Contractor Annual Self- Assessment Report Mixer Pump Replacement Tank 241-SY-101

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CONTRACTOR ANNUAL SELF-ASSESSMENT REPORT
MIXER PUMP REPLACEMENT
TANK 241-SY-101

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TABLE OF CONTENTS

1.0	PURPOSE	1
2.0	BACKGROUND.	1
3.0	APPROACH.	1
4.0	SELF-ASSESSMENT RESULTS	2
4.1	Annual Self-Assessment Checklist.	2
4.2	Summary of 1996 Annual Self-Assessment Checklist Items.	2
4.3	Affidavit Review Results.	2
4.4	Punch List Status	2
4.5	Work Package Review Results	2
4.6	Recommendations and Observations.	2
5.0	CONCLUSION.	5
ATTACHMENTS		
1	SELF-ASSESSMENT CHECKLIST	
2	CONTRACTOR ANNUAL SELF-ASSESSMENT CHECKLIST RESULTS	
3	AFFIDAVIT REVIEW RESULTS	
4	PUNCH LIST STATUS	
5	WORK PACKAGE REVIEW RESULTS	

1.0 PURPOSE

The purpose of this report is to provide the results of the first annual self-assessment to confirm readiness to replace the mixer pump (pump #1) in Tank 241-SY-101, should the mixer pump fail or need to be replaced for some other reason.

2.0 BACKGROUND

In July 1993, a mixer pump was installed in Tank 241-SY-101 in support of waste mitigation test efforts to control episodic flammable gas releases from the tank waste. The pump test mixing concept proved successful in controlling gas releases. A determination was made to prepare a replacement pump (pump #2) in the event the installed test pump failed or was required to be replaced for some other reason.

The replacement mixer pump was prepared and tested. A Readiness Assessment (Phase 1) of the replacement pump, including removal and replacement activities, was completed in October 1995 with the understanding that Phase 2 (final assessment) would be conducted just prior to pump replacement to assess those activities which could not be assessed during Phase 1. In addition, a second replacement pump (pump #3) was prepared. Safety concerns associated with the flammable gas releases from the tank mandate that the mixer pump be replaced within a short (45 days for planning purposes, but actually determined by waste behavior following pump failure) period after failure of the installed pump. Since pump replacement activities must progress in an efficient, expeditious and orderly manner and changes in personnel, equipment, and procedures are constantly taking place, the decision was made to conduct an annual contractor self-assessment to confirm the ability of the contractor to replace the mixer pump within the 45-day limitation. The self-assessment would confirm that the preparations taken to replace the mixer pump were adequate to complete the replacement within the 45 days and make recommendations to more fully assure that the preparations remained adequate for the following year.

3.0 APPROACH

The approach taken to complete the self-assessment was to prepare a self-assessment checklist, appoint a self-assessment team, conduct the assessment per the checklist, and prepare a report to document the self-assessment. One product of the self-assessment was to be a checklist which would be utilized during future annual self-assessments. The checklist is provided as Attachment 1 to this report. The report includes recommendations of the team which are considered essential to maintaining a readiness to replace the mixer pump within the 45-day limitation. Observations are also provided which, if implemented, will enhance conduct of business and provide increased confidence in readiness to replace the mixer pump.

4.0 SELF-ASSESSMENT RESULTS

4.1 Annual Self-Assessment Checklist

One of the objectives of the self-assessment was to develop a checklist which would be used annually to conduct a self-assessment to confirm that readiness to replace the mixer pump is maintained. This checklist has been developed and is included in this report as Attachment 1.

4.2 Summary of 1996 Annual Self-Assessment Checklist Items

The self-assessment team completed their assessment utilizing a draft self-assessment checklist as a guide. The results of this portion of the self-assessment are included in Attachment 2.

4.3 Affidavit Review Results

The self-assessment team conducted a review of the affidavits which were completed during the CY1995 Phase 1 Readiness Assessment. The affidavits were reviewed to determine if the affidavits were valid (still current with CY1996 pump replacement requirements) or invalid (not current with CY1996 pump replacement requirements). The results of this portion of the self-assessment are included in Attachments 2 and 3.

4.4 Punch List Status

The self-assessment team completed a review of the punchlist items resulting from the Phase 1 Readiness Assessment. The results of this portion of the self-assessment are included in Attachment 4.

4.5 Work Package Review Results

The self-assessment team completed a review of the work packages which will be utilized to effect the removal of the installed mixer pump and install the spare pump (pump #2). The results of this assessment are included in Attachments 2 and 5.

4.6 Recommendations and Observations

The following recommendations and observations are provided. The recommendations are considered significant and their completion is considered essential to ensure the capability of the responsible organizations to replace the mixer pump within the 45-day limitation. The observations are provided to

suggest ways the line organizations can better utilize their resources and add flexibility in conducting business.

4.6.1 Recommendations

- 1) Conduct a thorough and complete inventory of equipment and materials to determine accountability and condition. Establish an action plan to resolve all inventory problems. Provide for a permanent and protected environment for storage of equipment and materials which have been designated for the removal of the installed mixer pump and installation of the spare pump. This includes all material for installation and removal systems.

Basis: As part of the self-assessment, inventories of equipment and materials necessary for pump removal and installation were evaluated. Some of this equipment and material has been stored outside and subjected to conditions which produce corrosion, rusting, and other deterioration detrimental to the items and their function. Not all equipment or material was readily available (controlled at a storage site) for the mixer pump replacement. Refer to Attachment 2, Activity 12.

- 2) Designate permanent storage location(s) for both replacement pumps. Move the spare pump(s) to the permanent storage location(s) as soon as possible.

Basis: Both spare pumps are presently being stored at one location, the Materials Storage Facility in the 400 Area. The pumps are required to be stored at separate locations to assure that at least one pump is always available for use should an event occur which would damage or destroy one pump.

- 3) Provide for a Preventive Maintenance (PM) item in the PM system which can be utilized to conduct the annual self-assessment review for mixer pump replacement.

Basis: During the self-assessment, several tracking and recall systems were evaluated to determine which would provide the most reliability for recall. It was concluded that the PM system is the only one which could be depended upon to ensure that the annual self-assessment would be tracked, recalled and conducted to meet the annual self-assessment requirement.

- 4) Define and implement PMs for the replacement mixer pumps and associated equipment which will be utilized for mixer pump replacement.

Basis: The self-assessment revealed that the replacement mixer pumps and associated equipment presently have informal PMs or no PMs for maintenance of the equipment. For example, the periodic rotation of the

pump shafts is not controlled by a formal PM. In addition, the condition of the stored equipment used for pump removal and installation has been stored outside. Without PMs which prevent deterioration due to weather, the condition will persist. Refer to Attachment 2, Activity 12, 13 and 21.

- 5) Provide for storage of RA and other pump related records in accordance with presently approved procedures to ensure that safety and security of the records is maintained.

Basis: The records for the RA conducted in CY1995 are presently being stored in the MO-281 Building in the 200 West Area. However, the record storage cabinet and custodianship do not meet all the requirements of the governing procedures. Refer to Attachment 2, Activity 6.

- 6) Obtain Washington Department of Health (DOH) permission to proceed with pump replacement activities, in the case that the replacement becomes necessary.

Basis: The approval to replace the mixer pump was granted some time ago and the permit has since expired. The gaining of an extension for this activity will ensure the timeliness of pump replacement and minimize the expenditure of valuable resources should the mixer pump fail in the near term. Refer to Attachment 2, Activity 18.)

4.6.2 Observations

- 1) Pre-start items from the CY1995 RA were reviewed and many have been completed. However, there are still some which are open. It is the recommendation of the self-assessment team that the remaining open pre-start items be completed as rapidly as possible. This action would minimize the time spent finishing last minute items if the pump were to fail in the near future. Refer to Attachment 2, Activity 7.
- 2) Due to team concerns for the need of a pictorial approach to pump replacement, development of a flow diagram for mixer pump replacement has been initiated. Completion of the flow diagram will greatly enhance the replacement effort, especially as time progresses before pump replacement becomes necessary. It is recommended that the flow diagram be completed as soon as is reasonably possible.
- 3) Review the Big Day schedule and provide more detail to better define the activities that must occur in order to replace the pump. Also, the schedule should show activities that can be accomplished in parallel and provide more detail of the activities required to get the pump operating after installation. Refer to Attachment 2, Activity 8 and 11.

- 4) A commitment was made during the CY1995 RA to add pre-start items to the Hanford Action Tracking System (HATS). The items were not added. It is recommended that all actions which are identified in this report be added to the HATS for tracking.

5.0 CONCLUSION

The conclusion of the team is that the replacement of the installed mixer pump within the 45-day period can be achieved if recommendations of Section 4.6.1 of this assessment are completed. Replacement of the pump is defined by the "Big Day" schedule contained in WHC-SD-WM-SDD-053, Rev. 0-C.

