan rooms of the Fan House.

The Zone I emergency exhaust system consists of two sets of emergency equipment. Each set consists of four parallel two-stage HEPA filter assemblies, associated inlet and outlet blocking dampers for each assembly and an emergency exhaust fan. Should one set fail to operate following an event, the standby set is activated. The emergency filter systems are located separate HEPA filter rooms of the Fan House to meet separation and redundancy criteria. The two emergency exhaust fans are located in separate fan rooms of the Fan House. Sufficient space is provided around each fan to allow the construction of a temproary enclosure for confinement of potential contamination during fan maintenance. A temporary HEPA-filtered exhaust system may be required for ventilation of the temporary enclosure.

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 6		S. L. Engstrom		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/16/93
Date

S. L. Engstrom
Reviewer/Point of Contact

K L Engelhardt
Author/Originator

11. CLOSED

10/4/93
Date

S. L. Engstrom
Reviewer/Point of Contact

K L Engelhardt
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	P. 6, 5th bullet, 2nd para. Only a vague criterion is provided for control of feed from the tank farm. Additional feed during a DBE would create a larger source term. Hence, it the control system should be SC-1. Provide a reference to the location of the system description. If description is not available, then a section 6.9 section should be added.		ACCEPTED. Add to end of paragraph: "This is discussed in section 6.9.10." See attached text change for pages 58 and 59.	
2.	P. 6, 6th bullet. Provide description or reference for description of air sweep following loss of power including length of time of operation.		ACCEPTED. Add to end of paragraph: "This is discussed in section 6.1.3.2.4."	
3.	P. 8, Last para. There should be clarification that the 30 min air flow may not be sufficient to mitigate a H2 explosion for loss of power in excess of 30 min. or a DBE.		ACCEPTED. Reword the last sentence to read: "An air reservoir with the capacity to provide 30 minutes of hydrogen sweep flow is provided to mitigate during power outages. The hydrogen generation rate is currently under investigation, so the time interval may not fully mitigate the hydrogen problem. Final resolution will be tracked in response to section 6.9.1."	

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4.	P. 28, Last 4 para. The impression of this write up is that a H2 explosion can't happen. This appears to contradict Ch. 9 material. Various discussions should not appear contradictory.		ACCEPTED. Add the following to paragraph 1, "...additional dilution. The hydrogen generation rate is currently under investigation, so the current designed dilution system may not fully mitigate the hydrogen problem. Final resolution will be tracked in response to section 6.9.1."	
5.	P. 29. Next to last para. States "...analysis assumes no breach of the cell walls." The analysis needs to analytically show that there will be no breach of the cell walls. The assumption is not conservative. Later in paragraph states "...moderate increase in emissions." This explosion would likely be part of the earthquake or ashfall scenario. In the latter case, the on-site dose is a large fraction of the lower RAG, as opposed to a "moderate increase". There should be a restatement of this impact.		ACCEPTED. Current design is based on an analysis that assumes no breach of the cell walls and dictates the specified mitigation features. However, this is concern which needs to be addressed in Chapter 9. This assumption does indeed need to be substantiated. This will be tracked in response to item 6.9.1. The phrase "...and a moderate increase in emissions." will be changed to "...and an increase in emissions."	
6.	P. 30. Para. 2. States "...absence of potentially uncontrolled reactions..." This is confusing in that a power failure could lead to an H2 explosion which would appear to be an uncontrolled reaction. Please clarify.		ACCEPTED. This section is intended to describe actions to be taken to shut the process down before the "...uncontrolled reaction takes place." The first sentence will be reworded to read: "In the absence of uncontrolled reactions, implementation...simple."	

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7.	P. 30, 3rd para. Describes stopping some or all cooling water flow. How is this accomplished on loss of power not associated with a DBE? Further discusses "Interlocks will automatically shut off..." Describe how this is accomplished on loss of power or explain that loss of power is an exception.		ACCEPTED. Interlocks are normally designed to require power in order to allow equipment or systems to operate. Thus loss of power will automatically shut off those systems which are so interlocked. Other systems are then shut off administratively. In reference to the paragraph, some of the cooling water flows are interlocked such that they stop on activation of an interlock associated with a process alarm or operational equipment sequencing. Other flows must be shut down administratively, depending on the problem at hand. The text is considered adequate.	
8.	P. 30, 4th para. Discussion of "All...HVAC... systems required to maintain ventilation..." Provide a definition of "required" in that most ventilation zones will not be operational on loss of power with associated ALARA implications.		ACCEPTED. The first sentence will be reworded to read: "As much of the HVAC system as can be safely operated will remain in operation during an AES."	
9.	P. 30, 5th para. The AES appears to include DBAs. This should be reworded to differentiate AESs from DBAs.		ACCEPTED. As stated or implied in response six above, an AES is not a response to a DBA. Other conditions involving fires, earthquakes, etc., can exist or happen which will be addressed as an AES. However, the text will be changed to read: "Specific non-DBA failures or conditions..."	
10.	P. 32, 4th para. States that "Process systems will be designed to shut down or fail into safe position... in...a DBA..." This gives the indication that tanks, etc will not fail in a DBE. This should be rephrased to provide a more accurate description.		ACCEPTED. The text will be changed to read: "...following a DBA. Process systems will be designed for those DBA's for which it is required. To minimize..."	

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11.	P. 58, 6.4.1.2, 1st para. discussed the RLST. Please revise.		ACCEPTED. The first two sentences will be replaced with the following: "Feed and waste transfers between the HWVP facility and other Hanford site facilities are made via the intra area transfer lines. Feed slurry is supplied through a recirculating loop. The loop consists of a supply and a return leg which interfaces with the high heat diversion box. The feed lines are spared, resulting in a total of four feed material lines."	
12.	P. 59, 1st para. More detailed description of transfer termination is needed to support not having to increase the source term for a DBE in Ch. 9.		ACCEPTED. Agree more detail is needed. This is not possible at the present time because the TF interface project has eliminated any interface with HWVP at this time. A section will be added to the Items for further development to assure the information is provided. "6.9.10 INTRA AREA TRANSFER SYSTEM INTERFACE WITH SRAT/SME Only limited information is available to describe to control interface between TF and HWVP to develop the maximum source term due to a leak into the CPC. The responsibility for bulk storage since the elimination of the RLST's rests with TF. Currently no TF project is responsible to provide the pumping and control systems to feed the SRAT/SME system. The information will be provided prior to the need to finalize the source term."	

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13.	P. 60, 6.4.1.3, see comment above (12.)		ACCEPTED. See comment 12 above.	

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 9	HWVP	S. L. Engstrom		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/19/93
Date

S. L. Engstrom
Reviewer/Point of Contact

BW Hall
Author/Originator

11. CLOSED

10-27-93
Date

S. L. Engstrom
Reviewer/Point of Contact

BW Hall
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2.	P. 8, List. List of Accidents should include the Steam Generator Explosion.		ACCEPTED. Hazard presented by possible steam boiler rupture will be added to PHA table, Section 7.0, and to list of accidents. Note however that the steam generator has Safety Class-1 pressure relief and a seismically qualified base so the accident may be "beyond design basis" for deterministic evaluation. However, since the consequences of a steam boiler rupture are likely to be substantial, and since the accident may be credible even with the current Safety Class-1 pressure relief, this hazard will be addressed with an "item for further development" in Chapter ~~6~~ 5. This item for further development will ensure that the proper Safety Class requirements are levied on the design of the generator <u>and</u> that the risk from generator rupture is acceptable.	See amended disposition, next page. BH

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2.A	P. 8, List. List of Accidents should include the Steam Generator Explosion.		AMENDMENT. The "item for further development" discussed in the original disposition was not added to Chapters 5 or 6, due to an editing oversight. It is our intent that this open item will be added to Section 5.5 if and when the PSAR is revised in the future. To ensure that this issue receives the proper attention when work on the HWVP is resumed, a new item has been added to the Commitment Control Database (see CCDB item P-05-005B). The new CCDB item describes the concern with the steam generator and discusses what must be done to demonstrate that the generator presents no undue risk. It also stipulates that an "item for further development" should be added to the HWVP PSAR Section 5.5 if the PSAR is revisited in the future. The CCDB is to be added as an appendix to the HWVP Safety Documentation Plan, which is to be issued as a Supporting Document (SD) and filed with DPC.	

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3.	P. 14, 4th to last line. States that 4-46 requires the distance to be at least 100 m. Does this mean "no less than" or "no more than" 100 m?		ACCEPTED. "(no less than)" will be inserted after "least."	
4.	P. 23. Discussion, bottom of page does not clarify whether the Cs vaporizes and then plates out. A short discussion of Cs modeling may be warranted.		The eructation is a low temperature accident. Cs is only significantly volatile above ~700 C (i.e., in the melter). The Cs behaves as a particulate in this accident. No discussion of Cs thermal modelling is necessary in this section.	
5.	P. 29, 9.1.2.5. The formic acid onsite p/m of 11.0 is 73% of the lower RAG for this material. This would indicate that the risk to onsite personnel should be revised to a description other than "minimal". It would appear the risk is marginal. (Please note this write up uses both p/m and ppm.)		ACCEPTED. "Minimal" will be replaced with "judged to be acceptable."	

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6.	P. 38. This section (9.1.5) should specifically address coverblock drops both during normal operations and DBE. Any limit on height of cover block lift (or other heavy lift) should be specified.		NOT ACCEPTED. Effects of DBE are not relevant to this section, since the DBE frequency is beyond the frequency range normally considered for "abnormal occurrences." Current analysis quantifies airborne release from cover block drop on process equipment and determines onsite and offsite direct dose and secondary ground contamination effects. A cover block drop could crack the Vitrification Building basemat and release radioactive liquid to the ground. Currently, there are no well established risk acceptance criteria for liquid releases to the ground. Analyzing such a release is therefore not required for Chapter 9. Effects to the environment are factored into the Safety Classification for an item. Fluor Daniel Inc.'s interaction analysis effort will determine any necessary height limits on lifts. The interaction analysis will also determine if the crane controls and rigging need to Safety Class-1 or 2. If so, they will be added to the detailed equipment safety classification list and critical items list.	
7.	P. 51. For future consideration, it would appear more likely that vaporized material (Cs, etc) would recondense and plate out in a sand filter than in the HEMF filter system.		The MC air, MC equipment, and exhaust tunnel temperatures are considerably below the vaporization temperature of Cs. Condensation should be complete well before the Cs reaches the filtration system. Complete plateout should occur on either filter should any gaseous Cs exist in the exhaust stream at the filtration location.	

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8.	P. 53, next to last para. Discussion is provided concerning a "preliminary DBFA". "Preliminary" indicates an early reviewed, approved analysis. FDI does not indicate that the DBFA is an analysis, rather, a criteria document. Safety does not accept that there is a Preliminary DBFA. A draft DBFA does exist. Suggest revision to "draft DBFA".		ACCEPTED. The text will be revised to delete reference to preliminary DBFA.	
9.	P. 53, last para. As the routing of the formic acid to the canyon or cells is not well established it cannot be assured that the formic acid would be diluted. Please review for possible revision.		ACCEPTED. Will delete discussion of formic acid and revise text to address fire hazards to the following: "As discussed in Section 5.4.9, no fire has been identified that could affect Safety Class-1 or 2 systems as a result of a DBE. A Fire Hazards Analysis will be performed during detailed design to further evaluate the fire loading in the HWVP and the potential impacts to Safety Class-1 and 2 equipment. Section 5.5.2 contains an "item for further development" to ensure the operability of the HEPA filters under credible fire conditions."	
10.	P. 53. Last para. The hydrogen explosion discussion should provide the information that the final release from the DBE analysis includes the hydrogen explosion. Discussion of fire suppression systems should be deleted as none are planned for the canyon.		ACCEPTED. Introduction to DBE accident analysis will be revised to acknowledge the hydrogen explosion as being part of an alternate, but less likely, accident scenario to the one currently analyzed. Both scenarios will be developed in detail in the "Accident Analysis" section. The "Risk" section will demonstrate acceptable risk for both scenarios. Sentence regarding fire suppression systems will be deleted.	

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11.	P. 54, 1st para. Mention of failure of MRB is given but there should be an indication that the dose from this failure is also included in the DBE if that is the case.		ACCEPTED. MRB failure will be explicitly included in DBE analysis. Consequences of MRB failure will only be assessed with respect to the offsite receptor since the MRB is Safety Class-2.	

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12.	P. 76. In concluding the analysis of the DBE the following related activities should be clarified : . Added release from MRB . Added release from CMR . Added release from DBF . Interface and impact of flood . Added release from hydrogen explosion. . Control of incoming feed from tank farms.		PARTIALLY ACCEPTED. Failure of the MRB will be added to DBE analysis (see response above). The safety classification of the CMR will be changed to Safety Class-1 in Chapters 4 and 5 and the item for further development in Chapter 5 will be expanded to ensure that outleakage from the CMR meets risk acceptance criteria for the Hydrogen explosion and DBE scenarios. As stated in the introduction to the analysis, it is judged that there are no significantly adverse accidental impacts associated with a credible fire because of the limited amount of combustible material in the process cells. No further discussion of DBF is warranted. The draft DBFA and the requirements for the final DBFA are discussed in Chapter 5. Will add discussion to DBE introduction explaining that internal flooding of the Vitrification Building is possible due to earthquake, and will refer to "item for further development" in Chapter 5 (Section 5.5.9) that ensures that blockage of the Zone I exhaust tunnel will be precluded by design. Incremental increase in risk due to hydrogen explosion scenario will be addressed in accident analysis (see response #10). Accident description will explain that the incoming feed is shutdown during the DBE by Safety Class-1 devices. Will also include Safety Class-1 shutoffs of sanitary water and site steam to accident	

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			flooding and a short description of how the two-tank fire water design limits fire water flooding of Vitrification Building.	
13.	P. 78, 9.2.2.2 Sentence indicates that hardening of structures to withstand a DBE and windborne missiles will mitigate potential damage of aircraft crash. As the probability is so small, this sentence could be deleted as it may not be accurate. Structures can be designed to withstand DBEs on the basis of non rigid structure...e.g. allow structure to flex. This same structure might not withstand a missile with the momentum of an airplane which would be greater than the missile for the DB high wind.		ACCEPTED. Sentence will be deleted.	
14.	9.2.3.2, p. 79. Verify design with that presente Ch. 5.		ACCEPTED. Will add function of switch master car (donkey engine) to Chapter 5 discussion. Will make the two discussions consistent with respect to how the interlocks are operated.	
15.	9.2.3.5., p.81. Discussion should clarify that the risk is acceptable based on functioning of SC-1 systems.		NOT ACCEPTED. Section 9.2.3.4 states that "The Vitrification Building is designed to withstand the impact of the switch master car and loaded flat car." The locomotive impact is not possible without the failure of the interlocks. The interlocks are not credited in the current analysis as providing extraordinary protection against the accident. The probability estimates include the probability of failure of these interlocks. The judgement about the risk being acceptable is based on the low probability estimate and the item for further development in Section 5.5.12.	

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16.	9.2.4, p. 81. The extreme wind section appear to be mixing fastest mile wind speeds with peak gusts. Paragraph 1 discusses a "peak wind gust" of 80 mph and the next paragraph discusses a "peak wind speed" of 90 mi/h. The former is a peak gust, the latter is a "fastest mile", I think. "Peak" would be inappropriate for a fastest mile. Please verify calculations.		ACCEPTED. Paragraph one is referring to historic measurements and are accurately identifying peak gusts. The next paragraph is referring to design criteria for peak winds and are based on fastest mile wind speeds. Peak wind will be replaced with fastest mile.	
17.	9.2.4, p. 81, 2nd bullet. States wind damage is not credible for SC-1 structures. However, a number of structures are shown by FDI to be SC-1* with, apparently, lower QA requirements. This would include the Vitrification Building. With current FDI approach damage could be credible.		NOT ACCEPTED. The structures are Safety Class-1.	

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18.	9.2.4, p. 81, 2nd bullet. The CSB intake structure is SC-1. Are the intake port screens missile resistent or is the structure too high to need missile protection? Please determine whether the missile could collapse screen and reduce intake air.		ACCEPTED. The analysis takes credit for Safety Class design of CSB. To address this concern the following Item for Further Development will be added to Section 5.5: 5.5.x CSB Ventilation The CSB vault is a Safety Class-1 structure ventilated by natural convection. The intake and exhaust structures for the CSB vault are also Safety Class-1. An engineering analysis will be performed to assure that the structural integrity of the vault is maintained considering worst case ambient air temperature extremes and temperature changes. The analysis will also evaluate the potential for restriction of the vault ventilation air flow due to plugging or damage to the ventilation intake. The design will be revised as necessary to mitigate the resultant impact on vault integrity.	
19.	P. 82, list of bullets. Add CSB intake stack screens to list.		ACCEPTED. CSB intake stacks will be added to list. Will refer to open item discussed above (in response #18) to address. (Its likely that we can demonstrate the a missile striking such a small structure at such an elevation is incredible, based on the analysis on page 86).	

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20.	P. 82 provides a discussion of the MRB with respect to high winds but the facility was not discussed in relation to the DBE or Ashfall. As there is some source term inherent in the facility, it should also be discussed as part of the DBE and ashfall discussions.		ACCEPTED. Will add MRB failure to DBE and ashfall discussions. However, since MRB is Safety Class-2, the consequences of its failure will only be compared to risk criteria for the offsite receptor.	
21.	P. 84, 9.2.4.3. Discussion, bottom of page concerning safety factors is appropriate as a discussion topic but it is not conservative to include this in the analysis. The 1.25 factor should be dropped from the calculation.		NOT ACCEPTED. The intent is to provide a best estimate of probability of structural collapse and use of the safety factor is appropriate. The risk acceptance is based on a frequency of 1.0 x 10^{-4}/yr which is conservative for a Safety Class-2 structure (exceedance probability for an 80 mi/hr wind is less than 10^{-4}).	
22.	P. 85, Para. 3. Frequency is being calculated based on a 90 MPH fastest mile, apparently in relation to discussions of Non SC-1 structures. That being the case, the frequency needs to be in terms of a mph marginally above the design mph for that structure, e.g., SC-3, 71 mph fastest mile.		ACCEPTED. The discussion will note that the SRS studies are based on tornado frequency data from 2.29 E-03/yr to 2.99E-03/yr. The DBW of 90 mph will not generate missiles comparable to those from a tornado. Therefore, adjustment of the frequency for a 90 mph wind at Hanford is conservative for determining the likelihood of missile impact. The likelihood of a missile strike at Hanford will be revised to 4.6 E-13 (3.5 E-10 x 3E-06/2.3E-3).	

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23.	P. 85. First bullet. Provide the basis for assuming 4000 candidate projectiles.		ACCEPTED. The text will be revised to state that this is based on the potential missile determined to be available at the SRS K Reactor excluding trees. This is judged to be conservative since the K reactor complex is more extensive than HWVP and includes items such as automobiles and flatbeds which would not become missile hazards as a result of extreme winds.	
24.	P. 86, 9.2.3.3, 4th to last line. Discussion is in terms of visible level. There have been cases at Hanford where they didn't bother to clean the inside of a glove box until the visibility was about zero. A great deal depends on maintenance funding, which is usually short and operators wind up working in conditions less favorable than ALARA. Use of the visible level may not be conservative and should be reconsidered.		NOT ACCEPTED. The MSM decontamination rooms will contain personnel during the decontamination process, unlike a glovebox. These rooms are very large and it is conservatively assumed that the entire surface of area of the room is contaminated to the visible level. It is inconceivable that an occupied room would be allowed to be crapped up to the same level as a glovebox cases the reviewer refers to. Most likely, a bag or shields would be used to limit contamination spread to the area immediately surrounding the locations where the MSMs are hung. The MRB detailed design is currently being developed. The current analysis will soon become obsolete, but it is judged to be sufficiently conservative for this revision of the PSAR.	
25.	P. 87, bottom line. The 70 mph, fastest mile, should, conservatively, be used.		NOT ACCEPTED. The calculation is conservative for the Safety Class-2 MRB which is designed for a DBW of 80 mph.	

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26.	P. 89, next to last bullet. More information is needed than being bounded by another case. Neither could be acceptable.		ACCEPTED. Will replace bullet with the following: "The consequences of an extreme wind-induced hazardous chemical release would be less than results postulated for a breach of a cold chemical tank in Section 9.2.9 because (1) the formic acid storage tank is below grade and not at risk, and (2) the extreme winds would disperse any release of nitric acid vapor to a much greater extent than the 95th percentile meteorological conditions assumed in Section 9.2.9. The risk of a breached nitric acid tank is shown in Section 9.2.9 to be acceptable."	
27.	P. 90, 9.2.5.2. It may be allowable to assume that operations would be shut down given a volcano eruption with a few hours warning of ash arrival.		ACCEPTED. Will insert "It is likely that HWVP operations would be shutdown within a few hours after an ashfall warning, before the actual arrival of the ash plume." after the first sentence.	

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28.	P. 91, 1st para. States, "Normal offsite power could likely be restored before the failure of the HWVP emergency generators by removing accumulated ash from the electrical equipment." This is not necessarily true in that the BPA transmission failure could be some distance from a maintenance crew with no ability to reach the location of the fault. Statement should be reconsidered. Perhaps BPA should be contacted to determine what procedures and capabilities they have for maintenance during ashfall.		ACCEPTED. BPA has developed several studies on the impact of ashfall on the power system. Based on information from BPA, "Even if more major eruptions do occur, the impact on the PNW (Pacific Northwest) power system is expected to be less than the icestorms that were experienced in recent years." BPA system includes areas where St. Helens ashfall was severe (compared to Hanford and in some places comparable to our Design Basis Ashfall, the weakness in the system is the lower voltage insulators and bushings (13.8 kv). Less severe impacts on higher voltage insulators (115 kv and up). The Hanford loop is a 230 kv loop. However, likely will be deleted from the sentence.	
29.	P. 92, 1st 2 para. Information in these paragraphs may not be accurate. Please provide a reference. Suggest contact with Ann Tallman and BPA. Mt. St. Helens is probably not the most likely volcano for the next DBAshfall, with respect to HWVP. While there could be an ashfall within 480 yrs, which may accomplish this event, that may not be the DBAshfall which would compromise roof loadings, which is probably a 2000 yr. event. A minor ashfall could lead to loss of power. The DBAshfall could lead to collapse of the MRB.		ACCEPTED. The return period for the design basis ashfall is greater than 2,000 - 3,000 yr and an eruption similar to Mount St. Helens May 1980 eruption is likely to occur every 500 - 1000 yr per WHC-SD-GN-DB-003. Collapse of the MRB will be included in Section 9.2.5.	

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30.	P. 93, 1st para. What is the basis for relating the 20 hr. ashfall duration with cesium release? If this is based on power restoration, then the length of time to restoration of power will depend on the extent of the ashfall (the 480 yr. event or the 2000 yr. event) and the ability to get power back on line. The ash will be in the air long after the ashfall has ceased due to resuspension. Cesium release probably should be based on melter cool down, alone.		ACCEPTED. The text will be revised to note that ashfall protection is provided for the generators and to note that this is a representative accident for a loss of power event. It is expected that even if the filters plugged, normal power or the emergency generators would be restored soon after the ashfall. BPA did not note any problems with the power system due to resuspension but this could cause a continuing problem with the generator supply filters. The accident consequences would be less severe if there were sufficient wind for resuspension due to the decrease in the atmospheric dispersion coefficient (X/Q). As noted in Section 9.2.5.2, the generators could continue operation for a period of time even if the supply filters plugged. Loss of all power would not be expected at the initiation of the ashfall allowing time to cease operation. The accident analysis conservatively assumes that the melter emission rate is the same as during processing. The melter emissions will reduce substantially as the melter cools.	

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31.	P. 95, et al. What single failure has been taken for this accident? Has this been considered? While not part of the model, if, indeed there is natural convection and a portion of the canyon contents goes up the stack, perhaps a HEPA failure should be considered. Another option is the railroad well cover is open and there is no power available to close it. (However there should be sufficient warning to cease operations.)		NOT ACCEPTED. Single failure is not relevant given the way the release is modelled. Building is assumed to leak with no significant DF across penetrations. Identification of specific release paths is not necessary. Failure of one HEPA filter would not lead to significant release out the stack even if stack draft were significant, since there would still be 1 stage of HEPA with a DF of 10^3. It could also be argued that a double failure is already included in that both Safety Class-1 generators are assumed to fail.	
32.	P. 95, Para. 2, 3. The analysis takes credit, apparently for the heat loss of one filled canister. If more canisters could be in the canyon area, contributing to the heat rise, that heat should be added to the total.		ACCEPTED. Thermal heat loss from 3 canisters filled in the 50 h prior to the LOP and the decay heat from a total of 13 canisters that might be stored in Zone 1 areas will be included in the release model. Will also add thermal loss from CPC process vessels and residual heat from shut down steam heating coils. Calculations show that the thermal mass of the building will accommodate the majority of this increased heat load, and that the consequences will not significantly increase over current estimates.	
34.	P. 97. Tables. Do these calculations include dose from the MRB - which may have collapsed in the event?		ACCEPTED. MRB consequences will be added to Ashfall accident.	

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35.	P. 97, Risk. The Onsite dose, if not currently conservative, (see comments 28 - 33) could be less than acceptable.		ACCEPTED. Will reassess risk based on increased thermal loading and inclusion of MRB consequences. Offsite consequences should still be well below RAG. Onsite risk assessment will not include consequences of MRB failure because the MRB is Safety Class-2.	
36.	P. 98. A steam boiler accident analysis is needed.		ACCEPTED. See response to comment #2.	
37.	P. 106, 9.2.9.4. Analysis appears to assume that the drain is fully functional. Provide the impact of a partially blocked drain (leaves, paper, etc.)		NOT ACCEPTED. Risk assessment for chemical accidents is independent of accident duration, since toxicological RAGs are based on peak (i.e., 15 min maximum) airborne concentration, not a time integrated effect. Open pool duration is calculated only for the reader's information, not to assess consequences.	
38.	P. 111, 9.2.10.3. Provide the basis and reference for the frequency of a power failure.		ACCEPTED. The report states that the loss of power for a significant period of time during the formatting reaction is judged to be 10^{-2} to 10^{-3} per year. This is a judgement value based on review of outages of offsite power to the N Reactor and because formatting will only occur a fraction of the time. The basis for the loss of power frequency estimate will be included (e.g., no long term outage of offsite power in a 21 yr period, separate onsite buses, and formatting reaction only occurs a fraction of cycle). Note that the frequency category for the accident would not change even if the loss of power were an order of magnitude more likely.	

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39.	P. 116, 9.2.11.3. Please resolve the inconsistency between unavailability of an agitator and 10-4 per year when the power failure (see comment 37) is 10-2, -3, and that may not be conservative.		ACCEPTED. Will use loss of power probability from Section 9.2.10 (see response to #38). Both accidents require a long term loss of power.	
40.	P. 130. General. CSB GA drawings should be included with this revision.		ACCEPTED. The general arrangement drawings for the Canister Storage Building will be included in the current revision of the Preliminary Safety Analysis Report. The updated appendix containing the GAs was not distributed to the WHC reviewers because it is currently being prepared by tech publishing.	
41.	P. 130, 9.2.14.2. States vacuum leak testing of the tube will be conducted. State how this will be performed. The tube is not sealed, but contains a HEPA filter in the plug.		ACCEPTED. Will clarify by adding: "A valve and piping arrangement allows the HEPA filter to be valved out thus sealing off the vault tube for vacuum leak testing." will be added before the last sentence.	
42.	P. 130, 9.2.14.3 describes a number of "engineered safety features..." These are all SC-3 systems. Generally the term "engineered safety feature" relates to SC-1 systems. Terminology should be revised.		ACCEPTED. Will replace "engineered safety features" with "features."	
43.	P. 131, 1st paragraph. It should be clarified that the canister storage tube is not qualified for a drop and hence would not form a confinement barrier in that instance.		ACCEPTED. "The vault tube, however, is not qualified to survive a canister drop." will be added at the end of the paragraph.	

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44.	P. 131, 9.2.14.4, 1st para. Use of NUREG-0612 data is unlikely to be conservative. The Nuclear power industry is more closely regulated and many crane lifts will be SC lifts. Maintenance training is mandatory in NRC regulated facilities while it is not in DOE facilities. The systems for the SCT are SC-3 and will receive lower QA, reduced maintenance with reduced budget and maintenance training at WHC operated facilities does not meet NRC requirements. Revision of frequency data is needed.		NOT ACCEPTED. The reference failure rates are based on naval shipyard experience, not commercial nuclear experience. There is no reason to believe that DOE cranes would drop their loads more often than Naval shipyard cranes. Also, in the reference, human error is the dominant cause for the drops (73%), which lessons the effect of the factors the reviewer suggests. The higher load drop frequency from the reference is conservatively used to assign the "frequency category" for the accident.	
45.	P. 131, 9.2.14.4. Provide the basis for assuming the loadout rate is the same and the load in rate?		NOT ACCEPTED. In any given year the load in frequency could vary considerably from the load out frequency, but, overall, 1 in for 1 out is a good estimate for the purpose of establishing frequency category. Note that the probability point estimate is used only to establish a "frequency category," with a range spanning two orders of magnitude.	

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46.	P. 132. A 42 ft. drop is assumed. It would appear that the drop could be a few feet greater as the canister is not traveling at ground level in the SCT and the failure could initiate when the canister is at that higher location.		ACCEPTED. The impact energy and effective energy density will be recalculated by adding three feet to the drop distance. This change will not affect the consequences however because a conservative energy density was used to estimate the amount of material fragmented into respirable fines. A 45 ft (13.72 m) drop gives an energy density of: $E = mgh = (1650 + 454\ kg)(9.8\ m/s^2)(13.72) = 2.83 \times 10^5\ J$ The recalculated effective energy density is: $E/V = (1/2)(2.83 \times 10^5\ J)(10^7\ ergs/J)/(625{,}000\ cm^3) = 2.26 \times 10^6\ ergs/cm^3$ However, a energy density value of $1 \times 10^7\ ergs/cm^3$ was conservatively used to arrive at 0.025 wt.% glass that is fragmented into respirable fines. Backcalculating a drop height from this energy density gives: $h = (1/2)(1 \times 10^7\ ergs/cm^3)(625{,}000\ cm^3)/[(2104\ kg)(9.8\ m/s^2)] = 15.2\ m$ Clearly, this drop height is greater than 45 ft (13.72 m).	

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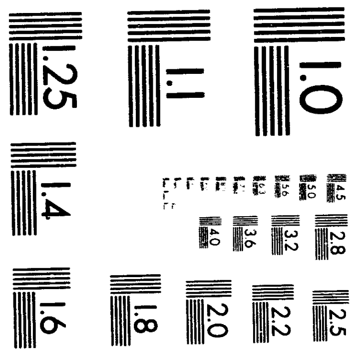
47.	P. 133, line 3. States that the canisters are "qualified" for a 30 ft. drop. A test of 3 samples does not appear to justify "qualified." Suggest some other term be used.		ACCEPTED. The sentence will be revised to read "Catastrophic failure of the canister would not be expected in a 13.72 m (45 ft) drop, since the canisters did not breach when drop tested from 9 m (30 ft)."	
49.	P. 135, 9.2.14.6. The onsite dose is not "well below" the lower RAG. Adjustment of key parameters for which there is little data could yield results for an onsite dose above the lower RAG.		ACCEPTED. Will replace "well below" with "below."	
50.	P. 9T-19. The table in the initial CSB PHA included 43 items. This table includes only 7. As this is the first time a formal review has been made of the CSB which is, after all, under construction, a more thorough analysis of the facility would be expected. Please account for the factor of 6 decrease in evaluation.		NOT ACCEPTED. Significant items from the Canister Storage Building (CSB) Operating Hazards Assessment (OHA) were condensed and included in Table 9.0-5. All the items from the CSB Addendum OHA could not be included in Table 9.0-5 because the format of an OHA is incompatible with an energy barrier PHA. OHAs by their very nature are much more detailed than the type of PHA used in the Preliminary Safety Analysis Report.	
51.	P. 9T-20, 1st item. States that this accident is incredible. With a consequence of 2, analysis in the text to explain why this is incredible would be warranted. As there is no well defined design for the SCT, "incredible" does not seem to be an accurate description. Please provide the frequency basis.		ACCEPTED. The "incredible" listing (I) will be changed to "U" for "unlikely." Accident screening Section 9.0 will refer to Section 6.9.8 (Item for further development) to address this hazard.	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52.	P. 9T-20, 4.5, Thermal. Discusses storage tube damage from heat but not concrete which is the greater hazard. Please revise. No accident generator is given, such as Design basis heat wave or hoar frost.		ACCEPTED. Additional information under "4.5, Thermal" covering thermal effects on concrete will be included. Design basis meterological events (accident generators) including a heat wave and hoar frost will be added. Note that these are conditions the Canister Storage Building must be designed to withstand so the hazard of concrete overheating will be given a probability category of "E." An "item for further development" will be added to Chapter 5 to ensure that the design will be adequate for these conditions. See response to #18.	
53.	P. 9T-21, 4.7.1. Please explain the value of an RPT survey before entry means in this context. An RPT survey would generally be performed to check for contamination rather than inadequate shielding.		ACCEPTED. Administrative reference to RPT survey will be deleted.	

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 9	HWVP	S. L. Engstrom		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/19/93
Date

S. L. Engstrom
Reviewer/Point of Contact

B. W. Hall
Author/Originator

11. CLOSED

10/6/93
Date

S. L. Engstrom
Reviewer/Point of Contact

B. W. Hall
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	P. 4, 2nd para. Discussion concerning transportation of hazardous chemicals states that, "However, this is a hazard that is commonly accepted by the general public ..." Please revise, this is not accurate. With the NEPA and SEPA processes, new plants, etc. must file impact statements and increased risk to the public in the region of the plant and its transportation route must be assessed and the process open to the public for comment. For instance, a new coal plant would have to address the impact of a daily unit train, both from consideration of hazards at crossings but coal dust added to atmosphere in route. If transportation of hazardous chemicals is determined to be a risk to populated areas rerouting may be required. As the impact statement did not address some of the more hazardous materials transported to HWVP there has been no means for the "public" to determine that it does "commonly accept" these materials.		PARTIALLY ACCEPTED. Onsite transportation of hazardous chemicals, such as ammonia and chlorine, will be subject to similar requirements as offsite transportation of chemicals. Obviously for the chemicals to get to the Hanford Site, they will have to traverse populated areas. The point of the statement in the Preliminary Safety Analysis Report, which was added in response to a comment from a previous reviewer, is that onsite transportation of chemicals presents, directly, no greater risk to onsite personnel than the risks experienced by the public residing along transportation routes, at least in low populated areas. The DOE allows for this type of comparison to show that the risks of certain activities are acceptable. Indirectly, transportation accidents on the Hanford Site could present a greater risk than transportation accidents offsite in that such accidents have the potential to adversely affect the operation	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
			of radiochemical processing facilities such as the HWVP. As noted in the text, however, Chapter 5 levies requirements pertaining to control room habitability to ensure that the HWVP can be safely shutdown in such an incident. **The sentence in question will be revised as follows: "However, this is a hazard that is commonly accepted by the general public residing in low-population areas along transportation routes."**	
33.	P. 97, 1st para. Please explain the 8 hr release. What is the basis?		NOT ACCEPTED. Basis for assumed 8 h exposure is provided in Section 9.0. The onsite receptor is assumed to be exposed for a maximum of an 8 h work shift. For natural phenomena such as ashfall, it is likely that all non-essential site personnel would be evacuated within 2 h. Current version of WHC-CM-4-46 require that a 12 h duration be used for the onsite receptor in determining a facility's Hazard Classification. Will consider revising analyses from 8 h to 12 h in next years Preliminary Safety Analysis Report revision. The 50% increase in duration is not expected to make any of the accidents unacceptable from a risk standpoint.	

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48.	P. 133, line 5. Assumption is made that only 10 % of puff is released. There appears to be no information on the failure mode of a stainless steel canister. If a fracture was produced along the line of a weld, greater than 10 % of the puff could be released. As the onsite consequences appear to be marginal, this parameter should be restudied to provide a more reliable or referenced basis.		PARTIALLY ACCEPTED. A conceivable split even along a seam was judged not to expose more than a few % of the damaged surface area. The glass matrix itself provides an effective barrier to release since many of the fines would be generated internal to the glass matrix. Also, there would be a DF across the split. The vault tube would likely provide some holdup and DF also. None of these mitigative effects were factored into the current analysis. 10% is judged to be a conservative correction in light of these effects. **Justification for the 10% assumption will be expanded in the analysis as follows:** **Pg. 9-132, 4th paragraph will be revised to: "Some of the impact energy will be imparted to the fractured glass fines. A fraction of the glass fines will have enough energy to escape the fractured glass matrix and be released through breaches in the canister wall. Another very small fraction of the exposed fines will be resuspended by convection air flowing across the ruptured vault tube and canister."**	

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			Pg. 9-133, 1st paragraph, 2nd sentence will be replaced with the following: "The openings that might develop in the canister would allow only a fraction of the puff to be released. The fractured glass matrix in the damage zone of the canister will itself provide an effective barrier to the release of the finer glass fragments of the puff. Because of these two mitigative factors, it is assumed that only 10 % of the puff escapes to the vault convection airstream following the drop. Holdup of fines in the storage tube and decontamination across the breach in the storage tube is conservatively ignored." The following paragraph will be added above the last paragraph on Pg. 9-134 to further clarify the conservative nature in which the accident is modelled: "Even though the glass fines are released to the environment from the CSB exhaust stack at an elevated height (186' above grade), ground-level X/Q's are used to calculate the onsite and offsite inhalation doses and to estimate the offsite ground contamination levels. This is done to allow for the assessment of an unmitigated release from the CSB Operating Area (OA). A ground-level release from the OA could occur should the SCT ventilation system fail concurrent with the drop of a canister."	