SELF-ASSESSMENT CHECKLIST
MIXER PUMP REPLACEMENT
TANK 241-SY-101

Activity No.	Activity Description	Signature/Date
1	Appoint a team leader for self-assessment activities.	
2	Team Leader, with concurrence of responsible line management, appoints team members.	
3	Confirm tank 241-SY-101 mixer pump has not failed and that replacement of the mixer pump, upon failure, remains necessary.	
4	Notify RL of the intention to conduct the annual PM activity self-assessment.	
5	Retrieve prior annual PM activity files and review for history and relevant information to assist in current assessment. Give particular attention to the prior annual file for recommendations and observations.	
6	Retrieve original RA Phase 1 files and yearly updates as applicable to Phase 1 and determine current applicability and completeness. Files have been stored in the 200 West Area, Bldg. MO-281.	
7	Review and status RA prerequisite punchlist items as updated in the prior annual self-assessments.	
8	Retrieve System Design Description (SDD) documents (WHC-SD-WM-SDD-052 and -053), and read thoroughly to understand the scope and contents. Consider very carefully all safety and system limitations. Review all appendices carefully and utilize information therein to review formal work activity documents.	

Activity No.	Activity Description	Signature/Date
9	<p>Verify list of work packages is current and review and update the key work packages and associated procedures which were prepared to accomplish the pump replacement. The work package numbers and titles are:</p> <p style="text-align: center;">SITE PREPARATION</p> <p>A. 2W-95-00157/M, Install Temporary Power Systems for ERS</p> <p>B. 2W-95-00860/W, Clear Mixer Pump Cover Block. for Removal</p> <p>C. 2W-95-00888/W, Flush Mixer Pump Spray Nozzles/Piping</p> <p>D. 2W-94-00863/L, Install Flushing/Washing Wands 101-SY</p> <p>E. 2W-96-01000/W. Install and Operate Mixer Pump Heater</p> <p style="text-align: center;">MIXER PUMP REMOVAL</p> <p>F. 2W-94-00652/M, Remove 101-SY Test Mixer Pump</p> <p>G. 2W-95-00554/W, Drill/Tap Holes For Blast Shield Plates</p> <p>H. 2W-95-00501/M, Install Mixer Pump Impact Absorbing Material</p> <p style="text-align: center;">MIXER PUMP INSTALLATION</p> <p>I. 2W-94-00864/L, Water Lancing Tank 101-SY Riser 12A</p> <p>J. 2W-94-00653/M, Install 101-SY Spare Mixer Pump</p> <p>K. 2W-94-00654/W, Contingency Removal of Spare Pump</p> <p>L. 2W-95-00213/W, Install 1 Mixer Pump Mechanical Components</p> <p>M. 2W-95-00214/W, Install Mixer Pump Electrical Components</p> <p style="text-align: center;">MIXER PUMP TRANSFER AND DISPOSAL</p> <p>N. 2W-94-00936/W, Prepare Removed Mixer Pump for Storage</p> <p>O. 2W-96-00141/W, Transport Mixer Pump to Central Waste Complex</p>	

Activity No.	Activity Description	Signature/Date
10	Review preliminary radiological surveys and other radiological work activities which will support pump work. Ensure that current ALARA principle provisions have been considered and specified.	
11	Review replacement (BIG DAY) schedule contained in WHC-SD-WM-SDD-053, Rev. 0-C. Document and confirm scheduling is consistent with length of time designated for pump installation. Review the Basic Flow Diagram of work as found in WHC-SD-WM-SDD-052 and confirm consistency with pump replacement requirements.	
12	Conduct an inventory of <u>all</u> materials, equipment, supplies, etc. required for pump replacement. Refer to the applicable SDDs. Assure material replacement and/or procurement needs are identified immediately for material which may be found missing or which must be purchased to support the activities.	
13	Conduct a review of the replacement mixer pump at the storage location and document condition.	
14	Review and provide for updating of the critical lift procedures of the work packages.	
15	Review training activities necessary for pump replacement. Training is to include use of previously utilized training material (videos, aids, courses, etc.) and must cover all line organization personnel as well as support personnel.	
16	Review safety documentation and confirm status is current and provisions are included in work documents.	
17	Review contractor organizational structure and confirm responsibilities for activities associated with the pump replacement. Confirm equipment ownership and readiness responsibility with responsible line management.	

Activity No.	Activity Description	Signature/Date
18	Review and reconfirm State of Washington Department of Ecology and U. S. Environmental Protection Agency permissions to proceed with pump activities. Refer to WHC-SD-WM-SDD-053, Rev. 0-C, Section 1.0 for information on original approvals.	
19	Confirm that a cognizant engineer responsible for mixer pump replacement has been designated.	
20	Complete file documenting results of the yearly PM activity. Confirm PM activity results are added to the RA Phase 1 file. Provide a copy of the results to responsible line management for implementation of recommendations.	
21	Confirm that all PM requirements for stored equipment and materials have been established and are being complied with.	

CONTRACTOR ANNUAL SELF-ASSESSMENT

MIXER PUMP REPLACEMENT
TANK 241-SY-101

CHECKLIST RESULTS

Activity: 1

Description: Appoint a team leader for self-assessment activities.

Discussion: R.D. House appointed team leader.

Recommendations: None.

Activity: 2

Description: Team Leader, with concurrence of responsible line management, appoints team members.

Discussion: The team members were selected and concurred with by line management and R.D. House. The team members selected were: T.A. Erickson, G.J. Gauck, M.J. Bailey, O.H. Halvorson, L.S. Krogsrud, L.G. Coleman, J.J. Kinzer and C.R. Fordham. W.W. Tappe (now retired) also participated on a part-time basis.

Recommendations: None.

Activity: 3

Description: Confirm tank 241-SY-101 mixer pump has not failed and that replacement of the mixer pump, upon failure, remains necessary.

Discussion: Confirmation was made with West Tank Farms Operations that the test pump had not failed. In addition, it was confirmed that should the pump fail, it would need to be replaced.

Recommendations: None.

Activity: 4

Description: Notify RL of the intention to conduct the annual PM activity self-assessment.

Discussion: RL, John Gray, was notified on August 15, 1996, of the intent to conduct the contractor annual self-assessment.

Recommendations: None.

Activity: 5

- Description:** Retrieve prior annual PM activity files and review for history and relevant information to assist in current assessment. Give particular attention to the prior annual file for recommendations and observations.
- Discussion:** Since the self-assessment was the initial annual assessment, there was no data related to the mixer pump for tank 241-SY-101.
- Recommendations:** The next annual self-assessment will be conducted as an annual PM assessment utilizing the proposed self-assessment checklist.

Activity: 6

- Description:** Retrieve original RA Phase 1 files and yearly updates as applicable to Phase 1 and determine current applicability and completeness. Files have been stored in the 200 West Area, Bldg. MO-281.
- Discussion:** The team members reviewed each of the affidavits for applicability and correctness and for validity. The results of this check for each affidavit are listed in Attachment 3. Each affidavit is listed with the determination of valid or invalid, the reason for the determination result and the person(s) who made the determination.
- The file index was checked against the various databases for current revisions and ECNs. Several of the documents and drawings listed on the index were not the current revision. However, since a year has passed, it was expected that revisions and changes would have occurred.
- The file index was also compared against the actual items in the file cabinet drawers. This check revealed only minor insignificant errors.
- Recommendations:** Formulate recommendations and observations for actions necessary to correct deficiencies in a timely manner. The recommendations and observations are included in the self-assessment results, Section 4.6.

Activity: 7

- Description:** Review and status RA prerequisite punchlist items as updated in the prior annual self-assessments.
- Reference:** 241-SY-101 Hydrogen Mitigation Pump Readiness Assessment Phase I Completion Report, dated October 16, 1995.
- Discussion:** Reviewed each punch list item to check if it was completed or still open. Some pre-start punch list items which encompass more than one piece of equipment are listed as complete. However, they are only complete for one or two of the pieces of equipment and incomplete for the rest. See Attachment 4 for the complete listing of all punch list items and the status as determined by the self-assessment team.
- Recommendations:** Complete all pre-start punch list items. Include all open pre-start and post-start items in a tracking system such as HATS as required by the above reference.

Activity: 8

- Description:** Retrieve System Design Description (SDD) documents (WHC-SD-WM-SDD-052 and -053), and read thoroughly to understand the scope and contents. Consider very carefully all safety and system limitations. Review all appendices carefully and utilize information therein to review formal work activity documents.
- Reference:** System Design Description, 241-SY-101 Equipment Removal System, WHC-SD-WM-SDD-053, Rev. 0-C
- Discussion:** The review of document WHC-SD-WM-SDD-053 (SDD-053) was for thoroughness and understanding of the steps necessary to remove the presently installed pump. Chapter 4.0 addresses the safety issues for performing the work involved with open risers, dome loading, critical lifts, radiological concerns, accident scenarios, personnel safety, pre-intrusion checks, etc. Affected TSR/OSR limitations are also discussed. The following comments are made to the subject document.
1. Rev. 0-A and 0-B modified appendix L, "HMT Cover Block Mechanical Equipment Removal Outline", and appendix K, "Electrical/Instrument Equipment Removal Outline". These changes added additional information and clarification to the outlines. Rev. 0-C adds a change to

Activity: 8 (Cont'd.)

Appendix A that identifies new Spray Ring Flush drawings, changes to Appendix C which references the work package for doing the spray ring flush, and changes to Appendix N which only breaks the equipment list into finer detail but does not add any new equipment (e.g., instead of just "Water Skid" the components that make up the skid are now listed).