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54.	P. 9T-22. Breach of CSB confinement is given a probability of "A". How can the canister operating area zoning be allowed if there is a reasonable probability of breach of confinement. Please check for general inconsistency of the operating area being at atmosphere pressure with no HEPA filtered release, yet the probability of confinement breach is "A" and there appears to be justification for a separate HP room for the building.		ACCEPTED. The operating area of the Canister Storage Building (CSB) is classified as a neutral zone. Normal usage of the term "neutral zone" refers to transition areas between zones as is indicated in the TDP. The FDC states that it is an area not requiring confinement ventilation. The TDP and FDC descriptions are not mutually inclusive and make it difficult to clearly assign a proper zone classification. Thus, an item will be added to the CCDB to establish more definitive rationale for zone classifications (see response to S. L. Engstrom RCR comment # 8, Ch. 5). The probability and degree of potential contamination in the CSB OA will be assessed as part of this CCDB item to establish the proper zone classification for the CSB OA.	

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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 11	HWVP	S. L. Engstrom		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/17/93 S. L. Engstrom
Date Reviewer/Point of Contact

D. Smith
Author/Originator

11. CLOSED

8/17/93 S. L. Engstrom
Date Reviewer/Point of Contact

D. Smith
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Given the design of the CSB intake, and given that DOE may plan to landscape the operations building which they are temporarily occupying, it may be required to add a OSR to the effect that no deciduous trees will be planted with in XX meters of the CSB. Reason - leaves in autumn could block or partially block the intake screens. Unnoticed on a long weekend (say Thanksgiving) this could have safety consequences.		The Canister Storage Building (CSB) intake is Safety Class 1 and will be designed to withstand credible accidents (see response to comment #94 on Chapter 5). If the design evaluation identifies active systems required to prevent plugging of the CSB inlet, these will be addressed in future update of the Preliminary Safety Analysis Report.	

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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 1	HWVP	John Gould	WHC Env. Reg. Spt., Program Integration	376-1157

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

7-29-93
Date

D. F. Iwatate 7/27/93
Reviewer/Point of Contact

John A Gould
Author/Originator

11. CLOSED

7-29-93
Date

D. F. Iwatate 7-27-93
Reviewer/Point of Contact

John A Gould
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Figure 1.2-2, page 1F-5: Clarify whether the transfer path to the Canister Storage Building is below ground. It would seem to be an ALARA-optimizing opportunity, if the transfer path to the CSB were straight, rather than having two 90-degree bends. It would also seem expedient if the transfer path were to leave the nearest corner of the main plant building, rather than the far side. This again would seem to be an ALARA-optimizing item.		ACCEPTED. Canister transport occurs above ground. Canisters will be transported from the smear test/exit tunnel located in the Vitrification Building to the Canister Storage Building using a specially-designed shielded canister transporter (SCT) that will travel on the roadway between these two buildings (depicted in Figure 1.2-2). The SCT and its functions are being designed according to ALARA principles. The SCT is described in PSAR Section 6.8.1. The HWVP ALARA program is summarized in PSAR Section 8.1.	

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 2	HWVP	John Gould	WHC Env. Reg. Spt., Program Integration	376-1157

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

Date

D. F. Duratate 7/28/93
Reviewer/Point of Contact

J. Gould 8/4/93
Author/Originator

11. CLOSED

8/4/93
Date

D. F. Duratate 7-28/93
Reviewer/Point of Contact

J. Gould
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Table 2.3-1, page 2T-2, bottom row: Conditions leading to a "Tank Bump" seemed to be minimal in the chapter. Criteria for the "bump" in tank 241-SY-101 have had a lot of modeling analysis, and may be useful. The value for frequency of occurrence needs more justification.		ACCEPTED. The discussion of a "tank bump" is intentionally brief in this chapter of the PSAR. The purpose of Chapter 2, including Table 2.3-1, is to briefly summarize the safety analyses that are presented in considerably more depth in other PSAR chapters. The HWVP tank bump accident is evaluated in Section 9.2.11, in which the modeling approach is described. The frequency of occurrence estimated for such an event is justified in Section 9.2.11.3.	OK JG

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 4	HWVP	John Gould	WHC Env. Reg. Spt., Program Integration	376-1157

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/10/93
Date

Reviewer/Point of Contact

Author/Originator

11. CLOSED

8/11/93
Date

Reviewer/Point of Contact

Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Section 4.1.1.1, page 4-1, bottom paragraph: Clarify the text, to indicate that -- although the SSTs have not received any new waste since 1980 ("removed from active service"), they are still used to contain "interim stabilized" wastes, and will continue to do so until retrieval campaigns are begun.		ACCEPTED. The following sentence will be inserted between the second and third sentences in the subsection on Single-Shell Tank (SST) Waste: "However, the SSTs are still used to contain the stabilized waste, and will continue to perform this function until the SST waste is retrieved."	✓
2.	Section 4.1.2.1, page 4-9: The flowsheet of byproduct LLW, as well as the miscellaneous generation needs to be evaluated for Waste Minimization opportunities, per DOE Orders 5820.2A, 5400.1 and 5400.3.		NOT ACCEPTED. The HWVP Waste Minimization Plan is discussed in the "Hanford Waste Vitrification Plant Dangerous Waste Permit Application," DOE/RL-89-02, Revision 2, Volume 1. The specific waste minimization design features incorporated in HWVP are described in this document. Since waste minimization is not necessarily a safety concern, this subject is more appropriately covered in the permit application rather than in the PSAR.	OK NY

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3.	Section 4.2.5.1, page 4-22, 4th paragraph: Agreed, that uncertainties in the soil properties at the project site exist. Suggest that WHC Geosciences organization be consulted in order to optimize a field test program. Sonic (acoustic) methods are usually quite useful for determining bulk soil modules, when used between boreholes.		NOT ACCEPTED. The soil properties at the HWVP site are discussed in detail in Section 3.6.1.9, where the results of a recent geotechnical investigaton of the site are summarized. Specifically, subsurface conditions were evaluated by drilling 17 borings ranging in depth from 6 to 30.5 m (20 to 100 ft). During this investigation, seismic design conditions were examined using accoustic methods. In addition, Westinghouse Hanford Company has analyzed HWVP site soil samples for hazardous and radioactive contaminants. This program is described and results of the sample analyses presented in a report by M. A. Wasemiller entitled "Data Validation Report for the HWVP Soil Baseline," WHC-SD-HWV-TI-034, Revision 0, released June 8, 1993."	✓OK
4.	Chapter 4, Appendix A: Needs page numbers altered to identify source tie-ins. (e.g., A-4 to become "4A-4")		NOT ACCEPTED. Appendix A is not a part of Chapter 4, but only located in the PSAR document between Chapter 4 and 5.	✓OK

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 5	HWVP	John Gould	WHC Env. Reg. Spt., Program Integration	376-1157

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/10/93 Date — John Gould Reviewer/Point of Contact

Fred D Sargent Author/Originator

11. CLOSED

8/10/93 Date — J Gould Reviewer/Point of Contact

Fred D Sargent Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Section 5.2.3.3.3, pages 5-67 & 5-68: Add chart/figure to show degradation of concrete module in the range 60-90C. Can a "sealer" be used on the surface of the high-temperature areas, to slow-down escape of interstitial water?		(1) Not accepted. Figures 5.2-10 through 5.2-12 show material property degradation including the 66°C -93°C range. (2) As stated in the first paragraph on Page 5-67, an insulating layer of concrete will be installed on the structural concrete faces to aid in controlling the temperature of the concrete. This layer, by helping to keep the temperature lower, will, in this process, slow down the escape of water.	OK OK
2.	Section 5.3.2.4, page 5-89, top paragraph: Add clarification, that the condensate/waste is returned to the Vitrification Building through a "double-containment" transfer line.		Not accepted. The designers at this time have not determined this piping to require any more than single containment. The PSAR is a reflection of that design.	Carry forward to final Design JG
3.	Section 5.4.1.1.1, page 5-97, 3rd paragraph: Spelling error -- "one I" should be "zone I." Same line: Add reference/code/procedure for the filter DOP-testing.		(1) Accept. "one I" will be revised to "Zone I." (2) Accept. Added reference to ASME N510-1989, "Testing of Nuclear Air Treatment Systems."	✓ ✓

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4.	Page 5-101, 2nd paragraph, last sentence: Reword, to remove ambiguity in syntax; "Containment velocity is not be maintained..."		Accept. This phrase will be revised to read, "Confinement velocity will not be maintained...."	✓ o/c

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chatper 7	HWVP	John Gould	WHC Environmental Regulatory Support Program Integration	376-1157

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/4/93
Date

Reviewer/Point of Contact

8/6/93
Author/Originator

11. CLOSED

8/4/93
Date

Reviewer/Point of Contact

8/6/93
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Section 7.1.4.1, page 7-4, top 3 bullets: CLARIFY -- Treatment of the waste by addition of inert material, solely to bring the contamination below action levels is not allowed. "Dilution is not the solution to pollution."		NOT ACCEPTED. As stated in the first paragraph of Section 7.1.4.1, "Effluent management systems are provided to ensure that discharges are in accordance with all Federal and State regulations and DOE Order...". The cited bullets provide a summary listing of the functions of these systems. The management and treatment of HWVP wastes in order to comply with environmental and permitting requirements is discussed/presented in HWVP permitting documentation and is inappropriate for the Preliminary Safety Analysis Report/Safety Analysis Report. Note: Comment was made against text that was not changed during this revision.	OK

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2.	Section 7.2.1.1.3, page 7-8, first paragraph: Give a more detailed justification or give a reference for statement that -- "These emissions are ... unimportant."		NOT ACCEPTED. Elaboration on the only credible abnormal occurrences and accidents that could result in significant releases is provided in Chapter 9. This is stated in the last sentence of the cited paragraph. Note: Comment was made against text that was not changed during this revision.	OK
3.	Section 7.5.3.3, page 7-36, third paragraph: The dilution water mentioned here has the unfortunate effect of adding to the amount of secondary waste generated. If cooling is really a problem, a gentle flow of liquid nitrogen into a chamber will both absorb heat and minimize the generatiuon of liquid wasate.		NOT ACCEPTED. The current design and operational approach, as discussed in summary within this section, meets the project/facility baseline design requirements and does not pose any safety problems. The reviewer's comment suggests a possible alternate design option. Such recommendation should be submitted through the project design review process for consideration. It is inappropriate to recommend such an approach within the Preliminary Safety Analysis Report (PSAR). The management and treatment of HWVP wastes in order to comply with environmental and permitting requirements is discussed/presented in HWVP permitting documentation and is inappropriate for the PSAR/Safety Analysis Report.	OK

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4.	Section 7.8.6, page 7-53: Give a more detailed update on the study mentioned to start in 1992.		NOT ACCEPTED. No additional information is available than is presented in the existing text. The issue is still being addressed and remains appropriate as an item for further development, as stated. the cited sentence will be deleted from Section 7.8.6. Note: Comment was made against text that was not changed during this revision.	OK

A-6400-090.1 (03/92) WEF011

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5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 8	HWVP	John Gould	WHC Environmental Regulation Systems Program Integration	376-1157

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/9/93
Date

V. J. Duratate 8/5/93
Reviewer/Point of Contact

John A Gould
Author/Originator

11. CLOSED

8/9/93
Date

V. J. Duratate 8/5/93
Reviewer/Point of Contact

J Gould
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Section 8.3.3, page 8-25: No mention is made of the ventilation zone III-A, and its controls.		NOT ACCEPTED. Section 8.3.3 is provided in the Health Protection discussion as an overview of the HVAC system. Only general information is presented to support discussion about radiation/contamination control and detection instrumentation. Detailed discussion of the HVAC system, including ventilation Zone III-A, and controls, is provided in Chapter 5, Section 5.4.1. Note: Comment was made against text that was not changed during this revision.	OK JG

COMMENT: Responses are Accepted within context given. The expectation of growth & New applications can be addressed as applicable in future. J Gould 8/9/93

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2.	Section 8.3.4.5, page 8-31, bottom paragraph: The next-to-last sentence gives radiation dosage rate in sieverts/hour (preferred SI units) and the secondary units in parentheses (mrem/h). A casual reader might assume that these are equal and equivalent units. This sentence usage should maintain the same format as other statements in this section, with exact equivalency -- unless the meter can actually be read in both stds of units.		ACCEPTED. The cited paragraph/sentence will be revised to better describe the output of the instruments being discussed: "The output, *in units of Sv/h*, corresponds to a standard human response... ." Note: Comment was made against text that was not changed during this revision.	OK
3.	Section 8.6.1.1, page 8-49: Clarify whether ventilation zone III-A is treated the same as zone III for purposes of the Gaseous Airborne Effluent Monitoring (GAEM).		NOT ACCEPTED. The Chapter 8 discussion is not the primary source of information regarding the HVAC system for the HWVP. A discussion of the Zone IIIA component is inappropriate for Chapter 8. The reviewer is referred to Chapter 5 for this information. For the purposes of Chapter 8, the exhaust monitoring for the HVAC Zones II/III takes into consideration the contribution from all plant sources to that system. The discussion provided, and the design provided for monitoring the Zone II/III exhaust also applies to the Zone IIIA contribution.	OK

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4.	Section 8.6.2.1, page 8-59, bullets 1-7: The dose expectation calculation should also look at the population and anticipated demographics for the entire life of the plant, between now and the year 2020.		NOT ACCEPTED. The PSAR text will not be changed for the following reasons: a) No requirement has currently been identified requiring that such a dose calculation be prepared. In fact, the Reg. Guide 3.26 (format and content guide for the HWVP PSAR preparation) does not even require as detailed or complete a discussion as has already been provided. b) The discussion and data presented provide sufficient information to support the claim that the HWVP design will maintain both on-Site and off-Site exposure levels well below limits, from the perspective of safety-related design and operational features. Environmental considerations are addressed in HWVP permitting documentation. c) Based upon the discussion that is already provided in Chapter 3 (regarding expected population and anticipated demographics during the operating life of the plant), dose would be expected to increase to only 1.3 person-rem by the year 2027 (vs 0.9 person-rem current estimates) due to operations. This dose would be 1/7 x 10^{-6} of the dose provided by natural sources to the same expected population (CY 2027).	OK OK OK
5.	Section 8.9.2, page 8-74, items 1-3: The syntax is slightly confusing; the word "work" can have several meanings. Can these be clarified?		ACCEPTED. The items cited by the reviewer will be restated to clarify the meaning of the term, "*work*".	✓

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
6.	Table 8.2-1, page 8T-2: Errors are apparent in energy groups 4 & 5 (columns 3& 4 must be consistent). These need to be rechecked and corrected.		ACCEPTED. Table 8.2-1 will be revised to indicate the reason for the apparent spike in activity levels. A footnote will be added to the table to explain the following information regarding energy group 4: *"The large number of gamma photons in this energy group is primarily due to the decay of ^{137}Cs, which is the predominant activity in the waste."*	✓ OK
7.	Table 8.4-2a: The total personnel (582) is not consistent with that given in figure 8.5-3, page 8F-35. These should be checked and corrected.		NOT ACCEPTED. Consistency between the two values is not required or implied. Figure 8.5-7 presents an anticipated flow of personnel through change rooms/areas of the facility. Approximate numbers of personnel, based upon plant population and the division of that population over operational shift periods, are used to support discussions about the adequacy and capabilities of the change rooms/areas. The total personnel listed in Table 8.4-2a is accurate for the projected plant population as of this revision to the PSAR.	OK

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5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 9		John Gould		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

Date: 8/16/93

Reviewer/Point of Contact: Butt Hall 8/11/93

Author/Originator: [signature]

11. CLOSED

Date: 8/16/93

Reviewer/Point of Contact: Butt Hall 8/11/93

Author/Originator: [signature]

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Section 9.1.4, line 5: The chemical NNO[sub 3] should be HNO[sub 3].		ACCEPTED. In Section 9.1.4, line five, NNO_3 will be changed to HNO_3.	✓
2.	Section 9.2.1.2, par 1, line 4 & 5: "... if these instruments survive." At this stage, the analyses should be able to predict which instruments will, in fact, survive and provide the initial annunciation to the operator(s) following a DBE.		NOT ACCEPTED. Safety Class-3 and 4 equipment are not qualified to withstand the DBE. Such equipment cannot be credited in the safety analysis, so it is unnecessary to quantify or make judgments about the probability of their survival. Safety Class-3 and 4 items are often connected to utilities such as compressed air, steam, Safety Class-3 power. Estimating the survivability of Safety Class-3 and 4 items, which are often connected to complex systems such as Safety Class-3 power, would involve more work than is warranted, and would be inconsistent with the graded approach to safety class analysis.	✓ OK OK JG

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
3.	Same section, par 2: This was the first discernable mention of the vent zone I sand filter. This filter is being eliminated in favor of a High Efficiency Metal Fiber (HEMF) filter which can be periodically cleaned. See ECN #400286. [see also pages 9-77, 9-78, 9-91, 9-118.]		NOT ACCEPTED. The starting date basis for Revision 1 of the Preliminary Safety Analysis Report (PSAR) was January 1, 1993. Because the HEMF Filter ECN #400286 was issued after that date, it will not be included in Revision 1. The ECN will be reflected in the next annual revision of the PSAR.	ok
4.	Page 9-66: Clarify the units used for temperature (degrees kelvin or rankine).		ACCEPTED. All absolute temperatures will be reported in °K. Please note, however, that the variable x used in the equations is the ratio of absolute temperatures so either °K or °R can be used to calculate x as long as consistent units are used in the numerator and denominator. Changes to the text are as follows: p. 9-66, first paragraph, third & fourth sentences: "...the maximum cesium release rate would be 35,900 mg/h at 1150°C (1423°K). Evaporation of cesium will occur for about 0.385 h until the glass cools to a temperature of 700°C (973°K)."	✓ ok