2. This SDD-053 adequately addresses and discusses the removal of the present mixer pump and the preparatory work that is involved. It generally provides the reader a clear understanding of the steps necessary and where to go for more detail to remove the present pump. It does not address what is necessary to transport and install the new mixer pump. The Installation of the new mixer pump is to be addressed in an additional document (WHC-SD-WM-SDD-052) presently being developed by TWRS Equipment Engineering. The things that are lacking in the present SDD-053 and are to be covered in the new SDD-052 include the following.
 - a) Maintenance and operation of the installation equipment (e.g., Cradle, transport cradle, supporting hydraulic systems, etc.)
 - b) Maintenance of the new mixer pump while in storage at the MASF.
 - c) Required work to be done immediately prior to delivery of the new pump for installation. Possibly includes such things as:
 - Seal welding the pump.
 - Final inspection of seals and gaskets.
 - Check of torque on critical barrel assembly bolts.
 - Re-calibration/functional check of installed instrumentation.
 - Pressure volute sensor
 - Accelerometer
 - Stator motor oil RTDs
 - Moisture sensor
 - Discharge leg thermocouples (6)
 - Strain gauges (4)
 - Differential pressure transmitters (4)
 - Nitrogen pressure transmitters (3)
 - Nitrogen pressure regulators
 - Test brake hydraulic system for leaks.
 - Replace motor oil and barrier fluid.
 - Meggar test of the motor.
 - Final pressure test of the pump column, shroud, and dummy legs.
 - d) List of equipment that is to be installed as well as equipment used for the installation.

Activity: 8 (Cont'd.)

- e) List of drawings pertinent to the installation and new pump and associated equipment.
 - f) Installation system limitations and operation.
 - g) Response to accidents (e.g., stuck pump, dropped pump, etc.)
 - h) Required spare parts for the new pump.
3. Comments to the Big Day Schedule are addressed in Activity 11. General comments include:
- a) The schedule does not show parallel efforts required to install the new pump. As discussed above, there are things that need to be done to the new pump to prepare it for installation that will not necessarily occur until pump failure. This detail would greatly enhance the usefulness of this schedule.
 - b) The schedule stops after installing the new pump in the hole and getting the old pump to CWC. There is also a finite amount of time required to hook up the new pump electrically/mechanically and perform acceptance/operational testing. These activities are not shown. Agreed that it demonstrates, on a high level, that the pump can be installed in a 45 day window but the lack of detail lessens it's usefulness.
4. The following is not necessarily a deficiency of SDD-053: No documentation seems to address necessary changes to documentation (maintenance procedures, calibration procedures, operating procedures, software documentation, etc.) to support the new pump installation. The DACS software and it's required modifications and how it will be maintained for the new pump is also not addressed. The ATP-136 (Acceptance Test Procedure for Installation of the Spare Mixer Pump) should also be reviewed on a regular basis to ensure it addresses software changes and equipment modifications.
- Recommendations:**
- A. Revise the SDD-053, Appendix G, "Big Day Schedule" to include more detail of parallel efforts and continuing efforts for completing the old pump removal and the new pump installation.
 - B. Add review of the WHC-SD-WM-SDD-052 to the RA review checklist and ensure that it contains the necessary information to perform the new pump installation that is lacking from SDD-053. This recommendation will be completed via reviews and approvals of the document.

Activity: 9

Description: Verify list of work packages is current and review and update the key work packages and associated procedures which were prepared to accomplish the pump replacement. The work package numbers and titles are:

SITE PREPARATION

- A. 2W-95-00157/M, Install Temporary Power Systems for ERS
- B. 2W-95-00860/W, Clear Mixer Pump Cover Block for Removal
- C. 2W-95-00888/W, Flush Mixer Pump Spray Nozzles/Piping
- D. 2W-94-00863/L, Install Flushing/Washing Wands 101-SY
- E. 2W-96-01000/W Install and Operate Mixer Pump Heater

MIXER PUMP REMOVAL

- F. 2W-94-00652/M, Remove 101-SY Test Mixer Pump
- G. 2W-95-00554/W, Drill/Tap Holes For Blast Shield Plates
- H. 2W-95-00501/M, Install Mixer Pump Impact Absorbing Material

MIXER PUMP INSTALLATION

- I. 2W-94-00864/L, Water Lancing Tank 101-SY Riser 12A
- J. 2W-94-00653/M, Install 101-SY Spare Mixer Pump
- K. 2W-94-00654/W, Contingency Removal of Spare Pump
- L. 2W-95-00213/W, Install Mixer Pump Mechanical Components
- M. 2W-95-00214/W, Install Mixer Pump Electrical Components

MIXER PUMP TRANSFER AND DISPOSAL

- N. 2W-94-00936/W, Prepare Removed Mixer Pump for Storage
- O. 2W-96-00141/W, Transport Mixer Pump to Central Waste Complex

Discussion: The above work packages were reviewed by members of the team and the discrepancies/comments are noted in Attachment 5 for each work package.

Recommendations:

- A. Work Packages should be stored in the Mixer Pump File with other required documents and controlled by the File Custodian when not being used, revised, etc.
- B. Work Package revisions and review by all applicable and proper screeners should be performed on an Annual basis to ensure required screening and update at the

Activity: 9 (Cont'd)

time of pump failure is not overwhelming and beyond the time allotted by present pump replacement schedules.

- C. Work Plans presently in many of the work packages should be revised and re-titled as "J-4 Attachments to Work Package ____/____" to permanently remove the Work Plan from these packages and allow for easier updating on a regular basis.
- D. The next update of work packages should contain the recommended changes from the December 1995 oversight response. See Oversight Review letter from DOE RL and TWRS response letters below:

"Oversight Results, A. B. Sidpara, RL to the President, WHC, Same Subject, 95-TOP-229, dated December 06, 1995.

"Oversight Results Regarding 241-SY-101 Hydrogen Mitigation Pump Replacement Readiness Assessment, Phase 1, J. H. Wicks to A. B. Sidpara, #9505098B RL of January 08, 1996.

Activity: 10

- Description:** Review preliminary radiological surveys and other radiological work activities which will support pump work. Ensure that current ALARA principle provisions have been considered and specified.
- Discussion:** Radiological work will be done as part of the approved work packages for pump removal and installation. Health Physics (HP) review of six of these work packages was documented in the pump replacement readiness review conducted in 1995 (review item VIII.C.1.c.c). Other work packages are being developed, and HP involvement and inclusion of ALARA principles will be documented by completion of pre-start punchlist item VIII.C.1.c.c.1.
- Recommendations:** Before the start of actual pump replacement, a Tier 1 ALARA review must be conducted as required by the Tank Farm Administrative Manual, WHC-IP-0842, Volume VII, Section 1.1, Rev 2. This activity will be satisfied by the completion of pre-start punchlist item VIII.C.1.c.c.1 and the tier 1 ALARA review required by WHC-IP-0842.

Activity: 11

- Description:** Review replacement (BIG DAY) schedule contained in WHC-SD-WM-SDD-053, Rev. 0-C. Document and confirm scheduling is consistent with length of time designated for pump installation. Review the Basic Flow Diagram of work as found in WHC-SD-WM-SDD-052 and confirm consistency with pump replacement requirements.
- Discussion:** A review of the BIG DAY schedule was completed. It was determined that the schedule in general provides for the activities required to replace the mixer pump and that the 45-day window can be met. However, it was concluded that more detail is needed and the resource requirements would be taxed severely to meet the schedule.
- WHC-SD-WM-SDD-052 was not completed during this assessment. A review of the document can be conducted during the next annual assessment.
- Recommendations:** Development of a more detailed schedule than the BIG DAY schedule is vital. This more detailed schedule should more fully lay out the details, show activity items which could be worked in parallel, include all pump activities necessary to pump hook up, etc.

Activity: 12

- Description:** Conduct an inventory of all materials, equipment, supplies, etc. required for pump replacement. Refer to applicable SDDs. Assure material replacement and/or procurement needs are identified immediately for material which may be found missing or which must be purchased to support the activities.
- Discussion:** The Equipment Removal System (ERS), Spare mixer pump, and Installation equipment were inventoried and reviewed for proper storage and maintenance. The ERS system walk down and inventory is described in a QA report ISR# TWRS-ERS-001. The WHC-SD-WM-SDD-053, appendix N, was used to inventory the ERS equipment.
- The recommendations from WHC-SD-WM-OMM-014, "Operation and Maintenance Manual for 241-SY-101 Pump Cradle Hydraulic System," for clean-up, maintenance, and storage of the installation equipment does not appear to have been

Activity: 12 (Cont'd)

accomplished in the past and does not appear to presently be addressed.

The overall condition of the ERS equipment was described as good for those items stored inside conex boxes. Items that were not protected from the elements are showing signs of deterioration. Some of the piping and spray wand assemblies did not have protective caps to keep out rodents, insects, or debris. The AERGO equipment was not inventoried nor was it's condition examined because it is located in a large red container (with a very heavy lid) located just north of the conex boxes. The Hubble Power Skids referred to in drawing H-2-824444 were located in the Tank Farm supply organization (Cathy Spears) and are referenced on a bill of material in work package 2W-95-00157/M. It was noted that 300 feet of 1-1/2" fire hose could not be located. This is an easily obtained item and should pose no problem to replace if it cannot be located.

The SY Tank Farm group is presently in the process of moving the conex boxes and outside equipment to building 2713-WB. This will allow storage of all the equipment out of the weather. The plan is to address the maintenance of the deteriorated pieces of equipment after they have been moved. This will also allow storage of all the equipment at one location.

The KAMP trailer has maintenance performed on it on a quarterly basis by the vehicle maintenance group. This tests the ability to raise and lower the mixer pump storage canister and the hydraulic system on the trailer.