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			p. 9-67, 1st sentence, beginning with 1st equation: $$\frac{dE}{dt} = (35{,}900 mg/hr)(3.44x10^{8})\,e^{(-27977/T)}$$ and simplified using x = T/T_∞, where T_∞ = 311°K. Solving for T, T = 311x." p. 9-68, 1st equation is corrected to read: $$\frac{dE}{dt} = (6.47\ x\ 10^{14})(-x^{-4})\,e^{-89.92/x}$$ p. 9-68, 3rd sentence, "At 1150°C: $$x_o = \frac{T_o}{T_\infty} = \frac{1423}{311} = 4.5750$$ p. 9-68, 4th sentence, "At 700°C: $$x_1 = \frac{T_1}{T_\infty} = \frac{973}{311} = 3.1286$$	ok

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5.	Page 9-75, bottom paragraph: Clarify the effect of/on iodine-129 by the sand filter. Will the HEMF have better entrapment?		NOT ACCEPTED. I-129 is assumed to be emitted in its gaseous form in all the Preliminary Safety Analysis Report (PSAR) accident analyses. The paragraph clarifies that the iodine is assumed to pass through the filters unaffected. The sand filter is assumed to channel as a result of the seismic event, which causes the ventilation flow to be diverted to a set of Safety Class-1 double-stage High-Efficiency Particulate Air filters. Thus, the sand filter has no effect on the I-129 release, or vice versa. The HEMFs are not within the scope of this PSAR revision, since they were added after the PSAR cut off date of Jan 1, 1993, but again, since the I-129 is gaseous, the HEMFs would not provide better entrapment than the sand filter.	OK 8/14/93

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6.	Page 9-108, the berm will safely hold the nitric acid only if it pours/drips slowly into it. An "instantaneous breach" will certainly splash about one-third of the acid outside the berm, and change the calculations.		NOT ACCEPTED. Earlier calculations (dated November 14, 1990) show that the bermed surface area around the 50 percent nitric acid storage tank was 80.3 m^2. The latest drawing, however, shows a larger surface area. Within the "bermed area" there are four tanks: TK-540-011 (8 ft ID x 10 ft), TK-540-003 (8 ft ID x 10 ft), TK-540-013 (4.5 ft ID x 5 ft) and TK-540-018 (5.5 ft ID x 5 ft). Drawing H-2-123362 Sheet 23 gives the 50 percent nitric acid storage tank (TK-540-011) dimensions as 8'0" ID x 10'0" tall located in the Cold Chemical Building. Drawing H-2-11812 shows the tanks are elevated; therefore, the surface area of the tanks need not be subtracted. Drawing H-2-118120 shows the tank located in the "Acid Waste Area," a rectangular area with the Cold Chemical Building walls on two sides and a curb (or berm) on two sides. The surface area within this "bermed" area was calculated at 1,376 ft^2 (127.8 m^2). This new surface area was used to calculate the onsite and offsite releases of nitric acid vapor as follows: Since release concentration is directly proportional to surface area, Onsite: $C_2 = C_1(A_2/A_1) = 6.33$ p/m[(127.8 m^2)/80.3 m^2] = 10.1 p/m Offsite: $C_2 = 1.93 \times 10^{-3}$[(127.8 m^2)/80.3 m^2] = 3.07×10^{-3} p/m	

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			(see below)	

and both of these are below the minimum RAG limit.

With this larger surface area, building walls on two sides of the "bermed" area, and a curb of sufficient height, it is judged that a sudden nitric acid spill would not slop over the berm.

In light of the above analyses, the following changes will be made: p. 9-108, paragraph three will read ". . . dimensions of the bermed area, or about 127.8 m^2 (1,376 ft^2)."

p. 9-108, 4th paragraph:

"$Q = (0.08)U^{3/4}(A)[1 + (4.3 \times 10^{-3})(T_p)^2]Z$

$= (0.08)(1.5)^{3/4}(127.8))[1 + (4.3 \times 10^{-3})(25)^2](0.055)$

$= (2.81\ kg/h)(1\ h/3600\ s)(10^6\ mg/kg)$

$= 781\ mg/s$

where:

Q = Evaporation rate = 781 mg/s"

.

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p. 9-109, 1st paragraph:

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			"Downwind concentrations: Onsite: (781 mg/s)(3.33×10^{-2} s/m^3) = 26.0 mg/m^3 (26.0 mg/m^3)[(24.45 p/m)/(63.0 mg/m^3)] = 10.1 p/m Offsite: (781 mg/s)(1.01×10^{-5} s/m^3) = 7.89×10^{-3} mg/m^3 (7.89×10^{-3} mg/m^3)[(24.45 p/m)/(63.0 mg/m^3)] = 3.06×10^{-3} p/m" p. 9-109, table, 2nd paragraph, center column, will read: "Concentration (p/m) 10.1 3.06×10^{-3}"	
7.	Section 9.2.13.5, bullet 3: It is not a viable argument that the impacts of a soil leak do not need to be considered, because the contamination takes 150 years to reach groundwaters. The contamination is still there and representing an extreme hazard, even while in the soil, as long as it can move.		ACCEPTED. Will replace bullet with the following: "The health effects predicted for the accident are a small fraction of the health effects expected from natural background radiation over 10,000 year."	

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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 10	HWVP	John Gould	WHC Env. Reg. Spt., Program Integration	376-1157

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

Date: 7-29-93

Reviewer/Point of Contact: D. J. Duratato 7-27-93

Author/Originator: John A. Gould

11. CLOSED

Date: 7-29-93

Reviewer/Point of Contact: D. J. Duratato 7-27-93

Author/Originator: John A. Gould

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Page 10-36, bottom paragraph: a. The sand filter has now been deleted in favor of a High Efficiency Metal Fiber (HEMF) filter, per ECN 400286. What plans will be needed/(are plans in place) in order to collect, control, segregate detritus from the HEMF (after cleaning) in order to transition into the decommissioning phase?		NOT ACCEPTED. The current revision to the Preliminary Safety Analysis Report (PSAR) incorporates all design changes up to a "cut-off" date of January 1, 1993. The High Efficiency Metal Filter (HEMF) changes, which occurred after the cut-off date, will be addressed in the next revision (Revision 2) of the PSAR. Design/operation of the HEMF will be discussed in sufficient detail to present the system(s) and address any safety-related issues.	

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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 11	HWVP	John Gould	WHC Env. Reg. Spt., Program Integration	376-1157

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/4/93 John Gould
Date Reviewer/Point of Contact

Jennifer L. Stewart
Author/Originator

11. CLOSED

8/4/93 John Gould
Date Reviewer/Point of Contact

Jennifer L. Stewart
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Page 11-61 (&ff): Every time a mention of reporting is made, reference to the DOE Order 5000.3B is used. We, within Westinghouse (WHC), also must comply with MRP 5.14, which specifies the internal/in-house protocols and different response levels to follow. Somewhere within the document, this path must be acknowledged. Some of the safety risks evaluated are dependent on proper notification, which may cause some administrative controls to be bypassed, improperly.		No changes made. WHC manuals and procedures are not included in TSRs because they change too often. This would require a TSR change when they changed. It is acknowledged that MRP 5.14 must be complied with. However, since MRPs do not always implement the DOE Orders adequately, or they change, or they get deleted, it is better not to include them in the TSR. Compliance with the MRP will be demonstrated as part of TSR implementation. Additionally, all references to DOE Order 5000.3B in the TSR have been deleted because Orders will eventually be replaced with Federal Regulations (CFRs). DOE 5000.3B has been replaced with the words "DOE occurrence reporting requirements" throughout the document.	OK, Meets Mission Needs JG 8/4/93

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2.	Page 11-72: We already have MRP 5.12, which complies with DOE Order 5480.21; these should be referenced.		No changes made. Please see disposition to comment #1. However, DOE Order 5480.21 remains in the TSR at this time.	OK,
3.	Page 11-89, paragraph 5.28: Add third requirement - c. Notification of environmental spills point of contact, within Regulatory Field Support (KA Gano, 373-4949).		No changes made. To include this additional requirement would be redundant to Chapter 5, section 5.5, Occurrence Reporting. An environmental spill is a reportable event. All of the requirements of DOE Order 5000.3B and AC 5.5 apply. We have tried to minimize redundant requirements in the TSR. Additionally, there are many environmental regulations and requirements (e.g., CERCLA, RCRA, Permits) which must be complied with in addition to TSR requirements. The environmental requirements are often more stringent than TSR requirements and the fines and penalties can be more strict.	OK, Meet [illegible] Neal. 8/4/93

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1. Date: July 14, 1993	2. Review No.
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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 1		R. U. Elwell		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

7/30/93
Date

R U Elwell
Reviewer/Point of Contact

Deborah L. Duvitito 7/30/93
Author/Originator

11. CLOSED

7/30/93
Date

R U Elwell
Reviewer/Point of Contact

Deborah L. Duvitito
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Page 1-5, second paragraph, third sentence: The melter life expectancy is three years. Over a 40 year life expectancy of the plant the melter change outs will severely impact the 70% TOE. (FM Simmons)[6]		NOT ACCEPTED. The cited Preliminary Safety Analysis Report (PSAR) discussion presents the current HWVP design and approved project mission. The discussion provided accurately summarizes the baseline design criteria and functional design criteria as of this revision to the PSAR. Should any of these design and/or criteria bases change, then the PSAR will be revised, as needed, to reflect those changes.	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2.	Page 1-5, third paragraph, third sentence from the end: 10,000 canisters at 370 per year represents over 27 years of processing time. This will require nine melter change outs. Allowing three years for nine melter change outs only provides four months per change out. This may be possible under best case scenarios, but based on current burial requirements, Operations estimates closer to a year per melter change out, therefore the time to process 10,000 canisters is 36 years. It would help to state the estimated life and change out time of the melter to support the conclusion. (FM Simmons)[7]		NOT ACCEPTED. The cited Preliminary Safety Analysis Report (PSAR) discussion presents the current project assumptions and criteria regarding melter capacity, melter life expectancy, number of canisters, etc. The reviewer has not provided a referenceable study for the recommended operations estimates, and no design basis reference has been cited to back up the Operations opinions regarding melter performance or life. The PSAR will therefore remain unchanged at this time. The PSAR will be revised, as needed, to reflect any future changes in project criteria and design, as they are processed.	7/30/93
3.	Page 1-5, third paragraph, second to the last sentence: Conclusion is for SST waste only. It should be for SST and DST waste. (FM Simmons)[8]		NOT ACCEPTED. The current mission for the HWVP is to process only ~~Single~~ Double Shell Tank waste. The Preliminary Safety Analysis Report (PSAR) can only present this official, current, project position.	OK for DFS 7/31/93
4.	Page 1-7: Needs a global change with respect to sand filter. CR-0801 HEMF. (FM Simmons)[15]		NOT ACCEPTED The current Preliminary Safety Analysis Report (PSAR), revision reflects a design "cut-off" date of January 1, 1993. The change in design, to use High Efficiency Metal Filters, occured after this date, and will be addressed (if needed) in the next revision.	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
5.	Page 1-9, paragraph 1, last sentence: The statement "cutaway view of the CSB in Fig. 1.2-3 shows the concept of moving canisters using the SCT" is misleading. To one unfamiliar with the canister moving process, it is not possible to imagine the moving process, it is not possible to imagine the concept of the SCT moving canisters in this figure. (FM Simmons)[9]		ACCEPTED. The last sentence will be revised as follows: "the cutaway view of the CSB in Figure 1.2-3 shows the interior floor area; above the canister storage tubes where the rubber tired shielded canister transporter (SCT) will operate."	
6.	Figure 1.2-4 is missing. (FM Simmons)[10]		Figure 1.2-4 has not been provided in the review package for Preliminary Safety Analysis Report (PSAR), Revision 1 since there were no changes to that figure during the Revision 1 period. The reviewer should refer to the Revision 0, PSAR in order to view Figure 1.2-4. This approach to handling the Revision 1 review was described in a DSI to reviewers from D. I. Herborn, at the time of PSAR, Revision 1, review document distribution.	
7.	Page 1-10, third paragraph, first sentence: The crane can access most of the cells. Why not state which cells cannot be accessed and why this is not important? (FM Simmons)[11]		NOT ACCEPTED. Chapter 1 is provided as an executive summary of the Preliminary Safety Analysis Report (PSAR). The cited discussion is provided in this chapter only as part of a general summary of HWVP operations. A discussion of crane operations, if needed in the PSAR/Final Safety Analysis Report at all, will be presented only in the context of safety-related issues. The reviewer's comment does not present a crane operation safety issue or an issue that impacts the plant safety basis.	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
8.	Page 1-11, Safety Class 1 Items: Sand filter structure has been replaced per CR-0801. (FM Simmons)[16]		NOT ACCEPTED. See the response to comment #4 regarding design "cut-off" date for Preliminary Safety Analysis Report (PSAR), Revision 1.	
9.	Page 1-17, fourth paragraph: This is written as a wish. It seems obvious that an equipment test facility is very beneficial, but unless it is actually funded and in the scope of the project, why include it here? (FM Simmons)[17]		NOT ACCEPTED. The cited paragraph contains no mention of an equipment test facility. The paragraph describes the contents of Table 1.1-5, which lists ongoing open safety issues and Preliminary Safety Analysis Report (PSAR) information needs. The information needs that are presented in Table 1.1-5 in no way represent a "wish list." These items have surfaced, through the course of PSAR development and review, as bonafide issues and information needs that must be resolved before completion of the Final Safety Analysis Report (i.e., startup of the plant).	

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 3		R. U. Elwell		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

7/30/93
Date

D. J. Buratato 7/30/93
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Author/Originator

11. CLOSED

7/30/93
Date

D J Buratato 7/30/93
Reviewer/Point of Contact

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Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Page 3F-6, Switchyard: Is it in the correct location? (FM Simmons)[18]		NOT ACCEPTED. Movement of the Switchyard occurred after the Preliminary Safety Anlaysis Report, Revision 1 preparation cut-off date of January 1, 1993.	
2.	Fig. 3.1-5: The switchyard has been relocated. Reference attached drawing. (DP Mendoza)[2]		NOT ACCEPTED. Same disposition as provided above in comment #1.	

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 4		R. U. Elwell		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/17/93 Date

x Hlegge for R.U.E. Reviewer/Point of Contact

Fred D Sargent Author/Originator

11. CLOSED

10/3/93 Date

x Hlegge for RUE Reviewer/Point of Contact

Fred D Sargent Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Page 4T-39, Table 4.4-1: Safety classification for chemical receipt, makeup and Distribution System. Hose coupling at the acid unloading stations should be Safety Class 1*, not Safety Class 1. (TH May)		Disagree. The designers have designated the couplings Safety-Class 1.	C
2.	Page 4-69, 4.3.6 second paragraph: States that a Fire Hazard Analysis shall be completed are released with the Title I design documentation. Has this in fact been done? (TH May)		Agree. The "Title I" will be revised to "Title II."	C

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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 5		R. U. Elwell		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/17/93 Date

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Author/Originator

11. CLOSED

10/3/93 Date

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Reviewer/Point of Contact

Fred D
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Page 5-vii, third line: Load type 1 should be Safety Class 1. (FM Simmons)[19]		Accept. Table 5.3-2 title will be revised to "Emergency 1E Power Summary for Safety-Class 1 Loads."	O
2.	Page 5-iii, Chapter 5 List of Tables: Table 5.3-2 "Emergency 1E Power Load Summary for Loads Type 1 Loads" should read "Emergency 1E Power Summary for Safety Class 1 Loads." (DP Menodza)[3]		Same comment and disposition as Operations Item #1.	C
3.	Page 5-5, section 5.1.1.5 Manipulator Repair Building: Is the MRB really eight-level? (TH May)		Not accepted. Drawings H-2-118079 and -118088 show eight levels.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4.	Page 5-10, fifth paragraph, first line: Use of the term "so as not to fail" is confusing here. It implies that the stack would fail if it were not designed Safety Class 1. (FM Simmons)[19]		Accept. Revise paragraph to read "The Vitrification Building (Zone I) stack is designated Safety-Class 1. The stack must continue to operate without any restriction to the Zone I exhaust flow. The Vitrification Building Zones II and III stack (Safety-Class 1) is located so that it will not impair the function of the Vitrification Building or any Safety-Class 1 or 2 items should it fail. The CSB stack is designated Safety-Class 1 since it must continue to operate without restriction to the CSB exhaust flow. The design ... exhausted air. The Vitrification Building stack sumps are designed such that routine draining, other operations, and maintenance can be performed without entering the stack."	O
5.	Page 5-10, section 5.1.2.5 third paragraph: Can Fiberglass reinforced plastic tanks really be qualified for DBE? (TH May)		Not accept. Design questions need to be presented directly to the designers. The PSAR is a reflection of the design.	C
6.	Page 5-14, second paragraph: The crash of a Hanford Site Security helicopter is unlikely now. (TH May)		Accept. The helicopter crash will be removed.	C
7.	Page 5-33, fourth paragraph: Rather than state that the high-intensity lighting allows for loss in light transmission, doesn't it really compensate for the loss of light transmission through the shield window? (FM Simmons)[22]		Accept. The phrase "allows for loss in" will be revised to "compensates for loss of."	O

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
8.	Page 5-24, third paragraph: Use of the word "recontain" is confusing. If contamination is accidentally released, it is unlikely that it will be recontained by the HVAC System. Past events such as suckbacks, tracking, and air flow reversal, which have spread contamination, have not been mitigated by the HVAC systems in place. The intent of this statement is unclear. (FM Simmons)[21]		Accept. The word "recontain" will be revised to "recapture." The text is addressing only airborne material which will be captured by the filters and not liquid or solid material that has already been deposited.	0
9.	Page 5-36, fifth paragraph: This paragraph needs a good topic sentence. The way it stands, it assumes the reader knows there are cutters available. The last sentence is also awkward. It isn't clear whether the cutters are hydraulically operated or manually operated, or both. Perhaps a better way to state this is, "The hoist cable cutters can be operated from the conductor bus alleyway." (FM Simmons)[23]		Accept. The first sentence will be revised to read "The crane is equipped with cable cutters that are the final ...." The last sentence will be revised to read "The hoist cable cutters can be operated from the crane cables maintenance corridor."	0
10.	Page 5-37, first paragraph, second sentence: Is there only one cell that contains cameras? If so, it would help to define the cell. If not, pluralize the word cells or change "the" to "each." (FM Simmons)[24]		Accept. The word "cell" will be replaced with "cells."	0
11.	Page 5-37: The towing ring is no longer used for main process cell crane retrieval. (TH May)		Not accepted. Reviewer is correct that design has changed; yet, this PSAR revision is a snapshot in time relative to January 1, 1993.	C