The spare mixer pump is stored at the MASF facility in the horizontal position. There presently are no procedures to perform periodic maintenance on the pump. The MASF facility representative turns the shaft periodically but it is not recorded nor required by procedure.

TWRS Equipment Engineering is are presently tasking the MASF facility to generate maintenance procedures to address the spare mixer pump while in storage. These procedures are expected in the near future.

A walkdown of the installation equipment was performed. Initial results identified several components in the cradle area of the SY Farm were in poor shape. Since the walkdown, much of the equipment has been covered and unused 55 gallon drums removed. There is still concern as to whether

Activity: 12 (Cont'd)

the equipment can still perform it's intended function given the condition it is in. Some of the hydraulic hoses may need replacing and the hydraulic system panels and telescopic cylinders need maintenance and testing. The gasoline powered hydraulic supply pump located east of the cradle is still out in the open weather and looks to be in a deteriorated state and getting worse.

The parts for making up the hose connections for water lancing, burrowing ring, and internal flush have not been assembled (Drawing H-2-825955). TWRS Equipment Engineering have the parts but have not assembled and tested the set-up.

- Recommendations:**
1. Move the ERS equipment out of the weather. Moving the equipment as presently planned will greatly reduce the deterioration.
 2. The installation equipment should be cleaned and tested so that any failed equipment can be replaced now. Maintenance and periodic inspections should be scheduled in the PM/S system and performed as given in WHC-SD-WM-OMM-014.
 3. The procedures for the spare mixer pump maintenance need to be finished to ensure the integrity and usability of the spare pump when it is needed.
 4. Installation equipment that can be cleaned, released, and properly stored should be. It is recommended that the installation equipment be placed with the ERS equipment in one central location and out of the weather (e.g., the portable gasoline powered hydraulic pump, Power Unit Control Panel, hydraulic jacks, etc.).

Activity: 13

- Description:** Conduce a review of the replacement mixer pump at the storage location and document condition.
- Discussion:** Visited pump storage location on September 9, 1996. Talked to supervision about storage requirements. Pump No. 2 is stored inside the MASF building which is a heated, clean, dry location and more than meets the manufactures storage

Activity: 13 (Cont'd)

requirements. During discussions with the supervisor, it was discovered that there are no formal or scheduled preventative maintenance (PM) procedures setup for the pump.

Recommendations: Setup a scheduled PM program so that the PM program requirements are conducted on a regular interval.

Activity: 14

Description: Review and provide for updating of the critical lift procedures of the work packages.

Discussion: The critical lift procedures were reviewed and discussed with the author. Even though the original procedures were reviewed and approved during their creation in 1995, some changes have occurred.

Recommendations: Each procedure should be reviewed and re-approved immediately prior to use especially after being inactive for a considerable time period. This action will occur just prior to mixer pump replacement. The following items should be emphasized:

1. Size and types of equipments being used.
2. Layout of work site and equipment locations.
3. Dome loading requirements and other safety assessment changes at the work site.

Activity: 15

Description: Review training activities necessary for pump replacement. Training is to include use of previously utilized training material (videos, aids, courses, etc.) and must cover all line organization personnel as well as support personnel.

Discussion: Training activities were addressed by assessing training affidavits submitted as part of the Phase I Readiness Assessment (RA). It is clear that all training activities will have to be reassessed immediately upon installed mixer pump failure. Training will have to be initiated to provide fully trained personnel to support pump replacement. This activity will be part of the Phase II RA which will be

Activity: 15 (Cont'd)

performed subsequent to discovery that the installed pump has failed.

Recommendations: Continue assessments on an annual basis. Upon pump failure, the training will be fully assessed to support the Phase 2 RA.

Activity: 16

Description: Review safety documentation and confirm status is current and provisions are included in work documents.

Discussion: The safety documentation has not changed since the original Phase I Readiness Assessment (RA). The same items found as deficient during the original readiness assessment are still deficient. Examples of this are; the safety equipment list has not been developed for the replacement system, travel route into and out of the tank farm has not been identified, and installation equipment had not been "turned over" to tank farms. The additional work packages will need to be reviewed later during the Phase 2 RA for adequacy to meet the safety assessment requirements. The safety assessment requirements are changing and doing a review now would not be cost effective or productive now.

A new safety assessment for tank farms is presently being completed and the results of this assessment along with new Los Alamos National Laboratory safety assessment revision 15 due out shortly have the potential to change all existing packages and the new ones.

Recommendations: The work packages that are presently prepared will require a complete review when the work is scheduled to start. The review will then be against the latest safety criteria. It is recommended that the review be conducted during the next self-assessment or when pump replacement work is scheduled.

Activity: 17

Description: Review contractor organizational structure and confirm responsibilities for activities associated with the pump replacement. Confirm equipment ownership and readiness responsibility with responsible line management.

Activity: 17 (Cont'd)

Discussion: The contractor organizational structure is changing significantly due to the Management and Integration Contract transition presently taking place. However, the organization still contains knowledgeable and capable personnel to effect a pump replacement should it be necessary. Responsibilities are also adequately defined to support a pump changeout.

Recommendations: None.

Activity: 18

Description: Review and reconfirm State of Washington Department of Ecology and U.S. Environmental Protection Agency permissions to proceed with pump activities. Refer to the WHC-SD-WM-SDD-053, Rev. 0-C, Section 1.0 for information on original approvals.

Discussion: The approval to remove the failed pump from tank 101-SY and install a new pump granted by the Washington Department of Health (DOH) is time sensitive and has expired. According to WAC 173-400-110 (5) and (6), approval to locate a portable emission source is good for one year, and eighteen months for a stationary source. Since approval was granted on February 21, 1995 (incoming letter 9501307), the approval has expired.

Recommendations: It is recommended that an extension to the Washington DOH approval be obtained.

Activity: 19

Description: Confirm that a cognizant engineer responsible for the mixer pump replacement has been designated.

Discussion: A cognizant engineer (G.J. Gauck) has been designated for the mixer pump replacement. Mr. Gauck has served as a team member on the annual self-assessment and has been intimately involved in reviewing and assessing critical documentation. He will receive a copy of this annual self-assessment report.

Activity 19: (Cont'd)

Recommendations: Confirm that the cognizant engineer has remained responsible for the activity. This will be done during the next annual self-assessment.

Activity: 20

Description: Complete file documenting results of the yearly PM activity. Confirm PM activity results are added to the RA Phase 1 file. Provide a copy of the results to responsible line management for implementation of recommendations.

Discussion: The results of this activity are included in this report. A copy of the report will be added to the Phase 1 RA file and a copy provided to cognizant line management for action to complete the recommendations and observations.

Recommendations: Complete self-assessment file and add it to the Phase 1 RA file. Include cognizant line management on copy of the report.

Activity: 21

Description: Confirm that all PM requirements for stored equipment and materials have been established and are being complied with.

Discussion: Checked the Operating and Maintenance Manuals (OMM), punch list items, MASF work packages. The only items setup for PMs are the items listed in letter MIT96-2927, 241-SY-101 Hydrogen Mitigation Pump Replacement Readiness Assessment Punch List, Pre-Start Item N/A.6. This covers only the ERS components. The requirements of the OMMs for these items appear to be satisfactory.

The present storage conditions of the pump (Inside, heated, clean and dry environment) is satisfactory. However, there is no PM established for rotating the pump as stated in item 2, page 12, attachment to Oversight Results Regarding 241-SY-101 Hydrogen Mitigation Pump Replacement Readiness Assessment, Phase 1, dated January 1, 1996.

There is no PM program established for the Equipment Installation System (EIS). There are also no PM requirements published for this system.

Activity: 21 (Cont'd)

Refer to activity 12 for comments on the actual storage of the ERS and EIS equipment.

Recommendations: Prepare a list of storage requirements and PM requirements for Pump No. 2. Prepare a list of the storage requirements and PM requirements for the EIS equipment. These requirements could be in the System Design Description that is being prepared for these systems.

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
I.A.1.a.a	L.G. Coleman G.J. Gauck	<p>Determination: Invalid</p> <p>Reason: Documentation used to validate the requirement have been revised. WHC-IP-0842, Vol. II, Section 4.16.2, Rev. 1a is now Rev. 2. WHC-IP-0842, Vol. II, Section 4.16.3, Rev. 2b is now Rev. 4a. WHC-IP-0842, Vol. III, Section 3.6, Rev. 0a is now Rev. 1a. TFPE-YP-0214 has been incorporated into a work package 2W-94-00652/M. The revisions to WHC-IP-0842 mostly deal with the re-engineering at West Tank Farms and should not negate the previous results of the review, however the changes should be reviewed by the Readiness Assessment Team during Phase 2 to ensure results are still valid and appropriate procedures are utilized.</p>
I.A.1.b.b	R.D. House	<p>Determination: Invalid</p> <p>Reason: It was confirmed during the assessment that procedures associated with this affidavit will not all be used for the required tasks should the mixer pump require replacement. The Phase 2 Readiness Assessment for mixer pump replacement will require update of the affidavits where this is found necessary.</p>
I.A.1.c.c	R.D. House	<p>Determination: Valid</p> <p>Reason: The affidavit contains essentially complete and still valid information with respect to the transporting of waste on the Hanford site. The affidavit was completed with a pre-start item to prepare a <u>facility</u> packaging and shipping procedure. This activity is complete and work package 2W-96-00141/W has been completed to serve for the required procedure which was identified on the original punchlist. Since it will be necessary to review and update all information in the affidavits during performance of Phase 2 of the Readiness Assessment, this affidavit is considered valid at present.</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
I.A.1.d.d & I.A.1.d.e	L.G. Coleman G.J. Gauck	Determination: Valid Reason: Documentation reviewed is still valid and conclusions are satisfactory. Maintenance and calibration procedures may have to be changed to reflect the different instrumentation and equipment installed on the new pump. This will be accomplished at the time the pump is changed out.
I.A.1.d.f	L.G. Coleman G.J. Gauck	Determination: Valid Reason: The assessment confirmed that 6TF-100, Waste Tank Labeling and H-14 O&M Drawing Procedure and results of the walkdown remain valid.
III.A.1.a.d	R.D. House	Determination: Valid Reason: Training issues were well addressed in the affidavit for this item and are considered useable with minor revision. However, this affidavit is considered valid only because of the training program and documentation being well founded at the time the affidavit was written and the fact that the training will be required to be fully assessed and appropriate changes implemented during performance of Phase 2 of the Readiness Assessment.
IV.A.1.a.a	L.S. Krogsrud	Determination: Valid Reason: The scope of the work to be done has not changed since the 1995 Phase 1 Readiness Assessment (RA). There are new work packages that are being developed to support pump replacement, but they will be reviewed against the Safety Assessment as part of normal work plan/package approval. Two of the three pre-start punchlist items that were identified for this criteria have been completed, and adequate progress is being made on the third, which requires the safety class of the pump and the installation/removal system to be documented.

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
IV.A.1.b.b	L.S. Krogsrud	<p>Determination: Valid</p> <p>Reason: The approval granted by DOE for revision 14 of the safety assessment, LA-UR-92-3196, is still valid. Although revision 14a was issued in February, 1996, to change a Level II control (EDT 140845), DOE approval was not required for this change. The Phase 2 RA to be performed for the pump replacement will ensure that the latest revision to the safety assessment will be used.</p>
VIII.A.1.a.a	L.S. Krogsrud	<p>Determination: Valid</p> <p>Reason: Although there have been several updates to the Tank Farm Health and Safety Plan, WHC-SD-WM-HSP-002, in the past year (rev 2F is current), none of the changes affect the validity of the tank farm health and safety program. Also, there have been no changes to OSHA or DOE health and safety requirements which require a reevaluation of the tank farm program.</p>
VIII.A.1.b.b	L.S. Krogsrud	<p>Determination: Invalid</p> <p>Reason: This element required an evaluation of the resources available to conduct a health and safety program and the knowledge of the personnel administering the program. By its nature, this information is time sensitive. Due to the re-engineering initiative at West Tank Farms, not all of the individuals interviewed a year ago are now working at West Tank Farms. Also the FY 1996 budget examined is no longer valid. It is anticipated that the health and safety professionals available under the re-engineered West Tank Farm organization will be found to be knowledgeable, but, the FY97 health and safety budget adequacy is of concern. The resources will need to be reviewed for adequacy during the Phase 2 RA.</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
VIII.A.1.c.c	R.D. House	<p>Determination: Valid</p> <p>Reason: This affidavit is considered valid because of the new training courses which were developed under a rigid training program. The training program is still valid. The actual conduct of training will have to be evaluated at the time of pump failure and training specific to the pump replacement completed. The basis for that training is well documented and can be utilized very effectively during preparations for mixer pump replacement. Training is identified as a very important activity of Phase 2 of the Readiness Assessment.</p>
VIII.A.1.d.d	L.S. Krogsrud	<p>Determination: Valid</p> <p>Reason: None of the facts have changed since the original determination. SY Farm is still walked down monthly for safety and health hazards by a trained health and safety professional.</p>
VIII.A.1.e.e	L.S. Krogsrud	<p>Determination: Invalid</p> <p>Reason: Documents reviewed during the readiness review (1995) have changed. The HATS items checked are no longer valid, some having been replaced by other items. The Corrective Action Management Manual, WHC-CM-1-4, is now revision 3 instead of revision 2. However, there have been no major changes in the way corrective actions are handled at TWRS since the Phase 1 RA. Since HATS items are constantly changing, and since WHC-CM-1-4 has been revised, this element will need to be reviewed by the Readiness Assessment Team for Phase 2 to ensure results are still valid.</p>
VIII.A.1.f.f	L.S. Krogsrud	<p>Determination: Invalid</p> <p>Reason: This element depended on personnel interviews to demonstrate compliance. Due to personnel turnover, and West Tank Farm re-engineering, the interviews are no longer valid. Re-engineering may have had a significant impact, either positively or negatively, on employee attitudes. The interviews need to be repeated during the Phase 2 RA.</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
VIII.A.1.g.g	L.S. Krogsrud	Determination: Invalid Reason: Six work packages were reviewed for industrial safety and hygiene during the 1995 Phase 1 RA. Since that time nine additional new work packages have been developed for pump removal/installation. These need to be reviewed, as were the original six, during the RA just prior to pump replacement.
VIII.B.1.c.c	R.D. House	Determination: Valid Reason: This affidavit is considered valid because it addresses a program issue and the general training of management and staff for which a well established program is in place. In addition, verification of the validity of this affidavit will require a very limited amount of time during the Phase 2 of the Readiness Assessment should the installed mixer pump fail and/or require replacement.
VIII.B.1.f.f	R.D. House	Determination: Valid Reason: Refer to reason for affidavit VIII.B.1.c.c above. The reason is the same, but applies to the qualified training instructors for RCPT personnel.
VIII.B.1.g.g	R.D. House	Determination: Valid Reason: This affidavit is considered valid because the program for training record storage is controlled by specific provisions established in standing DOE orders. In addition, where changes to DOE orders occur in the future, an established program assures that contractor updating of storage provisions. Updating of this affidavit, if necessary, during performance of Phase 2 of the Readiness Assessment would require a very limited time.
VIII.B.1.h.h	R.D. House	Determination: Valid Reason: The affidavit is essentially the same as affidavit I.A.1.c.c. Refer to the reason for that affidavit above.

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
VIII.C.1.c.c	L.S. Krogsrud	<p>Determination: Invalid</p> <p>Reason: Six work packages were reviewed for health physics involvement and health physics requirements during the 1995 Phase 1 RA. Since that time nine additional new work packages have been developed for pump removal/installation. These need to be reviewed, as were the original six, for health physics issues during the Phase 2 RA.</p>
IX.A.1.a.a	R.D. House	<p>Determination: Valid</p> <p>Reason: This affidavit is considered valid since the pump changes were identified and further changes have not been instituted since pump storage which would affect the ability of the pump to perform its function. This affidavit will be reviewed during the Phase 2 Readiness Assessment to confirm details are still in effect.</p>
X.A.1.a.a	O.A. Halvorson	<p>Determination: Invalid</p> <p>Reason: WHC-IP-0842, Vol. 1, Section 2.4 has been revised to Rev 1 from Rev. 0a. However, there appear to be minor changes which should not impact the overall affidavit.</p>
X.B.1.a.a	R.D. House	<p>Determination: Invalid</p> <p>Reason: The procedures referred to in this affidavit were replaced in September of 1996. Updating of this affidavit during conduct of Phase 2 of the RA will be a very minor activity and should not affect overall planning for the mixer pump replacement.</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
X.B.1.a.b	L.G. Coleman G.J. Gauck	<p>Determination: Invalid Reason: The following documentation has been revised since the review (Refer to the supporting documentation in the affidavit):</p> <ul style="list-style-type: none"> a. WHC-CM-6-1, EP-4.1, Rev. 5 is now Rev. 6, Ch. 1: Changes mostly to incorporate Design Authority responsibilities. b. WHC-IP-1026, EPG-4.1, Rev. 0 is now Rev. 1: Same a. as above d. WHC-IP-1026, EPG-4.2, Rev. 0 is now Rev. 1: Changes include addressing Test Document Changes and Processes. j. WHC-SD-WM-DA-189, Rev. 0 is now Rev. 0-A: Changed the system design pressure of water decon system from 3000 psi to 3548 psi. v. WHC-SD-WM-DA-160, Rev. 0 is now Rev. 0-A: Changes include removal of safety chain and deletion of references to capacity of thick lug. w. WHC-SD-WM-OMM-017, Rev. 0 is now Rev. 0-A: Changed the test periodicity of flex seals and RO Detectors to 1 year vice 3 Mos. y. WHC-SD-WM-SDD-053, Rev. 0 is now Rev. 0-C: Complete revisions to appendix K, and L. Appendix N has been expanded but no new equipment added. Reference to the Spray Ring Flush and Assembly has been incorporated.