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12.	Page 5-44, first paragraph: This paragraph reads like the operators are being shielded from the samples. The use of the manipulators does not provide shielding. Manipulators do not provide shielding, they allow the operators to handle the samples behind the shield wall. (FM Simmons)[25]		Accept. Replace this paragraph with "From the operating gallery, the operators handle the radioactive samples in the analytical cells with the use of manipulators. The operators are protected from radiation by the shielded viewing windows and the reinforced concrete walls that separate the operating gallery and the analytical cells."	O
13.	Page 5-45, fifth line: Tracking vs tracing? (FM Simmons)[26]		Accept. Should be "tracking." Will revise.	O
14.	Page 5-76, last paragraph: Delete switchgear reference. (FM Simmons)[27]		Accept. The words "Switchgear/Generator Building," will be removed.	O
15.	Page 5-76, Section 5.3.1.3.2, third sentence: Remove Switchgear/Generator Building from sentence. (DP Mendoza)[4]		Same comment and disposition as Operations Item #14.	C
16.	Page 5-78, Section 5.3.1.3.4.2, second paragraph: Delete second sentence, "Save instrument air compressors...emergency situations." (DP Menodza)[5]		Accept. The referenced sentence will be deleted.	C
17.	Page 5-78, second paragraph: Omit last sentence. (FM Simmor [illegible]]		Same comment and disposition as Operations Item #16.	O
18.	Page 5-90: The major components of the Fan House include the 1E generators, yet figure 5F-5/6 shows a switchgear generator building. (TH May)		Accept. The Switchgear/Generator Building will be removed from 5F-5/6.	C

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19.	Page 5-91, section 5.3.2.6: It is Operations understanding that all of those onsite canister inspections were deleted and replaced with 100% source inspection at the vendor. (TH May)		Not accepted. Reviewer is correct that design has changed; yet, this PSAR revision is a snapshot in time relative to January 1, 1993.	C
20.	Page 5-97, third paragraph: A word or letter is missing (Zone?). (FM Simmons)[29]		Accept. The word "one" will be replaced with "Zone."	0
21.	Page 5-106, last paragraph: There appears to be a typo between the words "room.sample." (FM Simmons)[30]		Accept. The period between "room" and "sample" will be replaced with a comma.	0
22.	Page 5-132, fourth paragraph: Close space on sub-station. (FM Simmons)[31]		Accept. The space and the hyphen were eliminated to make "substation."	0
23.	Page 5-137, second item: Close space on tie-breaker. (FM Simmons)[32]		Accept. The space was removed.	0
24.	Page 5-153, paragraph 5.4.9.2: Should include as a requirement the well established Time/Temperature curve ASTM E-119. It is recognized in the fire protection industry as the Time Temperature curve for fire barrier testing and rating. (HA Plagge)		Not accepted. The concern is valid. The requirement cannot be placed in the PSAR, though, since the PSAR is a reflection of the design and cannot add a requirement to the design. It is suggested that this comment be discussed with Systems for possible TDP addition or that it be put into operations requirements for the HWVP.	0
25.	Page 5T-41,42, and 43: Change System 33 to 32 per CR-0854. (FM Simmons)[33]		Accept. The number "33" will be revised to "32" on the referenced pages.	0

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
26.	The Switchgear/Generator Building has been deleted per CR-854. Revise the following figures to reflect this change: Fig. 5.1-3 Fig. 3.4-5 Fig. 7.6-1 Delete the block showing the Switchgear/Generator Building in Figure 5.3-1 and revise flow path of electrical power as shown on attached marked-up drawing. (DP Mendoza)[1]		(a) Accept. Figure 5.1-3 will be revised to show Switchgear/Generator Building removed. (b) Accept. Figure 5.3-1 will be revised to reflect the flow path of power as shown in your markup drawing.	C
27.	Tables in Chapter 5: Is all this information really necessary (i.e., equipment lists)? Can the PSAR/FSAR be easily changed if equipment is changed? (DP Mendoza)[6]		Accept. It may not be necessary but the decision was made to leave them in and update them for this revision. The decision will have to be made again for the next PSAR revision.	C
28.	Table 5.2-14, Service Corridor Equipment: Standby power has been deleted per CR-854. Equipment designated as System 33 will now be designated System 32. Equipment numbers and the system numbers should be changed (i.e., "MC-33B-102" should be "MC-32B-102" and "LX-33A-111" should be "LX-32A-111"). See pages 5T-41, 5T-42 and 5T-43. Also see table 5.2-23, page 5T-62. (DP Mendoza)[7]		Same comment and disposition as Operations Item #25.	C
29.	Table 5.2-21, page 5T-59: What is the purpose of this table? There is no information on it. (DP Mendoza)[8]		Accept. This table will be deleted.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
30.	Table 5.3-14: This table should be deleted. The switchgear/generator building has been deleted per CR-854. (DP Mendoza)[9]		Accept. This table will be deleted.	C
31.	Figure 5.1-3: Delete switchgear generator building per CR-0854. Also, the sand filter has now been replaced by a high efficiency metal filter, per CR-0801. (FM Simmons)[1]		(a) Accept. Switchgear-Generator Building will be removed. (b) Not accepted. Reviewer is correct that design has changed; yet, this PSAR revision is a snapshot in time relative to January 1, 1993. The sand filter was one of the major items agreed upon not to change for this revision.	O
32.	Figure 5.3-1: Delete "generator building block and associated distribution lines," add new distribution lines. Reference CR-0854. Also, CR-0801 replaces the sand filter with HEMF. (FM Simmons)[2]		(a) Same comment and disposition as Operations Item #26 (b). (b) Not accepted. Reviewer is correct that design has changed; yet, this PSAR revision is a snapshot in time relative to January 1, 1993. The sand filter was one of the major items agreed upon not to change for this revision.	O
33.	Figure 5.4-1: Change sand filter to HEMF per CR-0801. (FM Simmons)[12]		Not accepted. Reviewer is correct that design has changed; yet, this PSAR revision is a snapshot in time relative to January 1, 1993. The sand filter was one of the major items agreed upon not to change for this revision.	O
34.	Page 5-132, section 5.4.2.1.1, first paragraph, third sentence: Remove space after hyphen "sub-station." (Editorial) (DP Mendoza)[13]		Same comment and disposition as Operations Item #22.	C

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
35.	Page 5-132, section 5.4.2.2.2, third paragraph, second item: Remove space after hyphen in "tie-breaker." (Editorial) (DP Mendoza)[14]		Same comment and disposition as Operations Item #23.	C

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 6		R. U. Elwell		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/19/93
Date

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11. CLOSED

10/5/93
Date

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Page 6-3, first paragraph: This implies that the canisters can either be filled via the pour or drain spout. The drain spout is only to be used in the event of an emergency for emptying the melter. (FM Simmons)[34]		ACCEPT. Replace first paragraph with the following: Canisters are filled using a vacuum to draw glass up the melter riser where it overflows to the overflow pour spout. Canisters are placed under the overflow pour spout using a rotary turntable with four canister positions. In the event the melter must be drained, a valve located on the bottom of the melter can be opened. A separate five-position turntable is used for the bottom drain.	
2.	Page 6-25, second heading: Typo in "Toxic." (FM Simmons)[35]		ACCEPT. The text will be changed to read "Toxic Chemicals."	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
3.	Page 6-65, Interlocks: Should there be an interlock on the pumps and agitators when a high hydrogen concentration in the vent gas is observed? (FM Simmons)[36]		REJECT. Interlocks already exist for curtailing formic acid addition in the event the hydrogen concentration reaches 60% of the lower explosive limit. The hydrogen purge rate is set such as to assure safe conditions remain if this event happens.	
4.	Page 6-84: Based on the recent incident at DWPF, an interlock on the off-gas system should be considered. It could be based on either vacuum pressure in the melter or flow rate of the off gas. Now that a vacuum breaker is being added to the melter at DWPF to prevent the off gas system from pulling more than 90 inches of water vacuum, this should also be considered. (FM Simmons)[37]		PARTIALLY ACCEPT. Agree that something must be changed. Do not agree necessarily that an interlock of some type is needed nor that a vacuum breaker is necessary. The actual "fix" will be determined after the Defense Waste Processing Facility event has been evaluated and design changes proposed. These changes may involved interlocks as well as equipment design changes, process flow changes and operational sequence changes. The problem will be eliminated.	

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 7		R. U. Elwell	HWVP/OPS.	714/975-6030

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

Date 8/10/93

Reviewer/Point of Contact D. J. Swarts 8/9/93

Author/Originator [illegible] for R.U.E.

11. CLOSED

Date 8/10/93

Reviewer/Point of Contact D. J. Swarts 8/9/93

Author/Originator [illegible] for R.U.E.

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Page 7-14, last paragraph, last two sentences: Replace the term "Standby generators" with "Emergency (1E) generators." (DP Mendoza)[19]		ACCEPTED.	
2.	Page 7-24, section 7.4.1.4: "The back-up generators and Frit Storage...." should read "The emergency (1E) generators and Frit Storage." (DP Mendoza)[18]		ACCEPTED.	
3.	Page 7-25, third paragraph: "Backup power is provided by two engine-driven generators located in the Switchgear/Generator Building." should read "Emergency (1E) power is provided by two diesel engine-driven generators located in the Fan House Building." (DP Mendoza)[17]		ACCEPTED.	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4.	Figure 7.2-1: Change sand filter to HEMF per CR-0801. (FM Simmons)[13]		NOT ACCEPTED. The current Preliminary Safety Analysis Report (PSAR), revision reflects a design "cut-off" date of January 1, 1993. The change in design, to use High Efficiency Metal Filters, occured after this date, and will be addressed (as needed) in the next revision (cut-off date, January 1, 1994).	
5.	Figure. 7.6-1: Per CR-0854, delete switchgear generator building. Also, CR-0801 replaces the sand filter with HEMF. (FM Simmons)[3]		Part a. ACCEPTED. The figure will be changed to reflect deletion of the Switchgear Generator Building. Part b. NOT ACCEPTED. Same response as comment #4.	

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5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 8		R. U. Elwell	HWVP/OPS	714/975-6030

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/10/93 Date

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11. CLOSED

8/10/93 Date

[signature] 8/9/93 Reviewer/Point of Contact

[signature] for R.U.E. Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Page 8-26, first paragraph, first sentence: "...HVAC system have standby electrical power supplies." should read "...HVAC system have emergency electrical power supplies." (DP Mendoza)[16]		ACCEPTED.	
2.	Figure 8.3-1: CR-0801 replaces sand filter with HEMF. (FM Simmons)[14]		NOT ACCEPTED. The current Preliminary Safety Analysis Report (PSAR), revision reflects a design "cut-off" date of January 1, 1993. The change in design, to use High Efficiency Metal Filters, occured after this date, and will be addressed (as needed) in the next revision (cut-off date, January 1, 1994).	

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1. Date	2. Review No.
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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
3.	Figure 8.3-3: Note one is confusing. State as follows, "The higher exposure rate represents the canister loading operation." (FM Simmons)[4]		NOT ACCEPTED. Editorial comment. The figure will not be changed for two reasons: 1) The figure is actually a copy of actual Fluor Daniel, Inc. design media which has been included as a reference to support the Preliminary Safety Analysis Report (PSAR) text. Figure notes, such as the one cited, are part of the A-E Computer Aid Drawing file and are not available for us to change. Changes to the notes and other comments about the design media have to be submitted through the design review process. 2) The note, although not perfect in a literary sense, does convey the information sufficiently well for reference purposes. The PSAR text that references this figure provides more descriptive, understandable discussion.	
4.	Figure 8.6-1: Dotted line from the ADCT appears to be in error, tying into the normal flow line from the RDCT. This line should be removed. (FM Simmons)[5]		ACCEPTED. The figure was not clear and will be revised to show that: 1) normal flow occurs from the Acid Drain Catch Tank (ADCT) to the Waste Adjustment Tank (WAT) and from the Regulated Drains Catch Tank (RDCT) to the WAT, 2) and that a "normally no-flow" capability exists from the ADCT to the Decontmination Waste Treatment Tank (DWTT) and from the RDCT to the DWTT.	

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 9		R. U. Elwell		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/13/93 Date

Britt Hall 8/11/93 Reviewer/Point of Contact

[signature] for R.U.E Author/Originator

11. CLOSED

8/13/93 Date

Britt Hall 8/11/93 Reviewer/Point of Contact

[signature] for R.U.E Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Table 9.0-6, page 9T-54: Delete "Switchgear/Generator Building" and replace with "Fan House Building" in section of table labeled "Ashfall with loss of power." (DP Mendoza)[15]		ACCEPTED. Will replace "Swithgear/Generator Building" with "Fan House Building."	

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2.	Paragraph 9.2.9.5: The formic acid risk evaluation identifies a restriction on construction of other facilities within the vicinity of the HWVP. This restriction must be considered for the new TWRS Office Building located on the HWVP site. (DP Harty)[2]		NOT ACCEPTED. Hazards associated with formic acid are sufficiently developed for the purposes of Chapter 9. The "item for further development" discussed in Section 5.5 requires that the design of the unloading be reviewed during detailed design to ensure that the consequences at (or greater than) 100 m from the unloading dock are acceptable. If the TWRS office building is located within 100 m of the formic acid unloading dock, or if the consequences of an unloading dock spill can not be made acceptable without using extroadinary measures, the TWRS office building will have to be considered in the Emergency Response Plan for the HWVP. This is a reasonable stipulation since the TWRS office building is located within (and was once part of) the HWVP complex.	

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 10		R. U. Elwell		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

7/28/93 Date — Reviewer/Point of Contact

Author/Originator 7/30/93

11. CLOSED

7/28/93 Date — Reviewer/Point of Contact

Author/Originator 7/30/93

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	GENERAL: The organizational structure sections needs to be updated, as necessary, to reflect WHC taking over the contracts of Fluor, UCAT, PNL, etc. (AK Lee)[1]		NOT ACCEPTED. The Preliminary Safety Analysis Report (PSAR), Revision 1, accurately presents the organizational structures that were current at the revision "cut-off" date of January 1, 1993. PSAR, Revision 2 (cut-off date January 1, 1994) will present all appropriate organizational changes, such as those cited by the reviewer, for the 1993 calendar year.	7/28/93
2.	GENERAL: It is not clear how compliance with administrative controls is documented. (TH May)		The Chapter 10 discussion is provided only as a general information chapter. Compliance with procedures is discussed in Chapter 12, Section 12.5.	7/28/93

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3.	10.1.2: When listing rotating shift personnel, include plurals as appropriate (e.g., will need more than one process operator, pluralize to process operators). Also, the personnel assignments need to be consistent with the TDP, Section 5, Item 110. (AK Lee)[2]		ACCEPTED. The Preliminary Safety Analysis Report (PSAR) discussion provided in Section 10.1.2 provides only summary information regarding the HWVP staff and their abilities. However, the staff listing will be reviewed against the plant population listing that was current prior to the cut-off date for this PSAR revision (January 1, 1993), and will be revised, if needed. The editorial recommendation to pluralize some positions will also be carried out.	akl 7/28/93
4.	Page 10-6, last paragraph: This states 600 employees. The TDP states 640. (TH May)		ACCEPTED. The number of employees stated in the Preliminary Safety Analysis Report (PSAR) will be checked against that cited in the Technical Data Package (TDP). Changes to the TDP (regarding plant population) after the PSAR, Revision 1 preparation cut-off date, may not be incorporated until preparation of Revision 2 (cut-off date January 1, 1994).	TAM 7/28/93
5.	Page 10-15, paragraph 10.3.1.1: Shift Managers are listed as potentially requiring an accredited training program. The preceding paragraph states that shift managers are required to have an accredited training program. Shift managers should be removed from 10-15. (AK Lee)[3]		NOT ACCEPTED. The first discussion (pages 10-14) lists positions that will require an accredited performance-based training program, as described in DOE Order 5480.18. Shift managers are included in this category. The second listing (pages 10-14 and 15) identifies technical staff positions that may require accredited training programs. Shift managers are included in this category.	akl 7/28/93

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6.	Page 10-20: Identifies that a list of HWVP procedures will be provided in the FSAR. This level of detail does not appear to be warranted and will only result in nonconformance with the FSAR in future operations. (DP Harty)[9]		NOT ACCEPTED. Conformance to procedures will be measured against current, record copies. Procedures will be listed within the Final Safety Analysis Report (FSAR) as supporting information, not as record copies. The information provided by the procedures is an important part of the FSAR to provide operational details that will not be provided as part of the FSAR text. The listing of procedures, with a brief summary of applicability and use, also provides needed evidence of operational controls and safety.	
7.	Page 10F-5, figure 10.1-5: TWRS has been reorganized, see attached. (DP Mendoza)		NOT ACCEPTED. Same response as Comment #1. The structure shown reflects the TWRS organization at the time of the Preliminary Safety Analysis Report (PSAR), Revision 1 cut-off date of January 1, 1993. A revised figure will be prepared, as needed, for incorporation into PSAR, Revision 2 (cut-off date January 1, 1994). DPM 7/26/93	
8.	Page 10-36, last paragraph, third sentence: Remove space between "contaminated" and "filter." (Editorial) (DP Mendoza)		ACCEPTED. DPM 7/26/93	

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9.	Conduct of Operations: This section does not correspond to the Westinghouse Conduct of Operations Manual. The manual is dated July 1, 1991, is signed by the president of WHC, and is used during Conduct of Operations Training. These documents need to be consistent. (DP Harty)		NOT ACCEPTED. There is no requirement for direct correlation between the WHC documentation and the Preliminary Safety Analysis Report (PSAR) chapter information. The PSAR discussion presents topics that are required regarding participating organizations of the HWVP project, plant operating staff, training of plant staff, and procedure development. The reviewer's comment is not specific regarding individual facts or information pertaining to Conduct of Operations, therefore no response could be prepared to address individual topics in the PSAR text.	