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
X.B.1.a.b (Cont'd)		<p>ab. WHC-SD-WM-DA-165, Rev. 0 is now Rev. 0-A: Added Container Restraint and Bushing calculations and discussion.</p> <p>ac. WHC-SD-WM-DA-168, Rev. 0 is now Rev. 0-A: Added Lifting Beam and Container Support Modification calculations and discussion on modifications to support saddles and spreader beams.</p> <p>ah. WHC-SD-OMM-016, Rev. 0 is now Rev. 0-A: Added appendix on Air Vibrator operation and maintenance. Added maintenance of Strongback and Container.</p> <p>am. WHC-SD-W320-005, Rev. 0 is now Rev. 0-A: Added appendix B to cover reanalysis of structurally qualifying existing shot load platform for additional loading. Results are that the platform will not be qualified for seismic loading. Also added pages to appendix B addressing levelness of platform. The changes involved for the most part enhance the installation, testing, and operation of the pump. USQ screenings were accomplished for major changes. None (except possibly the Shot Loading Platform not being seismically qualified) of the results should significantly affect pump replacement. However, the changes will have to be reviewed by the Readiness Assessment Team during the Phase 2 RA.</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
X.B.1.a.c	L.G. Coleman G.J. Gauck	<p>Determination: Invalid</p> <p>Reason: The following documentation has been changed (Refer to the supporting documents in affidavit):</p> <p>c. WHC-SD-WM-OMM-017, Rev. 0 is now Rev. 0-A: Changed the test periodicity of flex seals and RO Detectors to 1 year vice 3 Mos.</p> <p>p. WHC-SD-WM-OMM-016, Rev. 0 is now Rev. 0-A: Added appendix on Air Vibrator operation and maintenance. Added maintenance of Strongback and Container. The revisions to the above documentation incorporated those changes mentioned as being required within the write up of the affidavit. These two documents that have been revised were only referenced within the CRA as needing revision to incorporate the corrections observed in ATP/ATRs and OTP/OTRs. The results appear to be valid. However, the above documents should be reviewed by the RA team during the Phase 2 RA to validate adequate incorporation of changes to correct the deficiencies.</p>
XII.A.1.a.b	O.A. Halvorson	<p>Determination: Invalid</p> <p>Reason: The references attached to the certification package have been revised or are in revision. A number of personnel that are listed for "responsible parties" have left the company or are no longer in these positions. Although the changes will be limited, the affidavit will require review and revision during the Phase 2 RA.</p>
XIII.A.1.a.a	R.D. House	<p>Determination: Valid</p> <p>Reason: Refer to reason for affidavit VIII.A.1.c.c above. The same reasoning applies to this affidavit.</p>
XIII.A.1.a.b	R.D. House	<p>Determination: Valid</p> <p>Reason: This affidavit is still considered valid because the content of procedures controlling this issue is essentially the same. Procedure changes are constantly being effected and implemented, but in this case are of minor import. Changes to this affidavit will be required during the Phase 2 RA before the mixer pump can be changed out.</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
XIII.A.1.a.c	R.D. House	<p>Determination: Invalid</p> <p>Reason: This affidavit is considered invalid because the staffing associated with the organizations responsible for the pump replacement, should it become necessary, is changing constantly. Of special concern is the recent changeover of major contractors at the Hanford Site and the effect which the transition will have on the personnel and organizational responsibilities.</p>
XIII.A.1.b.c	L.S. Krogsrud	<p>Determination: Valid</p> <p>Reason: In spite of re-engineering, the West Tank Farm staffing requirements contained in WHC-IP-0842, Volume II, Section 4.1.1 (rev 3d) remain the same as when this element was first examined in 1995. There have also been no changes to the Double-Shell Tank Facility Safety Analysis Report, WHC-SD-WM-SAR-016 Rev 1.</p>
XIV.A.1.a.b	L.S. Krogsrud	<p>Determination: Invalid</p> <p>Reason: The approach taken to validate this criteria was to review the work plans/procedures to confirm they required a pre-job safety meeting. Since the review was done, more procedures have been developed for pump removal and installation. These would also need to be reviewed to ensure they require a pre-job safety meeting. Also, the TWRS Administration Manual section covering pre-job safety meetings (Volume V, Section 4.1) has been revised since the original review. The revision discussed in the 1995 review was revision 1a, while 2a is the current revision. The TWRS Administration Manual (WHC-IP-0842) still requires a pre-job safety meeting for non-routine tasks. The Readiness Review Team should review the work procedures that have been developed since the last readiness review to ensure the pre-job safety requirement is included.</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
XV.A.1.a.a	L.G. Coleman G.J. Gauck	<p>Determination: Invalid Reason: The first item below could be significant.</p> <p>1.) In the package, the reviewer refers to a punchlist item X.B.1.b.1 that requires preparation of an ATP for the replacement pump that will include pre-installation tasks, one of which includes the completion of seal welds on the spare pump. The punch list item referenced does not exist. The only ATP is ATP-136, which DOES NOT include completing the seal welds. During discussions with cognizant personnel, the pre-installation items will be addressed in WHC-SD-WM-SDD-052 which is being developed at this time. These pre-installation items do not appear in the work packages, nor does it appear that any work packages exist to cover these items.</p> <p>2.) The following documentation has been changed since the review.</p> <p>a.) H-2-821366, Sht 1 was Rev. 1 now is Rev. 2 b.) H-2-821350, Sht 1 is erroneously identified as Rev. 9, should be Rev. 0 (Typo) c.) H-2-824448, Sht 1 was Rev. 0 is now Rev. 1 d.) H-2-824273, Sht 1&2, was Rev. 0 is now Rev. 1 (Cont'd next page)</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
XV.A.1.a.a (Cont'd)		<p>e.) H-14-100144, Sht 1, Rev. 0 was stated as walked down and component conformed to drawing plus ECNs W320-075, W320-080, W320-083, and W320-086. The drawing is still listed as Rev. 0 however W320-083 is not listed as an outstanding ECN. If drawing and ECNs were compared to component and then ECN W320-083 was deleted or removed does the drawing and other ECNs still reflect the component accurately?</p> <p>f.) H-2-824521, Sht 1&2, Rev. 0 is now both Rev. 1</p> <p>g.) H-2-824286, Sht 1, Rev. 0. Discrepancies were noted but the drawing is still at Rev. 0 indicating that the drawings were not corrected.</p> <p>h.) H-2-824283, Sht 1&2, Rev. 0 are both now Rev. 2</p> <p>i.) H-2-824285, Sht 1, Rev. 1 is now Rev. 2</p> <p>j.) H-2-824288, Sht 1, Rev. 1 is now Rev. 3</p> <p>k.) H-2-824287, Sht 1, Rev. 1 is now Rev. 2</p> <p>l.) H-2-821367, Sht 1, Rev. 0 is now Rev. 1</p> <p>Several of the referenced documents used to derive conclusions have also been revised. This item will have to be addressed during the Phase 2 RA.</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
XV.A.1.b.b	L.G. Coleman G.J. Gauck	<p>Determination: Invalid Reason: The following documentation reviewed to verify compliance has been changed or revised:</p> <p>a.) WHC-CM-6-1, EP 2.2, Rev 8 is now Rev. 9: Revision now includes reference and requirements for design authority and design agent. Also references the KH Standard General Manual for development of drawings.</p> <p>b.) WHC-CM-6-1, EP 1.3, Rev 7 is now Rev. 8: Revision now includes reference and requirements for design authority and design agent. Also references the KH Standard General Manual for development of drawings. The safety classification of SSCs has been changed to the newer designations.</p> <p>c.) WHC-IP-1026, EPG-2.4, Rev. 0 is now Rev. 1: Delineates responsibilities for the design authority and Cog. Engineer.</p> <p>The documentation that was reviewed and the conclusions of responsibilities addressed in the observation response of the affidavit have now changed and are incorrect. The conclusions from what was observed are probably still valid. This is a minor affect on the SA, but should be addressed in Phase 2 of the RA.</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
XV.B.1.a.a	L.G. Coleman G.J. Gauck	<p>Determination: Invalid Reason: The following documentation reviewed to verify compliance has been changed or revised:</p> <p>a.) WHC-CM-1-3, MRP 5.12 has been canceled and the USQ process was moved to WHC-CM-1-5, Section 7.3, Rev. 0 b.) WHC-IP-0842, Vol. IV, Section 5.4, Rev. 7 is now Rev. 9</p> <p>The modifications to the USQ process have had some major changes and more definitive clarification of who has authority to conduct screenings and evaluations. The overall conclusions will probably remain valid but the documentation reviewed to support the conclusions have changed enough to warrant re-review during the Phase 2 RA.</p>
XV.B.1.a.b	L.G. Coleman G.J. Gauck	<p>Determination: Invalid Reason: In the package the reviewer used a specified revision of documentation which has changed since the review.</p> <p>a.) LAUR-92-3196 Rev. 14 is now LAUR-92-3196 Rev. 14a</p> <p>The revision to the LAUR-92-3196 deals with a change to a Level II control to by-pass minimum ventilation alarms and aborts during adverse weather conditions. This change should not negate the previous results of the review. Additionally, while the WHC-SD-WM-SAR-049 (CWC SAR) and effected ERS Components has been validated in the past and is still valid for today, at the next RA walkdown it is recommended that the floor smoothness and irregularities be checked to ensure that air pallets would still function, as designed, to move the contaminated mixer pump (within the transport container) at the CWC facility (2403-WD building). The two punchlist open items have been validated as necessary for completion.</p>

AFFIDAVIT REVIEW RESULTS (Check List Activity 6)		
Item #	Assigned To:	Results
XV.B.1.b.b	L.G. Coleman G.J. Gauck	Determination: Valid Reason: There are no other documents to check for validation that are not otherwise documented in other validation packages.
XVII.A.1.a.a	R.D. House	Determination: Valid Reason: This affidavit is considered to be valid because it is a programmatic issue and the program training has been validated in several affidavits in various ways. The review and validation of this affidavit during Phase 2 of the Readiness Assessment will consume very little time and effort.
XVII.A.1.a.d	R.D. House	Determination: Valid Reason: This affidavit is considered valid because the basis as confirmed in the affidavit is factual. The affidavit also acknowledges that changes to requirements are constantly being made, but are effected into controlling documents which control the training and qualification programs. Minor issues would have to be resolved during Phase 2 of the Readiness Assessment before pump replacement.
XVII.A.1.c.d	R.D. House	Determination: Valid Reason: Refer to reason for affidavit XVII.A.1.a.d above.
XVII.B.1.a.a	R.D. House	Determination: Valid Reason: This affidavit is considered to be valid because it is a programmatic issue and the program training has been validated in several affidavits in various ways. The review and validation of this affidavit during Phase 2 of the Readiness Assessment will consume very little time and effort.

PUNCH LIST STATUS (Activity 7)		
ITEM NO.	PREVIOUS STATUS	PRESENT STATUS
N/A.1	Complete	Determination: Complete. Reason: Big Day schedule was issued as part of "System Design Description, 241-SY-101 Equipment Removal System", WHC-SD-WM-SDD-053.
N/A.2	Complete	Determination: Complete. Reason: "System Design Description, 241-SY-101 Equipment Removal System", WHC-SD-WM-SDD-053, has been issued.
N/A.3	Complete	Determination: Complete. Reason: Work Package 2W-95-00501/M, Install Mixer Pump Absorbing Material has been issued.
N/A.4	Complete	Determination: Open. This item is complete for the Equipment Removal System (ERS) only. Reason: WHC-SD-WM-SDD-053 is for the Equipment Removal System (ERS) only and does not include information for the spare pump or the Equipment Installation System (EIS). Thus, a completed inventory list for the Mixer Pump and the EIS have not been completed. They should be issued in the SDD for the spare pump and the EIS.
N/A.5	Complete	Determination: Open. Reason: The assigned custodian is no longer with the group responsible for the Mixer Pump. A new custodian must be assigned from the responsible group.
N/A.6	Complete	Determination: Open. Preventative maintenance procedures for the ERS have been completed. Reason: Preventative maintenance procedures for mixer pump No. 2 (1 st spare) have not been completed. Internal Memo MIT96-2930 "241-SY-101 Hydrogen Mitigation pump Replacement Readiness Assessment Punch List, Pre-Start item N/A.6" dated March 22, 1996, implies that FFTF (JCS) Work Package #4A-95-0022/A includes the procedures to setup the PM schedule. The FFTF work package only addresses the fabrication of a stand for storing the pump in the vertical position. The preventative maintenance requirements for the EIS have not been provided. They should be included in the SDD for the spare pump and the EIS.

PUNCH LIST STATUS (Activity 7)		
ITEM NO.	PREVIOUS STATUS	PRESENT STATUS
N/A.7	Open	Determination: Open. Reason: This item will remain open until for pump No. 1 fails.
I.A.1a.a.1	Open	Determination: Complete. Reason: Work Package 2W-95-00860/W, Clear Mixer Pump Cover Block for Removal, is in the review cycle.
I.A.1a.a.2	Complete	Determination: Complete. Reason: Work package 2W-95-00554/W, Drill/Tap Holes for Blast Shield, has been scheduled waiting for condition to occur. Also a step has been added to TFPE-YP-0214, by ECN 619719 requiring the modification. Document TFPE- YP-0214-has been incorporated into work package 2W-94-00652/W
I.A.1b.b.1	Open	Determination: Open. Reason: Work plans for final disposal of the original pump will be developed when final disposal method of the pump is determined.
I.A.1c.c.1	Complete	Determination: Complete. Reason: Work package 2W-96-00141/W, Transport Mixer Pump to Central Waste Complex, has been has been scheduled and waiting for condition to occur. It contains the procedure for transporting the pump to the Central Waste Complex.
IV.A.1a.a.1	Open	Determination: Open. Reason: Although Los Alamos National Laboratory has provided a memo which provides the overall safety classification of the equipment, ECN 630684 is in the signature phase to change the Safety Equipment List.
IV.A.1a.a.2	Complete	Determination: Complete. Reason: Internal Memo MIT96-2868 "241-SY-101 Hydrogen Mitigation pump Replacement Readiness Assessment Punch List, Pre-Start Item IV.A.1a.a.2" dated January 3, 1996, states reason.

PUNCH LIST STATUS (Activity 7)		
ITEM NO.	PREVIOUS STATUS	PRESENT STATUS
IV.A.1a.a.3	Complete	Determination: Complete. Reason: Internal Memo MIT96-2866 "241-SY-101 Hydrogen Mitigation pump Replacement Readiness Assessment Punch List, Pre-Start Item IV.A.1a.a.3" dated January 3, 1996, states reason.
VIII.C.1c.c.1	Open.	Determination: Open. Reason: This item is waiting for pump No. 1 to be scheduled for removal.
VIII.C.1c.c.2	Open	Determination: Open. Reason: This item is waiting for pump No. 1 to be scheduled for removal.
XV.A.1a.a.1	Complete	Determination: Complete. Reason: Drawing H-2-824680, Equipment Removal/Installation Water Decontamination System released. Drawing H-2-824448, sheet 1, revised by ECN 629623.
XV.A.1a.a.2	Complete	Determination: Complete. Reason: Completed in WHC-SD-WM-DA-194.
XV.A.1a.a.3	Complete	Determination: Complete. Reason: ECN 620650 modified drawing H-2-821366. Drawing has been revised.
XV.A.1a.a.4	Complete	Determination: Complete. Reason: ECN ER4678-3 added to drawings.
XV.A.1a.a.5	Open	Determination: Open Reason: This item is waiting for pump No. 1 to be scheduled for removal.
XV.A.1a.a.6	Complete	Determination: Complete. Reason: Internal Memo MIT96-2869 "241-SY-101 Hydrogen Mitigation pump Replacement Readiness Assessment Punch List, Pre-Start Item XV.A.1a.a.6" dated January 3, 1996, states work completed. This walk down did not include drawings for the EIS. It seems that the EIS would be just as important as the ERS. Only drawings for the ERS were identified as critical.

PUNCH LIST STATUS (Activity 7)		
ITEM NO.	PREVIOUS STATUS	PRESENT STATUS
XV.A.1b.b.1	Complete	Determination: Complete. Reason: Checked WHC-SD-WM-OMM-16, Operation and Maintenance Manual, 100 Ton Hydraulic Trailer. ECN 635404 added sections for the redesigned electrical system and for the air vibrator system.
XV.A.1b.b.2	Open	Determination: Open Reason: This item is to be completed 6 months after pump 2 (replacement) is installed.
XV.B.1a.b.1	Open	Determination: Open Reason: This item is waiting for pump No. 1 to show signs it is failing.
XV.B.1a.b.2	Complete	Determination: Complete. Reason: The punch list item description also states this item is for the Central Waste Complex. However a close examination of the description/documentation section of the Assessment Certification Package reveals that UCS review of the final design is required for the Equipment Removal System only.

WORK PACKAGE REVIEW RESULTS
(Checklist Activity No. 9)

Comments on status and possible problems concerning the Work Packages listed are stated below: (A Supporting Schedule is now being developed.)

SITE PREPARATION

A. 2W-95-00157/M Install Temporary Power Systems for ERS

Note: Package prepared to provide power to auxiliary equipment (75 HP booster pump, gamma detection equipments, instrument flushing pump, and additional receptacles. These steps not included in initial packages (Late issued ECN required covering these points.)

Comments:

- a. Package contains J-1, J-4, J-4a documents. J-1 and J-4a are no longer in use in JCS. These should be removed.
- b. Package not part of DOE Oversight review.

B. 2W-95-00860/W Clear Mixer Pump Cover Blocks for Removal

Note: Package covers disconnect and removal of equipment on the Mixer Pump Pit Cover Blocks. Package also connects and operates portable pump flushing for Nozzle Heels and Barton lines prior to pump removal. This work package supports Appendix K and Appendix L in WHC-SD-WM-SDD-053.

Comments:

- a. Package is in the prescribed state required by JCS.
- b. Package approval by West Tank Farms is completed.
- c. Package not part of DOE Oversight review.

C. 2W-95-00888/W Flush Mixer Pump Spray Nozzles/Piping

Note: Package flushes the carbon steel spray piping and replaces the spray nozzles before pump withdrawal.

Comments:

- a. Package was not part of DOE Oversight review.
- b. Work Package has had no evaluation for proper RWP. RWP number only assigned.
- c. Package is being reviewed/approved by the responsible groups/persons.

D. 2W-94-00863/W Install Flushing/Washing Wands 101-SY

Note: Work Package removes Radar Level gauge at Riser 23A. Three spray wands are installed in three separate risers (23A, 13A, and 03A) to wash the accumulated waste from the external parts of the pump. Instructions are included to flush the nozzle heels, pump plenum, burrowing ring, and pump suction.

Comments:

- a. Work Package contains Work Plan TFPE-YP-0239. Work Plans are no longer allowed for use in Tank Farms.
- b. Work Package has had no evaluation for proper RWP. RWP number only assigned.
- c. Comments from the DOE Oversight Review have not been incorporated in this work package. (All DOE items are small and administrative. They require no change to our work flow/method of accomplishment.)
- d. Work step changes in Work Plan TFPE-YP-0239 for static bonding need to be simplified from described methodology to reflect how this is now being accomplished in the farms. (PIC verifies, QC not involved, etc.)
- e. Package contains J-1, J-4, and J-4a documents. The J-1 and J-4a are no longer in use in JCS. These should be removed.
- f. Package contains Critical Lift Procedures for movement and installation of the spray wands over the tank.