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WHC-SD-HWV-PSAR-001, Revision 1, HWVP Preliminary Safety Analysis Report, Chapter 11	HWVP	R. U. Elwell		

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

8/19/93
Date

[signature] for RUE
Reviewer/Point of Contact

[signature]
Author/Originator

11. CLOSED

8/19/93
Date

[signature] for RUE
Reviewer/Point of Contact

[signature]
Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	GENERAL: None of the individual technical specification requirements (TSRs) provide any limits for process parameters that are required to be maintained. For example, LCO 3.1.1 states that the HVAC must be operating but does not provide minimum dPs or air flows to maintain. The individual LCOs also need to state what lower specific mode the system needs to be placed in when the LCO cannot be met and the required action is not (or cannot) be completed within the given completion time. (AK Lee)[1]		No changes made. The "operating parameters" necessary for OPERABILITY (there could be many) of the Limiting Conditions for Operation (LCO) systems will be specified in implementing procedures as part of Technical Specification Requirement (TSR) implementation. If a parameter (e.g., flow) is especially important, a SR on the parameter might be appropriate. SRs are normally not written for all parameters (sometimes subjective). When a LCO is not met within the Completion Time (VIOLATION), LCO 3.0.3 applies and specifies actions. See also AC 5.4.3. The ACTIONS statements (Condition, Required Action, Completion Time) and SRs are only "examples" of the way they might be written in the final TSR. The primary purpose of the TSRs at the Preliminary Safety Analysis Report (PSAR) stage is to identify those	

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			items which will require Technical Specificaiton Requirements (TSRs) for facility operation. The TSRs will be fully developed for the Final Safety Analysis Report. Since much of this TSR is standard WHC TSR policy material, it was decided to present an "example TSR document" which includes both standard and facility specific material, to show reviewers what the final TSR will look like. The ACTIONS statements might be written differently in the final TSR. Not enough information is known at the PSAR stage to know what all Conditions are possible, and what the safe Required Actions and Completions Times should be. The ACTIONS statements can be very simple (one Condition) to very complex (several Conditions).	

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2.	LCO 3.1.4: Radioactive airborne emissions monitoring requirements are covered in WHC-CM-7-5, Part D. The exhaust stack CAM should not be made a specific LCO since WHC-CM-7-5 contains the guidelines that must be followed for the CAM. (AK Lee)[2]		The exhaust stack radiation monitoring and alarm system serves both an environmental function (compliance) and a safety function (accident mitigation). The Limiting Conditions for Operation (LCO) is required because the system is taken credit for as mitigation in the accident analysis. The system detects high radiation levels in the stack exhaust air, allowing for corrective actions to be taken. Originally, the alarm actuation point was based on the environmental requirements of WHC-CM-7-5 (environmental based instead of safety based per DOE Order 5000.3A for emergency notifications). Therefore, the safety margin in the LCO is very conservative. The actuation point was negotiated with Environmental Protection during preparation of the 242-A Evaporator OSRs in the summer of 1991. All moderate and high hazard facilities have a similar LCO. It was decided that the actuation point would remain environmental based. <u>However</u>, the LCO actuation point in this technical specification requirements was revised to meet new DOE Order 5000.3B. DCGs have been replaced with reportable quantities. The LCO now reads: "...... concentration equal to a 4 hour release at 5 times the reportable quantities specified in 40 Code of Federal Regulations (CFR) 302 (EPA 1992)." The reference to 40 CFR 302	

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3.	LCO 3.2.1: There are many UPS's for the plant. Which UPS does this LCO refer to? The safety class UPS's also have redundant UPS's which need to be taken into account when defining the requirements in this LCO. Also, is the requirement that the UPS be operable or that the equipment the UPS supports requires a UPS? The UPS may be operable, but if the equipment it services is not connected or is out of service then this LCO doesn't apply. (AK Lee)[3]		BASES B 3.2.1, Background section, was revised to define the UPS as those supporting the Zone I hardwired controls, the continuous airborne effluent monitor and the Safety Class 1 control panels. Also, please see disposition to comment #1 regarding this "example TSR document." The Limiting Conditions for Operation (LCO) are normally written at the system level. Since this is the Preliminary Safety Analysis Report stage, design details on the uninterruptible power supply system are not defined at this time. In the final TSR, the ACTIONS statement will probably be much more complex and the logic may or may not include redundancies. The LCO is for the UPS system OPERABILITY only. This is a "support system" that supports several other systems and LCO 3.0.6 applies.	
4.	LCO 3.2.2: Is it better to say that the exhaust blowers require two independent power sources (e.g., normal power and diesel generator) vs. that the emergency diesel generators shall be operable? The item of safety is the blower, not the generator. (AK Lee)[4]		No changes made. Please see disposition to comment #1 regarding this "example TSR document." In the final Technical Specification Requirements the ACTIONS can be written a number of ways as long as it is safe.	

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5.	LCO 3.3.1.: SR 3.3.1.1 requires a verification of the seismic shutoff operability. If an actual trip is to be performed for the verification, then a trip force setting needs to be specified. (AK Lee)[5]		No changes made. Please see disposition to comment #1 regarding this "example TSR document." In the final Technical Specification Requirements, specifying a trip setting as part of the SR could be entirely appropriate, depending upon the final design. Design details about the seismic shutoff system will become better defined at the Final Safety Analysis Report stage.	
6.	LCO 3.3.2: SR 3.3.2.1 may result in certain utility outages to the Vitrification Building. Certain actions will need to be taken to place various systems in a safe condition prior to performing the SR. Does this need to be addressed in the LCO? (AK Lee)[6]		No changes made. This information will be addressed in implementing procedures as part of Technical Specification Requirements (TSR) implementation. Or, in the final TSR, this information can also be handled as a "Note" placed before the SR (see Chapter 1, Section 1.5, Example 1.5-4). These operational details will become better defined at the Final Safety Analysis Report stage.	
7.	LCO 3.4.1: Which safety relief valves are being referred to in this LCO? Don't OSHA standards already require these inspections? (AK Lee)[7]		ACCEPTED. Limiting Conditions for Operation 3.4.1 and the BASES were revised to state they are the steam generator safety relief valves. Occupational Safety and Health Administration may require inspections of the valves outside of the Technical Specification Requirements (TSR). The inspections might be more or less frequent than those required by the TSR. The TSR SRs are for nuclear safety reasons (radioactive related) while OSHA inspections would be for industrial safety reasons (occupational safety, non-radioactive related).	

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8.	LCO 3.5.1: Leak detection systems in the Vitrification Building processing cells are not identified as LCO requirements, so why is the WHT leak detection system singled out as an LCO? (AK Lee)[8]		No changes made. The waste hold tank leak detection systems are taken credit for in the accident analysis and are Safety Class 1 based upon radiological consequences (environmental). This is a Limiting Condition for Operation (LCO) because it meets LCO selection criteria 1.9.1, 1.9.2 and 1.9.3 in section 1.9 of the Technical Specification Requirements. Also, please see the BASES on page 11-131). Also, please see Management Requirements & Procedures 5.46 for quantitative consequence criteria. Radiological consequences of a leak from a process cell would be Safety Class 3 because the leak would be confined within the Vitrification Building. There would be no leaks to the environment or exposure to the onsite worker.	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
9.	Section B 3.0: A flow chart would be very helpful in following the narrative on MODE changes when in violation of an LCO or SR. (AK Lee)[9]		No changes made. It is agreed that a flow chart would be helpful to better understand the General Rules of Applicability and the logic ties to section 5.4, TSR VIOLATIONS, of the TSR. But the flow chart should remain outside of the TSR document. Flow charts have been used in the past in meetings to facilitate understanding of the logic. A flow chart would be helpful during TSR implementation and for training purposes. The General Rules are understood only after one studies them for a long time. Good TSR training will be crucial for all users of the TSR document, especially managers and engineers. Once the General Rules of Applicability and Section 5.4 receive final approval from DOE, a final flow chart is planned to be developed and made available outside of the TSR.	

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10.	B 3.X BASES: The background portions should be expanded to provide more information on why the LCO is required. The bases are also used to determine if changes to a system may result in a USQ. The bases should provide enough information to make this determination. (AK Lee)[10]		No changes made. Please see Appendix A BASES, page 11-93. This section of the Technical Specification Requirements (TSR) explains what information will be required in the BASES in the final TSR. You can see that it is extensive. It is agreed that enough information will be needed in the BASES to be able to make USQ determinations. Additional requirements related to the BASES and the USQ process are found in AC 5.7.1, TSR Basis Control, page 11-67. Also, please see disposition to comment #1 regarding this "example TSR document." The information presented in this TSR, including the BASES, is more than required at the Preliminary Safety Analysis Report stage.	
11.	Page 11-1: The next 40 pages appear to be a tutorial about Technical Safety Requirements and what they are. Page 40 is where we finally get into HWVP LCOs. The tutorial should be substantially condensed or deleted. (TH May)		No changes made. Please see disposition to comment #1 regarding this "example TSR document."	
12.	Page 11-40: SR 3.1.1.1 requires that Operations perform VERIFICATION that Vitrification Building Zone I HVAC system is operating. How is this to be documented? (TH May)		No changes made. Please see AC 5.20, Technical Specification Requirements (TSR) Compliance Program, page 11-81. During TSR implementation, a compliance matrix will be prepared for the ACs, Limiting Conditions for Operation and SRs. VERIFICATIONS will probably be documented on data sheets (auditable) that are part of operating procedures (operator "rounds").	

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13.	Page 11-40, Surveillance Requirements: Shouldn't surveillance requirements for fire dampers be included? (TH May)		No changes made. Please see disposition to comment #1 regarding this "example TSR document." These SRs are not final. In the final Technical Specification Requirements (TSR), some SRs may be added. The Limiting Conditions for Operations are written at the system level and the fire dampers are part of this heating, ventilating, and air conditioning system. The Safety Class of the fire dampers has not yet been established, but failure is not expected to result in Safety Class 1 or 2 consequences. If they are necessary for the confinement function, checks on the dampers could be covered by SR 3.1.1.1. This level of detail will be better defined in the final TSR.	
14.	Page 11-41: Make it perfectly clear that only the safety class OC/REB Control Room HVAC is an LCO. (TH May)		No changes made. Please see the BASES on page 11-114. The BASES states that this system is Safety Class 1. The Limiting Conditions for Operation are written on Safety Class 1 and 2 systems only.	
15.	Page 11-44. TBDs here and other places need to be replaced. (TH May)		No changes made. Please see disposition to comment #1 regarding this "example TSR document." See also disposition to comment #3 for the uninterruptible power supply system. The to be determined need not be tracked because the information is not required at the Preliminary Safety Analysis Report stage and will be fully developed for the Final Safety Analysis Report.	

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16.	Page 11-46: SR 3.2.2.3 requires that Operations perform VERIFICATION that each emergency diesel generator fuel oil tank contains [TBD] gallons of fuel oil. How is this to be documented? (TH May)		No changes made. Please see disposition to comment #12.	
17.	Page 11-51, section 3.6.1, Railroad Switch Interlock System: This is the first time we have ever seen a railroad switch interlock as an LCO. Is this really necessary? (TH May)		No changes made. This was included as an Limiting Conditions for Operation in Revision 0 (Reference 11.5.12.1). The interlock system is taken credit for in the accident analysis and is Safety Class 1 based upon radiological consequences. This is a LCO because it meets LCO selection criteria 1.9.1, 1.9.2 and 1.9.3 in section 1.9 of the Technical Specification Requirements. Also, please see the BASES on page 11-133).	
18.	Page 11-69: When will [FACILITY SPECIFIC MODES AND NUMBERS], [FACILITY SPECIFIC MODE], and [TIME] be specified? (TH May)		No changes made. Please see disposition to comment #1 regarding this "example TSR document." The bold brackets throughout the Technical Specification Requirements (TSR) is where facility specific information needs to be provided in the final TSR. This information is not known at this time.	
19.	Page 11-75, 5.14: "Audit Records Requirements" should be renamed as "Record Retention Requirements." (TH May)		ACCEPTED. Due to popular demand, this AC has been revised to be Records Retention. This change was also made to the WHC Technical Specification Requirements Standard policy document, upon which this TSR is based.	

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20.	Page 11-76: Administrative Controls on Nuclear Criticality Safety impose a number or requirements which will be difficult to comply with and will have dubious benefit to a vitrification plant. (TH May)		No changes made. The Hanford Waste Vitrification Plant (HWVP) is classified as a Limited Control Facility. Therefore, criticality controls are needed. The requirements reflect DOE Order and WHC requirements for criticality. The HWVP will need to comply with all requirements for criticality. If the HWVP was classified as an Exempt Facility, AC 5.15 would state this section is not applicable, and a justification provided.	
21.	Page 11-98: The next 12 pages appear to be a tutorial about LCOs and what they are. Page 110 is where we finally get into HWVP LCOs. The tutorial should be substantially condensed or deleted. (TH May)		No changes made. Please see disposition to comment #1 regarding this "example TSR document." All of the tutorial information that is presented in the Preliminary Safety Analysis Report (PSAR) will appear in the final Technical Specification Requirements (TSR). The information was included in the PSAR so reviewers get familiar with the final TSR.	
22.	Page 11-113: The PSAR shouldn't reference itself. (TH May)		No changes made. Please note that this "example TSR document" is itself divided into chapters and sections just like the entire Preliminary Safety Analysis Report (PSAR). To eliminate confusion, the Technical Specification Requirements (TSR) needs to reference the PSAR. Additionally, the final TSR will be issued as a separate document and will reference the Final Safety Analysis Report (FSAR). When the final TSR is prepared, PSAR will simply be replaced with FSAR.	

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23.	LCO Section: The required actions for the LCO only state the obvious, restoring inoperable equipment to their operable status. What if operability cannot be achieved in the required completion time? Actions should state specifics (i.e., go to different mode). (DP Mendoza)[10]		No changes made. Please see disposition to comment #1 regarding this "example TSR document."	
24.	A TSR is identified for the SCT interlock system (LCO 3.6.3). This is identified as a safety class 2 item. The risk evaluation (paragraph 9.2.14.6) states that the onsite and offsite risks associated with this accident are judged to be acceptable. It appears that a TSR is not required for this item based on the safety analysis. (DP Harty)[1A]		Section 9.2.14.6 evaluates a canister drop. Shearing a canister would result in substantially higher dose consequences requiring Safety Class 2 mitigation. This will be clarified in Chapter 9.	

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25.	Also, Safety Class 2 items are not normally identified as TSRs. If this were the case then the formic acid spill would require a TSR to reduce the onsite impact since the RAG at 100 meters exceeds the limit. No TSR is identified for this Safety Class 2 accident impact, so to be consistent, a TSR is not required for the SCT interlock system. (DP Harty) [1B]		No changes made. Technical Specification Requirements (TSR) are written on Safety Class 1 and 2 systems for radiological consequences only. TSRs are not written for chemical consequences even if they meet the Safety Class 1 or 2 criteria. The contractor is not indemnified under Price Anderson if a chemical accident occurs. This issue is appropriately placed with the lawyers. It is in the contractor's best interest that TSRs not be prepared for chemical consequences at this time. However, if the chemical accident had an associated release of radioactivity, this would be a "nuclear incident" and TSRs are needed. But that is not the case with the formic acid spill. Additionally, if a chemical accident were to prevent a safe shutdown operator from preventing a nuclear incident (i.e., operator dies from fumes), then a TSR on the chemical would be needed. A Limiting Conditions for Operation is needed on the shielded canister transporter interlock system based upon the radiological consequence of failure. Also, please see Management Requirements & Procedures 5.46 for quantitative consequence criteria.	

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26.	GENERAL: The specific items applicable to the LCO have been eliminated as compared to the previous PSAR version. This makes evaluation of the specific applicability and operational impact as well as the implementation of the requirement subjective. General equipment items and/or specific instruments need to be identified in the LCO. (DP Harty) [3]		No changes made. Please see disposition to comment #1 regarding this "example TSR document." In the final Technical Specification Requirements (TSR), the BASES needs to have enough information so that implementation of the Limiting Conditions for Operation does not become subjective. However, equipment/instrument identifications are not normally stated in the TSR because there are too many. This is accepted industry practice. Also, equipment identifications change and this would require a TSR change. It is better to list all the drawings and equipment/instruments outside of the TSR as part of TSR implementation. All this information will be included in an auditable compliance matrix (see AC 5.20, TSR Compliance Program).	

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27.	LCO 3.1.1: States that "the Vitrification Building Zone 1 HVAC system shall be OPERABLE and operating." For purposes of applicability of the TSR, this LCO should apply to only the Zone 1, Safety Class 1, and the HVAC emergency exhaust system. In other words, applicability of the exhaust fans, exhaust filters, exhaust isolation dampers, supply isolation dampers, system shutdown interlocks, etc. should be included, but not the supply fans, air handling units, temperature controls, etc. (DP Harty) [4A]		No changes made. The Zone I confinement is required at all times (not just after a design basis accident). The Limiting Conditions for Operation are written at the system level. Information as to what constitutes OPERABILITY of the ventilation system will be defined as part of Technical Specification Requirements implementation. All equipment that is needed as part of the system (e.g., fans, interlocks, filters) to maintain the Zone I confinement boundary safety function will be included in the definition of OPERABILITY of the system. Also, please see the BASES, page 11-111, which states this system is Safety Class 1.	
28.	In addition, since this is an emergency system only "OPERABLE" is required and not "operating." (DP Harty) [4B]		No changes made. The system must also be "operating" (i.e., actually performing its safety function of maintaining confinement - maintaining air flow in the proper direction, not just "capable" of doing it).	
29.	The above comments 27 and 28 also apply to LCO 3.1.2 and LCO 3.1.3. (DP Harty) [4C]		Limiting Conditions for Operation (LCO) 3.1.2, the BASES, and the Table of Contents was revised to clarify that the LCO applies to the OC/REB Hardened Control Room Heating, Ventilating, and Air Conditioning System. Also, please see dispositions to comments #27 and #28.	

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30.	LCO 3.3.2: This identifies the seismic shutoff isolation valves. These are part of the seismic shutdown system identified in LCO 3.3.1. It appears that only one LCO is required for these items (with different accident scenarios, if necessary). (DP Harty) [5A]		No changes made. Please see disposition to comment #1 regarding this "example TSR document." You are correct in that Limiting Conditions for Operation (LCO) 3.3.1 and 3.3.2 might be better handled as a single LCO. In the final Technical Specification Requirements this might be the cleanest way to handle the logic of the ACTIONS statements. However, it was decided that the LCOs would be separate at this time so that reviewers would not miss the importance of the valves, even though they are included as part of the overall seismic shutoff system.	
31.	There is also a seismic shutdown system associated with the HVAC Zone 1 emergency exhaust system. It is not apparent that this system is associated with LCO 3.1.1 or LCO 3.3.1. (DP Harty) [5B]		Do not think there is a seismic shutdown system but, even if there is, it would be included in the OPERABILITY requirements of Limiting Conditions for Operation 3.1.1.	
32.	LCO 3.5.1: Identifies the WHT Leak Detection Systems. No mention is made of the Feed Receipt Leak Detection System, which has a much higher source term and provided the basis for the accident analysis (9.2.13). It is also unclear if this LCO applies only to the WHT Transfer Line Leak Detection System and/or the WHT Tank Leak Detection System. It appears the title and applicability of this LCO must be changed and/or clarified. (DP Harty) [6A]		ACCEPTED. Two new Limiting Conditions for Operation (LCO) have been added. They are LCO 3.5.2, Feed Receipt Transfer Line Leak Detection Systems, and LCO 3.5.3, Waste Hold Tank (WHT) Transfer Line to Tank Farms Leak Detection Systems. Since submittal of the Preliminary Safety Analysis Report Technical Specification Requirements for functional review, these systems have been determined to be Safety Class because of environmental consequences (see Chapter 4, Table 4.4-1 and MRP 5.46 onsite environmental Safety Class criteria). Hopefully, the confusion between tank and transfer line leak detection goes away by adding these two systems.	

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33.	Section 9.2.13.5: The risk evaluation concludes that the risk to the public is not significant for a leak of the feed receipt transfer line based on comparison to the final environmental impact statement for double shell tanks. It is stated that the health effect consequences of the accident are a very small fraction of the health effects expected from natural background radiation over the same time. It appears that an LCO is not required for the WHT Leak Detection Systems. (DP Harty) [6B]		The waste holding tank (WHT), the WHT transfer line to tank farms, and the feed receipt transfer line leak detection systems are Safety Class because of environmental consequences (see Chapter 4, Table 4.4-1 and MRP 5.46 onsite environmental Safety Class criteria). The accident analysis does not include assessing the risks from environmental hazards, only risks to people.	
34.	MODES: The Cold Standby Mode is the same as the Shutdown Mode with the exception of the Canister Storage Building Operation. It is recommended that a separate mode should be provided for the Canister Storage Building Operation. (DP Harty) [7A]		ACCEPTED. See disposition to comment #37.	
35.	MODES: A better distinction is required between the Shutdown Mode and the Cold Standby Mode. Normally, the Cold Standby Mode is a much more restrictive on operations and source terms in comparison to the Shutdown Mode. (DP Harty) [7B]		ACCEPTED. See disposition to comment #37.	

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36.	MODES: A better distinction is required between the Operation Mode and the Warm Standby Mode. No distinction in safety or source term is provided by the current designation of these modes. It appears that the Warm Standby Mode should be eliminated from the safety analysis report since all TSRs are required in both modes. A change in mode should have a commensurate change in applicability. With no change in applicability identified, no change in mode is necessary. (DP Harty) [7C]		ACCEPTED. WARM STANDBY MODE has been deleted because the boundary between OPERATION and WARM STANDBY MODE is not clear. MODES should have clearly defined boundaries so that a facility is unambiguously in one and only one MODE at a time. Deleting this MODE also minimizes the number of MODES to ease operations, reduce possible confusion, and the potential for operator error.	

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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
37.	MODES: A graded approach to the sequence of MODES should be provided such as: Operation Mode - Melter feed and feed receipt transfers of high level waste allowed; all other operations allowable. Warm Standby Mode - Provides transition between Operation and Shutdown Mode. Transition to Shutdown Mode may take significant time and in a failed melter scenario may not be possible for an extended period. Melter feed and feed receipt transfers of high level waste allowed; all other operations allowable. This mode may be necessary for administrative purposes. Shutdown Mode - Feed receipt, preparation, and recycle vessels have been pumped down and the melter drained to the extent possible. All canisters have been removed from the facility (except the CSB) Cold Standby Mode - All vessels and cells have been flushed, all canisters have been removed from the facility (except the CSB). Canister Storage Building Operation Mode - Allows operation of the CSB independent of the other facility modes. (DP Harty) [7D]		ACCEPTED. Section 1.6, Modes, was revised as suggested except: 1) WARM STANDBY MODE has been deleted from Section 1.6, the Limiting Conditions for Operation (LCO's) and BASES. See also disposition to comment #36. 2) Canister Storage Building (CSB) OPERATION MODE - allow canister transfers to the CSB and within the CSB. 3) Canister Storage Building SHUTDOWN MODE - No canister transfers within CSB allowed.	

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38.	No TSRs are identified as applicable during the Shutdown Mode and the Cold Standby Mode. Justification is required that the source term and accident scenarios are not applicable for these modes. The above mode definitions provide a better distinction of the allowable operations and source terms. For example, monitoring of the main stack effluents is only required in the Operation and Warm Standby modes. Monitoring of the main stack effluents may also be required in the Shutdown mode. (DP Harty) [7E]		No changes made. The source terms for the different MODES are not clearly defined at the Preliminary Safety Analysis Report stage. The accidents in Chapter 9 will only result in significant consequences if the melter or process vessels are filled. Additionally, there should be at least one MODE in which the Technical Specification Requirements are not applicable. This MODE might also be entered in the case of an SL VIOLATION or an Limiting Conditions for Operations (LCO) VIOLATION (entry into LCO 3.0.3). Monitoring of the stacks is only required in OPERATION MODE (same MODE as the heating, ventilating, and air conditioning systems) per the accident analysis for mitigation. They are also required in the other MODES, but only for environmental compliance reasons (measurement and reporting of effluents).	

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39.	Operation of the main stack effluents and other stack effluents is certainly required for all modes because of the Environmental Protection Program. The extent of alarms and monitors may vary between the various safety compliance modes and also with the EPA and DOE requirements. A distinction is required to determine the proper applicability between TSR compliance and Environmental compliance. (DP Harty) [7F]		No changes made. Please see disposition to comment #2 and #38. Environmental compliance issues in general are not covered by Technical Specification Requirements. That is not to say that this may be required in the future. However, there are many other regulations in place that assure environmental requirements are met (e.g., CERCLA, Resource Conservation and Recovery Act, Permits). However, AC 5.17 is appropriate because it covers effluent monitors, which have both environmental and safety functions. Sampling is more for environmental compliance but is included for completeness.	
40.	GENERAL: All of the "Bases" say the same things such as: "The completion time of 72 hours to restore the system is based on the low probability of DBA occurring during this time period." (TH May) "The Frequency of 92 days for performing a CHANNEL FUNCTIONAL TEST"..."is based on engineering judgement." (TH May) "The Frequency of 365 days [TBD] for performing a VERIFICATION"..."is based on engineering judgement." (TH May) These statements could all be made once and shorten this section substantially. (TH May)		No changes made. Please see disposition to comment #1 regarding this "example TSR document." Since the Technical Specification Requirements (TSR) has a pre-set format, the BASES for the Completion Times and Frequencies need to be stated in their own sections, along with specific justifications. The statements can not be combined. Also, in the final TSR, BASES for all of the engineering judgements will need to be provided to the extent they are known for the HWVP, since it is a new facility with no operating experience. So the different sections will have different justifications and need to stand alone.	

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HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 1	HWVP	John F. Bores	HWVP/QA/38210	Vitro Bldg. 6-2599

8. Comment Submittal Approval:

Point of Contact/Manager Date

9. Agreement with indicated comment disposition(s):

[signature] 7/27/93
Point of Contact Date

[signature] 7/27/93
Author/Originator Date

15. Closed:

[signature] 7-27/93
Point of Contact Date

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Author/Originator Date

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
1.	Page 1-7, section 1.2.2, last sentence on the page: The sentence says that the design and construction of the Canister Storage Building is discussed in Section 5.5.3, but Revision 1 of the PSAR has deleted section 5.5.3. This could be an incorrect reference.		ACCEPTED. An inconsistency does exist. Section 5.5.3 of the PSAR, Revision 0, which discussed information needs associated with the canister load out facility, was deleted in Revision 1. This inconsistency will be resolved by deleting the last sentence on pages 1-7 that referenced the old Section 5.5.3.	

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10/4/93
Author/Originator Date

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
1.	Page 4-9, section 4.1.2, last sentence of the topmost paragraph: The statement about the WASRD and WAPS not being issued yet should be changed. Both of these documents have been issued since the January 1993 cut off date for Revision 1 of the PSAR. The statement could be changed to say that the WASRD and WAPS are expected to be issued in 1993...that way when Revision 2 of the PSAR is prepared, the chapter author will note that the sentence can then be altered to indicate that both of these documents have been issued.		Accept. In the last sentence of the first paragraph on page 4-9, the phrase "..., both of which are yet to be issued" will be changed to read "..., both of which are expected to be issued in 1993."	C
2.	Page 4-9, section 4.1.2, last sentence of the topmost paragraph: The reference to WAPS as the Waste Acceptance Preliminary Specification needs to be changed to reflect the title of the document that was actually issued this spring. Its correct title is now Waste Acceptance Product Specification (which has the same acronym).		Accept. In the second sentence of the first paragraph on page 4-9, the phrase "waste acceptance preliminary specifications (WAPS)" will be changed to read "waste acceptance product specification (WAPS)."	C

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10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
3.	Page 4-16, section 4.2.4.1, 3rd bullet: The right paren symbol has been omitted after the word "external."		Accept. In the third bullet in Section 4.2.4.1, the typographical error will be corrected by changing "(external" to "(external)."	C
4.	Page 4-74, section 4.3.7.1, 1st paragraph under "Radioactive Solid Waste": Spent radiographic sources used in radiography of canister welds during audit inspection (see chapter 6, Table 6.3-1) are a type of solid radioactive waste that is not addressed in this section.		Accept. Spent radiographic sources are not addressed in Section 4.3.7.1 since they will not exixt on the HWVP site. Table 6.3-1 will be deleted. [See comment disposition to Chapter 6, QA comment Item No. 5/6.]	O
5.	Page 4-91, section 4.6, under DOE-RL references: HWVP Project Procedure #HWVP-PP-8.5 "Classification of Systems, Components, and Structures" (DOE-RL 1993) is mentioned in the text of the chapter, but it is not identified in the list of references.		Accept. This reference will be added.	C

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10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
6.	Page 4T-31, Table 4.4-1, all entries having a Safety Class of 1*: The rationale for SC-1* entries in the table does not include a description of the "aspect" of the system/structure that is SC-1. For the SC-1* structures, the "aspect" that is SC-1 is implied to be the structural members themselves. The SC-1 aspect should be directly stated in the rationale.		Accept. All Safety-Class 1* items in Table 4.4-1 are structural items under "System 01 - Structures." At this time, this general table does imply that the entire structure is the "aspect" that is Safety Class-1. This implication is correct at this point in the design.	C

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 5	4. Project: HWVP	5. Reviewer: Hank M. Chafin	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

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10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
1.	Figure 5.1-1 was referenced on the "List of Figures" (page 5-iv), but was missing from the chapter.		Accept. This figure will be included.	
2.	Figure 5.1-2 was referenced on the "L[illegible]igures" (page 5-iv), but was missing from the [illegible].		Accept. This figure will be included.	
3.	Figure 5.2-5 sheet 1 of 3 was missing from the chapter.		Accept. This sheet will be included.	
4.	Figure 5.2-6, 5.2-7, and 5.2-8 were referenced on the "List of Figures" (page 5-iv), but were missing from the chapter.		Accept. That Figures 5.2-6 and 5.2-7 are missing. They will be included. Figure 5.2-8 may have been inadvertently left out of your copy. It is in the master copy.	
5.	Figures 5.2-10, 5.2-11, and 5.2-12 were present in the chapter, but were not referenced on the "List of Figures" (page 5-iv).		Accept. These figures will be included in the list.	
6.	The "List of Figures" continuation sheet (page v) was missing from the chapter, therefore; Figures 5.4-2, 5.4-3, 5.4-4, 5.4-5, and 5.4-6 were present in the chapter, but could not be verified as being referenced on the "List of Figures."		Accept. These figures will be included in the list.	

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10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
7.	Pagination on the "List of Figures" (pages 5-iv and 5-v) needs to be updated to reflect the actual conditions.		Accept. The editor will provide page numbers after all changes have been processed.	
8.	Tables 5.3-3, 5.3-4, 5.3-5, 5.3-6, 5.3-7, 5.3-8, and 5.3-9 were all referenced on the "List of Tables" (page vii), but were missing from the chapter.		Accept. These tables will be included.	

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K L Engelhardt 4 Oct 93
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10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
1.	Page vi, List of Tables: Although the left margin is marked on the list of tables to indicate that tables 6.1-1 through 6.1-9 have changed since Revision 0, there are no revised tables included with Revision 1 of the chapter.		ACCEPTED. Unfortunately in some cases Revision 0 markings in the left column were not removed before the Revision 1 markings were added. Tables were not included in the Revision 1 review package as there were no changes. Inappropriate markings will be removed before the final version is issued. Pages 10, 11, 12, 13, 14, 16, 17, 18, and 120.	

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10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
2.	Page 6-22, section 6.1.3.2.1, subsection titled "Mixing of Incompatible Chemicals", 4th bullet: The fourth bullet explains how cross connection between lines carrying incompatible chemicals is avoided by use of a removable spool piece. While the removable spool piece does ensure that two lines cannot be merged into one line, there should be a discussion beyond the removable spool piece feature to explain how charging the open line is precluded. If the open line is not adequately controlled, operators might be able to inadvertently charge the open line, thus creating a chemical spill (and an operational concern) at the location of the removable spool piece.		ACCEPTED. Add the following statement to bullet 4: Spool piece changeout is subject to strict administrative control during the period the piping systems are open. Typical administrative controls include draining the line back to the source prior to breaking connections, locking valves closed, locking out pump power, personnel training, etc.	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 6	4. Project: HWVP	5. Reviewer: John F. Bores	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
3.	Page 6-29, section 6.1.3.2.4, subsection titled "Consequences of In-Tank Explosion": The third sentence of the paragraph states that the analysis for the in-tank explosion assumed that the cell walls would not breach. This assumption is not substantiated. If the total energy of a hydrogen explosion in an in-cell tank had been calculated, and that calculation had been used to validate the assumption that the cell walls withstand such an explosion, then the assumption is valid. If such a calculation has not been made, then the need for the calculation becomes a PSAR Further Development Item. The third sentence of the paragraph needs to be restated to identify either that (1) the total energy of a hydrogen explosion has been determined to be insufficient to rupture the cell walls or (2) a calculation to determine the energy of an in-tank hydrogen explosion is yet to be made to validate the assumption that the cell walls withstand such an explosion.		ACCEPTED. The third sentence text will be changed to read: "The total energy of a hydrogen explosion has yet to be made to validate the assumption that the cell walls withstand such an explosion. This issue will be tracked in response to item 6.9.1.	

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10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
4.	Page 6-30, section 6.1.3.3, subsection titled "Abnormal Event Shutdown", last paragraph on page 6-30 and second paragraph on page 6-31: These two paragraphs discuss restarting the plant after an abnormal event shutdown. The last paragraph on page 6-30 says that procedures will be developed to govern restart, and the second paragraph on page 6-31 says that the cause of the shutdown has to be cleared before restart can be approved. But not enough mention is made about determining the root cause of the shutdown before restart is initiated. The statements in these two paragraphs concerning cause determination need strengthened to require the "root cause" of the Abnormal Event Shutdown (AES) to be determined and cleared (when not obviously the result of a DBA) before restart is authorized. An AES might conceivably occur because of improper maintenance of plant equipment. In this case, the apparent cause would be the failed equipment, but the root cause would be the improper maintenance. Unless plant managers address the root cause, the AES may occur again. Restart procedures need to identify the root cause of an AES so that appropriate attention (if any) is given to fixing the root cause to preclude the AES from occurring again later.		ACCEPTED. The following text will be added to the last paragraph on page 6-30: "Restart approval will normally include determining the cause of the shutdown and correcting the problem. It will also normally include determining, addressing and fixing the "root cause" of the shutdown to prevent reoccurrence."	

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10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
5.	Page 6-51, section 6.3.2: This section is not accurate. Canisters will arrive from the vendor with documentation that evidences the inspections that were performed in the vendor's shop. These vendor inspections will include documentation for (among others) radiography of canister welds, laboratory analysis of stainless steel used in the canister, ultrasonic thickness measurements, leak test (of everything except final canister lid seal), and dimensional measurements. Upon receipt at HWVP, a representative sample of a canister lot will be "audit inspected" to confirm that the vendor's inspection results are credible. These "audit inspections" will repeat the vendor's inspections, but only a representative sample of a batch of received canisters will be subjected to the audit inspection process. Assuming that the audit inspection confirms the vendor's inspections, the whole lot of received canisters is declared "acceptable." Then, as "acceptable" canisters get used, the canisters are subjected to an "in-process" inspection that checks essentially for readiness to use the canister in the vitrification process. These in-process inspections look for post-receipt handling damage, cleanliness, and critical operational dimensions. After passing in-process inspection		ACCEPTED. According to the current post January 1993 information, no testing will be performed at HWVP with the possible exception of the inner seal leak test. Material certification and verification will be audited upon receipt. The text and the referenced table need to be changed as follows: Remove Table 6.3-1. Page 51 section 6.3.2, Change the section to read: "The canister handling and receipt inspection system provides handling and inspection of empty canisters and components from their receipt to their delivery to the Vitrification Building MC. The canisters will arrive from the vendor with documentation of inspections performed at the vendor's shop. Inspections may be performed on a representative sample of canisters to confirm the vendor's inspection results.	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 6	4. Project: HWVP	5. Reviewer: John F. Bores	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
6.	(cont.) the canisters are placed in the canister storage area to await use. Since the canisters must not have any foreign material inside them, it is advisable at the conclusion of the in-process inspection to temporarily seal the canister neck to preclude corruption while in the canister storage area. This canister storage area has to be controlled to preclude corruption of the canisters by dust, precipitation, bugs, rodents, etc. The canister handling and inspection process described in section 6.3.2 is not the same as that described above. Table 6.3-1 does not agree with the above description either.		Any post-receipt radiographic examination conducted to confirm vendor radiography results will be performed at Hanford facilities other than HWVP. Additional post-receipt inspections will be performed on all canisters and components for damage, accumulation of liquids or foreign matter and dimensions critical to the operation in the process cell. When needed, canisters are removed from storage, transported by monorail hoist into the Vitrification Building, lowered into the canister entry tunnel, and transferred to the MC."	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 6	4. Project: HWVP	5. Reviewer: John F. Bores	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
7.	Page 6-52, section 6.3.2: The section indicates that "audit inspections" of received canisters occur as indicated in Table 6.3-1. Revision 0 of Table 6.3-1 was reviewed to learn that radiography is intended to be performed as part of the audit inspection. It is not clear that the hazard to plant personnel of radiographing canister welds has been identified in the PSAR.		ACCEPTED. This potential hazard will be added to section 4.7 of the Preliminary Hazards Analysis if radiography is to be performed at HWVP to assure the hazard to plant personnel has been evaluated.	
8.	Page 6-53, section 6.3.3, last sentence on the page: The sentence states that a final leak check will be performed after the canister has been seal-welded. This is not true. There is no practical way to perform a leak test on a canister that has had its final closure plug welded into place. Further, a final leak check was considered during preliminary design, but it was dropped during definitive design in favor of a "qualification process" that would conclude that if seal welding went as expected leakage would be kept to within required limits automatically. This qualification process involves destructively testing canisters filled with simulated (nonradioactive) waste.		ACCEPTED. Text will be changed to remove "leak check."	