MIXER PUMP REMOVAL

E. 2W-94-00652/M Remove 101-SY Test Mixer Pump.

Note: Package removes the cover blocks from the pump pit and contains all steps for the removal of the mixer pump from Riser 12A. The TFPE work steps stop with the removed mixer pump in the air. Work Package 2W-94-00936 now starts the preparation for disposal of the removed mixer pump.

Comments:

- a. Work Package contains Work Plan TFPE-YP-0214. Work Plans are no longer allowed for use in Tank Farms.
- b. Work Package has had no evaluation for proper RWP. RWP number only assigned.
- c. Package contains J-1, J-4, and J-4a documents. The J-1 and J-4a are no longer in use in JCS. These should be removed.
- d. Comments from the DOE Oversight Review have not been incorporated in this work package. (All DOE items are small and administrative. They require no change to our work flow/method of accomplishment.)
- e. Work step changes in Work Plan TFPE-YP-0214 for static bonding need to be simplified from described methodology to reflect how it is now being accomplished in the farms. (PIC verifies, QC not involved, etc.)
- f. Changes to the Site Layout Plan showing the new Change trailer and any effect it's location may have on Removal/Installation equipment location are needed.
- g. Work Package contains a Critical Lift Procedure (same as WP's 2W-94-00653 and 2W-94-00654) for movement of the Mixer Pump over the tank.

F. 2W-95-00554/W Drill/Tap Holes For Blast Shield Plates.

Note: Work Package adds fasteners on the Blast shield to secure it more firmly to the Load Distribution Frame during flushing/washing operations when the pump is removed. (A Late-issued ECN required this work package be written.)

Comments:

- a. Work Package has had no evaluation for proper RWP. RWP number only assigned.
- b. Package contains J-1, J-4, J-4a documents. J-1 and J-4a are no longer in use in JCS. These should be removed.
- c. Package not part of DOE Oversight review.
- d. No changes in work steps in the Work Plan for bonding and grounding required.
- e. Requirements for this work package were also included in Work Plan TFPE-YP-0214. There is duplication with this work package. (This item found in assessment documents review from the October 1996 self-assessment.)

G. 2W-95-00501/M Install Mixer Pump Impact Absorbing Material.

Note: Work Package replaces the installed aluminum impact material with Stainless Steel material for added strength and removes the aluminum from the proximity of the tank waste.

Comments:

- a. Work Package has had no evaluation for proper RWP. RWP number only assigned.
- b. Package not part of DOE Oversight review.
- c. No changes in work steps in the Work Plan for bonding and grounding required.
- d. Impact material being used now at SY-101 mixer pump will be removed, boxed, and disposed of as mixed waste.

H. 2W-96-01000/W Install and Operate Mixer Pump Heater.

Note: Installs and operates a forced air heater at the pump cradle storage area. (The actual heating unit/electrical generator are placed outside the SY-farm fence. Heated air is ducted into the pump cradle.) This heater heats the carbon steel pump to greater than 70 degrees F to prevent brittle fracture cracking during the pump lift. This work package only necessary if pump replacement occurs during period of cold weather.

Comments:

- a. Work Package is written. Starting the Review/Approval cycle.
- b. Work Package is in prescribed format.

MIXER PUMP INSTALLATION

I. 2W-94-00864/L Water Lancing Tank 101-SY Riser 12A

Note: Work Package provides for water lancing the 12A riser if waste solidifies and does not allow entry of the replacement mixer pump. (Some estimations say this may occur after 7 days of pump removal.)

Comments:

- a. Work Package contains Work Plan TFPE-YP-240. Work Plans are no longer allowed for use in Tank Farms.
- b. Work Package has had no evaluation for proper RWP. RWP number only assigned.
- c. Comments from the DOE Oversight Review have not been incorporated in this work package. (All DOE items are small and administrative. They require no change to our work flow/method of accomplishment.)
- d. Work step changes in Work Plan TFPE-YP-0240 for static bonding need to be simplified from the described methodology to reflect how this is now being accomplished in the farms. (PIC verifies, QC not involved, etc.)
- e. Package contains J-1, J-4, and J-4a documents. The J-1 and J-4a are no longer in use in JCS. These should be removed.

- f. Work Package contains a Critical Lift Procedure which is for the movement of the water lance over the tank.

J. 2W-94-00653/M Install 101-SY Spare Mixer Pump

Note: Work Package installs the new mixer pump into Riser 12A. Removal of a shield plug is included. The re-installation of the pump pit cover blocks basically ends the work. There is a small section of the Work Plan for cleanup and removal of radioactive equipment/materials from the jobsite.

Comments:

- a. Work Package contains Work Plan TFPE-YP-0213. Work Plans are no longer allowed for use in Tank Farms.
- b. Work Package has had no evaluation for proper RWP. RWP number only assigned.
- c. Package contains J-1, J-4, J-4a documents. J-1 and J-4a are no longer in use in JCS. These should be removed.
- d. Comments from the DOE Oversight Review have not been incorporated in this work package. (All DOE items are small and administrative. They require no change to our work flow/method of accomplishment.)
- e. Work step changes in Work Plan TFPE-YP-0213 for static bonding need to be simplified from described methodology to reflect how this is now being accomplished in the farms. (PIC verifies, QC not involved, etc.)
- f. The Spare Mixer Pump needs to be turned over to West Tank Farms using the DOE approved ABU method of turnover. This has not yet been accomplished.
- g. Based on new evaluations of the installed Load Distribution Frame and camera inspection of the pump pit and frame soon to be accomplished, a new Load Distribution Frame may need to be ready when the mixer pump is replaced.
- h. Work Package contains a Critical Lift Procedure (same as WP's 2W-94-00652 and 2W-94-00654) for movement of the Mixer Pump over the tank.

K. 2W-94-00654/W Contingency Removal of Spare Pump

Note: Work Package is a contingency package for removal of the mixer pump being installed if problems arise allowing the new pump not to be installed.

Comments:

- a. Work Package contains Work Plan TFPE-YP-0215. Work Plans are no longer allowed for use in Tank Farms.
- b. Work Package has had no evaluation for proper RWP. RWP number only assigned.
- c. Package contains J-1, J-4, J-4a documents. J-1 and J-4a are no longer in use in JCS. These should be removed.
- d. Comments from the DOE Oversight Review have not been incorporated in this work package. (All DOE items are small and administrative. They require no change to our work flow/method of accomplishment.)
- e. Work step changes in Work Plan TFPE-YP-0215 for static bonding need to be simplified from the described methodology to reflect how this is now being accomplished in the farms. (PIC verifies, QC not involved, etc.)
- f. Package contains a Critical Lift Procedure for movement of the Mixer Pump over the tank, if required. (See 2W-94-00653/M above.)

L. 2W-95-00213/W Install Mixer Pump Mechanical Components

Note: Package provides instructions for installation of mechanical components after mixer pump installed in riser. Flushes nozzle heel and Barton transmitter lines prior to pump operation. Flushes burrowing ring, pump plenum, and pump suction prior to pump operation.

Comments:

- a. Package is in the prescribed state required by JCS.
- b. Package not part of DOE Oversight review.
- c. Package being reviewed/approved by West Tank Farms.

M. 2W-95-00214/W Install Mixer Pump Electrical Components

Note: Package provides instructions for installation of electrical components and connection of pump instrumentation after mixer pump installed in riser.

Comments:

- a. Package is partially prepared; it is incomplete from lack of documentation. The required documents are not complete and some completed documents have errors. The mechanical installation of the pump can proceed only knowing that the electrical and instrumentation components will support the initial energization.

Some problems have already been forwarded to engineering for your investigation. Additional areas where there are questions are forthcoming as they are found.

- b. Package not part of DOE Oversight review.
- c. Package has had no review except by the work planner.

Mixer Pump Disposal and Transfer

N. 2W-94-00936/W Prepare Removed Mixer Pump for Storage

Note: Work Package starts with the removed mixer pump in the air near tank SY-101. Places the removed pump inside its storage container, and moves the pump/container to an area where the pump is prepared to final disposal. Included are surveys of the radioactive pump to gain information of shielding needed for transport and storage, the addition of lead and steel shot for shielding, and final container bolt torquing.

Comments:

- a. Work Package contains Work Plan TFPE-YP-0241. Work Plans are no longer allowed for use in Tank Farms.
- b. Work Package has had no evaluation for proper RWP. RWP number only assigned.
- c. Comments from the DOE Oversight Review have not been incorporated in this work package. (All DOE items are small and administrative. They require no change to our work flow/method of accomplishment.)

- d. Package contains J-1, J-4, J-4a documents. J-1 and J-4a are no longer in use in JCS. These should be removed.

0. 2W-95-00141/W Transport Mixer Pump to Central Waste Complex

Note: This work package houses the procedure for transporting the mixer pump in its container to the Central Waste Complex which is an attachment to work package. Work package also comments on road improvements necessary prior to transport.

Comments:

- a. Package contains J-1, J-4, J-4a documents. J-1 and J-4a are no longer in use in JCS. These should be removed.
- b. Package not part of DOE Oversight review.
- c. Work Package has had no evaluation for proper RWP. RWP number only assigned.

HNF-MR-0531, REV 0
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