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3. Document No./Title	4. Project	5. Reviewer	6. Organization	7. Location/Phone
HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 6	HWVP	John F. Bores	HWVP/QA/38210	Vitro Bldg. 6-2599

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
9.	Page 6-56, section 6.3.5, next-to-last paragraph in the section: The paragraph states that a leak test will be performed after the canister has been seal-welded. This is not true. There is no practical way to perform a leak test on a canister filled with radioactive waste that has had its final closure plug welded into place. Further, the design of HWVP does not include provision for leak testing filled canisters that have had their final closure done. To clarify, leak testing will be done shortly after a canister is filled to confirm the integrity of the seal for the <u>inner canister closure (ICC) plug</u>. But this leak test has a different purpose than the one alluded to for final canister closure: the purpose of the ICC leak test is only to determine that the inner canister closure plug seals well enough to prevent decon solution (water) from entering the canister while being decontaminated. The ICC leak test has a much higher permissive leak rate than the rate permitted for final canister closure.		ACCEPTED. Text will be changed to remove "leak check."	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 6	4. Project: HWVP	5. Reviewer: John F. Bores	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
10.	Page 6-76, section 6.4.4.3, subsection titled "Melter Off-Gas Flow Surges", first sentence of last paragraph on page 6-76: The section cites the hazard of melter off-gas surges resulting from a cold cap completely covering the molten glass pool in the melter, and the section explains that such off-gas surges should be prevented by maintaining about 10% to 20% of the pool surface free of cold cap. The HWVP melter is not designed to be a stirred melter, so it is not clear how operation of the melter will result in 10% (up to 20%) of the glass pool will be free of cold cap. The paragraph needs to explain how the melter achieves this 10% to 20% clear-pool surface area.		ACCEPTED. Add the following text to last paragraph line 3: "...free of cold cap. The size of the cold cap is determined by the slurry feed rate. If the feed rate exceeds the rate that the dry material melts, the cold cap size increases. This is the planned..."	
11.	Page 6-92, section 6.5.1.2, first bullet at the top of page 6-92: The bullet explains how cross connection between lines carrying incompatible chemicals is avoided by use of a removable spool piece. While the removable spool piece does ensure that two lines cannot be merged into one line, there should be a discussion beyond the removable spool piece feature to explain how charging the open line is precluded. If the open line is not adequately controlled, operators might be able to inadvertently charge the open line, thus creating a chemical spill (and an operational concern) at the location of the removable spool piece.		ACCEPTED. See item 2 above.	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 6	4. Project: HWVP	5. Reviewer: John F. Bores	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
12.	Page 6-101, section 6.5.3.5, last paragraph of the section: ANSI is no longer used with NQA-1. Since 1989, the sole sponsor of NQA-1 has been ASME.		ACCEPTED. Reference shall be changed to read ASME NQA-1 1989 as specified in the FDC.	
13.	Page 6-101, section 6.5.3.5, last paragraph of the section: The first sentence of the paragraph cites the industry standards for software, but it is remiss in one respect: for software that is WAPA related, the requirements of DOE/RW-0214 apply to the software's development and use.		ACCEPTED. The text will be changed to read: "The DCS will ... and firmware (e.g., IEEE 730 for custom software, ASME NQA-1 1989 for general quality assurance requirements and DOE/RW-0214 for WAPA-related computer models/software). Software is..."	
14.	Page 6-116, section 6.8.2, first paragraph in the section: The third sentence of the paragraph states that the canisters are stored in a shielded vault in steel racks. While this is true, it would be appropriate to also take credit for the canisters being stacked three high in steel tubes that are sealed in the CSB vault. These sealed tubes themselves form a secondary confinement barrier to the canistered waste, and it seems appropriate to make such a statement in this section of the PSAR.		ACCEPTED. The text will be changed to read: "Canisters are stored in a shielded vault in steel storage tubes. Each tube location has an associated cover plug. Each tube holds three canisters, one above the other. A typical storage tube is illustrated in Figure 6.8-2. Sufficient."	

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10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
15.	Page 6-116, section 6.8.2, second paragraph in the section: The second sentence in the paragraph is worded in such a way as to lead the reader to believe that ventilation airflow is active. Use of the words "...is provided..." could be construed to mean that the CSB employs fans to drive air through the vault area. The sentence should be reworded to state that ventilation airflow occurs by natural convection.		ACCEPTED. The second paragraph text will be changed to read: "Natural convection ventilation provides the required air movement for heat dissipation. The ventilation system design is discussed in more detail in Chapter 5."	
16.	Page 6-120, section 6.10, reference for NQA-1: ANSI no longer sponsors NQA-1. ASME is the sole sponsor for NQA-1 since the 1989 edition was released.		ACCEPTED. See item 12 above.	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 8	4. Project: HWVP	5. Reviewer: Hank M. Chafin	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

8. Comment Submittal Approval:

Point of Contact/Manager Date

9. Agreement with indicated comment disposition(s):

D. J. Swatate 7-28-93
Point of Contact Date

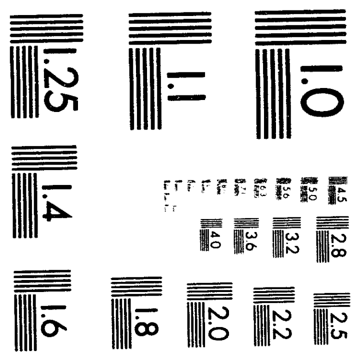
Hank M. Chafin 7-28-93
Author/Originator Date

15. Closed:

D. J. Swatate 7-28-93
Point of Contact Date

Hank M. Chafin 7-28-~~99~~93
Author/Originator Date

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
1.	The following figures were referenced on the "List of Figures," but were missing from Chapter 8: Figure 8.3-3 sheet 2 of 2, Figure 8.3-4 sheet 1 of 2 and 2 of 2, Figure 8.3-5 All three sheets, Figures 8.5-1, 8.5-2, 8.6-2, 8.6-3, 8.6-4, 8.6-5, 8.6-6, 8.6-7, 8.6-8, 8.7-1, 8.8-1, 8.8-2, 8.8-3, and 8.8-4.		ACCEPTED. The "missing" figures were not included in the PSAR, Revision 1 review package because they did not change from Revision 0. Reviewers were notified to refer to Revision 0 for all figures and tables that were not provided in Revision 1 (i.e., did not change).	
2.	Figure 8.9-1 was present in Chapter 8, but was not referenced on the "List of Figures" (page 8-v).		ACCEPTED. The figure will be added to the list of figures for Chapter 8.	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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 9	4. Project: HWVP	5. Reviewer: Dennis W. Duncan	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

8. Comment Submittal Approval:

Point of Contact/Manager Date

9. Agreement with indicated comment disposition(s):

Brett Hall 8/11/93

Point of Contact Date

8/12/93

Author/Originator Date

15. Closed:

Brett Hall 8/11/93

Point of Contact Date

8/12/93

Author/Originator Date

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
1.	Though radiography is likely to take place within the plant there does not appear to be any consideration of the hazards associated with this activity.		NOT ACCEPTED. Radiography hazard is addressed in the PHA (Table 9.0-5), Section 12.15.	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 10	4. Project: HWVP	5. Reviewer: Dennis W. Duncan	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

8. Comment Submittal Approval:	9. Agreement with indicated comment disposition(s):	15. Closed:
Point of Contact/Manager Date	7-29-93 Point of Contact Date	7-29-93 Point of Contact Date
	7/29/93 Author/Originator Date	7/29/93 Author/Originator Date

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
1.	Recently it was decided that Fluor will perform Title III inspection of UCAT Force Account work. Suggest revising as appropriate to include in AE's scope. This could also affect other PSAR chapters.		ACCEPTED. The following sentence will be inserted between the first full and second sentences on page 10-5: "Fluor is also responsible for the Title III inspection services that assure the project is constructed in accordance with the plans and specifications (e.g., construction inspection).	
2.	Figure 10.1-10: Add Title III inspection to Fluor's responsibilities.		ACCEPTED. The following additional bullet will be added to Table 10.1-10 under Engineering Fluor Daniel, Inc.: "Title III ~~Construction~~ Inspection."	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 10	4. Project: HWVP	5. Reviewer: Dennis W. Duncan	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
3.	Figure 10.1-10: Under TWRS Projects Quality Assurance, last bullet, reword to state "Perform QA Surveillances and Audits" and add a bullet to state "Review Participant QA Plans."		ACCEPTED. The following will be added to Table 10.1-10 under TWRS Projects Quality Assurance Westinghouse Hanford Company: The current last bullet will be changed from "Perform QA Surveillance and Audit All Functions" to "Perform QA Surveillances and Audits," and an additional bullet that states "Review Project Participants' QA Plans."	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 12	4. Project: HWVP	5. Reviewer: Dennis W. Duncan	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

8. Comment Submittal Approval:

Point of Contact/Manager Date

9. Agreement with indicated comment disposition(s):

Point of Contact 7/27/93 Date

John Boes 7/27/93

Author/Originator Date

15. Closed:

Point of Contact 10/4/93 Date

John Boes 10/22/93

Author/Originator Date

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
1.	Page 12-6, Para. 12.1.1.16, third sentence: Suggest deleting. This implies that there is a dedicated "group." In reality there are dedicated engineer(s) but they are supported (see 4th sentence) through a matrixed organization. The term "HWVP QA Group", is used in other paragraphs within this section.		REJECTED. The subject sentence does not imply there is an HWVP QA "group". The subject sentence states that members of TWRS Projects QA are dedicated to HWVP; these people do not constitute a "group".	
2.	Page 12-7, Para. 12.1.1.16, last paragraph, last sentence: Please verify that indeed there is a title, Vice-President of ESQ. To my knowledge the position you refer to is Dan Swain and he is the Director of ESH&Q.		ACCEPTED. Dan Swaim's title is "director". Paragraph 12.1.1.16 will be revised.	
3.	Page 12-11, Para. 12.2.2: It is unclear what is meant by the sentence implying that items and activities included in the HWVP Waste Acceptance Process are identified by reference in the HWVP QAPD.		CLARIFICATION. The sentence in paragraph 12.2.2 that spawns this comment is clarified by the sentence that follows it: that sentence explains that WAPA items and activities are listed in the Waste Form Qualification Program Plan.	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 12	4. Project: HWVP	5. Reviewer: Dennis W. Duncan	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
4.	Page 12-12, Para. 12.2.3, last paragraph: QA's current position is that they will approve QAP's and will accept procedures. Suggest rewording.		ACCEPTED. The paragraph will be revised to indicate that QAPs are approved and procedures are accepted.	
5.	Page 12-31, Para. 12.5.5: Delete this paragraph. Training is discussed earlier in this section.		ACCEPTED. Paragraph 12.5.5 will be deleted.	
6.	Page 12-50, Para. 12.11.4: Revise to include identification of M&TE.		ACCEPTED. Paragraph 12.11.4 will be revised as suggested.	
7.	Page 12-60, Para. 12.16.3: The term "risk value" is used implying that the PPG system is envoked on project participants. Suggest rewording to avoid conflict with current RL direction.		ACCEPTED. The paragraph will be revised to indicate that project participants other than WHC are not obligated to define a risk value for their ACRs.	
8.	Page 12-69, Para. 12.18.2, second sentence: Reword to state, "The audits include evaluations of the applicable procedures, instructions, techniques, and items as well as programmatic compliance and may include technical evaluations where appropriate."		ACCEPTED. The paragraph will be revised.	
9.	Page 12-71, Para. 12.18.2.2.2, last sentence: Delete "Through the TWRS Projects QA manager" and replace with "Audit personnel are vested ..."		ACCEPTED. The sentence will be revised.	

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3. Document No./Title: HWVP Preliminary Safety Analysis Report #WHC-SD-HWV-PSAR-001 Rev 1, Chapter 12	4. Project: HWVP	5. Reviewer: Dennis W. Duncan	6. Organization: HWVP/QA/38210	7. Location/Phone: Vitro Bldg. 6-2599

10. Item	11. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	12. Hold Point	13. Disposition (Provide justification if Not accepted.)	14. Status
10.	Page 12-72, Para. 12.18.2.4, last bullet: Add the word "any" between investigate and deficiencies.		ACCEPTED. The word will be inserted.	
11.	Page 12-73, Para. 12.18.3, third paragraph: Like audits, surveillances should also have a stated objective or plan. The report should indicate this.		REJECTED. Surveillances are required to have a documented plan, but this plan is not required to be part of the report itself.	
12.	Figure 12.2.1: This figure does not appear to reflect how Project Procedures (PP's) cross participant lines.		ACCEPTED. The figure will be revised.	

ENGINEERING CHANGE NOTICE

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1. ECN 189532

Proj. ECN 400293

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.		4. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	D. I. Herborn/HWVP P&RC/G6-16/6-2362		June 15, 1993
	5. Project Title/No./Work Order No. HWVP/B-595	6. Bldg./Sys./Fac. No. N/A	7. Impact Level 2 ESQ
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-HWV-PSAR-001, Rev. 0	9. Related ECN No(s). N/A	10. Related PO No. N/A

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

Hanford Waste Vitrification Plant (HWVP) Preliminary Safety Analysis Report (PSAR), WHC-SD-HWV-PSAR-001, Revision 1 addresses changes since the issuance of HWVP PSAR, Revision 0 (August 1992) due to detailed design changes and evolutions, revisions in safety analyses, completion of further information items and PSAR commitments, and changes in safety procedures or requirements. Note that the design information on which the PSAR, Revision 1 descriptions and analyses are based is the design requirements, concepts, and media in place on or about January 1, 1993.

Attachment 1 provides the revised HWVP PSAR material that is pending approval. Change bars identify affected text and graphics. Current information is contained in WHC-SD-HWV-PSAR-001, Revision 0. For certain PSAR chapters, only the pages that have changed are provided in Attachment 1. For PSAR chapters that have been essentially completely revised, the entire chapter is provided. A chapter-by-chapter summary of the material that is being provided is given on page 3 of this ECN.

13a. Justification (mark one)			
	Criteria Change []	Design Improvement [X]	Environmental []
As-Found []	Facilitate Const. []	Const. Error/Omission []	Design Error/Omission []

13b. Justification Details

The WHC Implementation Plan for DOE Orders 5480.21, .22, and .23, dated October 28, 1992, describes the near-term tasks necessary to initiate implementation of DOE Order 5480.23. In the HWVP-specific portion of this plan, the HWVP Project proposes to update the HWVP PSAR annually. This ECN represents the first annual update (i.e., revision) of the PSAR and thus implements this commitment.

14. Distribution (include name, MSIN, and no. of copies)

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A-7900-013-1 (06/92)

ENGINEERING CHANGE NOTICE	Page 2 of 3	1. ECN (use no. from pg. 1) 400293

15. Design Verification Required	16. Cost Impect			17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION		
[] Yes	Additional [] $		Additional [] $	Improvement	[]
[X] No	Savings [] $		Savings [] $	Delay	[]

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]		[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog Engineer DI Herborn Daniel I. Herborn	8-18-93	PE	
Cog. Mgr. DG Baide DG Baide	8-18-93	QA	
QA LW Lamm L.W. Lamm	8-20-93	Safety	
Safety GD Wright GDWright	8/20/93	Design	
Security		Environ.	
Environ. WR Brown W.R. Brown	8-20-93	Other	
Projects/Programs RA Smith R.A. Smith	8/20/93		
Tank Waste Remediation System	8/27/93		
HWVP Operations DW Hamilton R S Wiescard for	8/20/93	DEPARTMENT OF ENERGY	
Restoration & Remediation		Signature or Letter No.	
Operations & Support Services			
IRM		ADDITIONAL	
Other			
SEAC TWD Subcouncil WF Sheely WF Sheely	8/27/93		
President TM Anderson NOT REQUIRED DSB	8/31/93		

A-7900-013-3 (06/92) GEF096

ENGINEERING CHANGE NOTICE CONTINUATION SHEET	Page 3 of 3	1. ECN 400293

HWVP PSAR Appendices B and C contain detailed reference drawings/diagrams that reflect the current state of design. Although significant changes have occurred in these appendices, this material is not needed to review the enclosed individual PSAR chapters. Thus, the Revision 1 versions of Appendices B and C are not included in this ECN. Reviewers desiring any updated drawings/diagrams from revised Appendices B and C should contact the Originator listed in Block 3 of this ECN.

SUMMARY OF ATTACHMENT 1 CHANGES:

Chapter 1: Complete chapter provided

Chapter 2: Complete chapter provided

Chapter 3: Change pages provided

Chapter 4: Complete chapter provided

Chapter 5: Complete chapter provided

Chapter 6: Complete chapter provided

Chapter 7: Complete chapter provided

Chapter 8: Complete chapter provided

Chapter 9: Complete chapter provided

Chapter 10: Complete chapter provided

Chapter 11: Complete chapter provided

Chapter 12: Complete chapter provided

RL-F-1325.6# DEF012
(04/93)

United States Government

Department of Energy

memorandum

Richland Operations Office

DATE: OCT 08 1993

REPLY TO
ATTN OF: HWV:SDB/93-HWV-285

SUBJECT: TRANSMITTAL OF THE ANNUAL REVISION TO THE HANFORD WASTE VITRIFICATION PLANT (HWVP) PROJECT PRELIMINARY SAFETY ANALYSIS REPORT (PSAR) WHC-SD-PSAR-001, REVISION 1

TO: Kenneth A. Chacey, Director
TWR System Division
Office of Hanford Programs
EM-361, HQ

This memo transmits the annual revision to the HWVP-PSAR, WHC-SD-HWV-PSAR-001, Revision 1, in accordance with DOE Order 5480.23. Since hot operation for processing Hanford High Level Waste has been delayed for ten years by the newly negotiated Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Milestones, no Headquarters comments are being solicited on this annual revision.

Please direct all questions or comments to Stephen D. Bradley, of my staff, on (509) 376-7333.

Robert W. Brown

Robert W. Brown, Director
Tank Waste Projects Division

HWV:JDB

Enclosure

cc w/o encl:
J. Hennessey, EM-361
F. D. Pettit, UCAT
R. S. Poulter, Fluor
R. A. Smith, WHC

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